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# 2021-2022 High School Warm Up

## Warm-Up Written 1

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### 1 Inheritance

If R represents red hair and r represents blond hair, and hair color is passed down by Mendelian inheritance, what are the chances that the offspring of parents with the genetics Rr and rr has red hair?

- A. 0%
- B. 100%
- C. 25%
- D. 50%
- E. 75%

### 2 Find those primes

Which of the following is a prime number?

- A. 2723
- B. 2727
- C. 2733
- D. 2745
- E. 2749

### 3 Quotable Quotes

Finish this quotation from the biblical epistle of *First Corinthians*, chapter 13: "These three remain: faith, hope, and love. The greatest of these is..."

- A. Faith
- B. God
- C. Hope
- D. Love
- E. Super great

### 4 Golden State Geography

Which of these California cities is farthest north?

- A. Los Angeles
- B. Sacramento
- C. San Bernardino
- D. San Diego
- E. San Francisco

### 5 Swirls and Swoops

What swirling, largely blue-and-yellow 1889 painting by Vincent Van Gogh is thought to represent either his turbulent psychology, or possibly that he suffered from migraine auras?

- A. *Irises*
- B. *The Kiss*
- C. *The Potato Eaters*
- D. *The Scream*
- E. *The Starry Night*

### 6 Identifying Genius

Scott O'Dell wrote which of the following novels?

- A. *Bridge to Terabithia*
- B. *Holes*
- C. *Island of the Blue Dolphins*
- D. *The Giver*
- E. *The Witch of Blackbird Pond*

### 7 Spanish Grammer

Which of these Spanish words is a noun?

- A. Abrazar
- B. Abrir
- C. Actuar
- D. Amor
- E. Aprender

### 8 Roll With Me

Which of the following martial arts focuses more on grappling than on striking or kicking?

- A. Boxing
- B. Jiu-jitsu
- C. Karate
- D. Muay thai
- E. Tae kwon do

### 9 The Same but Different

If the following equations represent the same line, what is the value of a?  $2x + y = 12$  and  $6x + 3y = a$

- A. 12
- B. 24
- C. 3
- D. 36
- E. 6

### 10 Paint, Paint, Baby

Which of the following paintings was painted by Leonardo da Vinci?

- A. *American Gothic*
- B. *Girl with a Pearl Earring*
- C. *Guernica*
- D. *Last Supper*
- E. *The Kiss*

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### 11 Supernatural Superman

What Nazirite judge in the Old Testament, notable for the strength granted by his long hair, finally brought the house down on his captors?

- A. David
- B. Isaiah
- C. Samson
- D. Samuel
- E. Solomon

### 12 You Spin Me Round

What is the length of a year on Mercury?

- A. 102 Earth days
- B. 212 Earth days
- C. 28 Earth days
- D. 30 Earth days
- E. 88 Earth days

### 13 Words for Words

Which of the following is an example of onomatopoeia?

- A. Bow
- B. Buzz
- C. Civic
- D. NASA
- E. Too/To/Two

### 14 What Does It Mean?

The dictionary definition of a word is its

- A. Application
- B. Connotation
- C. Denotation
- D. Implication
- E. Indication

### 15 Odd Man Out

Which of the following fictional persons appears in comics from a different publisher than the others?

- A. Bruce Banner
- B. Bruce Wayne
- C. Hank Pym
- D. Steve Rogers
- E. Tony Stark

### 16 Ain't Easy Being Green

What organ in animals stores and concentrates bile, which plays an important role in digesting dietary fat?

- A. Duodenum
- B. Gallbladder
- C. Pancreas
- D. Salivary gland
- E. Urinary bladder

### 17 Animals

What domesticated animal brought to the Americas by Europeans transformed the culture of American Indians living in the Plains regions?

- A. Cows
- B. Horses
- C. Pigs
- D. Rabbits
- E. Sheep

### 18 Minimum Standards

As of January 1, 2021, what was the federal minimum wage?

- A. \$12/hr
- B. \$15/hr
- C. \$5/hr
- D. \$7.25/hr
- E. \$8.50/hr

### 19 Seasonal Changes

Which of the following dates has the shortest day?

- A. Autumnal equinox
- B. Perihelion
- C. Summer solstice
- D. Vernal equinox
- E. Winter solstice

### 20 Phases and Moons

Our moon's lunar cycle occurs over how many days?

- A. 15 days
- B. 21 days
- C. 28 days
- D. 29.5 days
- E. 32.5 days

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### 21 The Conversion of a Ruler

Which ruler in Rome became the first ruler to convert to the Christian religion?

- A. Augustus
- B. Caligula
- C. Costantine
- D. Nero
- E. Trajan

### 26 Asian Assemblies

In what Asian city was the 2020 Summer Olympics held from July 23 to August 8, 2021?

- A. Beijing
- B. Mumbai
- C. Seoul
- D. Taipei
- E. Tokyo

### 22 Sniffles, Sobs, and Smiles

In what 1905 short story by O. Henry does he tell the comically ironic tale of a husband and wife trying to buy a gift for one another at Christmas?

- A. *A Christmas Memory*
- B. *Better To Give Than Receive*
- C. *The Fir-Tree*
- D. *The Gift That Keeps On Giving*
- E. *The Gift of the Magi*

### 27 Gimme the Beat, Boys

From what site on the human heart does the first electrical impulse originate, giving it the common name "pacemaker"?

- A. Aorta
- B. Left ventricle
- C. Mitral valve
- D. Pulmonic valve
- E. Sinoatrial node

### 23 Sports Standouts

Which of the following answers does not belong?

- A. Kansas City Royals
- B. Miami Heat
- C. Oklahoma City Thunder
- D. Orlando Magic
- E. Utah Jazz

### 28 Not From Around Here, Are Ya?

Which of the following celestial objects are NOT present in our solar system?

- A. Asteroids
- B. Dwarf planets
- C. Moons
- D. Nebulae
- E. Planets

### 24 Musical Genius

What musical instrument did Louis Armstrong play?

- A. Drums
- B. Saxophone
- C. Trombone
- D. Trumpet
- E. Tuba

### 29 Natural Processes

Transpiration is a process carried out by...

- A. Air Currents
- B. Animals
- C. Oceans
- D. Plants
- E. Rivers

### 25 Demi-Diameters

What is the proper plural form of the geometric term "radius"?

- A. Radians
- B. Radii
- C. Radios
- D. Radiuses
- E. Radius's

### 30 See Here

In what lobe of the human brain is visual perception localized?

- A. Cerebellar
- B. Frontal
- C. Occipital
- D. Parietal
- E. Temporal

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### 31 Key Signatures

Which of the following has four flats in its key signature?

- A. C minor
- B. D-flat major
- C. E-flat major
- D. F major
- E. F minor

### 32 Gases

All of the following are noble gases except?

- A. Argon
- B. Chlorine
- C. Helium
- D. Neon
- E. Xenon

### 33 Go With the Flow

Although learning does not happen this way, what is the term for the passive diffusion of water across a membrane?

- A. Active transport
- B. Cytokinesis
- C. Gravitation
- D. Meiosis
- E. Osmosis

### 34 Name That Bone

What is the anatomical name for the breastbone?

- A. Clavicle
- B. Patella
- C. Scapula
- D. Sternum
- E. Ulna

### 35 Worth a Thousand Words

Al Capp, Matt Groening, Mike Judge, Chuck Jones, and Stan Lee are all examples of what kind of visual artist?

- A. Abstractionist painter
- B. Cartoonist
- C. Photographer
- D. Pointillist painter
- E. Sculptor

### 36 Halloween Math

After trick-or-treating, your sister has 4 of your favorite candy bars. She offers to trade at a 3:1 rate (in her favor), you counter with a 2:1 rate (in her favor). You agree to compromise in the middle. How many candy bars do you give her?

- A. 10
- B. 12
- C. 4
- D. 6
- E. 8

### 37 Settling Down

This refers to the period when humans transitioned from hunting and gathering to farming and a more sedentary lifestyle during the earlier years of civilization.

- A. Agricultural Revolution
- B. Domesitcation Revolution
- C. Home Stay Revelation
- D. Planting Revelation
- E. Sedentary Revolution

### 38 Literary Leaders

What is the name of Daniel Defoe's main protagonist, responsible for rescuing a man named Friday from death at the hands of cannibals?

- A. Captain Ahab
- B. Captain Nemo
- C. Edmond Dantés
- D. Jim Hawkins
- E. Robinson Crusoe

### 39 Far, Far Away

Which of the following is the closest to the Earth in our solar system?

- A. Asteroid belt
- B. Kuiper belt
- C. Oort cloud
- D. Pluto
- E. Saturn

### 40 A Born Explorer

Christopher Columbus hailed from what country?

- A. England
- B. France
- C. Ireland
- D. Italy
- E. Spain

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### 41 Supreme Court Justices

Which of the following current Supreme Court justices was confirmed during the presidency of Donald Trump?

- A. Elena Kagan
- B. John Roberts
- C. Neil Gorsuch
- D. Samuel Alito
- E. Stephen Breyer

### 42 Milli-Metrics

How many milliliters are in a liter?

- A.  $1 \times 10^2$
- B.  $1 \times 10^3$
- C.  $1 \times 10^5$
- D.  $1 \times 10^6$
- E.  $1 \times 10^9$

### 43 LCM

What is the Least Common Multiple of 20, 80 and 200?

- A. 20
- B. 200
- C. 320,000
- D. 400
- E. 80

### 44 Becoming American

In 1959 which state became officially part of the United States of America?

- A. Alaska
- B. California
- C. Hawaii
- D. Nevada
- E. Washington

### 45 A Little Bit the Same

A rhinoceros horn is most similar in composition to which of the following found on humans?

- A. Bones
- B. Eyes
- C. Fingernails
- D. Muscles
- E. Teeth

### 46 Public Transportation Abroad

Like the "Autobahn," which sometimes runs above and below the surface, many large German cities also sport a "U-Bahn" or "Untergrundbahn," which is the equivalent of what in English?

- A. elevator
- B. highway
- C. sidewalk
- D. subway
- E. tunnel

### 47 Royal Record-Holders

Who was the longest-serving British monarch?

- A. Elizabeth II
- B. George III
- C. Henry III
- D. Henry VIII
- E. Victoria

### 48 Gold Medals

The Olympic games began around 776 BCE as a festival for the Olympians. Athletic games were **ORIGINALLY** a way of honoring whom or what?

- A. The Country
- B. The Emperor
- C. The Gods
- D. The Horses
- E. The Wealthy

### 49 And So It Begins

What is considered the first battle of the American Revolution, often referred to as "the shot heard 'round the world"?

- A. Ft. Ticonderoga
- B. Lexington and Concord
- C. Saratoga
- D. Trenton
- E. Yorktown

### 50 The Same, but Different

Which of the following is a homograph, but not a homophone?

- A. Bass
- B. Flour/flower
- C. NAFTA
- D. Pop
- E. Racecar

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### 51 Biology Classifications

Which of the following is not one of the recognized biological kingdoms?

- A. Animalia
- B. Arthropoda
- C. Fungi
- D. Plantae
- E. Protista

### 56 Art Nicknames

What modern artist was sometimes referred to by the nickname "Jack the Dripper"?

- A. Andy Warhol
- B. Jack Kerouac
- C. Jackson Pollock
- D. Michael Jackson
- E. Piet Mondrian

### 52 Do or Di

Which of the following carbohydrates is a disaccharide?

- A. Fructose
- B. Galactose
- C. Glucose
- D. Ribose
- E. Sucrose

### 57 Terrific Triangles

Which of the following could be the side lengths of an obtuse triangle?

- A. 4,5,10
- B. 5,5,7
- C. 7,8,13
- D. 8,12,21
- E. 9,9,9

### 53 A Comet in the Middle

A comet's central core is known as what?

- A. Base Core
- B. Carbon-Heart
- C. Central Ice
- D. Comet Eye
- E. Nucleus

### 58 Pollution Production

Which country produced the world's most carbon dioxide emissions in 2017, over double that of the world's second-place producer?

- A. China
- B. India
- C. Japan
- D. Russia
- E. United States

### 54 Don't Leave Me Hanging

What December 2000 Supreme Court decision not only settled the controversy over "dimpled chads" and "hanging chads," but also decided a presidential election?

- A. Brown v. Board of Education
- B. Bush v. Gore
- C. Cheney v. United States District Court
- D. Citizens United v. Federal Election Commission
- E. Texas v. Johnson

### 59 Immortal Words

Who famously quipped, "Give me liberty, or give me death!"

- A. Benjamin Franklin
- B. Patrick Henry
- C. Samuel Adams
- D. Thomas Jefferson
- E. Thomas Paine

### 55 Organ Recital

Which of the following organs makes enzymes that help digest proteins, but also the metabolic hormones insulin and glucagon?

- A. Adrenal gland
- B. Kidney
- C. Liver
- D. Pancreas
- E. Thyroid

### 60 Dino Dates

During which period did Tyrannosaurus Rex live?

- A. Cretaceous
- B. Jurassic
- C. Permian
- D. Quaternary
- E. Triassic

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**2021-2022 High School Warm Up****Warm-Up Written 1****Answer Key**

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- |       |       |
|-------|-------|
| 1. D  | 41. C |
| 2. E  | 42. B |
| 3. D  | 43. D |
| 4. B  | 44. C |
| 5. E  | 45. C |
| 6. C  | 46. D |
| 7. D  | 47. A |
| 8. B  | 48. C |
| 9. D  | 49. B |
| 10. D | 50. A |
| 11. C | 51. B |
| 12. E | 52. E |
| 13. B | 53. E |
| 14. C | 54. B |
| 15. B | 55. D |
| 16. B | 56. C |
| 17. B | 57. C |
| 18. D | 58. A |
| 19. E | 59. B |
| 20. D | 60. A |
| 21. C |       |
| 22. E |       |
| 23. A |       |
| 24. D |       |
| 25. B |       |
| 26. E |       |
| 27. E |       |
| 28. D |       |
| 29. D |       |
| 30. C |       |
| 31. E |       |
| 32. B |       |
| 33. E |       |
| 34. D |       |
| 35. B |       |
| 36. A |       |
| 37. A |       |
| 38. E |       |
| 39. A |       |
| 40. D |       |

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## Warm-Up Written 2

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## Warm-Up Written 2

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### 1 "I Cannot Compete With You"

Which country artist first begged "Jolene" not to take her man in 1974?

- A. Dolly Parton
- B. Faith Hill
- C. Loretta Lynn
- D. Martina McBride
- E. Reba McEntire

### 2 Metabolic Messes

In which common human disease is hyperglycemia a key feature?

- A. Diabetes mellitus
- B. Eczema
- C. Hypertension
- D. Malignant melanoma
- E. Osteoarthritis

### 3 Exclusive Clubs

The U.S. Supreme Court increased its membership to how many justices in 1869?

- A. 11
- B. 13
- C. 5
- D. 7
- E. 9

### 4 Irregardless

"For all intensive porpoises" should be more accurately written, assuming you're not dealing with neurotic aquatic mammals, as...

- A. For all intensive purposes
- B. For all intents and purposes
- C. For all-in-ten sieve purposes
- D. Four all in tents and purposes
- E. 'Fore all-in tents and porpoises

### 5 State Your Name

What is the official nickname of the State of Washington?

- A. The Bay State
- B. The Beehive State
- C. The Constitution State
- D. The Evergreen State
- E. The Ocean State

### 6 It Slices, It Dices!

Which kind of teeth do we have in the very front, where their flat, blade-like shape helps for cutting food?

- A. Bicuspids
- B. Cuspids
- C. Incisors
- D. Molars
- E. Premolars

### 7 Things That Go Boom

Swedish chemist Alfred Nobel patented what compound in 1867?

- A. Ammonium nitrate
- B. Composition C-4
- C. Dynamite
- D. FOX-7
- E. TNT (2, 4, 6-trinitrotoluene)

### 8 Common Senses

The optic nerves conduct information about what sense to the brain?

- A. Hearing
- B. Sight
- C. Smell
- D. Taste
- E. Touch

### 9 Elemental Outliers

Which of the following chemical elements does not belong with the others?

- A. Ar
- B. He
- C. Kr
- D. Na
- E. Ne

### 10 Close to Home

The term "NEA" is an abbreviation for what?

- A. Navigation Estimation Abstraction
- B. Near Earth Asteroid
- C. Near Eclipse Asteroid
- D. New Extraterrestrial Asteroid
- E. Newly Exposed Asteroid

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## Warm-Up Written 2

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### 11 Name Dropping

What 19th century British novelist best known for his *Lord of the Rings* series had the first names John Ronald Reuel?

- A. Lewis
- B. Tennyson
- C. Tolkien
- D. Trollope
- E. Wells

### 12 Rookie Mistake

You receive an invitation to a "60s Costume Party" but mistakenly assume that it means 1860s instead of the 1960s. As which President do you mistakenly dress up?

- A. Abraham Lincoln
- B. Andrew Jackson
- C. Franklin Roosevelt
- D. John Kennedy
- E. Thomas Jefferson

### 13 Metric Conversions

Yesterday Erin walked 6 kilometers. How many centimeters did she walk?

- A. 6,000
- B. 6,000,000
- C. 60,000
- D. 600
- E. 600,000

### 14 Forms of Government

Aristocracy literally means "rule by the best" in Greek. What is the neologistic Greek antonym which means "rule by the worst"?

- A. democracy
- B. kakistocracy
- C. oligarchy
- D. plutocracy
- E. theocracy

### 15 "There Is No Doubt Whatever"

What classic novel bluntly starts with: "Marley was dead: to begin with"?

- A. *A Christmas Carol*
- B. *A Tale of Two Cities*
- C. *Harry Potter and the Sorcerer's Stone*
- D. *Of Mice and Men*
- E. *The Brothers Karamozov*

### 16 Don't Tell Me What To Do

Which of the following is considered a Limited Government?

- A. Authoritarian
- B. Democracy
- C. Dictatorship
- D. Monarchy
- E. Totalitarian

### 17 American landmarks

Which U.S. harbor would you visit to see the Statue of Liberty?

- A. Boston
- B. Chicago
- C. New Orleans
- D. New York
- E. San Francisco

### 18 Wild Places

The majority of *The Call of the Wild* takes place in what setting?

- A. Siberia
- B. The Amazon
- C. The Australian Outback
- D. The Gobi Desert
- E. The Yukon

### 19 Timey Wimey Stuff

What 20th century author created the characters of Mrs. Who, Mrs. Which, and Mrs. Whatsit in her novel *A Wrinkle in Time*?

- A. Agatha Christie
- B. Beatrix Potter
- C. Doris Lessing
- D. J.K. Rowling
- E. Madeline L'Engle

### 20 Count Them Up

How many objects of prepositions do you count in the following sentence? When I jumped over the puddle, I landed safely on the sidewalk on the other side, but while trying to stick the landing, I fell right into the water.

- A. 2
- B. 3
- C. 4
- D. 5
- E. 6

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### 21 Yes, The Dates are Important

What key battle took place from July 1 to July 3, 1863?

- A. Fredricksburg
- B. Gettysburg
- C. Rorke's Drift
- D. The Alamo
- E. Waterloo

### 26 There's Always Room for Dessert

What Mediterranean sweet treat is traditionally filled with pistachios?

- A. Affogato
- B. Baklava
- C. Halva
- D. Milopita
- E. Revani

### 22 Jumping Jehosephat

The African species commonly known as springboks are members of what genus of speedy, jumping quadrupeds?

- A. Gazelles
- B. Giraffes
- C. Hyenas
- D. Tigers
- E. Wildebeests

### 27 Know Your Enemy

What kind of organism is the *Streptococcus* that causes "strep throat" infections?

- A. Bacterium
- B. Fungus
- C. Parasite
- D. Protozoan
- E. Virus

### 23 Los Animales

Which of the following is a mammal?

- A. Mariposa
- B. Oso
- C. Pato
- D. Pez
- E. Serpiente

### 28 Freedom is Slavery

What dystopian tale about a man named Winston starts with the line: "It was a bright cold day in April, and the clocks were striking thirteen"?

- A. 1984
- B. *Animal Farm*
- C. *Brave New World*
- D. *Fahrenheit 451*
- E. *The Handmaid's Tale*

### 24 Stick Around

Which of the following expressions would you use to calculate the radius of a circle?

- A.  $C/2\pi$
- B.  $L*B*H$
- C.  $hb/2$
- D.  $\pi(r)(r)$
- E.  $\pi r^2 h$

### 29 The Loneliest Number

What is a single component of a polymer, such as the individual amino acids in a protein?

- A. Monocyte
- B. Monomer
- C. Monounit
- D. Polyglot
- E. Unimer

### 25 Laws of Motion

What chess piece moves in an L shape, either two squares horizontally and one vertically, or two vertically and one horizontally?

- A. Bishop
- B. Knight
- C. Pawn
- D. Queen
- E. Rook

### 30 Sci-Fi Summaries

To get the valuable Spice, never sit with your back to the door, and definitely avoid the Sand Worms in what Frank Herbert novel?

- A. *Brave New World*
- B. *Dune*
- C. *Fahrenheit 451*
- D. *The Martian*
- E. *The Three-Body Problem*

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### 31 Mathematical Roots

Evaluate the following expression:  $\sqrt[3]{-64}$ 

- A. -4
- B. -8
- C. 2
- D. 4
- E. 8

### 36 The Shape of Things

I am reading a book whose character has so much depth and detail that she seems like a real person. What shape might I say that character has?

- A. Flat
- B. Hexagonal
- C. Round
- D. Square
- E. Triangular

### 32 Good-Byes

Jerry Stiller, Max Von Sydow, Fred Willard, Carl Reiner, Olivia de Havilland, and Chadwick Boseman - all of whom died in 2020 - shared what profession?

- A. Actors
- B. Astronauts
- C. Lawyers
- D. Musicians
- E. Physicians

### 37 Ology-ology

What is the scientific study of birds called?

- A. Entomology
- B. Ornithology
- C. Physiology
- D. Primatology
- E. Ursinology

### 33 Cause and Effect

According to which philosophical theory, because it denies that humans have free will, do you really have no choice but to pick the answer you're going to pick?

- A. Consequentialism
- B. Deontology
- C. Determinism
- D. Epicureanism
- E. Stoicism

### 38 Hidden in Plain Sight

Ground plover chicks have feathers that look like the mossy rocks upon which they live, hiding them from the sight of predators. This is an example of what kind of physical adaptation the species has developed for protection?

- A. Behavioral Adaptation
- B. Camouflage
- C. Learned Behavior
- D. Migration
- E. Mimicry

### 34 Pulling Your Weight

What anatomic structure joins muscle to bone?

- A. Cartilage
- B. Fascia
- C. Legume
- D. Ligament
- E. Tendon

### 39 A Girl Glancing

She wears a brown top with a blue and yellow headscarf. She looks over her left shoulder at the viewer, who sees her left ear bears a pearl earring. Who painted this famous image?

- A. Gustav Klimt
- B. Johannes Vermeer
- C. Leonardo da Vinci
- D. Sandro Botticelli
- E. Vincent Van Gogh

### 35 A Bloody Business

Which component of human blood is best described as an non-nucleated biconcave disc?

- A. B-lymphocytes
- B. Erythrocytes
- C. Macrophages
- D. Platelets
- E. T-lymphocytes

### 40 That Makes Sense

The tympanic membrane is a fancy term for what sensory structure in humans?

- A. Cornea
- B. Eardrum
- C. External ear
- D. Fingertip
- E. Taste buds

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### 41 Yes

Noh is a traditional style of theater from what country?

- A. China
- B. Great Britain
- C. Japan
- D. Saudi Arabia
- E. Vietnam

### 42 A Berry Good Question

Native to the bogs of North America, which berry has become a staple side for Thanksgiving feasts?

- A. Cranberries
- B. Currents
- C. Gooseberries
- D. Liden berries
- E. Raspberries

### 43 Holy Book Beginnings

What religious text, honored by 1.9 billion adherents in 2021, opens with the following line: "In the name of the most merciful Allah: Praise be to Allah, the Lord of all Being; the most merciful, the Master of the day of judgment"?

- A. Bhagavad Gita
- B. Guru Granth Sahib
- C. Koran
- D. New Testament
- E. Torah

### 44 Catching the Solstice

When is the summer solstice in the Northern Hemisphere?

- A. August 18 or 19
- B. July 2 or 3
- C. June 15 or 16
- D. June 20 or 21
- E. May 8 or 9

### 45 Sad, Sad Songs

To what Old Testament prophet is the *Book of Lamentations* traditionally attributed?

- A. Amos
- B. Ezekiel
- C. Isaiah
- D. Jeremiah
- E. Moses

### 46 Apple Expressions

Sam has 12 apples to start and then receives an additional apple every week he behaves in class. This is equivalent to which expression below?

- A.  $12+x+y$
- B.  $12x+1y$
- C.  $12x-12$
- D.  $x+12$
- E.  $x+12y$

### 47 Little Heavyweight

Mercury is a dense planet. It is made up of what approximate percentage of iron?

- A. 10%
- B. 30%
- C. 50%
- D. 70%
- E. 90%

### 48 A Historical Period

The Renaissance originated in Italy in the 1300s. Renaissance literally means what?

- A. Arts
- B. Men
- C. Rebirth
- D. Transition
- E. Wisdom

### 49 German Public Transportation

Although Berlin is the capital of Germany, this German city has Germany's biggest airport or "Flughafen."

- A. Cologne
- B. Frankfurt
- C. Hamburg
- D. Leipzig
- E. Munich

### 50 Take It Slow

What is the adverbial form of the adjective "slovenly"?

- A. Slovenesque
- B. Slovenish
- C. Slovenlily
- D. Slovenly
- E. Slovlily

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# 2021-2022 High School Warm Up

## Warm-Up Written 2

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### 51 Forever Remembered

Which of these presidents' faces has been immortalized on Mount Rushmore?

- A. Andrew Jackson
- B. Franklin D. Roosevelt
- C. John Quincy Adams
- D. Teddy Roosevelt
- E. Woodrow Wilson

### 56 Completing the Thought

Which of these phrases is actually a clause?

- A. after the fact
- B. running away with it
- C. that I thought I could
- D. to live with my mistakes
- E. with my nail file

### 52 Loan Words

Taboo, kiwi, kea, and haka are examples of words that have entered the English lexicon from which language?

- A. Mandarin
- B. Maori
- C. Samoan
- D. Seminole
- E. Swahili

### 57 Quadratics

What are the x-intercepts of the equation  $y = 2x^2 + 3x + 4$ ?

- A. (-0.85,0)
- B. (-2.35,0) and (0.85,0)
- C. (2.35,0)
- D. (2.35,0) and (-0.85,0)
- E. There are none

### 53 Feathered Friends

According to what poet, "hope is the thing with feathers that perches in the soul"?

- A. Edna St. Vincent Millay
- B. Elizabeth Barrett Browning
- C. Emily Dickinson
- D. Lewis Carroll
- E. Mary Oliver

### 58 Geometric Solids

How many vertices does a cube have?

- A. 12
- B. 16
- C. 4
- D. 6
- E. 8

### 54 Forever And Ever

With English-language lyrics based on the 17th-century King James Bible and the *Book of Common Prayer*, who was the composer of the 1741 oratorio *Messiah*?

- A. Antonio Vivaldi
- B. Claudio Monteverdi
- C. George Frideric Handel
- D. Johann Sebastian Bach
- E. Wolfgang Amadeus Mozart

### 59 Philosophy

Who said, "The unexamined life is not worth living"?

- A. Friedrich Nietzsche
- B. John Locke
- C. Socrates
- D. Thomas Hobbes
- E. Voltaire

### 55 Militant Colors

While the Bolshevik revolutionaries in the Russian Civil War were known as the Reds, what color was adopted by anti-Communist forces such as those loyal to the Tsar?

- A. Black
- B. Blue
- C. Green
- D. Red
- E. White

### 60 Slope & Intercept

Two lines which have the same slope but different y-intercepts are

- A. Identical
- B. Intersecting
- C. Parallel
- D. Perpendicular
- E. Skew

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**2021-2022 High School Warm Up****Warm-Up Written 2****Answer Key**

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- |       |       |
|-------|-------|
| 1. A  | 41. C |
| 2. A  | 42. A |
| 3. E  | 43. C |
| 4. B  | 44. D |
| 5. D  | 45. D |
| 6. C  | 46. D |
| 7. C  | 47. D |
| 8. B  | 48. C |
| 9. D  | 49. B |
| 10. B | 50. D |
| 11. C | 51. D |
| 12. A | 52. B |
| 13. E | 53. C |
| 14. B | 54. C |
| 15. A | 55. E |
| 16. B | 56. C |
| 17. D | 57. E |
| 18. E | 58. E |
| 19. E | 59. C |
| 20. C | 60. C |
| 21. B |       |
| 22. A |       |
| 23. B |       |
| 24. A |       |
| 25. B |       |
| 26. B |       |
| 27. A |       |
| 28. A |       |
| 29. B |       |
| 30. B |       |
| 31. A |       |
| 32. A |       |
| 33. C |       |
| 34. E |       |
| 35. B |       |
| 36. C |       |
| 37. B |       |
| 38. B |       |
| 39. B |       |
| 40. B |       |

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# 2021-2022 High School Warm Up

## Warm-Up Written 3

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# 2021-2022 High School Warm Up

## Warm-Up Written 3

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### 1 Rocky Runner-Up

Everyone knows Mount Everest is the highest - but which of these mountains is the SECOND highest in the world, at 28,250 feet?

- A. K2
- B. Kangchenjunga
- C. Lhotse
- D. Makalu
- E. Makemake

### 2 Stay Classy

Newts and salamanders are members of what biological class of tetrapod animals?

- A. Amphibians
- B. Avians
- C. Echinoderms
- D. Mammals
- E. Reptiles

### 3 Counting the Months

¿Cuál es la séptima mes?

- A. El agosto
- B. El julio
- C. El marzo
- D. El mayo
- E. El septiembre

### 4 Massive Memorials

What structure designed by architect Maya Lin, constructed of two black granite walls intersecting at an angle of 125 degrees, 12 minutes, bears 58,220 names?

- A. New York 9/11 Memorial
- B. Omaha Beach Memorial
- C. St Louis Gateway Arch
- D. Vietnam Veterans Memorial
- E. Washington Monument

### 5 Take Your Vitamins

Ask any British sailor from the 18th century: which vitamin deficiency causes scurvy?

- A. Thiamine
- B. Vitamin A
- C. Vitamin B12
- D. Vitamin B6
- E. Vitamin C

### 6 Borders

Which of these countries shares a border with Russia?

- A. Austria
- B. France
- C. Germany
- D. Poland
- E. Ukraine

### 7 Follow the Law

Which Byzantine emperor from 527 to 565 put a team together to sift through ancient laws and develop an organized collection of Roman laws?

- A. Ceasar
- B. Hadrian
- C. Justinian
- D. Romulus
- E. Vespasian

### 8 Nuclear Notes

What physicist signed a 1939 letter to President Franklin D. Roosevelt outlining the dangers of Germany developing an atomic bomb, leading to the founding of the Manhattan Project?

- A. Albert Einstein
- B. Enrico Fermi
- C. Ernest Rutherford
- D. Neils Bohr
- E. Robert Oppenheimer

### 9 The Geometry of Art

Which of the following artists is most famous for advancing cubism as a viable art form?

- A. Claude Monet
- B. Eli Whitney
- C. Leonardo da Vinci
- D. Michael Faraday
- E. Pablo Picasso

### 10 Second-Half Successes

Who was the quarterback leading the 2020 Kansas City Chiefs to victory in Super Bowl LIV?

- A. Aaron Rodgers
- B. Cam Newton
- C. Drew Brees
- D. Patrick Mahomes
- E. Tom Brady

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# 2021-2022 High School Warm Up

## Warm-Up Written 3

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### 11 For Our God

The Crusades were military missions that lasted almost how many years?

- A. 100 Years
- B. 150 Years
- C. 200 Years
- D. 250 Years
- E. 300 Years

### 12 Spiritual Siblings

Brothers John and Charles Wesley, who while at Oxford in the 1720s were ridiculed for their methodical study habits, were later founders of what Protestant Christian denomination?

- A. Baptist
- B. Lutheran
- C. Methodist
- D. Pentacostal
- E. Presbyterian

### 13 Roots and Radicals

The square root of 600 is between what two integers?

- A. 24 & 25
- B. 25 & 26
- C. 27 & 28
- D. 29 & 30
- E. 30 & 31

### 14 Great Countries

Which of the following is the largest country by land area in the world?

- A. Brazil
- B. Canada
- C. China
- D. Russia
- E. United States

### 15 Architectural Achievements

Machu Picchu is one of the greatest surviving complexes of which culture?

- A. Aztec
- B. Inca
- C. Maya
- D. Olmec
- E. Taino

### 16 Just As I Am

What American evangelist held large "crusades" until his retirement in 2005, and counseled every American president from Truman to Obama?

- A. Billy Graham
- B. Billy Sunday
- C. Dwight Moody
- D. Jack Van Impe
- E. Oral Roberts

### 17 Don't Work, Don't Eat

What founder and governor of thirty years established Plymouth Colony's legal code centered on private agriculture and religious adherence?

- A. George Washington
- B. John Carver
- C. Myles Standish
- D. William Bradford
- E. William Pitt

### 18 Shapes and Sizes

5 regular polygons all have the same perimeter, but have different numbers of sides. The polygon with which number of sides will have the greatest area?

- A. 3
- B. 4
- C. 5
- D. 6
- E. 7

### 19 US Civil War

The High Water Mark of the Rebellion Monument commemorates a Confederate charge on Cemetery Ridge, part of what decisive Civil War battle?

- A. Antietam
- B. First Bull Run
- C. Fort Sumter
- D. Gettysburg
- E. Second Bull Run

### 20 Missing Body Parts

Which of these artists died with only one ear?

- A. Claude Monet
- B. Michelangelo
- C. Pablo Picasso
- D. Pierre-Auguste Renoir
- E. Vincent Van Gogh

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# 2021-2022 High School Warm Up

## Warm-Up Written 3

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### 21 Is Anybody Here?

Which U.S. state was the LEAST densely populated in 2010, with only 1.2 persons per square mile of land area?

- A. Alaska
- B. Montana
- C. South Dakota
- D. Utah
- E. Wyoming

### 22 Stop The Leak

Which of the following cellular components of human blood function in plugging holes and clotting?

- A. Basophils
- B. Erythrocytes
- C. Lymphocytes
- D. Neutrophils
- E. Platelets

### 23 Organized Organisms

In which of the following organisms would one find organelles such as the Golgi apparatus and endoplasmic reticulum?

- A. Cyanobacterium
- B. Eukaryote
- C. Prion
- D. Prokaryote
- E. Virus

### 24 Ask Your Heart What It Doth Know

How many chambers does the human heart have?

- A. 2
- B. 3
- C. 4
- D. 5
- E. Varies with age

### 25 Simple Surnames

The surname "Chandler" originally denoted a person responsible for making what?

- A. Candies
- B. Candles
- C. Chandeliers
- D. Kerosene Lamps
- E. Light Bulbs

### 26 Mind Your Flats and Sharps

In a Western musical scale, a G # is equivalent to what note?

- A. A #
- B. A $\flat$
- C. C
- D. F
- E. F $\flat$

### 27 Countries

Which of the following countries is not located on the Arabian Peninsula?

- A. Jordan
- B. Oman
- C. Qatar
- D. United Arab Emirates
- E. Yemen

### 28 Underappreciated Hazards

Historically, which of the following animals is responsible for the most human deaths?

- A. Koalas
- B. Mosquitos
- C. Sharks
- D. Ticks
- E. Tigers

### 29 Important Phrases

What kind of phrase is the second phrase in the following sentence? "We train the birds in the cage to repeat after us whatever we have said."

- A. Appositive Phrase
- B. Gerund Phrase
- C. Infinitive Phrase
- D. Noun Phrase
- E. Participial Phrase

### 30 The Best of Places, The Worst of Places

What are the two titular cities in Charles Dickens' A Tale of Two Cities?

- A. Dublin and Belfast
- B. London and Moscow
- C. London and Paris
- D. Madrid and Barcelona
- E. Paris and Berlin

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## 2021-2022 High School Warm Up

### Warm-Up Written 3

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**31 Is Music Read Backward?**

What unique and easily recognizable Southern Hemisphere theatre, designed by Danish architect Jørn Utzon, opened in 1973?

- A. Burgtheater
- B. Palacio de Bellas Artes
- C. Radio City Music Hall
- D. Sydney Opera House
- E. Teatro alla Scalla

---

**32 Colonial Crowds**

Which was the most populous American colony in 1770?

- A. Connecticut
- B. Maryland
- C. New York
- D. Pennsylvania
- E. Virginia

---

**33 A Promise Falsely Made**

Francisco Pizarro promised to spare the Inca king's life if Pizarro received a room full of what?

- A. Food
- B. Gold
- C. Jewels
- D. Livestock
- E. Slaves

---

**34 Stellar Scientists**

What Cambridge theoretical physicist, confined to a wheelchair due to amyotrophic lateral sclerosis, authored the 1988 best-seller *A Brief History of Time*?

- A. Carl Sagan
- B. Isaac Asimov
- C. Richard Dawkins
- D. Richard Feynman
- E. Stephen Hawking

---

**35 It's A Bird! It's A Plane!**

Patterns of stars as seen from Earth, often given cultural or mythological meaning, are called what?

- A. Comets
- B. Constellations
- C. Exoplanets
- D. Galaxies
- E. Nebulae

---

**36 Languages**

Quechua is a language that was spoken by the citizens of what South American empire?

- A. Aztec
- B. Inca
- C. Maya
- D. Olmec
- E. Toltec

---

**37 Creations for Kids**

What British author wrote a series of stories concerning a group of children who met a powerful lion named Aslan and battled an evil White Witch by way of a piece of household furniture?

- A. Arthur Conan Doyle
- B. C.S. Lewis
- C. Charles Dickens
- D. J.K. Rowling
- E. J.R.R. Tolkien

---

**38 Gamete Genetics**

Gametes are \_\_\_\_\_ cells - they have only one copy of the organism's complement of chromosomes.

- A. Diploid
- B. Haploid
- C. Hemiploid
- D. Monoploid
- E. Polyploid

---

**39 Measuring Up**

Which of the following units of measurements does not belong with the others?

- A. Deciliter
- B. Meter
- C. Metric ton
- D. Milligram
- E. Ounce

---

**40 On a Roll!**

In rolling a standard six-sided die, what is the probability of rolling a multiple of 3?

- A. 1/2
- B. 1/3
- C. 1/6
- D. 2
- E. 2/3

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## 2021-2022 High School Warm Up

### Warm-Up Written 3

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**41 Aeronautics**

The Bell rocket airplane flown by Charles Yeager to break the sound barrier on October 14, 1947 bore what alphanumeric model designation?

- A. BX-01
- B. F-15
- C. SR-77
- D. X-1
- E. XA-22

---

**42 Common Symbols**

On typical keyboards, which symbol can be typed by holding the shift key before pressing the 4?

- A. #
- B. \$
- C. %
- D. &
- E. @

---

**43 Sport Approximations**

Which measurement is closest to the diameter of a tennis ball?

- A. .01 Km
- B. .01 m
- C. 10 cm
- D. 10 dm
- E. 1000 mm

---

**44 Lowbrow Lyrics**

What country music star, in his 1990 hit song, excused his misbehavior by citing his "friends in low places"?

- A. Blake Shelton
- B. Garth Brooks
- C. George Strait
- D. Kenny Chesney
- E. Tim McGraw

---

**45 Asian Geography**

If you fly directly west from Manila, what is the first country in mainland Asia you will fly over?

- A. Cambodia
- B. China
- C. Malaysia
- D. Thailand
- E. Vietnam

---

**46 Royal Repose**

What British royal died at age 99 on April 9, 2021?

- A. King George VI
- B. Prince Andrew, Duke of York
- C. Prince Charles
- D. Prince Philip, Duke of Edinburgh
- E. Queen Elizabeth II

---

**47 You Need To Calm Down**

If you draw a "Blank Space," you may feel some "Bad Blood," but we hope you'll "Shake It Off" and remember what pop artist recorded "Look What You Made Me Do" in 2017.

- A. Ariana Grande
- B. Billie Eilish
- C. Katy Perry
- D. Lady Gaga
- E. Taylor Swift

---

**48 Bubble, Bubble, Boil and Trouble**

A witch heating a cauldron until compounds with lower boiling points boil off is using what technique to purify her potion?

- A. Chromatography
- B. Crystallization
- C. Distillation
- D. Filtration
- E. Magnetism

---

**49 Overcoming Obstacles**

What composer, despite deafness in later life, composed his *Emperor* concerto, the *Moonlight* and *Pathétique* sonatas, and nine symphonies?

- A. Claude Debussy
- B. Franz Joseph Haydn
- C. Johann Sebastian Bach
- D. Johannes Brahms
- E. Ludwig van Beethoven

---

**50 Edible Etymology**

Of the many forms of pasta, which one is formed in short, wide tubes, cut at an angle at the ends, like an old-fashioned quill pen?

- A. Fusilli
- B. Lasagna
- C. Penne
- D. Rigatoni
- E. Spaghetti

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## 2021-2022 High School Warm Up

### Warm-Up Written 3

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**51 Ancient Legacies**

Egypt was ruled by 31 dynasties over the course of how many kingdoms or periods?

- A. 1
- B. 3
- C. 4
- D. 5
- E. 6

---

**56 Quite the Trade**

In Western Africa during the rule of the Islamic kingdoms, two important commodities were salt and what?

- A. Gold
- B. Horses
- C. Rice
- D. Rubbies
- E. Silver

---

**52 Tempos Tripping off the Toes**

In classical music, which of the following tempos is the fastest?

- A. Adagio
- B. Allegro
- C. Andante
- D. Presto
- E. Vivace

---

**57 Shipping Centers**

What organelle within cells is responsible for packing proteins into membrane bound vesicles that are then sent to their destination?

- A. Golgi apparatus
- B. Lysosome
- C. Mitochondria
- D. Nucleus
- E. Ribosome

---

**53 Mythical Murders**

What Old Testament character, the second son of Adam and Eve, was killed by his brother in a fit of jealous anger?

- A. Aaron
- B. Abel
- C. Cain
- D. Joseph
- E. Moses

---

**58 Hot Science**

The study of the physics of the sun is called what?

- A. Astro Physics
- B. Astrology
- C. Astronomy
- D. Helio-Science
- E. Solar Physics

---

**54 Book Burning Books**

Which American fiction author wrote *Fahrenheit 451*?

- A. Ernest Hemingway
- B. H.G. Wells
- C. Isaac Asimov
- D. Ray Bradbury
- E. Robert Heinlein

---

**59 Food Chain Fundamentals**

We would all be up to our eyeballs (or worse) with dead trees, animals, and leaves from centuries ago without what vital class of organisms that include fungi and soil bacterium?

- A. Apex predators
- B. Decomposers
- C. Herbivores
- D. Producers
- E. Tertiary consumers

---

**55 AKA**

What word has the same meaning as a "pen-name"?

- A. Acronym
- B. Homonym
- C. Patronym
- D. Pseudonym
- E. Ratsofny

---

**60 Commanding Commanders**

Who commanded the Continental Army during the American Revolution?

- A. Alexander Hamilton
- B. George Washington
- C. Marquis de Lafayette
- D. Samuel Adams
- E. Thomas Jefferson

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2021-2022 High School Warm Up

Answer Key

Warm-Up Written 3

1. A

41. D
2. A

42. B
3. B

43. C
4. D

44. B
5. E

45. E
6. E

46. D
7. C

47. E
8. A

48. C
9. E

49. E
10. D

50. C
11. C

51. B
12. C

52. D
13. A

53. B
14. D

54. D
15. B

55. D
16. A

56. A
17. D

57. A
18. E

58. E
19. D

59. B
20. E

60. B
21. A
22. E
23. B
24. C
25. B
26. B
27. A
28. B
29. C
30. C
31. D
32. E
33. B
34. E
35. B
36. B
37. B
38. B
39. E
40. B

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# 2021-2022 High School Warm Up

## Warm-Up Written 4

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# 2021-2022 High School Warm Up

## Warm-Up Written 4

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### 1 Same but Different

Which of the following is a homophone but not a homograph?

- A. Cell/sell
- B. Ding-dong
- C. LASER
- D. Object
- E. Rotor

### 2 Life's Legos

Which of the following is the monomer found in proteins?

- A. Amino acid
- B. Enzyme
- C. Fatty acid
- D. Monosaccharide
- E. Ribonucleic acid

### 3 Occupations

What type of construction worker builds brick and stone walls?

- A. Carpenter
- B. Mason
- C. Operator
- D. Steelworker
- E. Tin knocker

### 4 Do The Hard Thing

Who said the following: "We choose to go to the Moon in this decade and do the other things, not because they are easy, but because they are hard"?

- A. Dwight D Eisenhower
- B. Gerald R Ford
- C. Harry S Truman
- D. John F Kennedy
- E. Lyndon B Johnson

### 5 Fall From Grace

In 2020, what actor known for roles as diverse as a pirate, a serial killer, and an android with atypical extremities lost a libel lawsuit regarding his troubled relationship with ex-wife Amber Heard?

- A. Chris Hemsworth
- B. Johnny Depp
- C. Robert Downey, Jr.
- D. Vin Diesel
- E. Will Smith

### 6 Secrets Don't Make Friends

In 1939, the United States began the development of the atomic bomb. This project went by what code name?

- A. Birdy Project
- B. Coffee Meet
- C. Lightning Project
- D. Manhattan Project
- E. Timeless Project

### 7 Analyzing Lines

Which of the following is true about the graph of the equation  $3x - 2y = -4$ ?

- A. It has a negative slope and a negative y intercept
- B. It has a negative slope and a positive y intercept
- C. It has a positive slope and a negative y intercept
- D. It has a positive slope and a positive x intercept
- E. It has a positive slope and a positive y intercept

### 8 Aliases

What was Mark Twain's birth name?

- A. Cassius Clay
- B. Charles Dodgson
- C. George Eliot
- D. Samuel Clemens
- E. Theodor Geisel

### 9 Keep It Simple

What Anabaptist Christian denomination, closely related to Mennonites, traditionally shuns use of modern technology and emphasizes humility and simplicity in lifestyle?

- A. Amish
- B. Latter-Day Saints
- C. Pentecostals
- D. Quakers
- E. Seventh-Day Adventists

### 10 Somewhat Misguided

Where was Columbus trying to sail when he landed in the Americas?

- A. Albion
- B. Brazil
- C. India
- D. North America
- E. Saudi Arabia

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# 2021-2022 High School Warm Up

## Warm-Up Written 4

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### 11 Final Four

Matthew, Mark, Luke, and John are the respective authors of what four documents?

- A. Epistles
- B. Gospels
- C. Psalms
- D. Revelations
- E. Torah

### 12 Fun Flu Facts

What kind of organism causes epidemic influenza every year?

- A. Bacteria
- B. Fungus
- C. Parasite
- D. Protozoa
- E. Virus

### 13 Heroes Need Friends

Who was the police commissioner allied with Bruce Wayne and his superhero alter ego?

- A. Abraham Van Helsing
- B. Bo Brady
- C. Ed Hall
- D. James Gordon
- E. Mac Scorpio

### 14 Instrument Readings

Which of the following would be a typical reading one might get from a barometer?

- A. 2.27 Coulomb/sec
- B. 29.8 inHg
- C. 3.22 light-years
- D. 37.2 degrees C
- E. 47.2 ft-lb/in<sup>2</sup>

### 15 Literary Languages

The late 16th century novel *Don Quixote* by Cervantes was written in what Romance language originating on the Iberian peninsula?

- A. French
- B. German
- C. Latin
- D. Portuguese
- E. Spanish

### 16 Don't Slip Up

Who was the author of *Studies in Hysteria*, *The Interpretation of Dreams*, and *Civilization and Its Discontents*?

- A. B.F. Skinner
- B. Carl Jung
- C. Carl Rogers
- D. Ivan Pavlov
- E. Sigmund Freud

### 17 Prior Occupations

Before becoming the first Prophet of Islam, what was Mohammed's occupation?

- A. Builder
- B. Farmer
- C. Merchant
- D. Teacher
- E. Warrior

### 18 What Do You Enjoy Reading?

What is the French word for "kind", "type", or "sort"?

- A. A la mode
- B. Bonjour
- C. Enchante
- D. Entree
- E. Genre

### 19 Sedentary Seafood

Clams, scallops, and mussels are examples of what kind of invertebrates?

- A. Anemones
- B. Annelids
- C. Bivalves
- D. Jellies
- E. Sponges

### 20 Equivalent Statements

Which of the following is the contrapositive of the statement, "If I read, then I learn."

- A. If I do not learn, then I do not read.
- B. If I do not read, then I do not learn.
- C. If I learn to read, then I will read to learn.
- D. If I learn, then I read.
- E. Learning leads to reading.

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# 2021-2022 High School Warm Up

## Warm-Up Written 4

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### 21 Heart of Gold

In which book did English author Douglas Adams advise us to not panic, always bring a towel, and that the meaning of life is 42?

- A. *A Song of Fire and Ice*
- B. *Animal Farm*
- C. *I, Robot*
- D. *Starship Troopers*
- E. *The Hitchhiker's Guide to the Galaxy*

### 22 Citizenship

What Amendment was adopted in 1868 that declared all persons born or naturalized in the United States to be citizens?

- A. 10th
- B. 12th
- C. 14th
- D. 15th
- E. 20th

### 23 Leave It At Home

In June 2020, NASCAR banned what controversial symbol at all of its events and facilities?

- A. Confederate battle flag
- B. Gadsden flag
- C. LGBTQ+ Pride rainbow flag
- D. Make America Great Again hat
- E. Nazi swastika

### 24 Bravery

Who was the first Black student to desegregate a white school, on November 14, 1960, in New Orleans?

- A. Claudette Colvin
- B. Harriet Tubman
- C. Martin Luther King, Jr.
- D. Rosa Parks
- E. Ruby Bridges

### 25 What's On The Menu?

What is the term for animals, like bears, crows, and humans, who can eat plants, meat, and junk food?

- A. Carnivores
- B. Granivores
- C. Herbivores
- D. Omnivores
- E. Pescitarians

### 26 Beautiful Binary

Which of the following numbers has only 1s in its binary representation?

- A. 11
- B. 32
- C. 33
- D. 63
- E. 64

### 27 Pieces of the Action

What chess piece moves only horizontally or vertically, up to as many spaces as are open?

- A. Bishop
- B. King
- C. Pawn
- D. Queen
- E. Rook

### 28 Elite Education

The First Lady of the United States in 2021, Jill Biden, has a doctoral degree in which field?

- A. Education
- B. English Literature
- C. Medicine
- D. Political Science
- E. Psychology

### 29 Algebra

$$y - (a/5) = 0$$

If  $y = 20$ , what is the value of  $a$ ?

- A. 100
- B. 20
- C. 4
- D. 5
- E. 80

### 30 About Those Isotopes

What does the number represent in the isotope Platinum-194?

- A. Atomic number of Platinum
- B. Average atomic mass of Platinum
- C. Number of neutrons in Platinum
- D. Number of protons + electrons
- E. Number of protons + neutrons

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## 2021-2022 High School Warm Up

### Warm-Up Written 4

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#### 31 Big Nicknames

Paris, France, is often known by what nickname?

- A. City of Art
- B. City of Bread
- C. City of Iron
- D. City of Love
- E. City of Smoke

---

#### 32 Once Upon a Time

Many scientists call the theoretical watery mix of complex molecules necessary to first produce self-replicating life on this planet the \_\_\_\_\_ soup.

- A. Chicken Noodle
- B. Darwinian
- C. Primeval
- D. Primitive
- E. Primordial

---

#### 33 Notable Structures

I.M. Pei designed the glass pyramid that serves as the entrance to what famous museum?

- A. British Museum
  - B. Los Angeles County Museum of Art
  - C. Louvre
  - D. Metropolitan Museum of Art
  - E. Prado
- 

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## 2021-2022 High School Warm Up

### Answer Key

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#### Warm-Up Written 4

1. A
2. A
3. B
4. D
5. B
6. D
7. E
8. D
9. A
10. C
11. B
12. E
13. D
14. B
15. E
16. E
17. C
18. E
19. C
20. A
21. E
22. C
23. A
24. E
25. D
26. D
27. E
28. A
29. A
30. E
31. D
32. E
33. C

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# 2021-2022 High School Packet 1

## Written Round

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# 2021-2022 High School Packet 1

Written Round

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## 1 Sartorial Specialties

Which piece of traditional men's clothing is closest to a vest?

- A. Corset
- B. Cummerbund
- C. Surcoat
- D. Tippet
- E. Waistcoat

## 2 Demographic Decisions

In response to falling birthrates, the Chinese government announced what policy change in 2020?

- A. Allowing all women to have three children
- B. Income subsidies for parents
- C. Paid maternity leave and free child care
- D. Restrictions on abortion and birth control
- E. Rewarding mothers who have multiple children

## 3 Forms of the Novel

What is distinctive about an "epistolary" novel?

- A. It has fewer than 40,000 words
- B. It's composed of flashbacks
- C. It's composed of illustrated panels
- D. It's composed of letters
- E. It's in verse

## 4 Vocabulary Vocabulary

Which of the following is an example of an acronym?

- A. Rotor
- B. SCUBA
- C. Snap
- D. Sow
- E. They're/There/Their

## 5 Tick Tock

A physics class is asked to design a series of experiments to determine what variable affects the period of a pendulum. Which of these variables will have an impact on the pendulum's period?

- A. Length of pendulum
- B. Mass of pendulum bob
- C. Release point of pendulum bob
- D. Type of material used for pendulum
- E. Weight of pendulum bob

## 6 Mechanical Terms

In North American automotive engineering, what acronym denotes a permanently active drive-train in which torque transfer between the wheels is actively managed via a differential?

- A. 2WD
- B. 4WD
- C. 4X4
- D. ATV
- E. AWD

## 7 Freedom Fathers

Priests Miguel Hidalgo and José María Morelos led the early 19th century independence movement of what former Spanish colony?

- A. Columbia
- B. Cuba
- C. Honduras
- D. Mexico
- E. Nicaragua

## 8 What Are The Chances?

Your dogs were good boys while you were out. This deserves treats! You reach into the jar for two treats without looking. There are 7 chicken, 5 liver, and 4 beef. The first one you grab is beef. What are the chances of pulling out a liver one next?

- A. 1 in 16
- B. 1 in 3
- C. 1 in 4
- D. 5 in 11
- E. 5 in 12

## 9 Heartland Hubs

What Iowan city is home of the main Quaker Oats plant and the Masonic Library, one of the largest collections of Masonic materials in the world?

- A. Ames
- B. Cedar Rapids
- C. Davenport
- D. Des Moines
- E. Iowa City

## 10 Longest Day of Your Life

Due to its odd tilt, the polar regions of Uranus receive continuous daylight for how long during its orbit around the sun?

- A. 108 Earth years
- B. 12 Earth years
- C. 39 Earth years
- D. 42 Earth years
- E. 57 Earth years

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# 2021-2022 High School Packet 1

Written Round

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## 11 Sacred Spaces

In most Western church architecture, the central portion meant to accommodate most of the congregation is called the what?

- A. Altar
- B. Apse
- C. Basilica
- D. Narthex
- E. Nave

## 12 Where did that come from?

Which tool can be used to help visualize how genetic traits are inherited?

- A. Autoclave
- B. Buffer
- C. Centrifuge
- D. Growth Model
- E. Punnett Square

## 13 Painting Drama

Alex buys a painting from James for \$30 on Facebook. Alex sells the same painting to Camilla for \$5,000. What legal action can James take?

- A. None
- B. Sue for breach of contract
- C. Sue for fraud
- D. Sue for the \$5,000
- E. Sue for the return of the painting

## 14 The Order of Things

Which of these languages is typically written (and read) right-to-left?

- A. Arabic
- B. German
- C. Hindi
- D. Japanese
- E. Spanish

## 15 Milestones in Space

The first all-female spacewalk, completed in 2019 by American astronauts Christina Koch and Jessica Meir, was delayed for what reason?

- A. A lack of spacesuits sized to fit women.
- B. A technology malfunction at the space station.
- C. It was considered an unnecessary expense.
- D. One of the astronauts fell ill the day before.
- E. Opposition from the public.

## 16 Make It Count

Which of the following is a QUANTITATIVE, as opposed to a qualitative, trait?

- A. Beauty
- B. Color
- C. Sadness
- D. Temperature
- E. Texture

## 17 Can You Cope?

If your team loses a Knowledge Bowl competition and you react by holding your favorite childhood stuffed animal and sucking your thumb, you are displaying which Freudian defense mechanism?

- A. Denial
- B. Projection
- C. Rationalization
- D. Reaction formation
- E. Regression

## 18 Linear Algebra

Which of the following lines is perpendicular to  $y = -2x + 1$ ?

- A.  $y = 2x - 1$
- B.  $y = (\frac{1}{2})x - 2$
- C.  $y = -(\frac{1}{2})x + 1$
- D.  $y = -2x + 1$
- E.  $y = -2x - 1$

## 19 Shakespearean Quotes

These lines belong to which Shakespearean character?

"Come spirits, unsex me here, and fill me from the crown to the toe top-full of direst cruelty."

- "Out, damned spot"
- A. Cordelia
- B. Iago
- C. Juliet
- D. Lady Macbeth
- E. Richard III

## 20 Get a Real Job

What "profession" did the following men share?

Walter Kennedy, Bart Roberts, Christopher Moody, Edward Low, and Edward Teach.

- A. Bank Robbers
- B. Mafia Gangsters
- C. Magicians
- D. Pirates
- E. Train Robbers

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# 2021-2022 High School Packet 1

Written Round

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## 21 Quotable Quotes

Finish this quotation from *Julius Caesar*, Act 3, Scene 1: "Cry 'Havoc!' and let slip..."

- A. The hounds of Hell
- B. The dogs of war
- C. The fog of battle
- D. The forces of darkness
- E. The grapes of wrath

## 22 Terms of Endearment

Which of the following is NOT a French term of endearment?

- A. ma chaussette
- B. ma chérie
- C. ma poupée
- D. mon bijou
- E. mon chou

## 23 Sitcom Trivia

What was the name of Andy Dwyer's band in the 2009-2015 situation comedy "Parks and Recreation"?

- A. Eggs and Bacon
- B. Kitty Cats
- C. Mouse Rat
- D. Pawnee Rangers
- E. Shoeshiners

## 24 Presidential Succession

Who took the oath of office at his private home on September 20, 1881 following the death of James Garfield?

- A. Benjamin Harrison
- B. Chester Arthur
- C. Grover Cleveland
- D. Ulysses Grant
- E. William McKinley

## 25 Other Worldly Weather

The very top of Saturn's atmosphere has a layer of clouds which gives the planet a pale, muted color. What is this layer made out of?

- A. Ammonia Crystal clouds
- B. Hydro-Carbon clouds
- C. Magnesium-Phosphate clouds
- D. Silicon clouds
- E. Sulfuric Acid clouds

## 26 Heat Transfer

540 calories is required to vaporize 1 gram of water. You have 10 grams of water at 100 degrees Celsius in an insulated container. What is the final temperature of the remaining 9 grams of water if 1 gram of water rapidly evaporates?

- A. 40 degrees Celsius
- B. 50 degrees Celsius
- C. 60 degrees Celsius
- D. 70 degrees Celsius
- E. 80 degrees Celsius

## 27 Glory in Youth

Which of these religions is the youngest?

- A. Buddhism
- B. Christianity
- C. Hinduism
- D. Islam
- E. Judaism

## 28 Humorous Lines

The following quote from *Guardians of the Galaxy* illustrates what punny literary device?

Rocket: Metaphors are going to go over his head.  
Drax: Nothing goes over my head. My reflexes are too fast. I will catch it.

- A. Antiphrasis
- B. Chiasmus
- C. Meiosis
- D. Synecdoche
- E. Zeugma

## 29 Firsts in Suffrage

Which of the following states was the first to grant women the right to vote?

- A. Massachusetts
- B. New Hampshire
- C. Oregon
- D. Virginia
- E. Wyoming

## 30 Ecosystem Distinctives

Which of the following ecosystems is distinguished by its open canopy, even with high tree density, that allows sunlight to support growth of mostly grasses?

- A. Grassland
- B. Rainforest
- C. Savannah
- D. Steppe
- E. Taiga

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Written Round

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**31 Terminal Terminology**

In law, the killing of another human being — whether premeditated, accidental, or in self-defense — can be classified by what general term?

- A. Homicide
- B. Manslaughter
- C. Misdemeanor
- D. Murder
- E. Reckless endangerment

---

**32 Long Reads**

What 1978 epic novel by Stephen King pits the forces of good, led by “Mother Abigail,” against the evil forces led by the “dark man,” Randall Flagg?

- A. *Doctor Sleep*
- B. *It*
- C. *The Gunslinger*
- D. *Under The Dome*
- E. *The Stand*

---

**33 Impressive Firsts**

Sadie Alexander was America’s first black...

- A. Congresswoman
- B. Doctor
- C. Economist
- D. Pilot
- E. Police chief

---

**34 Complementary Math**

One-half of the supplement of an angle is equal to the twice the measure that angle. In degrees, what is the measure of the complement of the angle?

- A. 18
- B. 36
- C. 54
- D. 63
- E. 72

---

**35 Plumbing Basics**

In modern homes, main water supply lines from the usage meter to the house are made what rustproof and corrosion-resistant substances?

- A. Aluminum
- B. Concrete
- C. Copper
- D. Lead
- E. Polyvinyl chloride

---

**36 Fun With Grammar**

Which of the following is a nominative case pronoun?

- A. Her
- B. Him
- C. Us
- D. We
- E. Whom

---

**37 Diatonic and Cents**

In Western musical terminology, the interval between G and G sharp is how many cents?

- A. 100
- B. 150
- C. 200
- D. 300
- E. 50

---

**38 Name the Ages**

What alloy of copper and tin, used to make rudimentary tools, gives its name to a prehistoric period of human history?

- A. Brass
- B. Bronze
- C. Electrum
- D. Iron
- E. Steel

---

**39 Interesting Geography**

The Atlas Mountains are an example of what type of geological feature?

- A. Arete
- B. Ergs
- C. Hamadas
- D. Piedmont
- E. Regs

---

**40 Romantic Paintings**

What is a woman doing in a painting that is an “Odalisque?”

- A. Bathing
- B. Lying down
- C. Posing with her family
- D. Riding a horse
- E. Writing

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## 41 Awesome Albums

What jazz trumpeter was featured on the 1959 album *Kind of Blue*, one of the most popular jazz albums of all time?

- A. Charlie Parker
- B. Duke Ellington
- C. Miles Davis
- D. Thelonious Monk
- E. "Dizzy" Gillespie

## 42 Saudi Standoffs

In January 2021, Saudia Arabia re-opened its border with which neighbor, ending a three-year diplomatic crisis between the two nations?

- A. Iraq
- B. Kuwait
- C. Oman
- D. Qatar
- E. United Arab Emirates

## 43 Areas of Study

The discipline of biology concerned with the study of fungi is known as what "-ology"?

- A. Malacology
- B. Microbiology
- C. Mycology
- D. Pharmacology
- E. Phycology

## 44 Relationships between vectors

If  $u = \langle 2, 2 \rangle$  and  $v = \langle 2, -2 \rangle$ , which of the following is the angle between  $u$  and  $v$ ?

- A.  $0^\circ$
- B.  $180^\circ$
- C.  $45^\circ$
- D.  $60^\circ$
- E.  $90^\circ$

## 45 Consumer Chemistry

What was the first synthetic plastic product, invented by John Wesley Hyatt, which was used for combs, films, toys, and other consumer goods?

- A. Cellophane
- B. Celluloid
- C. Cellulose
- D. Cellulose acetate
- E. Nitrocellulose

## 46 Ladies of LOLs

What American short-story writer and poet is known for her witticisms, including: "Men seldom make passes / at girls who wear glasses;" and her remark upon hearing President Coolidge died: "How can they tell?"

- A. Alice Munro
- B. Doris Lessing
- C. Dorothy Parker
- D. Flannery O'Connor
- E. Louisa May Alcott

## 47 Turning Points

Which battle of the American Revolution is considered its turning point for lowering British morale and creating an alliance between the Continental Army and France?

- A. Ft. Ticonderoga
- B. Lexington and Concord
- C. Saratoga
- D. Trenton
- E. Yorktown

## 48 Classical Compositions

Frederic Chopin and Claude Debussy are two well-known composers of what type of musical piece, named from the French for "study," originally intended to be exercises or explorations of a particular musical technique?

- A. Aria
- B. Concerto
- C. Etude
- D. Sonata
- E. Symphony

## 49 Winners and Losers

Who is likely to benefit from an unexpected increase in inflation?

- A. Homeowners with fixed-rate mortgages
- B. Minimum wage workers
- C. Restaurants
- D. Retirees living on a pension
- E. Workers with long-term contracts

## 50 Touristy Towns

What southwestern city is Mexico is located on a deep semicircular bay on the Pacific Ocean has become a popular tourist attraction, hosting more than 300,000 visitors annually?

- A. Acapulco
- B. Cancun
- C. Monterrey
- D. Morelia
- E. Tijuana

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# 2021-2022 High School Packet 1

Written Round

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## 51 What Will Be, Will Be

In philosophy, what is the term for the belief that all future events are already decided, based on current conditions, and cannot be changed?

- A. Capitalism
- B. Determinism
- C. Existentialism
- D. Socialism
- E. Utilitarianism

## 56 Hard to Breath

In 1932, dust storms spread across the Midwest earning what nickname?

- A. "The dirt days"
- B. "The dust bowl"
- C. "The dust drought"
- D. "The dust of doom"
- E. "The dust storm"

## 52 Joint Juxtapositions

In the human body, which of the following joints is considered a pivot joint?

- A. C1 to C2 vertebral joint
- B. Elbow joint
- C. Hip joint
- D. Knee joint
- E. Radiocarpal joint of wrist

## 57 Cool Times

Which geologic epoch is often called "the Ice Age"?

- A. Eocene
- B. Holocene
- C. Miocene
- D. Pleistocene
- E. Pliocene

## 53 Constitutional Law

For what purpose does the US constitution mandate a decennial census?

- A. To apportion legislative representatives
- B. To assess military readiness
- C. To determine citizens' needs
- D. To ease taxation
- E. To monitor economic progress

## 58 The Empirical Rule

Approximately what percentage of normally distributed data lies within one standard deviation of the mean?

- A. 33%
- B. 57%
- C. 68%
- D. 95%
- E. 99.7%

## 54 Negative Nelly

Which of the following elements is the MOST electronegative?

- A. Aluminum
- B. Carbon
- C. Fluorine
- D. Magnesium
- E. Silver

## 59 Tools of the Trade

If I am using tools such as amplification, anadiplosis, chiasmus, and hypophora, what ancient art am I practicing?

- A. Architecture
- B. Mathematics
- C. Medicine
- D. Prophecy
- E. Rhetoric

## 55 Spanish Cuisine

Which one of the following would *un vegetariano* be willing to eat?

- A. Un aguacate
- B. Un bistec
- C. Un pavo
- D. Una langosta
- E. Una sopa de gallina

## 60 Early English Poetry

What late 7th century English illiterate cowherd was inspired in a dream to write the "Hymn of Creation," the only surviving writing from this author?

- A. Aethelberht the First
- B. Alfred the Great
- C. Bede the Venerable
- D. Beowulf
- E. Caedmon

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**2021-2022 High School Packet 1****Written Round****Answer Key**

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- |       |       |
|-------|-------|
| 1. E  | 41. C |
| 2. A  | 42. D |
| 3. D  | 43. C |
| 4. B  | 44. E |
| 5. A  | 45. B |
| 6. E  | 46. C |
| 7. D  | 47. C |
| 8. B  | 48. C |
| 9. B  | 49. A |
| 10. D | 50. A |
| 11. E | 51. B |
| 12. E | 52. A |
| 13. A | 53. A |
| 14. A | 54. C |
| 15. A | 55. A |
| 16. D | 56. B |
| 17. E | 57. D |
| 18. B | 58. C |
| 19. D | 59. E |
| 20. D | 60. E |
| 21. B |       |
| 22. A |       |
| 23. C |       |
| 24. B |       |
| 25. A |       |
| 26. A |       |
| 27. D |       |
| 28. E |       |
| 29. E |       |
| 30. C |       |
| 31. A |       |
| 32. E |       |
| 33. C |       |
| 34. C |       |
| 35. C |       |
| 36. D |       |
| 37. A |       |
| 38. B |       |
| 39. C |       |
| 40. B |       |

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# 2021-2022 High School Packet 2

## Written Round

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# 2021-2022 High School Packet 2

Written Round

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## 1 Connect the Dots

The Hertzsprung-Russell Diagram will arrange stars based on what two properties?

- A. Elemental make-up & Age
- B. Magnetic Field strength & Luminosity
- C. Rotation speed & Speed through space
- D. Temperature & Age
- E. Temperature & Luminosity

## 2 Whodunit?

What is the best-selling mystery novel of all time, here with its British title, first published by Agatha Christie in 1939?

- A. *And Then There Were None*
- B. *The Alienist*
- C. *The Cuckoo's Calling*
- D. *The Hound of the Baskervilles*
- E. *The Talented Mr Ripley*

## 3 Round and Delicious

The bagel was first created by the Jewish community in what country?

- A. France
- B. Germany
- C. Italy
- D. Poland
- E. Spain

## 4 Capitals with a View

Bordering the Atlantic Ocean, Luanda is the capital city for what African nation?

- A. Angola
- B. Cameroon
- C. Gabon
- D. Ghana
- E. Namibia

## 5 Gestating

Which of the following mammals has the LONGEST intrauterine gestational period?

- A. Elephants
- B. Giraffes
- C. Humans
- D. Humpback whales
- E. Opossums

## 6 Going to Your Head

Finish the following quotation from Shakespeare's *Henry IV*, Part 2, Act 3, Scene 1: "Uneasy lies the head that..."

- A. Craves ever more
- B. Dreams of love
- C. Loses his mind
- D. Tells a lie
- E. Wears a crown

## 7 Taxation

If an income tax is described as "regressive," who (in theory) pays the highest percentage of their income?

- A. Conservatives
- B. High Earners
- C. Liberals
- D. Low Earners
- E. Luddites

## 8 College Sports

The first collegiate football game took place in what state?

- A. Michigan
- B. New Jersey
- C. Pennsylvania
- D. Texas
- E. Virginia

## 9 Composites

Which of the following is a composite number?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

## 10 Mighty Men of Old

In the Hebrew Bible books *Genesis* and *Numbers*, what is the name given to mysterious, giant beings thought to be fallen angels or offspring of fallen angels and humans?

- A. Basilisks
- B. Griffins
- C. Manticores
- D. Nephilim
- E. Trolls

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## 2021-2022 High School Packet 2

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### 11 Stars with Class

Stars are categorized into classes. Which star class is the hottest in temperature?

- A. Class B
- B. Class F
- C. Class G
- D. Class K
- E. Class O

### 12 Don't Miss Your Flight

The first internet and online check-in system for flights was used by what airline company in 1999?

- A. Alaska Airlines
- B. American Airlines
- C. Delta
- D. Lufthansa
- E. Southwest

### 13 Not-So-Great

Which is the SMALLEST of the Great Lakes, in terms of area?

- A. Erie
- B. Huron
- C. Michigan
- D. Ontario
- E. Superior

### 14 Lady Sings The Blues

What American female jazz singer, known affectionately as "Lady Day," reached the pinnacle of her fame from 1936 to 1943, with her unique musical diction and phrasing?

- A. Billie Holiday
- B. Dinah Washington
- C. Ella Fitzgerald
- D. Nina Simone
- E. Peggy Lee

### 15 Inequalities

Which of these is a solution to the following inequality?  $5x - 3 > 3x + 1$

- A. -2
- B. -3
- C. 0
- D. 2
- E. 3

### 16 Italian Literature

Boccaccio's *The Decameron* takes place during the Black Death; it features a group of people telling a total of how many stories to one another?

- A. 10
- B. 100
- C. 101
- D. 12
- E. 20

### 17 What's Missing?

Which of the following amino acids is NOT found within DNA?

- A. Adenine
- B. Cytosine
- C. Guanine
- D. Thymine
- E. Uracil

### 18 Asking About Atoms

What physicist designed and carried out an experiment that involved measuring the fall rate of negatively charged oil droplets between two charged metal plates?

- A. Ernest Rutherford
- B. Eugene Goldstein
- C. J. J. Thompson
- D. James Chadwick
- E. Robert Milikin

### 19 Rocky Relationship Conjugation

Your friend has been smitten by a new beloved who smote him. What is the present tense of this verb just used twice?

- A. Smate
- B. Smite
- C. Smitt
- D. Smott
- E. Smut

### 20 Recent Disasters

A 2010 earthquake measuring 7.0 on the Richter scale was responsible for an estimated 100,000-220,000 deaths in what Caribbean country?

- A. Bahamas
- B. Cub
- C. Dominican Republic
- D. Haiti
- E. Jamaica

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## 2021-2022 High School Packet 2

### Written Round

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#### 21 Vertex Form

Which of the following is the vertex of a parabola with the equation  $y = -a(x + b)^2 + c$

- A.  $(-a, b)$
- B.  $(-b, c)$
- C.  $(-c, b)$
- D.  $(a, b)$
- E.  $(b, c)$

#### 26 Lat and Long

What capital city is at  $38^\circ 53' 23''$  N,  $77^\circ 00' 27''$  W?

- A. London, United Kingdom
- B. Moscow, Russia
- C. Rome, Italy
- D. Tokyo, Japan
- E. Washington, D.C.

#### 22 Future Travel Planning

In terms of Earth's gravity, which of the following fractions most closely represents the gravity on Mars?

- A. 0.25
- B. 0.33
- C. 0.66
- D. 1.0
- E. 1.5

#### 27 Life's Journey

What classic Christian allegory by John Bunyan opens with the line: "As I walk'd through the wilderness of this world, I lighted on a certain place where was a Den, and I laid me down in that place to sleep..."

- A. *Paradise Lost*
- B. *The Inferno*
- C. *The Lion, the Witch, and the Wardrobe*
- D. *The Pilgrim's Progress*
- E. *Through the Looking Glass*

#### 23 World Cities

In what Pakistani city was Osama bin Laden's compound where he was killed in May 2011?

- A. Abbottabad
- B. Islamabad
- C. Karachi
- D. Lahore
- E. Peshawar

#### 28 Landmark Legalese

The Supreme Court cases *Hamdan v Rumsfeld* (2006) and *Boumediene v Bush* (2008) dealt with which of the following issues?

- A. Imminent domain restrictions
- B. Limits to freedom of association
- C. Protestor free speech rights
- D. Same-sex marriage
- E. Terrorist detainee rights

#### 24 Do You Even Lift, Bro?

What is the name of the large, flat, roughly triangular muscles covering the lower back, functioning in drawing the upper arm downward and backward?

- A. Deltoid
- B. Latissimus dorsi
- C. Quadratus femoris
- D. Sartorius
- E. Trapezius

#### 29 A Painterly Touch

What is the painting technique in which colored pigment is mixed with hot liquid wax?

- A. Acrylic
- B. Emboss
- C. Encaustic
- D. Fresco
- E. Tempera

#### 25 A Philosophical Man

What was the instrument of Socrates's death?

- A. Asp
- B. Guillotine
- C. Posion
- D. Rope (Hanging)
- E. Sword

#### 30 Risky Business

The Latin phrase "auribus teneo lupum" describes a situation in which any action is risky. What is the closest English translation of this phrase?

- A. Between a dog and its bone
- B. Between a rock and a hard place
- C. I have a tiger by the tail
- D. I hold a wolf by the ears
- E. Out of the frying pan into the fire

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## 31 Tough Act to Follow

Who was the 17th president of the United States after President Abraham Lincoln was assassinated?

- A. Andrew Johnson
- B. Franklin Pierce
- C. Grover Cleveland
- D. James Garfield
- E. Zachary Taylor

## 32 Defying Genre

Alexander Calder is best known for his work with what type of art?

- A. Courtyards
- B. Fountains
- C. Mobiles and Stables
- D. Oil Paintings
- E. Tapestries

## 33 Petrol Production

Typically, a 42-gallon barrel of crude oil yields up to 19 gallons of what common internal combustion fuel?

- A. Diesel
- B. Gasoline
- C. Kerosene
- D. Methanol
- E. Natural gas

## 34 Just a Little Help

If your mom gets out the tweezers, she might be helping your little brother by removing

- A. un chat dans la gorge
- B. un gâteau au four
- C. un lacet
- D. un éclat de bois
- E. une trottinette

## 35 Analyzing Circles

What is the radius of this circle?  $(x-1)^2 + (y-3)^2 = 4$

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

## 36 Renaissance Nihilism

"It is a tale

Told by an idiot, full of sound and fury

Signifying nothing."

Which Shakespearean character says this about life?

- A. Julius Casear
- B. King Lear
- C. Macbeth
- D. Othello
- E. Romeo

## 37 Alter Egos

In the Marvel universe, what is the real name of the person who, when angered, becomes The Hulk?

- A. Bruce Banner
- B. Clint Barton
- C. Hank Pym
- D. Steve Rogers
- E. Tony Stark

## 38 Close Encounters

In May 2020, researchers announced the discovery of what phenomenon, the closest known to Earth, at a distance of only 1000 light-years?

- A. Binary star system
- B. Black hole
- C. Neutron star
- D. Quasar
- E. Red giant star

## 39 Fundamental Fixations

Both free-living and symbiotic bacteria perform biological nitrogen fixation, by which molecular

nitrogen is metabolized into what vital compound?

- A. Ammonia
- B. Cyanide
- C. Nitric oxide
- D. Nitrogen dioxide
- E. Urea

## 40 Healthy Boundaries

Which of the following countries DOES NOT border the Caspian Sea?

- A. Armenia
- B. Azerbaijan
- C. Iran
- D. Kazakhstan
- E. Turkmenistan

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### 41 Logical Fallacies

What is the name for an argument that relies on personal attack of one's opponent rather than a logical counterpoint?

- A. ad hominem
- B. ad infinitum
- C. no true Scotsman
- D. red herring
- E. straw man

### 42 Dealing with matter

Which of the following changes would be described best as a physical change?

- A. Alka Seltzer tablet fizzing in water
- B. Bread dough rising after the addition of yeast
- C. Charcoal burning in a grill
- D. Digesting a granola bar
- E. Formation of a stratus cloud

### 43 Something In The Air Tonight

Of all the layers of the Earth's atmosphere, all weather systems are contained in which ten-mile-thick layer nearest the surface?

- A. Exosphere
- B. Mesosphere
- C. Stratosphere
- D. Thermosphere
- E. Troposphere

### 44 Shared Peaks

Aconcagua is the highest peak in the world outside of Asia and straddles the border between Chile and what other country?

- A. Argentina
- B. Bolivia
- C. Ecuador
- D. Paraguay
- E. Peru

### 45 Snack Trivia

What is the cartoon "Pringles Man's" — of his namesake stackable potato crisps — first name?

- A. Jack
- B. Jonathan
- C. Julian
- D. Paul
- E. Peter

### 46 Earlier Populations

In America's first official census in 1790, about how many people were counted within the United States?

- A. 1,000,000
- B. 14,000,000
- C. 2,500,000
- D. 4,000,000
- E. 6,000,000

### 47 Types of Narrative

Which one of the following is NOT an example of a frame story?

- A. *Frankenstein*
- B. *Heart of Darkness*
- C. *Pride and Prejudice*
- D. *The Canterbury Tales*
- E. *Wuthering Heights*

### 48 There's an App for That

In 2020, what was the most popular mobile app, with a reach of almost 77% of U.S. mobile users over age 18?

- A. Amazon Mobile
- B. Gmail
- C. Instagram
- D. TikTok
- E. YouTube

### 49 Kingly Colors

Supporters of English rule in Northern Ireland are known for the use of what color, harkening back to the name of King William III?

- A. Blue
- B. Green
- C. Orange
- D. Purple
- E. Red

### 50 Gimme Some Sweet Sugar

Which of the following hormones has a primary role in raising blood glucose levels?

- A. Estrogen
- B. Glucagon
- C. Insulin
- D. Melatonin
- E. Thyroxine

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### 51 Top 40...in 1717

What composer wrote the *Water Music* suite of short orchestral pieces, and *Messiah* from which the "Hallelujah Chorus" is taken?

- A. George Frederic Handel
- B. Gustav Holst
- C. Johann Sebastian Bach
- D. Johannes Brahms
- E. Ludwig van Beethoven

### 56 Island Chains

How many main islands comprise the state of Hawaii?

- A. 12
- B. 4
- C. 7
- D. 8
- E. 9

### 52 Seawater Solutes

Other than sodium and chloride, what inorganic solute has the third highest relative concentration in seawater?

- A. Bromide
- B. Calcium
- C. Magnesium
- D. Potassium
- E. Sulfate

### 57 Inheritance

If R represents red hair and r represents blond hair, and hair color is passed down by Mendelian inheritance, what are the chances that the offspring of parents with the genetics Rr and RR has red hair?

- A. 0%
- B. 100%
- C. 25%
- D. 50%
- E. 75%

### 53 Church and State

If you lived under the reign of ancient Persian kings Darius or Xerxes in the 4th to 5th centuries BCE, which god would you be required to worship?

- A. Ahura Mazda
- B. Ba'al
- C. Imhotep
- D. Odin
- E. Zeus

### 58 First Contact

In 1543, a trading ship was blown off-course and the first Europeans set foot in Japan. From what country did this ship hail?

- A. England
- B. France
- C. Portugal
- D. Spain
- E. Sweden

### 54 Shortened Science

By what acronym is the major European particle physics research organization located in Geneva, Switzerland, known?

- A. CEN
- B. CERN
- C. METNET
- D. NEAFC
- E. UNESCO

### 59 Measurements

What is the height of a square pyramid that has a volume of 600 cubic feet and base with sides measuring 10 feet?

- A. 10 feet
- B. 18 feet
- C. 2 feet
- D. 6 feet
- E. 9 feet

### 55 Spasiba, But No Spasiba

Which Russian poet and author won...but, because of political opposition, declined...the Nobel Prize for Literature in 1958 for his novel, *Doctor Zhivago*?

- A. Boris Pasternak
- B. Fyodor Dostoevsky
- C. Ivan Turgenev
- D. Leo Tolstoy
- E. Vladimir Nabokov

### 60 Characters

In the travelogue *Travels with Charley*, Charley is author John Steinbeck's \_\_\_\_\_.

- A. Dog
- B. Father
- C. Imaginary Friend
- D. Son
- E. World War II comrade

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**2021-2022 High School Packet 2****Written Round****Answer Key**

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|       |       |
|-------|-------|
| 1. E  | 41. A |
| 2. A  | 42. E |
| 3. D  | 43. E |
| 4. A  | 44. A |
| 5. A  | 45. C |
| 6. E  | 46. D |
| 7. D  | 47. C |
| 8. B  | 48. E |
| 9. D  | 49. C |
| 10. D | 50. B |
| 11. E | 51. A |
| 12. A | 52. C |
| 13. D | 53. A |
| 14. A | 54. B |
| 15. E | 55. A |
| 16. B | 56. D |
| 17. E | 57. B |
| 18. E | 58. C |
| 19. B | 59. B |
| 20. D | 60. A |
| 21. B |       |
| 22. B |       |
| 23. A |       |
| 24. B |       |
| 25. C |       |
| 26. E |       |
| 27. D |       |
| 28. E |       |
| 29. C |       |
| 30. D |       |
| 31. A |       |
| 32. C |       |
| 33. B |       |
| 34. D |       |
| 35. B |       |
| 36. C |       |
| 37. A |       |
| 38. B |       |
| 39. A |       |
| 40. A |       |

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# 2021-2022 High School Packet 3

## Written Round

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# 2021-2022 High School Packet 3

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## 1 New Discoveries in Physics

What unstable particles, sometimes called “fat electrons,” have a negative electrical charge and spin and, according to research published in April 2021, appear not to obey the laws of physics?

- A. Bosons
- B. Muons
- C. Neutrons
- D. Positrons
- E. Quarks

## 2 National Parks

What national park - including parts of the Chihuahuan Desert and the entire Chisos Mountains - is home to more bird species than any other national park?

- A. Big Bend
- B. Great Smoky Mountains
- C. Rocky Mountain
- D. Shenandoah
- E. Yosemite

## 3 What You Looking At?

Which of the following herbivorous, dramatically horned dinosaurs may have been offended by its name, which in Greek means “three-horned face”?

- A. Brachiosaurus
- B. Pterodactyl
- C. Stegosaurus
- D. Triceratops
- E. Tyrannosaurus

## 4 Tilt Your Head

What is the axial tilt of Mars?

- A. 0 degrees
- B. 23 degrees
- C. 25 degrees
- D. 3 degrees
- E. 57 degrees

## 5 Next In Line

Which of the following officials is the LOWEST in the United States Presidential order of succession?

- A. President pro tempore of the Senate
- B. Secretary of Defense
- C. Secretary of State
- D. Secretary of the Treasury
- E. Speaker of the House of Representatives

## 6 Who’s a Good Boy?

What was the most popular dog name for American male dogs in 2020?

- A. Bear
- B. Charlie
- C. Ollie
- D. Spock
- E. Spot

## 7 Sound It Out

The Phoenician's system of writing consisted of an alphabet of how many characters to represent the sounds of their language?

- A. 16
- B. 18
- C. 22
- D. 28
- E. 33

## 8 Linear Algebra

Which of the following equations is parallel to  $y = 2x + 1$ ?

- A.  $y = (\frac{1}{2})x + 1$
- B.  $y = (\frac{1}{2})x - 1$
- C.  $y = -(\frac{1}{2})x + 1$
- D.  $y = 2x - 1$
- E.  $y = x + 1$

## 9 Inquisition Ideas

In what novel by Fyodor Dostoevsky do we meet The Grand Inquisitor, who makes the case to Jesus that people don’t really want freedom, but rather to be told what to think?

- A. *Anna Karenina*
- B. *The Brothers Karamozov*
- C. *The Demons*
- D. *The Idiot*
- E. *War and Peace*

## 10 Are We There, Yet?

Which of the following tasks would be considered the most Sisyphean?

- A. Baking a cake
- B. Changing the channel
- C. Doing the dishes
- D. Lighting a match
- E. Painting a wall

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## 11 Speed Conversions

If a car is going 25 miles per hour, how many feet will it go in 30 seconds?

- A. 1,100
- B. 1,320
- C. 230
- D. 37
- E. 730

## 12 Peninsular Countries

Which of the following countries is not located on the Indochina Peninsula?

- A. Cambodia
- B. Laos
- C. Myanmar (Burma)
- D. Singapore
- E. Vietnam

## 13 Fictitious Lands

In Jonathan Swift's *Gulliver's Travels*, which of these lands does Gulliver NOT visit?

- A. Brobdingnag
- B. Land of the Houyhnhnms
- C. Laputa
- D. Lilliput
- E. Prydain

## 14 A Breath of Fresh Air

How many lobes does the human right lung have?

- A. 1
- B. 2
- C. 3
- D. 4
- E. Varies with age

## 15 Recognizing Reformers

Dorothea Dix was associated with which of the following reform movements in 19th century America?

- A. Abolition of slavery
- B. Prohibition of alcohol
- C. Public education
- D. Treatment of mental illness
- E. Universal suffrage

## 16 Latin American Short Stories

What Argentinian writer, known for writing in the Magic Realism genre, published primarily collections of short stories, including *The Garden of Forking Paths*, *Labyrinths*, and *Ficciones*?

- A. Gabriel Garcia Marquez
- B. Jorge Luis Borges
- C. Julio Cortázar
- D. Octavio Paz
- E. Silvina Ocampo

## 17 Playing Scales

Which meteorological scale ranges between zero and 11+ as measured at solar noon, when the sun appears to be directly overhead?

- A. Heat index
- B. Richter scale
- C. Ultraviolet index
- D. Wind chill
- E. Windspeed

## 18 Line Drive

Measuring straight across the baseball diamond, how far is second base from home plate, or first base from third?

- A. 113 feet, 5 1/8 inches
- B. 127 feet, 3 3/8 inches
- C. 144 feet, 1 1/2 inches
- D. 180 feet, 2 1/2 inches
- E. 90 feet

## 19 Tricky Art Techniques

What artistic technique uses a contrast of light and shadow to bring out the 3-dimensional nature of painted figures?

- A. Chiaroscuro
- B. Foreshortening
- C. Gilding
- D. Impressionism
- E. Sfumato

## 20 Bloc Blasters

The short, durable automatic rifle designed by Mikhail Kalashnikov, capable of firing 600 rounds per minute, was best known by what abbreviated designation?

- A. AK-47
- B. BAR
- C. M-1 Garand
- D. M-16
- E. Uzi

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## 21 Existential Dread

After witnessing the July 1945 Trinity nuclear test, J. Robert Oppenheimer quoted two lines, including "Now I am become Death, the destroyer of worlds," from what religious text?

- A. *Bhagavad Gita*
- B. *The Book of Enoch*
- C. *The Koran*
- D. *The Revelation of St John*
- E. *The Torah*

## 22 Relative Sizes

Which of the following microorganisms is largest?

- A. Bacterium
- B. Protozoan
- C. Rickettsia
- D. Virus
- E. Yeast

## 23 Quadratic Equations

Which one of the following equations has no real solutions?

- A.  $-3 = -3x^2 + 3x$
- B.  $-3 = -3x^2 - 3x$
- C.  $-3 = 3x^2 - 3x$
- D.  $3 = 3x^2 + 3x$
- E.  $3 = 3x^2 - 3x$

## 24 Dystopian Dynasties

What teacher at Eton, a boarding school in England, and future author of *Brave New World* taught the student who would later write 1984?

- A. Aldous Huxley
- B. C.S. Lewis
- C. George Orwell
- D. Sinclair Lewis
- E. Thomas Huxley

## 25 Somewhere In Between

What is the term for a work of literature shorter than a novel, but longer than a short story?

- A. Epic
- B. Fable
- C. Novella
- D. Parable
- E. Serial

## 26 Kansas Factoids

Manhattan, Kansas, home of Kansas State University, is known by what nickname referencing an East Coast metropolis?

- A. Midwest Tea Party
- B. The Land of Oz
- C. The Little Apple
- D. Village of Brotherly Love
- E. Washington of the West

## 27 Matter Separation

Under what type of mixture combinations would distillation be an effective separation technique to employ?

- A. gas-gas mixture
- B. liquid-gas mixture
- C. liquid-liquid mixture
- D. solid-liquid mixture
- E. solid-solid mixture

## 28 Host Cities

Which was the first South American city to host the Olympics?

- A. Buenos Aires
- B. Caracas
- C. Lima
- D. Rio de Janeiro
- E. Santiago

## 29 Trees

Which of the following is not a conifer?

- A. Douglass Fir
- B. Juniper
- C. Larch
- D. Oak Tree
- E. Spruce

## 30 A War Between Romans

How many years passed between the deaths of Julius Caesar and Mark Antony?

- A. 11 Years
- B. 14 Years
- C. 17 Years
- D. 20 Years
- E. 24 Years

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### 31 Forgive Us Our Debts

Your friend borrowed money from you to woo a woman. Now you're indebted to an unforgiving moneylender. Which character in Shakespeare's *The Merchant of Venice* are you?

- A. Antonio
- B. Bassanio
- C. Gratiano
- D. Portia
- E. Shylock

### 32 Starry Sequence

Which of the following NASA missions was chronologically FIRST?

- A. Apollo 11
- B. Gemini 11
- C. Gemini 3
- D. Mercury Atlas 6
- E. Mercury Redstone 3

### 33 Mutation Mishaps

A single nucleotide mutation in a strand of DNA that results in production of a different amino acid is known as what kind of mutation?

- A. Deletion
- B. Insertion
- C. Missense
- D. Nonsense
- E. Silent

### 34 Time Zones

What state does not observe more than one time zone?

- A. Alaska
- B. Nebraska
- C. Oklahoma
- D. Oregon
- E. Tennessee

### 35 Drat! Foiled Again!

Which of the following scientists is responsible for developing the concept of the atomic nucleus, after he shot alpha particles through a sheet of gold foil?

- A. Bill Nye
- B. Ernest Rutherford
- C. JJ Thomson
- D. John Dalton
- E. Niehls Bohr

### 36 Instrumentation

The cranky grandfather in Prokofiev's *Peter and the Wolf* is represented by which double-reed instrument?

- A. Bassoon
- B. Clarinet
- C. English Horn
- D. Oboe
- E. Saxophone

### 37 On the Walls

The walls of this cave in Southern France are unique because of the spotted horses and handprints. Name it.

- A. Altamira
- B. Chauvet
- C. Lascaux
- D. Les Trois Freres
- E. Peche Merle

### 38 GCF

What is the Greatest Common Factor of 25, 100, and 200?

- A. 100
- B. 200
- C. 25
- D. 5
- E. 500,000

### 39 Notable Navies

At the outbreak of World War II in 1939, which belligerent nation had the most submarines in their fleet?

- A. France
- B. Italy
- C. Japan
- D. United Kingdom
- E. United States

### 40 Alternate Timelines

In the 2009 film *Star Trek*, a new timeline is started by the arrival through a wormhole of a ship from what hostile civilization?

- A. Cardassians
- B. Jedi
- C. Klingons
- D. Romulans
- E. Vulcans

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### 41 2021 Deaths

Which children's book author, the creator of Ramona the Pest, Henry Huggins, and Ralph (the mouse on the motorcycle), died in March 2021?

- A. Beverly Cleary
- B. E.L. Konigsburg
- C. Judy Blume
- D. Kate DiCamillo
- E. Roald Dahl

### 42 Getting a Huge Hug

With huge "arms" reaching out to embrace the religious masses, the piazza of St. Peter's Basilica was designed by what artist?

- A. Bernini
- B. Caravaggio
- C. Donatello
- D. Michelangelo
- E. Murillo

### 43 In Extremis

A concentration camp kapo tells what author, as narrated in his 1960 book, "Here there are no fathers, no brothers, no friends - everyone lives and dies for himself alone"?

- A. Binjamin Wilkomirski
- B. Efraim Sicher
- C. Elie Wiesel
- D. Jurek Becker
- E. Leon Yudkin

### 44 The Moon and Gravity

Our moon has a gravitational field which is weaker than that of Earth. What is the fractional strength?

- A. 1/10 of Earth's gravity
- B. 1/16 of Earth's gravity
- C. 1/2 of Earth's gravity
- D. 1/5 of Earth's gravity
- E. 1/6 of Earth's gravity

### 45 Meant for Each Other

Adenine pairs with which other base in RNA?

- A. Adenine
- B. Cytosine
- C. Guanine
- D. Thymine
- E. Uracil

### 46 Analyzing Functions

Which of the following statements is true about this parabola?

$$y = -x^2 + 5x$$

- A. It opens downward and there are 0 x-intercepts
- B. It opens upward and there are 0 x-intercepts
- C. It opens upward and there is 1 x-intercept
- D. It opens downward and there are 2 x-intercepts
- E. It opens upward and there are 2 x-intercepts

### 47 Trade Policy

If the United States imposed a tariff on steel from Country X, who would be most likely to benefit?

- A. American automobile producers
- B. American steel producers
- C. Consumers in the United States
- D. Steel producers in Country X
- E. All of the above

### 48 Potent Quotables

Which amendment to the United States Constitution reads, in part, "A well regulated Militia, being necessary to the security of a free State..."?

- A. 10th
- B. 1st
- C. 2nd
- D. 3rd
- E. 6th

### 49 Buisness Communication

Good managers realize that the most important aspect of communicating is

- A. Budget
- B. Emails
- C. Listening
- D. Phone Calls
- E. Writing

### 50 Publicly Active Publications

What women's magazine, published from 1884 to 2016, played a key role in the founding of the Food and Drug Administration in 1906 by its criticism of unregulated patent medicines?

- A. *Cosmopolitan*
- B. *Good Housekeeping*
- C. *Ladies Home Journal*
- D. *National Geographic*
- E. *Vogue*

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# 2021-2022 High School Packet 3

Written Round

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## 51 Brain Anatomy

Which of the following is a component of the human brain which functions to regulate the sleep-wake cycle?

- A. Caudate
- B. Mammillary body
- C. Pineal gland
- D. Pons
- E. Putamen

## 52 Parsing Equations

In the equation for standard deviation ( $\sigma = \sqrt{(\sum(x_i - \mu)^2 / N)}$ ), what is  $\mu$ ?

- A. Inter-quartile range
- B. Sample mean
- C. Sample size
- D. Sum
- E. Value in data set

## 53 Making It Count

What tiny piece of technology used in step counters, smartphones, and smart watches works by measuring the force exerted on restraints of a reference mass to calculate its value of interest?

- A. Accelerometer
- B. Altimeter
- C. Barometer
- D. Chronometer
- E. Thermometer

## 54 Tables

Potassium is what number on the periodic table?

- A. 19
- B. 20
- C. 21
- D. 22
- E. 23

## 55 Anathema!

Which of the following best summarizes the Christian heresy of docetism, from the Greek "dokein", and condemned at the Council of Nicaea in 325 CE?

- A. Christ did not work miracles
- B. Christ only appeared to be human
- C. Mary was not the mother of Christ
- D. Priests are allowed to marry
- E. The Holy Spirit is not God

## 56 Fizzled Fights

What short-lived and unsuccessful fight for independence against the ruling Mexican government occurred in the Sacramento Valley of California in 1846?

- A. The Avocado Uprising
- B. The Battle of Oranges
- C. The Bear Flag Revolt
- D. The Gold Rush Rebellion
- E. The Sacramento Slaughter

## 57 Surname Derivations

The English surname "Cooper" derives from workers who made what long-term storage devices?

- A. Barrels
- B. Boxes
- C. Coffins
- D. Drawers
- E. Trunks

## 58 Dramatic Definitions

The word "wherefore," as in "O Romeo, Romeo, wherefore art thou Romeo? / Deny thy father and refuse thy name..." means what?

- A. After what time
- B. At what location
- C. Before now
- D. For what reason
- E. In what way

## 59 We Built This City on Rock...

Which of the following geologic periods is the most recent?

- A. Cretaceous
- B. Devonian
- C. Permian
- D. Tertiary
- E. Triassic

## 60 Caribbean Catastrophes

In April 2021, the La Soufrière volcano erupted in what Caribbean island group?

- A. Antigua and Barbuda
- B. British Virgin Islands
- C. St Vincent and the Grenadines
- D. Turks and Caicos Islands
- E. U.S. Virgin Islands

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2021-2022 High School Packet 3

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Answer Key

1. B

41. A
2. A

42. A
3. D

43. C
4. C

44. E
5. B

45. E
6. B

46. D
7. C

47. B
8. D

48. C
9. B

49. C
10. C

50. C
11. A

51. C
12. D

52. B
13. E

53. A
14. C

54. A
15. D

55. B
16. B

56. C
17. C

57. A
18. B

58. D
19. A

59. D
20. A

60. C
21. A
22. B
23. C
24. A
25. C
26. C
27. C
28. D
29. D
30. B
31. A
32. E
33. C
34. C
35. B
36. A
37. E
38. C
39. C
40. D

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## 1 Dim Bulbs

Which of the following types of star has the lowest luminosity AND the lowest surface temperature?

- A. Blue giant
- B. Orange giant
- C. Red dwarf
- D. White dwarf
- E. Yellow supergiant

## 2 Order of Operations

Which of the following is equivalent to  $4(x + 3) - 5$ ?

- A.  $4x + 3$
- B.  $4x + 7$
- C.  $4x - 12$
- D.  $4x - 3$
- E.  $4x - 7$

## 3 Doomed Romances

What Leo Tolstoy novel tells the story of a wealthy, married woman who seems to have it all, until she meets Count Vronsky?

- A. *Anna Karenina*
- B. *Jane Eyre*
- C. *Pride and Prejudice*
- D. *War and Peace*
- E. *Wuthering Heights*

## 4 Parts of a Cell

What part of the cell lacks a membrane and is responsible for assembling ribosomes?

- A. Cytoplasm
- B. Endoplasmic Reticulum
- C. Golgi Apparatus
- D. Nucleolus
- E. Nucleus

## 5 Coast to Coast

Of the 7 countries in Central America, how many share a border with both the Pacific Ocean and the Caribbean Sea?

- A. 2
- B. 3
- C. 4
- D. 5
- E. 6

## 6 Built for a Goddess

Which temple dedicated to Athena is often regarded as the pinnacle of Greek architecture?

- A. Erechtheion
- B. Old Temple of Athena
- C. Parthenon
- D. Propylaea
- E. Temple of Athena Nike

## 7 Carry Me Home

The 19th-century African-American spiritual "Swing Low, Sweet Chariot," references the ascent to heaven in a chariot of what Old Testament prophet?

- A. Elijah
- B. Ezekiel
- C. Isaiah
- D. Jonah
- E. Moses

## 8 Wispy White

Which of the following cloud types exist at the highest altitudes, above 20,000 feet?

- A. Altostratus
- B. Cirrus
- C. Cumulus
- D. Nimbostratus
- E. Stratus

## 9 Cabinet Milestones

After becoming the first female National Security Advisor, this woman became the first female African American Secretary of State in 2005. Who is she?

- A. Carol Moseley Braun
- B. Condoleezza Rice
- C. Loretta Lynch
- D. Madeleine Albright
- E. Sheila Jackson Lee

## 10 One with the Mind

The word 'yoga' comes from the Sanskrit language and literally means what?

- A. Body
- B. Enlighten
- C. Soul
- D. Stretch
- E. Union

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## 11 The Top Ten

The First Amendment to the United States Constitution guarantees which of the following rights?

- A. Freedom from quartering of troops
- B. Right of free speech
- C. Right to a speedy and public trial
- D. Right to bear arms
- E. Right to trial by a jury of one's peers

## 12 Name That Novel!

Fireman named Guy. Teen named Clarisse. Outlaw books.

- A. *1984*
- B. *Fahrenheit 451*
- C. *The Illustrated Man*
- D. *The Time Machine*
- E. *The Time Traveler's Wife*

## 13 Activists

At the age of 17 in 2014, she was the youngest person awarded the Nobel Peace Prize for "her struggle against the suppression of children and young people and for the right of all children to education." Name her.

- A. Amanda Gorman
- B. Emma Gonzalez
- C. Greta Thunberg
- D. Malala Yousafzai
- E. Yara Shahidi

## 14 Spotty Coverage

Sun spots occur in cycles. How long do these cycles last?

- A. 1 year
- B. 11 years
- C. 22 years
- D. 5 years
- E. 50 years

## 15 Masterpieces

Which of these was painted by Leonardo da Vinci?

- A. *Madame X*
- B. *Mona Lisa*
- C. *Moulin Rouge*
- D. *Water Lilies*
- E. Ceiling of the Sistine Chapel

## 16 Silent Majority

The majority of Earth's atmosphere is what gas?

- A. Argon
- B. Carbon dioxide
- C. Nitrogen
- D. Oxygen
- E. Ozone

## 17 Complementary Angles

The complement of an angle is equal to the twice the measure of that angle. In degrees, what is the measure of the supplement of the angle?

- A. 150
- B. 30
- C. 45
- D. 60
- E. 75

## 18 Information Transfer

Bacteria often share genetic information by forming a physical link between cells then transferring small bits of DNA. This process is called what?

- A. Conflagration
- B. Conjugation
- C. Reproduction
- D. Transduction
- E. Translation

## 19 Win Before You Fight

What 5th century BCE Chinese strategist and philosopher authored *The Art of War*, a classic about battlefield tactics and psychology?

- A. Cixin Liu
- B. Confucius
- C. Mao Zedong
- D. Siddhartha Gautama
- E. Sun Tzu

## 20 Countries

The area north of the River Forth, known to the Romans as Caledonia, is now part of what country?

- A. Denmark
- B. Ireland
- C. Scotland
- D. Spain
- E. Wales

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## 21 Swinging Science

What 19th century scientist designed a large, free-hanging pendulum to demonstrate the rotation of the Earth?

- A. Da Vinci
- B. Foucault
- C. Kepler
- D. Mercator
- E. Richter

## 22 World Capitols

For which of the following countries is its most populous city also its capitol?

- A. Brazil
- B. Canada
- C. Israel
- D. Saudi Arabia
- E. United States

## 23 Find Your Way

First used in the Han Dynasty, which of these became navigational devices during the Song Dynasty?

- A. Celestial Navigation
- B. Echo Sounder
- C. Magnetic Compass
- D. Map
- E. Sextant

## 24 Hone In And Phase Out

Which of the following frequently mis-stated sayings is CORRECT?

- A. Curl up in the feeble position.
- B. I could use an espresso!
- C. I will extract revenge!
- D. She got off scotch free.
- E. You've got another think coming.

## 25 Building blocks

Which cell wall is responsible for the rigidity of plant cells?

- A. Middle lamella
- B. Plasma membrane
- C. Primary wall
- D. Secondary wall
- E. Tertiary wall

## 26 Musical Fraternities

Which of the following composers was not part of The Five, a group of 19th-century Russian composers whose goal was to create a distinct national style of classical music?

- A. Alexander Borodin
- B. César Cui
- C. Modest Mussorgsky
- D. Nikolai Rimsky-Korsakov
- E. Pyotr Tchaikovsky

## 27 Carpe Diem

Whose poem famously begins with these lines: "Had we but world enough, and time This coyness, lady, were no crime . . ."

- A. Abraham Cowley
- B. Andrew Marvell
- C. John Donne
- D. Lord Byron
- E. Samuel Coleridge

## 28 Employment Exceptions

Which of the following groups of people do NOT face exemptions from minimum wage laws?

- A. "Gig" workers
- B. Childcare workers
- C. Independent contractors
- D. Salaried workers
- E. Tipped workers

## 29 Honestly Honored

Which of the following actors won the 2012 Academy Award for Best Actor for his portrayal of our 16th President?

- A. Colin Firth
- B. Daniel Day-Lewis
- C. Matthew McConaughey
- D. Russel Crowe
- E. Tom Hanks

## 30 Going Off On a Tangent

In trigonometry, the tangent of an angle is defined by the opposite side over what part of a triangle?

- A. Adjacent side
- B. Hypotenuse
- C. Opposite side
- D. Right angle
- E. Sum of all sides

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## 31 Stiffen the Sinews!

What Shakespearean royal character inspires his men with the following words: "Once more unto the breach, dear friends, once more, Or close the wall up with our English dead!"

- A. Antony
- B. Henry IV
- C. Henry V
- D. Julius Caesar
- E. King Lear

## 32 Solutions All Around Us

Which of the following mixtures would correctly be called a solution?

- A. Basalt Rock
- B. Distilled Water
- C. Extra Virgin Olive Oil
- D. Sterling Silver Ring
- E. Whipped Cream

## 33 Storage

Potatoes are an excellent example of how plants store what polymer in order to save up large amounts of glucose for use in cellular respiration?

- A. Fructose
- B. Galactose
- C. Glucose
- D. Glycogen
- E. Starch

## 34 Protests

In 2016, protests of the Dakota Access Pipeline began due to concerns about the pipeline's impact on the environment, water supply, and sacred sites near what Native American reservation?

- A. Blackfeet
- B. Navajo Nation
- C. Pine Ridge
- D. Standing Rock
- E. Wind River

## 35 Making Use of Shape

Which of the following artists makes the most use of geometric shapes for his works of art?

- A. Edgar Degas
- B. Eugene Delacroix
- C. Leonardo DaVinci
- D. Pierre-August Renoir
- E. Piet Mondrian

## 36 Ingenious Inventions

Reem Al Marzouqi is the first citizen of the United Arab Emirates to win a patent in the United States, for her invention of what device for persons with disabilities?

- A. Car driven without hands
- B. Collapsible shower
- C. Real-time voice-to-text device
- D. Robotic device for self-feeding
- E. Solar-powered wheelchair

## 37 Turning points

Joan of Arc gained fame after victory at what conflict during the Hundred Years War?

- A. Battle of Castillon
- B. Battle of Fromigny
- C. Battle of Riems
- D. Siege of Orleans
- E. Siege of Compiègne

## 38 Biographical Books

Edmund Morris, a writer best known for his three-biography series about Theodore Roosevelt, wrote a 1999 biography called *Dutch* about what 40th President of the United States?

- A. George H.W. Bush
- B. Gerald Ford
- C. Jimmy Carter
- D. Richard Nixon
- E. Ronald Reagan

## 39 Domain

What is the domain of this function?

- $\frac{1}{(x-1)(x-3)}$
- A.  $(-\infty, 1) \cup (1, 3) \cup (3, +\infty)$
  - B. 1 and 3
  - C. 1 or 3
  - D. all real numbers
  - E. no real numbers

## 40 Beachfront Property

Which of the following countries does NOT border the Red Sea?

- A. Egypt
- B. Ethiopia
- C. Saudi Arabia
- D. Sudan
- E. Yemen

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## 41 Math on Math

Consider the following equation:

$$8x - 4y = 12$$

What would m-b equal, assuming traditional definitions of m and b?

- A. -1
- B. -5
- C. 1
- D. 4
- E. 5

## 42 War, What Is It Good For?

Which of the following American wars was declared by President James Madison, included naval skirmishes on the Great Lakes, and was ended by the Treaty of Ghent?

- A. French and Indian War
- B. Hays' Rebellion
- C. Mexican-American War
- D. Revolutionary War
- E. War of 1812

## 43 Incinerating Insinuations

Not known for his pointy ears or logic, who was the Roman god of destructive fire?

- A. Jupiter
- B. Mars
- C. Pluto
- D. Uranus
- E. Vulcan

## 44 Nobody Can Eat Just One

What is the singular form of "spaghetti"?

- A. Spaghatt
- B. Spaghetta
- C. Spaghetto
- D. Spaghettrum
- E. Spaghattus

## 45 Substance Sounds

Through which of the following substances would you expect sound waves to travel fastest?

- A. Air
- B. Diamond
- C. Granite
- D. Iron
- E. Water

## 46 Economies of Earth

What is the most produced table fruit worldwide, at 117 million metric tons, according to 2019 statistics?

- A. Apples
- B. Bananas
- C. Kiwis
- D. Oranges
- E. Strawberries

## 47 Titular Objects

In the opening of E.M. Forster's *A Room with a View*, the characters Lucy Honeychurch and Charlotte Bartlett are disappointed their rooms at the Pensione Bertolini do not have a view of what?

- A. The Colosseum in Rome
- B. The Eiffel Tower in Paris
- C. The Grand Canal in Venice
- D. The Puerta del Sol in Madrid
- E. The River Arno in Florence

## 48 Place Names

Santiago is a place name common throughout the world. Derived from Spanish, it honors which Roman Catholic Saint?

- A. Alain
- B. George
- C. Jack
- D. James
- E. Oliver

## 49 Keeping Your Balance

On a company's balance sheet, checking, money market accounts, and accounts receivable fall into which of the following categories?

- A. Common stock
- B. Current assets
- C. Fixed assets
- D. Liabilities
- E. Owners' equity

## 50 Do You Even Lift, Bro?

Which of the following IS NOT a major muscle of the human thigh?

- A. Rectus femoris
- B. Sartorius
- C. Tibialis anterior
- D. Vastus lateralis
- E. Vastus medialis

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## 51 Mass Marketing

Which of the following corporate slogans does not belong?

- A. Eat Fresh
- B. Have It Your Way
- C. I'm Lovin' It
- D. Let's Go Places
- E. Live Mas

## 52 Tragic Westerns

What 1970 non-fiction work by Dee Brown, exploring the negative effects on Native Americans of westward federal expansion in the late 19th century, has never been out of print since its publication?

- A. *Bury My Heart at Wounded Knee*
- B. *Empire of the Summer Moon*
- C. *Killers of the Flower Moon*
- D. *Phoenix Rising*
- E. *The Warmth of Other Suns*

## 53 Statistical Vocabulary

What is  $\sigma$  in this equation?  $\sigma = \sqrt{(\sum (x_i - \mu)^2 / N)}$

- A. Confidence Interval
- B. Inter-Quartile Range
- C. Mean
- D. Standard Deviation
- E. Variance

## 54 An Important Message

The MESSENGER spacecraft which begun orbit around Mercury in 2011, detected strong evidence of what at the planetary poles?

- A. Frozen Methane
- B. Frozen Water
- C. Liquid Iron
- D. Phosphorus
- E. Sulphur

## 55 Oily Numbers

One common grade of motor oil used in automobiles is 10W/30. To what characteristic of the motor oil do these two numbers refer?

- A. Color
- B. Melting point
- C. Place of manufacture
- D. Viscosity
- E. Water content

## 56 Failed Follow-through

In which Shakespearean tragedy is the following line spoken: "I laid their daggers ready; / He could not miss 'em. Had he not resembled / My father as he slept, I had done't."

- A. *Hamlet*
- B. *Macbeth*
- C. *Othello*
- D. *Romeo and Juliet*
- E. *Taming of the Shrew*

## 57 Philosophy

Who said, "Man is born free, but is everywhere in chains"?

- A. Jean-Jacques Rousseau
- B. John Locke
- C. John Stuart Mill
- D. Karl Marx
- E. Plato

## 58 Deadly Animals

Which of these is the most venomous marine animal in the world?

- A. Australian Box Jellyfish
- B. Lionfish
- C. Sea Anemone
- D. Sea Urchin
- E. Sting Ray

## 59 The Ultimate Betrayal

Whose name became synonymous with "traitor" after he betrayed the Continental Army?

- A. Aaron Burr
- B. Benedict Arnold
- C. Ethan Allen
- D. John Andre
- E. William Howe

## 60 Sheep-tistics

According to the United Nations, what country in the world has the most sheep, at 161,300,000 head?

- A. China
- B. Mongolia
- C. New Zealand
- D. United Kingdom
- E. United States

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**2021-2022 High School Packet 4****Written Round****Answer Key**

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- |       |       |
|-------|-------|
| 1. C  | 41. E |
| 2. B  | 42. E |
| 3. A  | 43. E |
| 4. D  | 44. C |
| 5. D  | 45. B |
| 6. C  | 46. B |
| 7. A  | 47. E |
| 8. B  | 48. D |
| 9. B  | 49. B |
| 10. E | 50. C |
| 11. B | 51. D |
| 12. B | 52. A |
| 13. D | 53. D |
| 14. B | 54. B |
| 15. B | 55. D |
| 16. C | 56. B |
| 17. A | 57. A |
| 18. B | 58. A |
| 19. E | 59. B |
| 20. C | 60. A |
| 21. B |       |
| 22. D |       |
| 23. C |       |
| 24. E |       |
| 25. D |       |
| 26. E |       |
| 27. B |       |
| 28. B |       |
| 29. B |       |
| 30. A |       |
| 31. C |       |
| 32. D |       |
| 33. E |       |
| 34. D |       |
| 35. E |       |
| 36. A |       |
| 37. D |       |
| 38. E |       |
| 39. A |       |
| 40. B |       |

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## Written Round

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## 1 South Fights Back

After the American Civil War, the new southern lawmakers passed laws that restricted what former slaves could do and the kind of jobs they could take. What were these laws called?

- A. Black Codes
- B. Confederate Codes
- C. Etiquette Codes
- D. Job Laws
- E. Southern Strength Laws

## 2 Making a Splash

Willem de Kooning, Franz Kline, Mark Rothko, and Jackson Pollock were practitioners of what style of American painting during the late 1940s and 1950s?

- A. Abstract Expressionism
- B. Futurism
- C. Photorealism
- D. Pop
- E. Surrealism

## 3 Probability

If Sven flips a coin three times, what is the probability it lands on heads exactly twice?

- A.  $1/2$
- B.  $1/3$
- C.  $1/4$
- D.  $1/8$
- E.  $3/8$

## 4 Weather Instruments

What instrument, consisting of wet and dry thermometers twirled overhead by hand, is used to determine dew point temperature and relative humidity?

- A. Anemometer
- B. Aneroid Barometer
- C. Galilean Thermometer
- D. Hair Hygrometer
- E. Sling Psychrometer

## 5 African Geography

Which of the following is the southernmost nation on the continent of Africa?

- A. Burundi
- B. Djibouti
- C. Gambia
- D. Lesotho
- E. Malawi

## 6 Russian Composers Rock!

This Russian graduated from the Moscow Conservatory in 1892 and often featured piano in his compositions. Name this artist whose works include "Rhapsody on a Theme of Paganini" and "Symphonic Dances."

- A. Igor Stravinsky
- B. Modest Mussorgsky
- C. Pyotr Tchaikovsky
- D. Sergei Prokofiev
- E. Sergei Rachmaninoff

## 7 Golfing Feats

When Bobby Jones won all four major tournaments in 1930, what nickname was his given to his feat, a phrase coined by his friend and writer O.B. Keeler?

- A. The Famous Foursome
- B. The Great Quartet
- C. The Impregnable Quadrilateral
- D. The Major Milestone
- E. The Terrific Tetrad

## 8 Opposites Attract

Which of the following rules dictates that electrons in the same orbital will have opposing spins?

- A. "Plum Pudding" Model
- B. Aufbau Principle
- C. Hund's Rule
- D. Pauli's Exclusion Principle
- E. Schrodinger Equation

## 9 Relationships

What kind of symbiosis is exemplified by clownfish living in sea anemones?

- A. Commensalism
- B. Competition
- C. Mutualism
- D. Parasitism
- E. Predation

## 10 Guess Who's Coming To Dinner

Name the Shakespearean play in which the titular character gets revenge on two of his enemies by baking them into pies and serving them to their mother?

- A. Coriolanus
- B. Cymbeline
- C. Hamlet
- D. Othello
- E. Titus Andronicus

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## 11 Dicey Publications

What is the name of the satirical magazine that was the target of a 2015 terrorist attack after it printed drawings of the prophet Mohammed?

- A. *Charlie Hebdo*
- B. *Harvard Lampoon*
- C. *La Caricature*
- D. *The Onion*
- E. *Weekly World News*

## 12 French Vocab

Which of the following terms commonly used in English did NOT originate in the French language?

- A. Cliché
- B. Cul-de-sac
- C. Faux pas
- D. Plaza
- E. Sauté

## 13 Seek And Ye Shall Find

Which amendment to the U.S. Constitution reads, in part: "The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated"?

- A. 1st
- B. 2nd
- C. 4th
- D. 5th
- E. 8th

## 14 Shakespearean Fools

After encountering him in the Forest of Arden, Jacques describes this character as "a motley fool" in a conversation with Duke Senior.

- A. Dogberry
- B. Falstaff
- C. Feste
- D. Touchstone
- E. Trinculo

## 15 Solar System Swimming?

Which of the following planetary moons is the second-largest natural satellite in our solar system, and the only other place upon which surface liquid is known to exist?

- A. Europa
- B. Io
- C. Phobos
- D. Phoebe
- E. Titan

## 16 Toxic Trips

Which of the following drugs of abuse is an hallucinogen?

- A. Cocaine
- B. Heroin
- C. Methamphetamine
- D. Nicotine
- E. Phencyclidine

## 17 Making America Great

What future U.S. president introduced something called "ice cream" to America from France after he served as ambassador there?

- A. Benjamin Franklin
- B. George Washington
- C. John Adams
- D. Martin Van Buren
- E. Thomas Jefferson

## 18 Finding the Fulcrum

Tony is 60 lbs; Maria is 40 lbs; both are balanced on seesaw. If Tony is 6 feet away from the fulcrum, how far away is he from Maria?

- A. 10 ft
- B. 12 ft
- C. 15 ft
- D. 20 ft
- E. 9 ft

## 19 Unusual Upbringings

In what country did Pulitzer Prize-winning author of *The Good Earth*, Pearl S. Buck, grow up as the daughter of missionaries?

- A. Angola
- B. Chile
- C. China
- D. Kenya
- E. Vietnam

## 20 Pacific Places

Which of the following is the largest of the four main islands of Japan?

- A. Hokkaido
- B. Honshu
- C. Ishigaki
- D. Kyushu
- E. Shikoku

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## 21 But Not Always Angry

Often mischaracterized as a hell-and-brimstone preacher, what 18th century American theologian and pastor was also known for poetic phrasings such as: "All earthly desires are but streams, but God is the ocean."

- A. Billy Graham
- B. Charles Spurgeon
- C. John Bunyan
- D. John Wesley
- E. Jonathan Edwards

## 22 Tuning In To Terror

What science fiction novel by H.G. Wells caused a brief public panic when narrated over the radio in 1938 by Orson Welles?

- A. *20,000 Leagues Under the Sea*
- B. *Dune*
- C. *Star Wars: A New Hope*
- D. *The Time Machine*
- E. *War of the Worlds*

## 23 Diesel Differences

Which component of gasoline-burning internal combustion engines are absent in diesel engines?

- A. Crankshafts
- B. Exhaust valves
- C. Oil filter
- D. Pistons
- E. Spark plugs

## 24 Don't Be Negative!

Which of the following elements has the LOWEST electronegativity?

- A. Carbon
- B. Fluorine
- C. Lithium
- D. Neon
- E. Oxygen

## 25 The English Countryside

When driving northeast from Exeter to Bristol, one passes through what English county with its famous city of Bath?

- A. Cornwall
- B. Devon
- C. Dorset
- D. Oxfordshire
- E. Somerset

## 26 Nitrogen in Nature

What is the vital biochemical function by which some fungal and plant life take nitrogen out of the air and convert it to ammonia and other compounds?

- A. Ammoniazation
- B. Nitrogen fixation
- C. Photosynthesis
- D. Protein synthesis
- E. Transcription

## 27 Financial Decisions

What reason did Elon Musk give in his May 2021 announcement that Tesla would no longer accept payment in bitcoin?

- A. Bitcoin production damages the environment
- B. Bitcoin's recent devaluation
- C. Bitcoin's use by criminal syndicates
- D. Federal policy requiring traceable car payments
- E. Fluctuating bitcoin values

## 28 Laying Out Landmarks

Architects Jean-François-Thérèse Chalgrin and Jean-Armand Raymond designed which Parisian landmark completed in 1835?

- A. Arc de Triomphe
- B. Eiffel Tower
- C. Louvre Museum
- D. Montmartre
- E. Palace of Versailles

## 29 Ancient Text

The oldest papyrus scroll has been linked to the reign of what pharaoh of the Old Kingdom in Egypt?

- A. Amenhotep II
- B. Djoser
- C. Khufu
- D. Ramesses II
- E. Tutankhamun

## 30 Slopes

What is the slope of the following equation?

$$3x + 6y = 7$$

- A.  $-\frac{1}{2}$
- B.  $-3$
- C.  $2$
- D.  $6$
- E.  $\frac{1}{2}$

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# 2021-2022 High School Packet 5

Written Round

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## 31 Burglars Beware

What child actor rose to fame for his role in 1990's Christmas hit, *Home Alone*?

- A. Daniel Radcliffe
- B. Elijah Wood
- C. Haley Joel Osment
- D. Leonardo DiCaprio
- E. Macaulay Culkin

## 32 Geometric Solids

How many vertices does a tetrahedron have?

- A. 12
- B. 16
- C. 4
- D. 6
- E. 8

## 33 Ancestral Amalgams

What French-derived term described offspring of European colonists and Caribbean natives born in the Western colonies?

- A. Creoles
- B. Mestizos
- C. Métis
- D. Quadroons
- E. Zambos

## 34 970,000 Words

What novel, originally published in two volumes in 1747, brought its author Samuel Richardson renown not only for its impressive length, but also its epistolary style?

- A. *Anna Karenina*
- B. *Candide*
- C. *Clarissa*
- D. *Emma*
- E. *Infinite Jest*

## 35 Dynasties

The Battle of Talas River occurred in 751 AD between the Abassid Caliphate and which Chinese dynasty?

- A. Han
- B. Ming
- C. Qing
- D. Tang
- E. Yuan

## 36 Travel Grammar

"Because my brother was on spring break, he was able to travel to Bermuda with my mom and I."

--The error in the previous sentence occurs because one word has the wrong \_\_\_\_?

- A. aspect
- B. case
- C. mood
- D. tense
- E. voice

## 37 Light and Waves

As the wavelength of light decreases, which of the following statements is true?

- A. The color of light changes from blue to red
- B. The energy of light increases
- C. The frequency of light decreases
- D. The intensity of light decreases
- E. The speed of light increases

## 38 Controversial Compositions

Sandro Botticelli painted the first full-length, non-religious nude since antiquity in his 15th century depiction of the birth of what mythical goddess, riding on a large clamshell?

- A. Fortuna
- B. Juno
- C. Lido
- D. Minerva
- E. Venus

## 39 Days of Infamy

In January 2021, protestors breached what federal government building?

- A. Capitol
- B. Smithsonian
- C. Supreme Court
- D. Washington Monument
- E. White House

## 40 They're Everywhere!

What biological phylum contains 80% of known animal species?

- A. Arthropods
- B. Chordates
- C. Echinoderms
- D. Mollusks
- E. Nematodes

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# 2021-2022 High School Packet 5

Written Round

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## 41 Sci-Fi Short Stories

What is the title of the 1951 series of eighteen science fiction short stories by Ray Bradbury unified by the character of a former carnival worker?

- A. *Dandelion Wine*
- B. *Fahrenheit 451*
- C. *Something Wicked This Way Comes*
- D. *The Illustrated Man*
- E. *The Martian Chronicles*

## 42 Dangerous Dishes

What fruit did Persephone eat after Hades kidnapped her, permanently tying her to the underworld?

- A. Apple
- B. Fig
- C. Grape
- D. Pear
- E. Pomegranate

## 43 Conic Sections

Which is the equation for an ellipse?

- A.  $x^2 + y^2 = a^2$
- B.  $x^2 - y^2 = a^2$
- C.  $x^2 / a^2 + y^2 / b^2 = 1$
- D.  $x^2 / a^2 - y^2 / b^2 = 1$
- E.  $y^2 = 4ax$

## 44 Jailed Authors

Which of these authors never spent any time in a prison?

- A. Aleksandr Solzhenitsyn
- B. Fyodor Dostoyevsky
- C. Mark Twain
- D. Oscar Wilde
- E. Voltaire

## 45 2B2T

Which of the following is a name of one of the two default spawn skins in Minecraft?

- A. Bill
- B. Frank
- C. Nick
- D. Steve
- E. Tom

## 46 Countries that Speak German

Where German is the first language, and has official language status, is called the "Sprachraum." German is the official language of Germany, 17 Swiss cantons, Liechtenstein, and this country located South of Bavaria.

- A. Austria
- B. Belgium
- C. Czech Republic
- D. Hungary
- E. Italy

## 47 Reproduction

Prominently displayed by lilies, which of the following plant reproductive organs is composed of a thin filament and an anther?

- A. Ovule
- B. Peduncle
- C. Petal
- D. Stamen
- E. Stigma

## 48 Generators

Mitochondria produce what molecule that powers chemical processes in cells?

- A. Adenosine diphosphate
- B. Adenosine triphosphate
- C. Carbon monoxide
- D. Galactose
- E. Glucose

## 49 Live Long and Prosper

Which of the following nations has the highest life expectancy?

- A. China
- B. Denmark
- C. Germany
- D. Japan
- E. United States

## 50 Moon Party

How many moons does Saturn have, as of 2020?

- A. 28 moons
- B. 50 moons
- C. 61 moons
- D. 82 moons
- E. 94 moons

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## 2021-2022 High School Packet 5

Written Round

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### 51 Tilbury Town

According to Edwin Arlington Robinson, which of the following Tilbury Town characters "went home one night and put a bullet through his head"?

- A. John Evereldown
- B. Luke Havergal
- C. Miniver Cheevy
- D. Mr. Flood
- E. Richard Cory

### 56 Sum of Squares

Which of the following squares can also be expressed as the sum of two, nonzero, squares?

- A. 100
- B. 36
- C. 49
- D. 64
- E. 81

### 52 Taxation

If an income tax is described as "progressive," who (in theory) pays the highest percentage of their income?

- A. Business owners
- B. High earners
- C. Liberals
- D. Low earners
- E. Polluters

### 57 Royaume Sauvage

Which of the following adjectives would best describe the French noun *une bestiole*?

- A. cloth
- B. dull
- C. gifted
- D. plastic
- E. tiny

### 53 Flavors

Nutmeg, cinnamon, cloves, and cardamom were exported from the "Spice Islands" in the middle ages, which are now what modern day countries?

- A. Cuba and Haiti
- B. Japan and the Phillipines
- C. Malaysia and Indonesia
- D. Puerto Rico and the Dominican Reoublic
- E. The Bahamas and Jamaica

### 58 Call to Action

What Scottish-American industrialist exhorted the rich to use their wealth philanthropically in an 1889 article entitled "The Gospel of Wealth"?

- A. Andrew Carnegie
- B. Cornelius Vanderbilt
- C. J.P. Morgan
- D. John Christie
- E. John D. Rockefeller

### 54 Don't Blame Me!

Complete the following Shakespeare quotation: "The fault, dear \_\_\_\_\_, is not in our stars / But in ourselves, that we are underlings."

- A. Antony
- B. Brutus
- C. Caesar
- D. Cassius
- E. Romeo

### 59 Throwback Thursday

Which of the following geologic periods in the Paleozoic era is the farthest in the past, approximately more than 480 million years ago?

- A. Cambrian
- B. Devonian
- C. Ordovician
- D. Pennsylvanian
- E. Permian

### 55 Not Flat Or Round

Which culture's mythology depicts the universe as being divided into 9 different worlds, all of which are all centered around a giant tree named Yggdrasil?

- A. Greek
- B. Hindu
- C. Inca
- D. Maya
- E. Norse

### 60 Bacteria

Which of the following features do eukaryotes possess, but prokaryotes lack?

- A. Cell division
- B. Cell membrane
- C. Cytoplasm
- D. DNA or RNA
- E. Organelles

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## Answer Key

## Answer Key

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# 2021-2022 High School Packet 6

## Written Round

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## 1 Dig Deeper

What is the name of the underworld in Minecraft?

- A. Hades
- B. Hell
- C. Nether
- D. Sheol
- E. Unterwelt

## 2 Women Who Write

Who created Mrs. Mallard in "The Story of an Hour"?

- A. Charlotte Perkins Gilman
- B. Edith Wharton
- C. Kate Chopin
- D. Margaret Atwood
- E. Virginia Woolf

## 3 What's Your Job Here?

Which of the following best describes the role of micro RNA in DNA transcription and translation?

- A. Add amino acid to polypeptide chain
- B. Carries DNA message to a ribosome
- C. Form component of the ribosome
- D. Silences mRNA
- E. Unwinds DNA helix

## 4 Militaristic Metaphors

What weather phenomenon—a "battle line" between two air masses—was given its name by Norwegian meteorologists during World War I?

- A. Front
- B. Hurricane
- C. Jet stream
- D. Tornado
- E. Trade winds

## 5 Lunar Landmarks

Which of the following features of the Moon is southernmost as viewed from Earth?

- A. Copernicus crater
- B. Mare frigidis
- C. Mare serenitatis
- D. Mare tranquillitatis
- E. Tycho crater

## 6 Muddy Metropolis?

What capital city in Southeast Asia, at the confluence of the Kelang and Gombak rivers, bears a name that translates to "muddy confluence"?

- A. Bangkok
- B. Cebu
- C. Jakarta
- D. Kuala Lumpur
- E. Phnom Penh

## 7 It's So Crowded!

According to United Nations Population Division estimates, which number is the closest to the global human population in the first year Anno Domini, or of the Common Era?

- A. 1.2 billion
- B. 300 million
- C. 4.2 billion
- D. 50 million
- E. 750 million

## 8 Mathematical Order

What is the second-to-largest number on this list?

- A. -1
- B. -10000
- C. 0.0001
- D. 0.1
- E. 1.111111

## 9 Artistic Photobombs

Which of these works of art does not contain a self-portrait by its artist?

- A. "David with the Head of Goliath" by Caravaggio
- B. "Las Meninas" by Diego Velazquez
- C. "The Last Judgement" by Michelangelo
- D. "The Night Cafe" by Van Gogh
- E. "The School of Athens" by Raphael

## 10 Extreme Points

The westernmost point of mainland Europe is found in which country?

- A. France
- B. Ireland
- C. Portugal
- D. Spain
- E. United Kingdom

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## 11 Not Like The Others

Which of the following invertebrates is NOT a crustacean?

- A. Emperor scorpion
- B. Hermit crab
- C. Lobster
- D. Peacock mantis shrimp
- E. Prawn

## 12 Modern Horrors

Between April 7 and July 15, 1994, what African nation saw the genocide of more than one million of its minority Tutsi citizens?

- A. Kenya
- B. Rwanda
- C. Somalia
- D. South Africa
- E. Sudan

## 13 Firsts in Early America

Which of these writers was the first published poet in America, giving us a view of life in Puritan New England?

- A. Anne Bradstreet
- B. Edward Taylor
- C. John Bunyan
- D. John Milton
- E. Richard Baxter

## 14 Evaluating Vectors

What is the length of vector  $\langle 6, -8 \rangle$ ?

- A. -8
- B. 10
- C. 14
- D. 2
- E. 6

## 15 Philosophy

Who said, "God is dead! He remains dead! And we have killed him"?

- A. Friedrich Nietzsche
- B. John Locke
- C. Socrates
- D. Thomas Hobbes
- E. Voltaire

## 16 Reactive Alcohols

What high-alcohol-content liquor flavored with wormwood and licorice is yellowish-green in color, but turns cloudy when mixed with water?

- A. Absinthe
- B. Bourbon
- C. Cognac
- D. Tequila
- E. Vodka

## 17 Ordering Countries

Moving from west to east, order these 3 Scandinavian countries:

- A. Finland, Norway, Sweden
- B. Norway, Finland, Sweden
- C. Norway, Sweden, Finland
- D. Sweden, Finland, Norway
- E. Sweden, Norway, Finland

## 18 Scary Places

Which of the following is NOT an example of a dystopian novel?

- A. 1984
- B. *Brave New World*
- C. *Fahrenheit 451*
- D. *The Handmaid's Tale*
- E. *The Red Badge of Courage*

## 19 Bingeworthy

You can't see them on Netflix, but what series of elements 58 through 71 can you see on your local Periodic Table?

- A. Actinide
- B. Halogens
- C. Lanthanides
- D. Noble Gases
- E. Transition Metals

## 20 Women's Rights

In June 2018 by a royal decree, what country lifted its ban on women driving?

- A. Indonesia
- B. Iran
- C. Saudi Arabia
- D. Syria
- E. Thailand

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## 21 Don't Go Chargin'!

If you instantly teleported from the Earth to the Moon, which of the following characteristics of your body would be different on the Moon?

- A. Density
- B. Height
- C. Mass
- D. Number of toes
- E. Weight

## 22 Hit The High Notes

What opera by Giacomo Puccini was the most produced operatic work, with 12 productions in the United States, in the year 2019-2020?

- A. *Don Giovanni*
- B. *La Bohème*
- C. *Rigoletto*
- D. *The Barber of Seville*
- E. *The Marriage of Figaro*

## 23 King of the Planets

What is the largest planet in our solar system?

- A. Jupiter
- B. Mars
- C. Mercury
- D. Neptune
- E. Saturn

## 24 The Louisiana Purchase

How many current US states were part of the Louisiana Purchase?

- A. 12
- B. 15
- C. 18
- D. 20
- E. 9

## 25 Dirty rooms

The discovery for which life-changing medication was made after a scientist forgot to clean his petri dishes before he left for vacation?

- A. Aspirin
- B. Insulin
- C. Morphine
- D. Penicillin
- E. Smallpox vaccine

## 26 A Certain Something

What French expression is used to indicate that a person or thing possesses some ineffable quality?

- A. *c'est la vie*
- B. *comme ci comme ça*
- C. *comme il faut*
- D. *je ne sais quoi*
- E. *ça va bien*

## 27 Not So Invisible

Due to his civil rights activities and a tangential relationship to the Communist Party, Hoover's FBI was closely watching what author of the 1952 novel, *Invisible Man*?

- A. Alex Haley
- B. James Baldwin
- C. Langston Hughes
- D. Ralph Ellison
- E. Richard Wright

## 28 North to South, West to East

Which of these roughly north-south rivers in Russia is located the farthest east?

- A. Amur
- B. Lena
- C. Ob
- D. Volga
- E. Yenisei

## 29 Linear Equations

What is an equation for a line that goes through the points (5,7) and (8, 2)

- A.  $y+2=(-5/3)(x-8)$
- B.  $y-2=(-5/3)(x-8)$
- C.  $y-7=(-3/5)(x-5)$
- D.  $y=(-5/3)x-8$
- E.  $y=(5/3)x-7$

## 30 Middle English Tales

Which character in *The Canterbury Tales* has been married ten times, spends their prologue arguing against the role of women in society at the time, and tells a tale of King Arthur?

- A. The Knight
- B. The Miller
- C. The Pardoner
- D. The Prioress
- E. The Wife of Bath

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## 31 Native American Novelists

Though of Kiowa and Cherokee ancestry himself, what author of *House Made of Dawn*, the winner of the 1969 Pulitzer Prize for Fiction, grew up on Navajo, Apache, and Pueblo reservations?

- A. James Welch
- B. Joseph Bruchac
- C. N. Scott Momaday
- D. Sherman Alexie
- E. Vine Deloria, Jr.

## 32 Ancient Origins

In biblical scholarship, *J*, *E*, *D* and *P* refer to theoretical sources compiled by ancient editors into what portion of the Bible?

- A. The Major Prophets
- B. The Minor Prophets
- C. The New Testament
- D. The Torah
- E. The Wisdom Literature

## 33 Prolific Jurists

Who authored the four-volume *Commentaries on the Laws of England* in the 1760s, which became the foundational text for both British and American law education for decades?

- A. Edmund Burke
- B. Laurence Sterne
- C. Samuel Johnson
- D. William Blackstone
- E. William Wordsworth

## 34 But My Friends Call Me...

What nickname is shared by the following: World War II "Flying Tigers" pilot Robert Hedman, American baseball pro Edwin Snider, jazz musician Edward Kennedy Ellington, and actor John Wayne?

- A. Duke
- B. Dutch
- C. Gus
- D. Leo
- E. Pappy

## 35 New nations

What country, formed in 1847, was the first independent republic of Africa?

- A. Ivory Coast
- B. Liberia
- C. Mozambique
- D. Republic of South Africa
- E. Zaire

## 36 Ocean Anatomy

Which of the following is the topmost zone of oceanic water, where sunlight penetrates and most aquatic life exists?

- A. Abyssopelagic
- B. Bathypelagic
- C. Epipelagic
- D. Hedarpelagic
- E. Mesopelagic

## 37 Orbiting Outliers

Which of the following moons orbits Saturn?

- A. Callisto
- B. Europa
- C. Ganymede
- D. Io
- E. Titan

## 38 Baking Berries

What tropical berries are widely used in baking due to their unique flavor combination resembling cloves, cinnamon, and nutmeg?

- A. Allspice
- B. Anise
- C. Cacao
- D. Cardamom
- E. Tumeric

## 39 Ancient Kings

After the Persians were defeated in the battle of Marathon in 490 BCE, which ruler organized a massive Greek invasion but died before he got the chance to launch the offensive?

- A. Cambyses
- B. Cyrus the Great
- C. Darius I
- D. Mardonius
- E. Xerxes

## 40 Quadratic equations

$(x/2 + 2y)^2 =$

- A.  $x^2/2 + 2xy + 2y^2$
- B.  $x^2/2 + 2y^2$
- C.  $x^2/4 + 2xy + 4y^2$
- D.  $x^2/4 + 4y^2$
- E.  $x^2/4 + xy + 4y^2$

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### 41 Seesaw Math

Eliza weighs 90 lbs and Jane weighs 60 lbs. They are both sitting on a seesaw. If Eliza is seated 10 feet away from Jane, and they are evenly balanced, how far is Eliza from the fulcrum of the seesaw?

- A. 3 1/3 ft
- B. 4 ft
- C. 5 ft
- D. 6 2/3 ft.
- E. 6 ft

### 42 Areas of Chemistry

What area of chemistry would you primarily be working within if you were studying carbon-based chemicals in coal?

- A. Analytical Chemistry
- B. Biochemistry
- C. Inorganic Chemistry
- D. Organic Chemistry
- E. Physical Chemistry

### 43 Safe Storage

In eukaryotic cells, which of the following membrane-bound organelles functions to store potentially harmful enzymes that digest proteins, nucleic acids, and lipids?

- A. Endoplasmic reticulum
- B. Golgi apparatus
- C. Lysosomes
- D. Mitochondria
- E. Vacuoles

### 44 Who's The Boss?

The Cabinet members, including the Secretary of State and Secretary of the Interior, all fall under which branch of the U.S. government?

- A. Executive
- B. Judicial
- C. Legislative
- D. Military
- E. Parks Department

### 45 That Must've Hurt

Swedish author Steig Larsson's fictional protagonist, Lisbeth Salander, has a large tattoo of what on her back?

- A. Beehive
- B. Dragon
- C. Red Riding Hood
- D. Snake
- E. Sugar skull

### 46 Islands

Which of these islands or groups of islands in the Indian Ocean is most northern?

- A. Comoros
- B. Madagascar
- C. Mauritius
- D. Reunion
- E. Seychelles

### 47 Royal Shakespeare

Which of these English kings is not the subject of a play by Shakespeare?

- A. Henry IV
- B. Henry VIII
- C. John
- D. Richard II
- E. William I

### 48 Tuning Up

The musical descriptor "a cappella" means, in English, which of the following?

- A. In the church style
- B. Per the Pope
- C. United voices
- D. While wearing robes
- E. Without instruments

### 49 Olympic Additions

Which of the following was not one of the new sports added to the Summer Olympic games in Tokyo in 2021?

- A. Golf
- B. Karate
- C. Skateboarding
- D. Sport Climbing
- E. Surfing

### 50 Antebellum Politicians

What mid-19th century American politician was known as "The Great Compromiser"?

- A. Andrew Jackson
- B. Daniel Webster
- C. Henry Clay
- D. James K Polk
- E. John Quincy Adams

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## 51 Everyone Needs a Friend

In the movie *Scarface*, when Al Pacino famously says, "Say hello to my little friend," he is referring to a rather intimidating grenade launcher as his friend. This is an example of what rhetorical technique?

- A. Euphemism
- B. Hyperbole
- C. Oxymoron
- D. Pun
- E. Simile

## 52 Derivative Titles

The title of Achebe's most well-known work comes from what poem by William Butler Yeats?

- A. "Sailing to Byzantium"
- B. "The Second Coming"
- C. "The Wild Swans at Coole"
- D. "Things Fall Apart"
- E. "When You Are Old"

## 53 A Feeling of Significance

Which of the following values has two significant figures?

- A. 0.00350
- B.  $0.87 \times 10^5$
- C. 2.46
- D.  $25.16 \times 10^{15}$
- E.  $4.52 \times 10^8$

## 54 Verb Conjugation

Which of the following is the correct way to conjugate the verb "poder" in the first person, subjunctive tense?

- A. Pudiera
- B. Pudiere
- C. Pueda
- D. Puede
- E. Puedo

## 55 Digestive Diseases

What disease of the digestive tract results from an inability to process gluten, resulting in the autoimmune destruction of the lining of the intestine?

- A. Celiac disease
- B. Crohn's disease
- C. Pancreatitis
- D. Peptic ulcer disease
- E. Ulcerative colitis

## 56 Heraldic Terminology

In heraldry, an animal that is "rampant" is...

- A. Common
- B. Fierce
- C. Mythical
- D. Rearing up
- E. Sleeping

## 57 Stock Trading

What is the name for the right, in finance, to buy an asset (such as a stock or a pork belly) at a specified price at a specified time?

- A. Call
- B. Margin
- C. Option
- D. Put
- E. Spread

## 58 Birth Ceremonies

Which Greek goddess was said to attend naming rituals for children called Amphidromion, where the child was carried around the hearth of a home?

- A. Artemis
- B. Demeter
- C. Hera
- D. Hestia
- E. Persephone

## 59 Battles

What is the historical name for the battle commonly known as "Custer's last stand?"

- A. Battle of Bull Run
- B. Battle of Tippecanoe
- C. Sand Creek Massacre
- D. The Battle of Little Bighorn
- E. Wounded Knee Massacre

## 60 Colonial Workers

Before the American Revolution, the majority of immigrants were:

- A. Apprentices
- B. Convict servants
- C. Indentured servants
- D. Silversmiths
- E. Tea merchants

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**2021-2022 High School Packet 6****Written Round****Answer Key**

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|       |       |
|-------|-------|
| 1. C  | 41. B |
| 2. C  | 42. D |
| 3. D  | 43. C |
| 4. A  | 44. A |
| 5. E  | 45. B |
| 6. D  | 46. E |
| 7. B  | 47. E |
| 8. D  | 48. A |
| 9. D  | 49. A |
| 10. C | 50. C |
| 11. A | 51. A |
| 12. B | 52. B |
| 13. A | 53. B |
| 14. B | 54. C |
| 15. A | 55. A |
| 16. A | 56. D |
| 17. C | 57. C |
| 18. E | 58. D |
| 19. C | 59. D |
| 20. C | 60. C |
| 21. E |       |
| 22. B |       |
| 23. A |       |
| 24. B |       |
| 25. D |       |
| 26. D |       |
| 27. D |       |
| 28. A |       |
| 29. B |       |
| 30. E |       |
| 31. C |       |
| 32. D |       |
| 33. D |       |
| 34. A |       |
| 35. B |       |
| 36. C |       |
| 37. E |       |
| 38. A |       |
| 39. C |       |
| 40. C |       |

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# 2021-2022 High School Packet 7

## Written Round

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## 1 Coup d'Etat

In February 2021, the elected government of what southeast Asian country was overthrown by the Tatmadaw, the country's military?

- A. Cambodia
- B. Malaysia
- C. Myanmar
- D. Singapore
- E. Vietnam

## 2 Mohs Hardness, Mohs Problems

Which of the following substances will scratch the others, but not be scratched by them?

- A. Calcite
- B. Corundum
- C. Gypsum
- D. Quartz
- E. Talc

## 3 Early Fiction

The story of Tom Jones, a foundling, was captured in a bildungsroman written by whom?

- A. Daniel DeFoe
- B. Henry Fielding
- C. Jonathan Swift
- D. Joseph Andrews
- E. Samuel Richardson

## 4 Feeling Punchy

Which of the following American boxing heavyweight champions was known as the "Manassa Mauler" because he was born in Manassa, Colorado, in 1895?

- A. Evander Holyfield
- B. Jack Dempsey
- C. Jack Johnson
- D. Joe Lewis
- E. Rocky Marciano

## 5 Neutrality

Which of these countries was NOT neutral during WWII?

- A. Latvia
- B. Mexico
- C. Spain
- D. Sweden
- E. Switzerland

## 6 Tiny States

Which of the following is the smallest country in the world?

- A. Liechtenstein
- B. Monaco
- C. San Marino
- D. Tuvalu
- E. Vatican City

## 7 Generational Training

Whose series of *Eclectic Readers* were a mainstay of American public education throughout the 19th century into the 20th century?

- A. Edmund Morris
- B. Horace Mann
- C. John Stuart Mill
- D. Thomas R Malthus
- E. William H McGuffey

## 8 Slope and Intercept

Two lines which have the same y-intercept but different slopes are

- A. Identical
- B. Intersecting
- C. Parallel
- D. Perpendicular
- E. Skew

## 9 Excusez-Moi?

While visiting Paris, you duck into Starbucks and order a Venti White Chocolate Mocha, extra whip. However, when the barista hands you the order, you see there is obviously NO WHIP. If you demand to speak with the manager, you ask for the:

- A. Avocate
- B. Chanteuse
- C. Directrice
- D. Garde-malade
- E. Tamia

## 10 All Greek To Me

What Greek letter do the following share? A particle discovered by Ernest Rutherford, a nearby triple star system, a wolf.

- A. Alpha
- B. Beta
- C. Delta
- D. Epsilon
- E. Gamma

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## 11 Basic Math

In base 10, express 101, base 3, multiplied by 101, base 4.

- A. 10,201
- B. 110,010
- C. 122,421
- D. 170
- E. 20

## 16 Colonial Acts

In which colony did the Act of Toleration go into effect?

- A. Georgia
- B. Maryland
- C. Massachusetts
- D. New Hampshire
- E. Virginia

## 12 What's Your Spirit Animal?

Bastet, the Egyptian goddess of the home and women's secrets, was often depicted by what creature?

- A. Cat
- B. Cow
- C. Owl
- D. Raven
- E. Snake

## 17 Building Blocks

Which of the following nucleotide bases is unique to RNA?

- A. Adenine
- B. Cytosine
- C. Guanine
- D. Thymine
- E. Uracil

## 13 Easy Breezy

What eponymous scale includes 0, meaning calm, to 9, strong gale, to 12, hurricane?

- A. Bark
- B. Beaufort
- C. Dobson
- D. Gieger
- E. Richter

## 18 Floral Uprisings

The 1974 Carnation Revolution defeated what nation's "Estado Novo" regime, and caused it to withdraw from its colonies in Angola and Mozambique?

- A. Belgium
- B. France
- C. Italy
- D. Portugal
- E. Spain

## 14 Rivers

The Tolka and Liffey rivers flow through what European capital city?

- A. Dublin
- B. Helsinki
- C. Lisbon
- D. Riga
- E. Vienna

## 19 Novels Under Another Name

What controversial 1847 romantic novel, criticized for its descriptions of mental and physical cruelty and challenges to Victorian morality, was published under the pseudonym Ellis Bell?

- A. *Frankenstein*
- B. *Hound of the Baskervilles*
- C. *Jane Eyre*
- D. *The Scarlet Letter*
- E. *Wuthering Heights*

## 15 Significant Figures

All of the numbers below have the same number of significant figures except

- A. 100
- B. 1050
- C. 13.3
- D. 155
- E. 17,500

## 20 Academy Award Winners

What American actor starred opposite Tom Cruise in 1988's Best Picture Academy Award-winning film, *Rain Man*?

- A. Dustin Hoffman
- B. Ed Harris
- C. Kevin Bacon
- D. Sean Penn
- E. Tom Hanks

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## 21 Portrait of Pain

Sixteenth century Italian artist Michelangelo Caravaggio created a disturbingly realistic painting of which disciple of Jesus being crucified, as tradition has it, upside down?

- A. James
- B. John
- C. Matthew
- D. Peter
- E. Thaddeus

## 22 Way Out There

The World Air Sports Federation defines the Karman line, the boundary between Earth's atmosphere and outer space, as how far above sea level?

- A. 100 kilometers
- B. 100 miles
- C. 200 kilometers
- D. 420 kilometers
- E. 5280 feet

## 23 Grim Visitors

Emily Dickinson's poem "Because I Could Not Stop for Death" functions because of its reliance on what poetic device?

- A. Alliteration
- B. Euphemism
- C. Litotes
- D. Onomatopoeia
- E. Personification

## 24 Early Counts

The census in the form of Quipu records was used by what civilization in the 15th century?

- A. Aztecs
- B. Incas
- C. Mapuche
- D. Mayan
- E. Tolupan

## 25 Areas of Study

The branch of biology concerned with the study of birds is known as what "-ology"?

- A. Carcinology
- B. Herpetology
- C. Ichthyology
- D. Malacology
- E. Ornithology

## 26 Relative Sizes

How many megabits are there in a gigabit?

- A. 1024
- B. 16
- C. 256
- D. 4
- E. 64

## 27 Innovations in Dance

Which of these dancers was the inventor of the modern pointe shoe?

- A. Anna Pavlova
- B. Ginger Rogers
- C. Maria Tallchief
- D. Martha Graham
- E. Misty Copeland

## 28 Equipment Standards

What sport requires several pieces of equipment that are 4.75 inches wide at their widest point and 15 inches tall, weighing 3 pounds 6 ounces?

- A. Bowling
- B. Curling
- C. Golf
- D. Hockey
- E. Shuffleboard

## 29 Meaty Books

Much of Upton Sinclair's novel *The Jungle* takes place in the giant Union Stock Yards of what US City?

- A. Chicago
- B. Cincinnati
- C. Kansas City
- D. Milwaukee
- E. Omaha

## 30 Coastlines

Which of the following countries does not border the Adriatic Sea?

- A. Albania
- B. Bosnia and Herzegovina
- C. Croatia
- D. Italy
- E. North Macedonia

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## 31 Accidents

In 2010, a mining accident in what South American country resulted in 33 miners being trapped underground for 69 days before being rescued?

- A. Argentina
- B. Bolivia
- C. Brazil
- D. Chile
- E. Uruguay

## 32 Didn't Exist Before

When "Facebook" was founded in 2004, and before it became a household word, the term would be best described as a...

- A. Diazeugma
- B. Gerund
- C. Interjection
- D. Metanoia
- E. Neologism

## 33 The Good of the Many

In moral philosophy, what school of thought argues that the morally correct action is that which increases happiness for, or benefits, the most people?

- A. Deontology
- B. Existentialism
- C. Logical positivism
- D. Utilitarianism
- E. Virtue ethics

## 34 Important Abilities

The development of drip tips on rainforest leaves, which enables the quicker removal of water and maintenance of drier, healthier leaves, is an example of what process that enables future generations to better survive?

- A. Acclimation
- B. Adaptation
- C. Anabolism
- D. Assimilation
- E. Association

## 35 Continuity

Which of the following equations is continuous?

- A.  $y = \cos(x)$
- B.  $y = \cot(x)$
- C.  $y = \csc(x)$
- D.  $y = \sec(x)$
- E.  $y = \tan(x)$

## 36 Fresh Ere

The word "ere" in the following *Othello* quotation means what?

"I kissed thee ere I killed thee: no way but this, Killing myself, to die upon a kiss."

- A. After
- B. Because
- C. Before
- D. Nevertheless
- E. When

## 37 Its a Diffrent Zone

What country, including overseas territories, covers the most time zones?

- A. Australlia
- B. China
- C. France
- D. Russia
- E. USA

## 38 North by Northeast

Which of the following northeastern US cities is the farthest north?

- A. Boston, MA
- B. Buffalo, NY
- C. Burlington, VT
- D. Newark, NJ
- E. Portland, ME

## 39 Rough and Tumble

Which of the following sandpaper grits would be the coarsest?

- A. 100-grit
- B. 120-grit
- C. 200-grit
- D. 40-grit
- E. 50-grit

## 40 Economic Equations

What economic indicator is derived using this formula?

$$Y = C + I + G + (X - M)$$

- A. Consumer Confidence
- B. Gross Domestic Product
- C. Inflation
- D. New Construction
- E. Workforce participation

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## 41 Tempos Tripping off the Toes

Which of the following classical music tempos is the slowest?

- A. Adagio
- B. Andante
- C. Largo
- D. Moderato
- E. Prestissimo

## 46 Love Never Did Run Smooth

In what Shakespearean comedy does Robin observe "Lord, what fools these mortals be!"?

- A. *A Midsummer Night's Dream*
- B. *All's Well That Ends Well*
- C. *As You Like It*
- D. *Othello*
- E. *Twelfth Night*

## 42 Always Read The Instructions

Which of the following enzymes is responsible for putting together a matching strand on the template strand during DNA replication?

- A. DNA helicase
- B. DNA kinase
- C. DNA polymerase
- D. RNA polymerase
- E. Topoisomerase

## 47 Popular Baby Names?

What are Wasp 18b, Gliese 581c, and Kepler 452b?

- A. Asteroids
- B. Comets
- C. Dwarf planets
- D. Exoplanets
- E. Nebulae

## 43 Higher Education

What historically black university, founded in 1867, has as its English motto "Truth and Service"?

- A. Cheyney University
- B. Clark Atlanta University
- C. Howard University
- D. North Carolina A&T State University
- E. Shaw University

## 48 Combustible Classifications

Class D fire extinguishers, usually found in factories but not homes, are designed to extinguish what kind of flammable materials?

- A. Gasoline and oil
- B. Hydrogen
- C. Metals
- D. Vegetable oils
- E. Wood products

## 44 African-American Literature

What is the name of the 1940 Richard Wright novel that follows Bigger Thomas and his struggles with poverty and racism in 1930s Chicago?

- A. *Black Boy*
- B. *Invisible Man*
- C. *Native Son*
- D. *The Outsider*
- E. *Their Eyes Were Watching God*

## 49 Government Powers

Your state is building a new interstate highway planned to run across your property. Although they may compensate you for the loss, the state is exercising what power of government in taking private property for public use?

- A. Capital punishment
- B. Eminent domain
- C. Habeas corpus
- D. Search and seizure
- E. Taxation

## 45 Systems of Equations

How many solutions are there to the following system of equations?

$$x^2 + y^2 = 5 \quad y = -x^2 + 3 \quad y = -2x$$

- A. 0
- B. 1
- C. 2
- D. 3
- E. 5

## 50 Proliferating Powers

As of early 2021, which of the following nations is NOT a confirmed nuclear weapon state?

- A. France
- B. Japan
- C. Pakistan
- D. Russia
- E. United Kingdom

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## 51 Pump Up The Volume

Which of the following laboratory tools would you use if you wanted to MOST accurately measure 52.7 mL of a liquid?

- A. 50 mL pipet
- B. Beaker
- C. Erlenmeyer flask
- D. Graduated cylinder
- E. Three-beam balance

## 52 Resting in Peace

William Wilberforce, William Pitt the Younger, and William Gladstone are all buried in the North Transept of what famous British building?

- A. Houses of Parliament
- B. St Paul's Cathedral
- C. Stonehenge
- D. Tower of London
- E. Westminster Abbey

## 53 Endocrinology

Which of the following organs is stimulated by the pituitary hormone abbreviated ACTH?

- A. Adrenal gland
- B. Ovaries
- C. Pancreas
- D. Parathyroid gland
- E. Thyroid gland

## 54 Dot Products

What is  $\langle 2, 1 \rangle \cdot \langle 5, 2 \rangle$ ?

- A. 12
- B. 20
- C.  $\langle 10, 2 \rangle$
- D.  $\langle 4, 5 \rangle$
- E.  $\langle 7, 3 \rangle$

## 55 On The Shelves Now!

Which of the following popular recent novels was written by J.K. Rowling?

- A. *A Discovery of Witches*
- B. *All the Light We Cannot See*
- C. *American Gods*
- D. *The Casual Vacancy*
- E. *The Goldfinch*

## 56 Countries

Which of the following countries does not consist of portions of the former Ottoman Empire?

- A. Egypt
- B. Lybia
- C. Oman
- D. Syria
- E. Yemen

## 57 Planetary variations

Which planet has the shortest year?

- A. Earth
- B. Jupiter
- C. Mars
- D. Saturn
- E. Venus

## 58 Holy Holidays

What Jewish holiday, known as the Day of Atonement in English, was the one day of the year in which the Israelite high priest could enter the Holy of Holies, the most sacred area of the Jerusalem Temple?

- A. Hanukkah
- B. Passover
- C. Rosh Hashanah
- D. Shavuot
- E. Yom Kippur

## 59 First Impressions

In April and May of 1874, the first Impressionist exhibition occurred in Paris. Which of these painters did not have any works in the exhibition?

- A. Claude Monet
- B. Edgar Degas
- C. Plerre-Auguste Renoir
- D. Paul Cezanne
- E. Paul Gauguin

## 60 Tricky Words

Which of the following is a palindrome?

- A. Deified
- B. Dove
- C. NATO
- D. New/knew
- E. Sizzle

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- |       |       |
|-------|-------|
| 1. C  | 41. C |
| 2. B  | 42. C |
| 3. B  | 43. C |
| 4. B  | 44. C |
| 5. B  | 45. B |
| 6. E  | 46. A |
| 7. E  | 47. D |
| 8. B  | 48. C |
| 9. C  | 49. B |
| 10. A | 50. B |
| 11. D | 51. D |
| 12. A | 52. E |
| 13. B | 53. A |
| 14. A | 54. A |
| 15. A | 55. D |
| 16. B | 56. C |
| 17. E | 57. E |
| 18. D | 58. E |
| 19. E | 59. E |
| 20. A | 60. A |
| 21. D |       |
| 22. A |       |
| 23. E |       |
| 24. B |       |
| 25. E |       |
| 26. A |       |
| 27. A |       |
| 28. A |       |
| 29. A |       |
| 30. E |       |
| 31. D |       |
| 32. E |       |
| 33. D |       |
| 34. B |       |
| 35. A |       |
| 36. C |       |
| 37. C |       |
| 38. C |       |
| 39. D |       |
| 40. B |       |

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## Written Round

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## 1 Easy Come, Easy Go

Which molecule can move through a cell's membrane via simple diffusion?

- A. ATP
- B. Albumin
- C. Carbon dioxide
- D. Glucose
- E. RNA

## 2 Islamic Inhabitants

Which of the following nations has the world's largest Muslim population, at 231,000,000, or almost 13% of the world's Muslims?

- A. India
- B. Indonesia
- C. North Korea
- D. Pakistan
- E. Turkey

## 3 A Higher Morality

The first moral philosopher of the Western ethical thought, this Greek's dialectic method of inquiry is used to examine moral concepts such as Goodness and Justice.

- A. Apollodorus
- B. Aristotle
- C. Diogenes
- D. Plato
- E. Socrates

## 4 Volcanic Groups

Which of these volcanoes is NOT found along the Ring of Fire?

- A. Nyamuragira
- B. Popocatepetl
- C. Rainier
- D. Ruapehu
- E. Taal

## 5 Money Mottoes

On the back of the Great Seal of the United States and our one-dollar bill is the Latin phrase "annuit coeptis," which means what?

- A. He approves our undertakings
- B. He watches over us all
- C. In God we trust
- D. Out of many, one
- E. Water of life

## 6 Systems of Equations

How many solutions does the following system of equations have?

$$x^2 + y^2 = 5 \quad y = -x^2 + 3 \quad y = 2$$

- A. 0
- B. 1
- C. 2
- D. 3
- E. 5

## 7 Getting a Job

During the Johnson administration, what group of programs were focused on eliminating poverty and racial injustice in the USA?

- A. The Fresh Start
- B. The Great Society
- C. The Head Start
- D. The Jobs and Hope
- E. The President's Comity

## 8 German Wedding Traditions

Abducting the bride-to-be before a German wedding is a tradition for which the Best Man is responsible. The groom finds his bride from clues. The groom frees his bride by paying a tab. During this abduction, the bride and best man are where?

- A. At a Bar
- B. At a Church
- C. At a Hotel
- D. At a Park
- E. At the Home of the Best Man

## 9 What and When

Which of the following chemical elements was discovered earliest?

- A. Bohrium
- B. Cesium
- C. Iron
- D. Promethium
- E. Sodium

## 10 Noble Assassins

Which of the conspirators in the tragedy *Julius Caesar* was lauded by Mark Anthony in Act 5 as being "the noblest Roman of them all"?

- A. Brutus
- B. Caius
- C. Casca
- D. Cassius
- E. Trebonius

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## 11 Blood for the Body

What English doctor published that the human heart (not the arteries) pumps blood in a circuit in 1628?

- A. Edward Jenner
- B. Robert Koch
- C. Sir Joseph Lister
- D. Sir William Osler
- E. William Harvey

## 12 Gas Laws

Which of the following gas molecules would effuse the fastest?

- A. Bromine Gas
- B. Chlorine Gas
- C. Fluorine Gas
- D. Nitrogen gas
- E. Oxygen Gas

## 13 Novel Settings

Which decade is the setting for the novel *Roll of Thunder, Hear My Cry*?

- A. 1860's
- B. 1890's
- C. 1930's
- D. 1960's
- E. 1990's

## 14 Prime Time Pups

In the early 2000s sitcom *Scrubs*, what was the name of J.D.'s and Turk's stuffed dog?

- A. Bambi
- B. Elliot
- C. Newbie
- D. Rowdy
- E. Snoop

## 15 Colorful Constructions

The Istanbul architectural masterpiece officially known as the Sultan Ahmed Mosque, built between 1609 and 1618, is better known by what colorful title?

- A. The Blue Mosque
- B. The Magenta Mosque
- C. The Mustard Mosque
- D. The Purple Palace
- E. The Red Mosque

## 16 Penn Polis

Which of the following cities in Pennsylvania is west of the Allegheny mountain range?

- A. Allentown
- B. Harrisburg
- C. Philadelphia
- D. Pittsburgh
- E. Scranton

## 17 Do I have to wait?

You tell your dad that you will be president of the United States ASAP. He says, "Great! You will only have to wait for about 22 years." How old are you?

- A. 10
- B. 13
- C. 18
- D. 3
- E. 8

## 18 Independence Days

What European nation celebrated its 200th year of independence on March 25, 2021?

- A. Albania
- B. Finland
- C. Greece
- D. Hungary
- E. Poland

## 19 Constellations

Which constellation is described by the following: includes Betelgeuse and Rigel, and appears in the Northern Hemisphere during harvest times.

- A. Capricorn
- B. Orion
- C. Scorpio
- D. Ursa Major
- E. Ursa Minor

## 20 Architectural Extremes

In what city is the world's tallest building, the Burj Khalifa?

- A. Dubai
- B. Kuala Lumpur
- C. Kuwait City
- D. Mecca
- E. Taipei

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## 21 Men Who Think

Which of these men encouraged American men to be thinkers and not "parrots of other men's thoughts"? He wrote a Harvard address called "The American Scholar."

- A. George Satayana
- B. Henry David Thoreau
- C. John Dewey
- D. Ralph Waldo Emerson
- E. William James

## 22 Death Row Data

As of 2021, which US state is holding the most inmates on death row?

- A. Alabama
- B. California
- C. Georgia
- D. New York
- E. Texas

## 23 Oncogenesis

Human papillomavirus (HPV) is now known to be responsible for which of the following common human cancers?

- A. Breast
- B. Cervical
- C. Colon
- D. Pancreatic
- E. Prostate

## 24 Quadratics

Find the y-intercept of the following equation:  
 $y = 4x^2 + 3x + 16$

- A. (-16,0)
- B. (0,-16)
- C. (0,16)
- D. (16,0)
- E. (16,16)

## 25 Family Trees

What modern animal is thought to have evolved from a small multi-toed creature called *Eohippus* into its modern single-toed form?

- A. Elephant
- B. Goat
- C. Horse
- D. Rhinoceros
- E. Tapir

## 26 Famous people

The popular Christmas tune, "Gloria in Excelsis Deo," was composed by whom?

- A. Georg Philipp Telemann
- B. George Frideric Handel
- C. Johann Gottlieb Görner
- D. Johann Sebastian Bach
- E. Wolfgang Amadeus Mozart

## 27 Dangerous Plants

According to ancient myth, the goddess Frigg made every living and non-living thing swear not to harm her son Balder. Which plant did she forget, leading to his untimely death?

- A. Elderberry
- B. Hemlock
- C. Mistletoe
- D. Poison Ivy
- E. Stinging Nettle

## 28 Fateful Firearms

John Wilkes Booth used which of the following brands of single-shot pistol to assassinate Abraham Lincoln, known for its small size and accuracy at short ranges?

- A. Colt
- B. Derringer
- C. Glock
- D. Ruger
- E. Smith and Wesson

## 29 Dimensional Analysis

What conversion factor would be appropriate to convert moles of silver to grams of silver?

- A. 1 mole of silver / Avogadro's number
- B. 1 mole of silver / Molar volume of silver
- C. Avogadro's number / 107.9 g of silver
- D. Molar mass of silver / 1 mole of silver
- E. Molar mass of silver / Avogadro's number

## 30 Colorful Seas

Which of the following colors doesn't have an associated sea named after it?

- A. Black
- B. Green
- C. Red
- D. White
- E. Yellow

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## 31 Border Mountains

What mountain range forms a border between Scotland's highlands and lowlands?

- A. Cairngorms
- B. Cheviot Hills
- C. Grampian Mountains
- D. MacGillycuddy's Reeks
- E. Pennine Chain

## 32 Cloud Morphology

Which of the following terms best fits clouds that appear, lens-shaped, over the peaks of mountains?

- A. Cirrus
- B. Cumulonimbus
- C. Lenticular
- D. Nimbostratus
- E. Stratus

## 33 Hard Surfaces

Which of the following is NOT made of keratin?

- A. A dragonfly's exoskeleton
- B. A lizard's scales
- C. A mountain goat's horn
- D. A sparrow's beak
- E. A turtle's shell

## 34 That's the Place

Which one of these places would be a socially acceptable place to practice the verb "nadar"?

- A. El mercado
- B. El teatro
- C. La biblioteca
- D. La estación de tren
- E. La playa

## 35 Which Is Different than the Others?

Which of these artists is from the Northern Renaissance rather than the Southern Renaissance?

- A. Giovanni Bellini
- B. Leonardo DaVinci
- C. Michelangelo
- D. Raffaello Sanzio
- E. Robert Campin

## 36 Polymathic Politicians

What prime minister of the United Kingdom wrote the novels *Sybil* in 1845, and *Endymion* in 1880, among many others?

- A. Benjamin Disraeli
- B. Lewis Carroll
- C. William Gladstone
- D. William Wilberforce
- E. Winston Churchill

## 37 Same but Different

What term, shared by both nuclear physics and microbiology, describes one reproductive method used by bacteria?

- A. Budding
- B. Fission
- C. Fusion
- D. Gastrulation
- E. Sporulation

## 38 Dickey Dictators

Rafael Trujillo was the dictator of what country in the mid-20th century?

- A. Dominican Republic
- B. Haiti
- C. Honduras
- D. Nicaragua
- E. Panama

## 39 Those Were The Days

Who was Archie Bunker's wife in the 1970s sit-com *All In The Family*?

- A. Doris
- B. Edith
- C. Lucy
- D. Margie
- E. Sally

## 40 Number Groups

Which is not a subset of rational numbers?

- A. Fractions
- B. Integers
- C. Natural Numbers
- D. Real Numbers
- E. Whole Numbers

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# 2021-2022 High School Packet 8

Written Round

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## 41 Directions

DNA strands run in what direction with regard to one another?

- A. Antiparallel
- B. Paralell
- C. Perpendicular
- D. Random
- E. Symmetric

## 42 German Housepets

Which of the following animals would you NOT find as a common pet in Germany?

- A. der Adler
- B. der Hund
- C. der Igel
- D. die Katze
- E. die Schlange

## 43 Is that fair?

How long does the Supreme Court Justice serve in office?

- A. 20 years
- B. 4 years
- C. 5 years
- D. Indefinitely
- E. Until the next election

## 44 African Countries

The former British protectorate of Northern Rhodesia is today known as what country?

- A. Botswana
- B. Mozambique
- C. Namibia
- D. Zambia
- E. Zimbabwe

## 45 Baby, You Move Me

If a muscle pulls a limb toward the organism's midline, it is described as a(n) \_\_\_\_\_?

- A. Abductor
- B. Adductor
- C. Extensor
- D. Flexor
- E. Supinator

## 46 Unusual Characters

Ralph Ellison and H.G. Wells both wrote novels featuring a character defined by what unusual characteristic?

- A. Eidetic Memory
- B. Immortality
- C. Invisibility
- D. Telepathy
- E. The ability to fly

## 47 Shrinking Societies

What religious group, officially known as United Society of Believers in Christ's Second Appearing and known for their quality furniture-making, was reduced by 2019 to only one community living in Maine?

- A. Amish
- B. Mennonites
- C. Methodists
- D. Quakers
- E. Shakers

## 48 Period Pieces

What historical term is used to refer both to the 17th century in general and also to the fanciful, eccentric styles seen in music, art, and architecture of the period?

- A. Baroque
- B. Bohemian
- C. Classical
- D. Medieval
- E. Modern

## 49 It's Just a Phase

When the Moon, from Earth, is all dark with no sliver of lighted surface, it is called a \_\_\_\_\_ moon?

- A. Full
- B. New
- C. Old
- D. Waxing crescent
- E. Waxing gibbous

## 50 It Seams Sew

Your mom needs 60 inches of pterodactyl fabric for a quilt for your little brother, but she only has three 25-inch strips. If she sews the three together using a 1/4 inch seam allowance at each seam, how many inches of pterodactyl fabric will she have left over?

- A. 14 1/2 inches
- B. 14 1/4 inches
- C. 14 inches
- D. 15 1/4 inches
- E. 15 inches

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## 51 Travel Disruptions

In 2010 and 2011, what type of natural disaster caused the disruption of thousands of flights to and from Europe?

- A. Earthquake
- B. Hurricane
- C. Solar flare
- D. Tsunami
- E. Volcanic eruption

## 52 French Vocabulary

If a story is taking place on a Friday, and a character in the story recounts an event that took place on "l'avant veille," what day did that event take place?

- A. Saturday
- B. Sunday
- C. Thursday
- D. Tuesday
- E. Wednesday

## 53 Dystopian Pronouns

What type of pronoun is 'that' in the following line from Orwell's 1984.

*For a second, two seconds, they had exchanged an equivocal glance, and that was the end of the story.*

- A. Demonstrative
- B. Indefinite
- C. Intensive
- D. Possessive
- E. Relative

## 54 Historical Ironies

In 1799, Harry Washington, a former slave of U.S. President George Washington, became the elected leader of what west African colony of freed African-Americans?

- A. Cote D'Ivoire
- B. Gambia
- C. Ghana
- D. Liberia
- E. Sierra Leone

## 55 What's in a Name?

Which of the following has NOT been the name of an American NASA space shuttle?

- A. Atlantis
- B. Discovery
- C. Endeavor
- D. Enterprise
- E. Explorer

## 56 Compass Points in Colorado

Which of the following Colorado cities is located the farthest south?

- A. Boulder
- B. Denver
- C. Fort Collins
- D. Grand Junction
- E. Pueblo

## 57 Vector Operations

If  $a = \langle -2, -1 \rangle$  and  $b = \langle 4, 1 \rangle$  which of the following is equal to  $a - b$ ?

- A.  $\langle -2, 0 \rangle$
- B.  $\langle -6, -2 \rangle$
- C.  $\langle -8, -1 \rangle$
- D.  $\langle 2, 0 \rangle$
- E.  $\langle 6, 2 \rangle$

## 58 Art Synonyms

What is the most common name for the painting technique initially called "divisionism"?

- A. Chiarascuro
- B. Pointillism
- C. Sfumato
- D. Single Point Perspective
- E. Two Point Perspective

## 59 What Is It Good For?

Who was the Roman god of war?

- A. Jupiter
- B. Mars
- C. Neptune
- D. Venus
- E. Zeus

## 60 Evolutionary Revolution

What is NOT one of the five theories of evolution?

- A. Common Descent
- B. Gradualism
- C. Multiplication of Species
- D. Natural Selection
- E. Species System Control

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**2021-2022 High School Packet 8****Written Round****Answer Key**

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|       |       |
|-------|-------|
| 1. C  | 41. A |
| 2. B  | 42. A |
| 3. E  | 43. D |
| 4. A  | 44. D |
| 5. A  | 45. B |
| 6. C  | 46. C |
| 7. B  | 47. E |
| 8. A  | 48. A |
| 9. C  | 49. B |
| 10. A | 50. C |
| 11. E | 51. E |
| 12. D | 52. E |
| 13. C | 53. A |
| 14. D | 54. E |
| 15. A | 55. E |
| 16. D | 56. E |
| 17. B | 57. B |
| 18. C | 58. B |
| 19. B | 59. B |
| 20. A | 60. E |
| 21. D |       |
| 22. B |       |
| 23. B |       |
| 24. C |       |
| 25. C |       |
| 26. D |       |
| 27. C |       |
| 28. B |       |
| 29. D |       |
| 30. B |       |
| 31. C |       |
| 32. C |       |
| 33. A |       |
| 34. E |       |
| 35. E |       |
| 36. A |       |
| 37. B |       |
| 38. A |       |
| 39. B |       |
| 40. D |       |

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# 2021-2022 High School Packet 9

## Written Round

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## Written Round

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### 1 Islands

Hibernia was the Latin name for what island country?

- A. Corsica
- B. Great Britain
- C. Ireland
- D. Madagascar
- E. Sicily

### 2 Factoring

Factor the expression  $x^3 + 8$

- A.  $(x^2 + 2x + 4)(x + 2)$
- B.  $(x^2 + 2x + 4)(x - 2)$
- C.  $(x^2 - 2x + 4)(x + 2)$
- D.  $(x^2 - 2x + 4)(x - 2)$
- E.  $(x^2 + 4)(x - 2)$

### 3 Cold Coincidences

Which of these historic leaders also is the name of a glacier?

- A. Franz Josef
- B. John J. Pershing
- C. Leon Trotsky
- D. Winston Churchill
- E. Woodrow Wilson

### 4 I Knew It Would Last

What is the traditional theme for the 50th wedding anniversary?

- A. Diamond
- B. Gold
- C. Platinum
- D. Ruby
- E. Silver

### 5 Philosophy

Who said, "The life of man [in a state of nature] is solitary, poor, nasty, brutish, and short"?

- A. Aristotle
- B. John Locke
- C. Socrates
- D. Thomas Hobbes
- E. Voltaire

### 6 Planetary Variations

Which planet has the longest year?

- A. Earth
- B. Jupiter
- C. Mars
- D. Saturn
- E. Venus

### 7 Derivative Titles

From which play by Shakespeare did Faulkner derive the title *The Sound and the Fury*?

- A. *Hamlet*
- B. *Henry V*
- C. *Macbeth*
- D. *Midsummer Night's Dream*
- E. *Othello*

### 8 Colonies

Which of the following modern African countries was not a colony of France?

- A. Algeria
- B. Ivory Coast
- C. Libya
- D. Morocco
- E. Tunisia

### 9 Small Citrus

What fruit, much like an orange but about the size of a large olive, is native to China, but now grown throughout the world including California and Florida?

- A. Apricot
- B. Black currant
- C. Fig
- D. Gooseberry
- E. Kumquat

### 10 Child Poverty

Approximately what percent of US children lived in poverty at the end of 2020?

- A. 10%
- B. 15%
- C. 20%
- D. 25%
- E. 30%

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## 11 Eponymous Airports

What East Coast American airport is named for the three-time mayor of New York City?

- A. Dulles
- B. Hartsfield-Jackson
- C. La Guardia
- D. McCarran
- E. O'Hare

## 12 Romantic Poets

Which of the following would NOT be considered a Romantic poet?

- A. Carl Sandburg
- B. Elizabeth Barrett Browning
- C. Percy Bysshe Shelley
- D. Samuel Taylor Coleridge
- E. William Blake

## 13 Metabolic Machines

German physician Paul Langerhans discovered groups of clustered cells in the pancreas, one key function of which is to produce what metabolic hormone?

- A. Cortisol
- B. Growth hormone
- C. Insulin
- D. Testosterone
- E. Thyroxine

## 14 Nobody Has Just One

What is the proper plural of the psychological term "neurosis"?

- A. Neuroses
- B. Neurosii
- C. Neurosises
- D. Neurosis'
- E. Neurosis's

## 15 Above Down Under

Which of the following is a constellation seen in the South Polar sky?

- A. Cassiopeia
- B. Perseus
- C. Triangulum Australe
- D. Ursa Major
- E. Ursa Minor

## 16 Obscured Dates

What war was occurring during the year represented by this roman numeral? MCMXLIII

- A. American Civil War
- B. Spanish American War
- C. Vietnam War
- D. WWI
- E. WWII

## 17 British Beaches

What North Atlantic island archipelago of seven main islands is home to pink sand beaches including Elbow Beach and Horseshoe Bay?

- A. Bermuda
- B. Canary Islands
- C. Galapagos
- D. Jamaica
- E. The Hebrides

## 18 That Sucks

What jawless eel-like vertebrate, in the same class as hagfishes, lives by attaching to larger fishes and feeding on their blood and tissue?

- A. Bullhead shark
- B. Chimaera
- C. Lamprey
- D. Lancet fish
- E. Shovelnose ray

## 19 Not Quite Wallpaper

In ancient Rome, they painted their walls for adornment. How many different styles of Roman wall paintings have been identified by art scholars?

- A. 10
- B. 2
- C. 4
- D. 6
- E. 8

## 20 Super Bowl Stars

The two headline performers at the 2020 Super Bowl were Jennifer Lopez, also known as "J-Lo," and what Columbian singer?

- A. Cher
- B. Christina Aguilera
- C. Fergie
- D. Gloria Estefan
- E. Shakira

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## 21 Tool Time

Which of the following woodworking joints can be described as a small protrusion of one piece fitting into a slot cut in the other piece?

- A. Birdsmouth joint
- B. Dado
- C. Lap joint
- D. Mitre joint
- E. Tenon-and-mortise joint

## 22 Distinctive Behaviors

Spyhopping, logging, lobtailing, and breaching are all behaviors associated with animals of what order?

- A. Accipitriforms
- B. Cetacea
- C. Decapoda
- D. Primates
- E. Testudines

## 23 Mirror, Mirror

Which author's novel, upon publication in 1890, was widely criticized for its portrayal of a hedonistic lifestyle, while any consequences were suffered by a two-dimensional image of the protagonist?

- A. Edgar Allan Poe
- B. Emily Brontë
- C. George Eliot
- D. Lewis Carroll
- E. Oscar Wilde

## 24 Philosophy

Who said, "Religion is the sign of the oppressed ... it is the opium of the people"?

- A. Friedrich Nietzsche
- B. Jean-Jacques Rousseau
- C. John Stuart Mill
- D. Karl Marx
- E. Plato

## 25 Names in the News

An object named for James Webb was much in the news in December 2021. What was it?

- A. A Hydroelectric Dam
- B. A Manufacturing Technique
- C. A Race Car
- D. A Space Telescope
- E. A Vaccine

## 26 Europeans in the Americas

What was the first written document created by settlers to North America to form a civil body governed by "just and equal laws"?

- A. Guadelupe-Hidalgo
- B. Jamestown Charter
- C. Magna Carta
- D. Mayflower Compact
- E. Treaty of Tordesillas

## 27 Vectors

Which of the following is the magnitude of vector  $k = \langle 2, -2 \rangle$ ?

- A. -2
- B.  $-\sqrt{2}$
- C. 2
- D.  $2\sqrt{2}$
- E.  $\sqrt{2}$

## 28 Name That Molecule!

A simple alkyne compound with seven carbons and a single triple bond at the third carbon would be called what?

- A. 1, 3-heptene
- B. 3-heptyne
- C. 3-hexyne
- D. heptyne-3
- E. triyne-3-butyne

## 29 Volcanoes

Zeus buried Typhon under which of the following mountains, which was also the site of Hephaestus's forges?

- A. Mount Elbrus
- B. Mount Etna
- C. Mount Olympus
- D. Mount Stromboli
- E. Mount Vesuvius

## 30 Television Hits

What legal procedural television series was the highest-rated program in 2011-14, 2015-16, and 2019-20?

- A. CSI
- B. Law & Order
- C. Law & Order: SVU
- D. NCIS
- E. The Killing

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## 31 Composing Chums

Wolfgang Mozart dedicated a series of six quartets to what close friend who also lived in Vienna in the 1780s?

- A. Felix Mendelssohn
- B. Franz Schubert
- C. Johannes Brahms
- D. Joseph Haydn
- E. Ludwig van Beethoven

## 32 Energy Sources

Organisms like us that get energy from chemical compounds we consume are called "chemotrophs." In contrast, plants and some bacteria that use light energy are called what?

- A. Heliotrophs
- B. Heterotrophs
- C. Lithotrophs
- D. Phototrophs
- E. Pleiotrophs

## 33 A Work of Art

What is the French phrase for a masterpiece?

- A. art deco
- B. chef d'oeuvre
- C. coup de grâce
- D. femme fatale
- E. pièce de résistance

## 34 Spinal Segments

To which vertebral segments are the ribs attached?

- A. Cervical
- B. Coccygeal
- C. Lumbar
- D. Sacral
- E. Thoracic

## 35 Scandinavian Seaways

Which of the following bodies of water lies between Sweden to the west and Finland to the east?

- A. Baltic Sea
- B. Barents Sea
- C. Bay of Biscay
- D. Gulf of Bothnia
- E. Norwegian Sea

## 36 State Capitols

The state capitol building in what Midwestern city contains a famed mural of abolitionist John Brown?

- A. Columbus
- B. Jefferson City
- C. Lincoln
- D. Oklahoma City
- E. Topeka

## 37 Protestant Populations

What is the largest Protestant Christian denomination in the United States, with over 16 million members?

- A. Episcopal Church in America
- B. Evangelical Lutheran Church of America
- C. Roman Catholic Church
- D. Southern Baptist Convention
- E. United Methodist Church

## 38 North in the South

Which of the following South American cities is the farthest north?

- A. Brasilia
- B. Buenos Aires
- C. Caracas
- D. Rio de Janeiro
- E. Santiago

## 39 Atomic Experiments

What 20th century scientist carried out "oil drop" experiments that determined the quantity of charge on an electron?

- A. Ernest Rutherford
- B. J.J. Thomson
- C. James Chadwick
- D. Niels Bohr
- E. Robert Millikan

## 40 Quadratics

What are the zeros of the equation  $y = x^2 + 3x + 2$

- A. -2 and -1
- B. -2 and 1
- C. 2 and -1
- D. 2 and 1
- E. 3 and -3

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**2021-2022 High School Packet 9**

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**Answer Key**

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1. C
2. C
3. A
4. B
5. D
6. D
7. C
8. C
9. E
10. B
11. C
12. A
13. C
14. A
15. C
16. E
17. A
18. C
19. C
20. E
21. E
22. B
23. E
24. D
25. D
26. D
27. D
28. B
29. B
30. D
31. D
32. D
33. B
34. E
35. D
36. E
37. D
38. C
39. E
40. A

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# 2021-2022 High School Packet 10

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## 1 Location, Location, Location

In which lobe of the human brain is Broca's area, injury to which causes "expressive aphasia," or inability to speak, after a stroke?

- A. Cerebellum
- B. Frontal
- C. Occipital
- D. Parietal
- E. Temporal

## 2 British Burls

Which of the following is the northernmost city in the United Kingdom?

- A. Belfast
- B. Birmingham
- C. Glasgow
- D. Liverpool
- E. London

## 3 Acids

Which of the following is not a strong acid?

- A. Acetic acid
- B. Hydrobromic acid
- C. Hydrochloric acid
- D. Nitric acid
- E. Sulfuric acid

## 4 The More Things Change

Which U.S. state had the same number of congressional Representatives in both 1900 and in 2010?

- A. Alaska
- B. Colorado
- C. Maine
- D. South Dakota
- E. Wyoming

## 5 Fatal Followings

Which of the following was the leader of The People's Temple, a cult founded in 1955 that ended with the death of over 900 people in Guyana in 1978?

- A. David Berg
- B. David Koresh
- C. Jim Jones
- D. Marshall Applewhite
- E. Shoko Asahara

## 6 American Belief

What was the first document that created a shared government between the thirteen original states of the United States?

- A. The Articles of Confederation
- B. The Bill of Rights
- C. The Declaration of Independence
- D. The Mayflower Compact
- E. The United States Constitution

## 7 Flying High

As of late 2019, what European aircraft manufacturer became the largest in the world, surpassing Boeing in production?

- A. Airbus
- B. Cessna
- C. Dassault
- D. Embraer
- E. Gulfstream

## 8 Reading Calculations

The new reading corner is 100 sq ft. That area is most similar to which of the following?

- A. 2 circles; each with a radius of 5 ft.
- B. Circle; radius of 6 ft
- C. Square; side length of 8 ft
- D. Trapezoid; bases of 6 and 8 ft; height of 10 ft
- E. Triangle; base of 12 ft, height of 18 ft

## 9 A Dam Good Question

What term is used for the enclosed channels that carry water through a dam to water turbines for power generation?

- A. Alluvia
- B. Cataracts
- C. Penstocks
- D. Ripraps
- E. Weirs

## 10 Tricky Women

In *The Odyssey*, who deceives her suitors by weaving during the day and unweaving that work each night?

- A. Calypso
- B. Circe
- C. Ino
- D. Nausica
- E. Penelope

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## 11 Liberal Arts

Which of the following disciplines is not one of the seven classical liberal arts (the Trivium and Quadrivium)?

- A. Arithmetic
- B. Astronomy
- C. Geometry
- D. Grammar
- E. Philosophy

## 16 Going Green

If you were looking for chlorophyll, in which plant cell structure would you find it?

- A. Amyloplast
- B. Cell wall
- C. Mitochondrion
- D. Thylakoid
- E. Vacuole

## 12 Off-Center Circles

What is the radius of this circle?  $x^2 - 2x + y^2 - 4y = 11$

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

## 17 Europeans in the Americas

Which colony disappeared before it could become a permanent settlement?

- A. Jamestown
- B. Plymouth
- C. Roanoke (Roanoke Island)
- D. San Diego
- E. St. Augustine

## 13 One of These Is Not Like the Others

Which of the following paintings was not painted by Vincent Van Gogh?

- A. *Haystacks*
- B. *Irises*
- C. *Olive Trees*
- D. *Starry Night Over the Rhone*
- E. *The Potato Eaters*

## 18 Borderlines

Which of these countries does NOT border the Persian Gulf?

- A. Bahrain
- B. Iran
- C. Kuwait
- D. Oman
- E. Saudi Arabia

## 14 Good Gargantuans

What is the largest U.S. charity organization, with a total annual revenue exceeding \$4 billion?

- A. Feeding America
- B. Habitat for Humanity International
- C. Salvation Army
- D. St. Jude's Children Research Hospital
- E. United Way

## 19 Menu Must-Haves

Which of the following mammals is an obligate carnivore?

- A. Cat
- B. Dog
- C. Elephant
- D. Llama
- E. Squirrel

## 15 German Translations

What German word means "bicycle"?

- A. das Auto
- B. das Fahrrad
- C. das Gleis
- D. der Zug
- E. die Bahn

## 20 Is Anyone Out There?

Which country is the least densely populated?

- A. Canada
- B. Colombia
- C. Mongolia
- D. Russia
- E. Singapore

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## 21 Bolt From The Blue

How long is a bolt of cloth?

- A. 100 feet
- B. 100 yards
- C. 250 feet
- D. 45 inches
- E. 60 inches

## 22 Imaginary Distances

What is the distance between the points  $a$  and  $b$  when  $a = (5 + 2i)$  and  $b = (2 + 6i)$ 

- A. 2
- B. 3
- C. 4
- D. 5
- E. 6

## 23 Art Movements

The Italian High Renaissance occurred predominantly at the beginning of what century?

- A. 10th
- B. 12th
- C. 14th
- D. 16th
- E. 18th

## 24 Lovers in Literature

Which of the following pairs of lovers are characters in Leo Tolstoy's *War and Peace*?

- A. Henry V and Catherine
- B. Othello and Desdemona
- C. Paris and Helen
- D. Prince Andrew and Natasha
- E. Troilus and Criseyde

## 25 A Problem of Significance

Using the number of *significant figures*, not the actual numbers, in the following - what is the answer to this equation?  $12.56 + 0.0560 - 10,200 =$ 

- A. - 1
- B. - 10,187.384
- C. 1
- D. 11
- E. 4

## 26 First World Problems

The Norwegian town of Rjukan, due to its location in a deep valley, has used what technology to provide sunlight during the winter months since 2013?

- A. Floodlights
- B. Mirrors
- C. Satellites
- D. Solar panels
- E. Tunnels

## 27 Do the Moonwalk

As of 2020, how many astronauts have walked on the surface of the moon?

- A. 12
- B. 15
- C. 21
- D. 38
- E. 5

## 28 New York City

Which of the following is NOT one of the counties that makes up New York City?

- A. Bronx
- B. Brooklyn
- C. Kings
- D. Queens
- E. Richmond

## 29 Syllogistic Savants

What philosopher and teacher of Alexander the Great was a originally a student of Plato, founded his own philosophical school called the Lyceum, and went on to author the *Nicomachean Ethics*?

- A. Aristotle
- B. Herodotus
- C. Pythagoras
- D. Seneca
- E. Socrates

## 30 Wet and Wild

Water's ability to form hydrogen bonds allows it to stick to itself, forming droplets and allowing surface tension. What is this property of self-sticking called?

- A. Adherence
- B. Adhesion
- C. Cohesion
- D. Convergence
- E. Covalence

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## 31 Theatrical Cooking

Which of the following musicals has a whole song and dance about omelets?

- A. *Billy Elliot*
- B. *Matilda*
- C. *Something Rotten*
- D. *Sweeney Todd*
- E. *Waitress*

## 36 Cell Reproduction

Which of the following is *not* a phase of mitosis?

- A. Anaphase
- B. Metaphase
- C. Prophase
- D. Protophase
- E. Telephase

## 32 Mind the Gap

Which do oligodendrocytes in the central nervous system produce that helps axons conduct signals more efficiently?

- A. Astrocytes
- B. Dendrites
- C. Myelin
- D. Serotonin
- E. Synapses

## 37 Fun with Functions

Which of the following functions is even?

- A.  $\cos(x)$
- B.  $\sin(x)$
- C.  $\tan(x)$
- D.  $e^x$
- E.  $x^3$

## 33 Making Music

This Russian Abstract artist once said, "Music is the best teacher." He then painted 10 canvases that were based on musical compositions, all entitled as such. Name the artist.

- A. Franz Marc
- B. Kazimir Malevich
- C. Mies Van der Rohe
- D. Wassily Kandinsky
- E. Willen De Kooning

## 38 Please Sit Down

How many seats are there in the House of Representatives?

- A. 100
- B. 202
- C. 350
- D. 435
- E. 50

## 34 Got Some 'Splainin' to Do!

What was Lucy's husband's name, played by Desi Arnaz, in the 1950s sit-com "I Love Lucy"?

- A. Al
- B. Fred
- C. Jimmy
- D. Ned
- E. Ricky

## 39 Creative Birthplaces

All of the following famous writers hail from what country?

- Robert Louis Stevenson, Arthur Conan Doyle, J.M. Barrie
- A. Denmark
- B. France
- C. Ireland
- D. Scotland
- E. United States of America

## 35 In the Starlight

A star's color is determined by what quality of the star?

- A. Chemical composition
- B. Gravitational pull
- C. Relative distance
- D. Size
- E. Temperature

## 40 Roman Provinces

The Roman Province of Lusitania formed part of what current country?

- A. Andorra
- B. France
- C. Italy
- D. Morocco
- E. Portugal

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**2021-2022 High School Packet 10**

Written Round

**Answer Key**

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1. B
2. C
3. A
4. E
5. C
6. A
7. A
8. E
9. C
10. E
11. E
12. D
13. A
14. E
15. B
16. D
17. C
18. D
19. A
20. C
21. B
22. D
23. D
24. D
25. E
26. B
27. A
28. B
29. A
30. C
31. C
32. C
33. D
34. E
35. E
36. D
37. A
38. D
39. D
40. E

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# Knowledge Bowl Nationals, May 2022

## Written Round

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# Knowledge Bowl Nationals, May 2022

## Written Round

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### 1 Pearl Harbor

During the attack of Pearl Harbor, Hawaii was considered a what?

- A. Chiefdom
- B. Kingdom
- C. State
- D. U.S. Territory
- E. Union

### 2 Inheritance

If R represents red hair and r represents blond hair, and hair color is inherited by Mendelian inheritance, what are the chances that the offspring of parents with the traits RR and rr have a child with blond hair?

- A. 0%
- B. 100%
- C. 25%
- D. 50%
- E. 75%

### 3 A New One Coming Up

Which of the following works is from a different art period than the other four?

- A. *Bathers* -- Cezanne
- B. *Dancers* -- Degas
- C. *The Boulevard Montmartre* -- Pissarro
- D. *Water Lilies* -- Monet
- E. *Woman Bathing* -- Cassatt

### 4 Let's Talk Chemistry

Which discipline of chemistry focuses on the chemical processes occurring in living things?

- A. Biochemistry
- B. Inorganic chemistry
- C. Nuclear chemistry
- D. Organic chemistry
- E. Physical chemistry

### 5 Good Neighbors

In Donna Tartt's *The Goldfinch*, the protagonist relocates to his father's home after a tragic incident. Which of the following best describes this neighborhood?

- A. Affluent
- B. Crowded
- C. Deserted
- D. Eclectic
- E. Urban

### 6 Artistic Media

Foley artists work in what medium?

- A. Clay
- B. Cut-Paper
- C. Food
- D. Glass
- E. Sound

### 7 Fascinating Facts

What is the most common street name in the United States?

- A. Cedar Street
- B. Elm Street
- C. First Street
- D. Main Street
- E. Second Street

### 8 Does it line up?

Which set of ordered pairs could be from a linear function?

- A. {(3, 2), (6, 4), (12, 8)}
- B. {(3, 2), (6, 4), (2, 3)}
- C. {(3, 2), (6, 4), (3, 4)}
- D. {(3, 2), (6, 4), (8, 6)}
- E. {(3, 2), (6, 4), (9, 2)}

### 9 Global News

Since 2016, persecution and genocide in Myanmar has been targeted toward which group of Muslim people?

- A. Javanese
- B. Khmer
- C. Muong
- D. Rohingya
- E. Senoi

### 10 Percy's Poem

The poem by Percy Bysshe Shelley which opens with the line "I met a traveller from an antique land," is in which of the following poetic forms?

- A. Acrostic
- B. Elegy
- C. Free verse
- D. Haiku
- E. Sonnet

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# Knowledge Bowl Nationals, May 2022

## Written Round

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### 11 Exodus Escapes

Which Old Testament figure's mother hid him in a basket on the river Nile, where he was found by an Egyptian princess, who then hired his own mother to care for him?

- A. Adam
- B. Esau
- C. Joseph
- D. Joshua
- E. Moses

### 12 Geological Classifications

Which is not a major type of geological estuary?

- A. Bar-Built
- B. Drowned River Valley
- C. Fjord
- D. Flood Plain
- E. Tectonic

### 13 Mulling Mortality

Which Shakespearean character says the following famous lines? "To die: - to sleep: no more; and, by a sleep to say we end the heart-ache and the thousand natural shocks that flesh is heir to, 'tis a consummation devoutly to be wished."

- A. Hamlet
- B. Lady Macbeth
- C. Ophelia
- D. Othello
- E. Romeo

### 14 Area Codes

What is the equivalent of 10,000 square meters?

- A. 1 hectare
- B. 1 light-year
- C. 1 square kilometer
- D. 10,000 square yards
- E. 100 acres

### 15 Historical Highlights

Which century in Europe included: the Age of Reason, Voltaire, Frederick the Great, Adam Smith, and the growth of capitalism?

- A. 16th
- B. 17th
- C. 18th
- D. 19th
- E. 20th

### 16 Newly Relevant Precedent

Which Supreme Court case held that communities could require all residents to be vaccinated to protect the safety of the public?

- A. *Loving v. Virginia*
- B. *Gideon v. Wainwright*
- C. *Jacobson v. Massachusetts*
- D. *Obergefell v. Hodges*
- E. *Schenck v. United States*

### 17 Big Buys

What company purchased Metro-Goldwyn-Mayer for \$8.45 billion in May 2021?

- A. Amazon
- B. Google
- C. Microsoft
- D. Netflix
- E. Wal-Mart

### 18 African Countries

Which one of the following African countries does not have Portuguese as an official language?

- A. Angola
- B. Equatorial Guinea
- C. Guinea-Bissau
- D. Mozambique
- E. Namibia

### 19 All that Is Right and Noble

Worshipped by the Oracle at Delphi, he is the Greek and Roman God of poetry, prophecy, medicine and light.

- A. Apollo
- B. Atlas
- C. Bacchus
- D. Hercules
- E. Zues

### 20 Under the Sea

Which of the following is not an example of a cephalopod?

- A. Cuttlefish
- B. Nautilus
- C. Octopus
- D. Sea Snails
- E. Squid

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# Knowledge Bowl Nationals, May 2022

## Written Round

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### 21 Recurring Characters

Nick Adams appears in over a dozen short stories written in the 1920s and 1930s by what American author?

- A. Edith Wharton
- B. Ernest Hemingway
- C. F. Scott Fitzgerald
- D. John Steinbeck
- E. William Faulkner

### 22 The Greek -- Painter, not Language

Which of these works of art was not painted by the artist El Greco?

- A. Opening of the Fifth Seal
- B. The Burial of the Count of Orgaz
- C. The Calling of Saint Matthew
- D. The Nobleman with His Hand on His Chest
- E. View of Toledo

### 23 End of an Era

In what year did the capital of the Eastern Roman Empire, Constantinople, fall to the Ottoman Turks?

- A. 1051
- B. 1453
- C. 1660
- D. 1776
- E. 1914

### 24 The Birth of Nations

What country became independent in 2011 after years of civil war, making it the newest country in the world?

- A. Kosovo
- B. Palau
- C. Serbia
- D. South Sudan
- E. Timor-Leste

### 25 Flying Fundamentals

The basic structure of an airplane or spacecraft, minus its instrumentation and power plant, is called the what?

- A. Airbody
- B. Airfoil
- C. Airframe
- D. Shipframe
- E. Skeledrome

### 26 Degrees

For which of the following values of  $n$  do all polynomials of degree  $n$  with real coefficients have at least one real root?

- A. 0
- B. 2
- C. 3
- D. 4
- E. 6

### 27 Cold and Distant

What is deemed the most distant region of our solar system?

- A. Alpha Centauri
- B. Kuiper Belt
- C. Neptune
- D. Oort Cloud
- E. Pluto

### 28 Vectors in a Plane

Find the magnitude and direction of vector  $\langle -\sqrt{3}, 1 \rangle$

- A. -2,  $120^\circ$
- B. -2,  $150^\circ$
- C. 2,  $-120^\circ$
- D. 2,  $150^\circ$
- E. 2,  $30^\circ$

### 29 You Are So Extra

In chemistry, which of the following terms refers to an electrically non-neutral atom, because it has more or fewer electrons?

- A. Acid
- B. Ion
- C. Orbital
- D. Proton
- E. Radioactive

### 30 O Say, Can You Observe?

The original Star-Spangled Banner, the garrison flag that flew over Fort McHenry during the Battle of Baltimore in 1812, had how many stripes?

- A. 12
- B. 13
- C. 14
- D. 15
- E. 16

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# Knowledge Bowl Nationals, May 2022

## Written Round

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### 31 Up and Down

Playing the notes of a chord one after the other, in either ascending or descending order, is an example of what?

- A. A Capella
- B. Arpeggio
- C. Coda
- D. Crescendo
- E. Pizzicato

### 32 Literary "Isms"

What literary movement of the 1900s to the 1940s is often characterized, in part, by a stream-of-consciousness approach seen in novels such as *Ulysses* and *Mrs. Dalloway*?

- A. Classicism
- B. Cubism
- C. Modernism
- D. Realism
- E. Romanticism

### 33 American Revolution

Despite calls for religious liberty and toleration at the time of the American Revolution, many religious groups still faced official discrimination by their state governments. Which religious group did NOT face this form of discrimination?

- A. Baptists
- B. Catholics
- C. Congregationalists
- D. Jews
- E. Quakers

### 34 Thinking in Centigrade

Which of the following temperatures in Celsius would best be considered "room temperature?"

- A. 10
- B. 20
- C. 30
- D. 40
- E. 50

### 35 Political Activists

Name the politician who narrowly lost the 2018 Georgia gubernatorial election and later started the organization Fair Fight Action to fight voter suppression.

- A. Alexandria Ocasio-Cortez
- B. Cynthia McKinney
- C. Marjorie Taylor Greene
- D. Nikki Haley
- E. Stacey Abrams

### 36 Tick Tock Time

You're designing a miniature grandfather clock. The clock's pendulum has a period of  $\frac{1}{3}$  seconds. What is the pendulum's frequency in cycles per second?

- A.  $\frac{1}{3}$
- B.  $\frac{2}{3}$
- C. 3
- D. 33
- E. 6

### 37 Ex-Soviet States

What Eastern European landlocked country is bordered by Russia to the northeast, Ukraine to the south, Poland to the west, and Lithuania and Latvia to the northwest?

- A. Belarus
- B. Estonia
- C. Moldova
- D. Romania
- E. Slovakia

### 38 Equations

What is the cosine of an angle in a right triangle that is facing the height of the triangle, if the height measures 4, the base measures 3, and the hypotenuse measures 5?

- A.  $\frac{3}{5}$
- B.  $\frac{4}{3}$
- C.  $\frac{4}{5}$
- D.  $\frac{5}{3}$
- E.  $\frac{5}{4}$

### 39 Spanish cognates

Which of the following Spanish words is NOT a cognate?

- A. Atractivo
- B. Embarazada
- C. Magnífico
- D. Proyector
- E. Sistema

### 40 Organizational Charts

Which of the following is a member of the legislative branch of the United States government?

- A. Attorney General
- B. Chair of the House Judiciary Committee
- C. Chief Justice of the Supreme Court
- D. Director of the FBI
- E. Secretary of the Interior

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# Knowledge Bowl Nationals, May 2022

## Written Round

## Answer Key

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1. D
2. A
3. A
4. A
5. C
6. E
7. E
8. A
9. D
10. E
11. E
12. D
13. A
14. A
15. C
16. C
17. A
18. E
19. A
20. D
21. B
22. C
23. B
24. D
25. C
26. C
27. D
28. D
29. B
30. D
31. B
32. C
33. C
34. B
35. E
36. C
37. A
38. A
39. B
40. B

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