

Round 4

Middle Grades – 2014-15 Governor's Cup Practice Questions

1. A cylinder has a base with a radius of 5 units. What is the height of the cylinder, in units, if the volume of the cylinder is 150π cubic units?

6 (UNITS)

2. Above ground, these are found on the underside of leaves; aquatic plants have them on the upper side. They are minute openings through which gases and water vapor are exchanged. Identify these pores found on plant leaves.

STOMA (Accept: STOMATA)

3. Although he wasn't the first geographer, his treatise on cartography [kahr-TOG-ruh-fee] compiled all that was known about geography in the Roman Empire of his day. Name this Egyptian geographer of Greek descent, who also gave his name to a geocentric view of the solar system.

(CLAUDIUS) PTOLEMY [TOL-uh-mee] (Accept: (CLAUDIUS) PTOLEMAEUS)

4. Examples of this dance element include push, pull, dodge, and sway. It can happen when the dancer is stationary, or when he travels through a space. Which element of dance can be classified as locomotor or non-locomotor?

MOVEMENT

5. This author taught at her sister's school in Cincinnati, where she encountered many escaped slaves from Kentucky. After moving to Maine, she wrote a novel subtitled *Life Among the Lowly*, featuring Eva St. Clare and Topsy. What abolitionist writer helped spark the Civil War with her novel *Uncle Tom's Cabin*?

(HARRIET BEECHER) STOWE

6. A teacher wants to form a group of three students to represent her class at the assembly. If the teacher has 12 students in her class, how many groups of three could she form?

220

7. Animals use this process to locate prey, avoid obstacles, and interact socially. It consists of short sound bursts at varying frequencies and rates. Identify this orientation process practiced by whales and bats.

ECHOLOCATION

8. Created about 1498, this woodcut is the most famous in a series of fifteen scenes that tell of the coming of the kingdom of God. It depicts War, Pestilence, Famine, and Death as riders, trampling humanity under their horses' hooves. Identify this work by Albrecht Dürer [AHL-brekht DYOR-er] based on a story in the Book of Revelations.

FOUR HORSEMEN OF THE APOCALYPSE

9. He became king of the Lombards in 774. Six years earlier, when he was probably only ten or eleven years old, he had become king of the Franks. Who, in 800, was crowned the first ruler of the Holy Roman Empire?

CHARLEMAGNE [shar-le-MAIN] (Accept: CHARLES THE GREAT)

10. In this novel, set in late-1970s Manhattan, the protagonist's mother appears on the game show The \$20,000 Pyramid. Miranda Sinclair receives notes from the Laughing Man that convince her he has traveled through time to save her friend Sal. Name this Newbery Medal-winning novel by Rebecca Stead.

WHEN YOU REACH ME

11. Cancer prevention, improved eye health, and reduction in blood triglyceride levels are all attributed to the intake of these fatty acids. Commonly found in fish, these fats are considered good fats, because they are liquid at room temperature. What are these fatty acids which use a Greek letter in their name?

OMEGA-3

12. Convert the number 3 billion, 500 million to scientific notation.

3.5 TIMES 10 TO THE 9TH (POWER)

13. He received his grant of land along the Delaware River from the king as a reward for his father's service to the crown. His colony prospered, and became a place of settlement for immigrating Germans, Irish, and Scotch-Irish in the early eighteenth century. Identify the Quaker who founded a colony with its capital at Philadelphia.

(WILLIAM) PENN

14. In 1962, Andy Warhol began experimenting with this technique that "gave more of an assembly line effect" to his paintings. He would select a photograph, enlarge it, and transfer it onto silk, then use ink to create prints in various colors, but retain the same original image. Identify this technique that Warhol used in his work titled Marilyn Diptych.

SILKSCREEN(ING)

15. This author published several semi-autobiographical novels, including The Long Winter and By the Shores of Silver Lake. Farmer Boy tells of her husband Almanzo's childhood, while These Happy Golden Years details her old age. Who wrote about her American pioneer days in Little House in the Big Woods and Little House on the Prairie?

(LAURA INGALLS) WILDER

16. Cockroaches, birds, and some dinosaurs have this organ also called a ventriculus. It contains gastroliths, or small bits of stone and grit used for grinding. Identify the part of certain animals' digestive systems that is used to "chew" food in lieu of teeth.

GIZZARD

17. Given the arithmetic [ar-ith-MET-ick] sequence 12, 20, 28, and so on, which term in the sequence is 92?

11 (TH TERM)

18. He succeeded his father as king about 1792 B.C., and ruled for some forty years. He is credited with one of the oldest writings of significant length, this one dealing with rules of behavior. Name the Babylonian king whose code was one of several sets of laws in ancient Mesopotamia.

HAMMURABI [hah-moo-RAH-bee]

19. In architecture, this ornamental detail is found on all three orders of Greek columns. It is usually used just for decoration, but it can also help to reduce the weight of a column. What name is given to the vertical grooves on the shaft of a column?

FLUTING (Accept: FLUTE)

20. In this story, Jaeger Stitch wants to turn the title location into an Alligator World Wrestling Arena and Theme Park. Clay Brayburn and raccoon brothers Bingo and J'Miah attempt to wake the title character, a gigantic creature who thrives on sugar cane. Give the title of this National Book Award Finalist, written by Kathi Appelt.

(THE) TRUE BLUE SCOUTS OF SUGAR MAN SWAMP

21. Dr. Henry Gray published a notable book on this subject in 1858. Although it can refer to plants and animals, it is generally thought to be the study of the human body. Identify this science, dealing with the structure of animals and plants.

ANATOMY

22. He was a volunteer in the militia that hanged abolitionist John Brown in 1859. During the Civil War, he developed several plans to kidnap President Lincoln, none of which were carried. Name the assassin who snuck into the presidential box at Ford's Theater on April 14, 1865., and shot Lincoln.

(JOHN WILKES) BOOTH

23. If two polygons are similar, what nine-letter geometric term do you know about how the angles of the two polygons compare?

CONGRUENT

24. The text for this oratorio comes from three parts of the Bible, and focuses on Jesus's birth, death, and resurrection. Familiar choruses include "For Unto Us a Child is Born" and "All We Like Sheep", and it is commonly performed around Christmas. Which oratorio by Handel is also the source for the "Hallelujah Chorus"?

MESSIAH (NOT: "THE" MESSIAH)

25. This biography's subject grew up in a small Texas town before bursting on the international music scene in the 1960s. Subtitled *Rise Up Singing*, its subject changed the face of rock and roll before dying of a drug and alcohol overdose at age twenty-seven. What is this YALSA Finalist book, written by Ann Angel?

JANIS JOPLIN

26. Ecologists define this word as a group of interacting populations living within a habitat. Its number of species and the complexity of their interactions characterizes its biodiversity. What is this scientific word?

COMMUNITY

27. He enlisted in the Marine Corps as a young teen, becoming an apprentice in the Marine Band. His composition titled "Semper Fidelis" [fih-DAY-lis] became the official Marine Corps march. Identify this American composer who 136 military marches, including "The Stars and Stripes Forever."

(JOHN PHILIP) SOUSA

28. His selection as vice president helped prompt the passage of the Twelfth Amendment, requiring separate ballots for president and vice president. He was nominated for governor of New York in 1804, but a political rival kept him from being elected. Name this man who fled west, and plotted an invasion of Mexico, after killing rival Alexander Hamilton in a duel.

(AARON) BURR (JR.)

29. Solve the equation for X: one-half X plus two-thirds equals three-fourths.

(X EQUALS) ONE-SIXTH

30. This Fireside Poet described the Acadians' expulsion from Canada in *Evangeline*. Other works of his include the Native American woman Minnehaha and a colonial patriot who warns his compatriots that "the British are coming." Which American poet wrote "The Song of Hiawatha" and "Paul Revere's Ride"?

(HENRY WADSWORTH) LONGFELLOW

31. Examples of these materials include pennies, aluminum cans, and stainless steel pans. What kind of materials will allow electric currents to flow through them?

CONDUCTORS

32. In a July 4, 1939 speech, he considered himself "the luckiest man on the face of the earth," despite the "bad break" he got two weeks earlier. He thanked his family, teammates, and fans for standing by him both before and after his diagnosis of ALS. Name this "iron horse" of baseball, who retired from the Yankees due to his namesake degenerative disease.

(LOU) GEHRIG

33. It is the oldest family of musical instruments, and its name comes from a Latin word that means "to strike." Instruments in this family can be struck with the hands, a stick, or even designed mallets. Which family includes the snare drum and the triangle?

PERCUSSION (FAMILY)

34. One occurs in the Northern Hemisphere when the North Pole is tilted about 23.4 degrees toward the sun. Another occurs about six months later when the South Pole is tilted about 23.4 degrees toward the sun. What name is given to the time in June and December when the days are longest and shortest?

(SUMMER AND WINTER) SOLSTICE [SOL-stis]

35. Solve the inequality: 5 minus the quantity X over 8, close quantity, is greater than 3

X IS LESS THAN 16

36. Giuseppe Piazzi [juh-SEP-ee pee-AHT-zee] discovered this dwarf planet on January 1, 1801. It is the main asteroid belt's largest body. Which astronomical object shares its name with the Roman goddess of agriculture?

CERES

37. In this type of song, the melodies are written in such a way that they combine harmoniously. The performers sing the same words and the same melodies, but start at different times. What type of musical composition are "Three Blind Mice" and "Row, Row, Row Your Boat"?

ROUND

38. One of this author's stories features a mural of African-American leaders, while another sees white cameraman making a film of African-Americans for a county's food stamp program. Another story explores Squeaky's twin loves for racing and her mentally challenged brother. Who wrote "The War of the Wall," "Blues Ain't No Mockin' Bird," and "Raymond's Run"?

(TONI CADE) BAMBARA

39. State your answer as a reduced fraction. A school day lasts from 8 a.m. until 3 p.m. During the day, if 50 minutes is spent in math class, what is the ratio of time spent in math class to the time spent in school?

5/42

40. The protections in this amendment have been defined by such cases as Mapp versus Ohio. Different courts, however, have reached different conclusions as to what the word "unreasonable" means. Which amendment protects individuals against "unreasonable searches and seizures"?

FOURTH (AMENDMENT) (Accept: (AMENDMENT) FOUR)

End of First Half – Begin Three-Minute Inquiry Period

Round 4 - Second Half

Middle Grades – 2014-15 Governor's Cup Practice Questions

1. In 1669, Hennig Brand discovered this element while attempting to create the fabled philosopher's stone. The element's name means "light-bearing," given because of it glows in the dark. Name this element with an atomic number of 15 and the chemical symbol P.

PHOSPHORUS

2. In 1940, this dancer began working with the American Ballet Theatre, first as a soloist, and then as a choreographer. His first ballet, *Fancy Free*, was set to the music of Leonard Bernstein. Who also choreographed the Broadway hits *West Side Story* and *Fiddler on the Roof*?

(JEROME) ROBBINS

3. One translation of this fable's moral is, "Better beans and bacon in peace than cakes and ale in fear." It follows two rodent cousins whose feast is interrupted by vicious dogs. Give the name of this Aesop fable.

(THE) TOWN MOUSE AND THE COUNTRY MOUSE

4. State your answer as a simplified radical. What is the result when you divide the square root of 32 by the square root of 2?

4

5. There are two kinds of this deposit: demand and time. The interest on the time version is higher than the interest on regular savings accounts. With what kind of deposit account might a customer have to pay a penalty fee if the funds are withdrawn early?

CERTIFICATE OF DEPOSIT (Accept: CD, DEPOSIT ACCOUNT)

6. Founded in the 1500s after breaking away from the Zurich state church, this sect of Mennonites followed Jakob Ammann [YAH-kop AHM-mahn]. They emigrated to Pennsylvania in the eighteenth century when others rejoined the main Mennonite group. What Christian sect still lives mainly in rural Pennsylvania, and shuns modern technology, innovations, and worldly ways?

AMISH (MENNONITE)

7. Give the predicate adjective in the following sentence: Her behavior last semester was absolutely outrageous.

OUTRAGEOUS

8. In a camera, this measure determines how closely you can zoom in on a fixed object. It is denoted by the variable "f." What measure is defined as how strongly a system of lenses will converge or diverge light?

FOCAL LENGTH

9. The diagonal of a square has a length of $5\sqrt{2}$ units. What is the perimeter of the square, in units?

20 (UNITS)

10. This city, on the Shawmut Peninsula, was founded in 1630, and named for the town in Lincolnshire [LING-kun-sheer] from which many of its residents had emigrated. One fourth of its area is water, including a section of the Charles River. What city, once the home of Paul Revere, saw its annual marathon race marred by the explosion of two bombs in 2013?

BOSTON (MASSACHUSETTS)

11. Consider the structure of the following sentence: "The birds are chirping because the sun has come up." What is the grammatical structure of the previous sentence, which includes one independent and one dependent clause?

COMPLEX (SENTENCE)

12. In classical mythology, this goddess was the daughter of Zeus and Leto, and a favorite goddess of the rural population. She was worshipped as the protector of wild animals and women, and mistress of the hunt. What twin sister of Apollo was usually depicted with a stag or hunting dog and carrying a bow and arrow?

ARTEMIS

13. In computer science, this is a segment of self-replicating code. In biology, it is a replicating pathogen found in a living host. Name these infectious agents that contain genetic code, a protein coat, and in some cases a surrounding envelope.

VIRUS(ES) (Accept: VIRII)

14. The points (4, 8), (2, 10), (5, 15), and (8, 12) determine a function labeled F of X . What is F inverse of 8 ?

4

15. This civilization built great stone buildings and pyramid temples at places like Tikal [tee-KAHL], Copán [koh-PAHN], and Palenque [pah-LENG-keh]. It used a form of hieroglyphic writing in the lowlands of what is now Guatemala, and in the highlands of the Yucatán Peninsula before the arrival of the Spanish. Name this civilization that all but disappeared, but whose descendants still live in their old home lands.

MAYA (Accept word forms)

16. Howard Gray's popular comic strip was the basis for this 1977 Broadway musical. One song in the musical promises that "the sun'll come out tomorrow." In what musical does a young orphan girl try to keep a positive attitude while trying to get out of the orphanage?

ANNIE

17. In grammar, this aspect of a verb can be indicative, imperative, or subjunctive. Give this word, which also names the emotions a story creates in a reader.

MOOD

18. In mammals, this body system includes the pharynx [FAR-ingks], trachea, and bronchioles. In fish, the gills are its major structure. Which of a living organism's systems exchanges oxygen and carbon dioxide to satisfy energy requirements?

RESPIRATORY (SYSTEM)

19. This explorer reached Spitzbergen when sailing for the Muscovy Company in 1607. His later discoveries allowed the Dutch to get a toehold in North America, and were used by the English to claim much of Canada. Identify this explorer whose name is attached to a major New York river and to a large Canadian bay.

(HENRY) HUDSON

20. What is the classification of the following polynomial based on the number of terms? $40X^3 - 12X^2 + 23$.

TRINOMIAL

21. Complete title required. This cartoon was originally targeted at girls ages two to eleven. However, it has gained a large following among young men, many of whom call themselves "bronies" [BRO-nees]. Give the full title of the series featuring Twilight Sparkle, Rainbow Dash, Pinkie Pie and others.

MY LITTLE PONY: FRIENDSHIP IS MAGIC

22. It is the brief stage preceding cleavage in humans' and other animals' embryonic development. Name the type of diploid cell that results when two haploid gametes fuse.

ZYGOTE [ZAHY-goht]

23. Spelling required. The benevolence committee provided casseroles following the funeral. Spell the word in the previous sentence that means "a group elected to perform a service."

C-O-M-M-I-T-T-E-E

24. This Greek philosopher was satirized by Aristophanes [AIR-uh-STOF-uh-neez] in his play titled The Clouds. He is said to have written nothing himself, but is known from compositions by such admirers as Xenophon [ZEH-nuh-fahn] and Plato. Name this philosopher whose life was ended when he was sentenced to death by poisoning.

SOCRATES [SOK-ruh-teez]

25. What is the discriminant for this quadratic equation: Solve the equation for X: Quantity, X plus 3, close quantity, times the quantity, 2X minus 5, close quantity, equals 0.

(X EQUALS) NEGATIVE 3, 5/2 (Accept: (X EQUALS) NEGATIVE 3, 2.5)

26. Meteorologists classify it as a "high" cloud because its mean height is anywhere from 16,500 to 42,500 feet. Made entirely of ice crystals, it indicates imminent precipitation, but doesn't produce it. Name this kind of cloud consisting of thin, white, wispy bands.

CIRRUS (CLOUDS)

27. The Greek root tele- appears in numerous words, including television, telegraph, and telephone. What is its English meaning?

DISTANCE (accept other word forms) (Accept: FAR)

28. This purchase reaffirmed the implied powers of the Constitution, although the man behind it doubted he really had the power to complete it. It more than doubled the size of the United States, at the cost of a few cents per acre. What territory did President Jefferson agree to buy from France?

LOUISIANA (TERRITORY) (Accept: LOUISIANA PURCHASE)

29. This skyscraper, finished in 1958, is an excellent example of International Style architecture in the corporate world. It uses walls of glass and steel to impress those who see it, and sits back from the road to create a plaza in front of it. Name this New York City skyscraper designed by Mies Van der Rohe [meez van der ROE-uh] and Philip Johnson.

SEAGRAM (BUILDING)

30. What is the median for this set of data. 5, 6, 7, 8, 9, 9, 12, and 15?

8.5

31. This animal's name means "earth pig" in Dutch. Name this large, nocturnal, burrowing animal that eats ants and termites with its long tongue.

AARDVARK

32. This river flows from the south, northward, and, in ancient times, was in flood at the warmest time of the year. It is formed by three streams: the Atbara [AHT-buh-ruh], the Blue, and the White. What river is fed by the waters of Lake Victoria, and flows into the Mediterranean Sea?

NILE (RIVER)

33. This structure, a type of plastid, encloses the stroma and the thylakoid [THIGH-luh-koyd] membrane. Surrounded by a double membrane, it contains two pigments that help produce ATP. What is this light-absorbing structure within a green plant cell?

CHLOROPLAST(S)

34. This type of Greek column is the simplest of the orders, and has only 20 flutes. It features short, heavy columns and a square abacus that connects it to the entablature [in-TA-bluh-chur]. Identify this order of columns with plain round capitals.

DORIC (Accept: DORIAN)

35. What is the sum of the smallest and largest two digit prime numbers?

108

36. In historical and academic studies, this word describes original documents, recordings, or artifacts that have not been altered. A person with direct knowledge of a situation can also serve as one to a journalist. Give the term for an original source of information that was created during the time under study.

PRIMARY (SOURCE)

37. This small, isolated mountain range rises from the Great Plains, reaching its highest elevation at Harney Peak. In 1877, after the land was taken from the Sioux tribe, the Homestake Mine there became the largest gold mine in the U.S. What South Dakota range is home to Mount Rushmore?

BLACK HILLS

38. This two-word phrase names two parts of the circulatory system--one superior and one inferior. They both convey oxygen-depleted blood from the body to the right atrium of the heart. Give this term, which means "hollow vein" in Latin.

VENA CAVA

39. This type of support allows exterior walls to be built higher by providing support and stability. It functions by redirecting the weight of the roof pushing against the walls. Identify this architectural feature that can be clasping, diagonal, or flying.

BUTTRESS

40. What is the value of the expression: absolute value of quantity A times B minus C, close quantity, if A equals 4, B equals negative 3 and C equals negative 8?

4

End of Second Half – Begin Three-Minute Inquiry Period

Extra Questions

- SS-1 This three-word phrase refers to a 2,200-mile-long trail from Georgia to Arkansas. It describes the forced removal of Indians from the Southeast, particularly the Cherokee, to land west of the Mississippi River. What phrase poignantly described the suffering these people experienced, and the many deaths that occurred along the way?

TRAIL OF TEARS

- SC-2 This word names the liver's channels for bile, as well as the lymphatic system's smallest elements. In the circulatory system, they are so small that red blood cells must pass through them single-file. What are these tiny blood vessels that allow oxygen, waste, and nutrients to be exchanged between tissues and blood?

CAPILLARIES [KAP-uh-ler-eez]

- H-3 Usually used as a waterspout, this sculpture was usually made of lead or carved from stone. It is a common feature on many medieval buildings, especially on Gothic cathedrals. What architectural feature resembles a monster or evil spirit?

GARGOYLE

- M-4 What kind of line intersects a pair of parallel lines?

TRANSVERSAL

- LA-5 While its literal meanings include "pity," "affection," and "love," this word is traditionally used as both a greeting and a farewell. Which word means both "hello" and "goodbye" in Hawaiian?

ALOHA