OCTOBER

1. Political blogs with conspicuous ideological alignments became an integral component of US media in the early 2000s. While some commentators lauded this development, asserting that such blogs had a welcome transparency missing from traditional news, less_____observers countered that such blogs tended to ideological extremes that exacerbated political polarization to problematic levels.
Which choice completes the text with the most logical and precise word or phrase?
    A. Recalcitrant
    B. Earnest
    C. Sanguine
    D. Misanthropic

2. Early Earth is thought to have been characterized by a stagnant lid tectonic regime, in which the upper lithosphere (the outer rocky layer) was essentially immobile and there was no interaction between the lithosphere and the underlying mantle. Researchers investigated the timing of the transition from a stagnant lid regime to a tectonic plate regime, in which the lithosphere is fractured into dynamic plates that in turn allow lithosphere and mantle material to mix. Examining chemical data from lithosphere and mantle-derived rocks ranging from 285 million to 3.8 billion years old, the researchers dated the transition to 3.2 billion years ago.
Which finding, if true, would most directly support the researchers' conclusion?

A. Mantle--derived rocks older than 3.2 billion years show significantly more compositional diversity than lithospheric rocks older than 3.2 billion years do.
B. There is a positive correlation between the age of lithospheric rocks and their chemical similarity to mantle-derived rocks, and that correlation increases significantly in strength at around 3.2 billion years old.
C. Among rocks known to be older than 3.2 billion years, significantly more are mantle-derived than lithospheric, but the opposite is true for the rocks younger than 3,.2 billion years.
D. Mantle-derived rocks younger than 3.2 billion years contain some material that is not found in older mantle-derived rocks but is found in older and contemporaneous lithospheric rocks.

3. Memoirs of Elleanor Eldridge is an 1838 historical account by Elleanor Eldridge and Frances Harriet Whipple Green. In the book, the authors describe how restorative sleep can be for young people, writing, _____

Which quotation from Memoirs of Elleanor Eldridge most effectively illustrates the claim?

A. “Then let me no one turn with too much [fussiness] from the simple story of the humble Elleanor, it may contain few, or none, of the thrilling charms of poetry and passion.”

B. “Home is home, to the lowly as well as the great; and no rank, or color, destroys its sacred character, its power over the mind, and the affections.”

C. “Blessed are the slumbers of the innocent! They are kindlier than balm, and they refresh and gladden the spirit of childhood, like ministering from a better world.”

D. “And now, deer reader, a word with you. What is done cannot be undone. We cannot unravel this web of iniquity, and extract justice from this mass of cruel wrongs.”

4. The following text is from George Marion McClellan’s 1895 poem “Eternity.”

My spirit swoons, and all my sense cry
For Ocean’s breast and covering of the sky.
Rock me to sleep, ye waves, and outward bound,
Just let me drift far out from toil and care
Where lapping of the waves shall be the sound,
Which mingled with the winds that gently bear
Me on between a peaceful sea and sky
To make my soothing slumberous lullaby.

Which choice best states the main purpose of the text?

A. To justify the speaker’s qualms about being transported by the ocean to a quiet destination.
B. To contrast the demands of the speaker’s everyday life with the serenity of being rocked to sleep by the ocean.
C. To illustrate the increasing intensity of the speaker’s desire to escape ongoing hardship by gliding on the ocean.
D. To convey the speaker’s longing for the ocean to impart a sense of inner tranquility.

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5. Vertical gene transfer involves the transmission of genetic material from a parent to offspring horizontal gene transfer, on the other hand, involves the exchange of genetic material between organisms not in a parent-offspring relationship. While horizontal gene transfer is common among prokaryotes-single-celled organisms, such as the bacteria *Brevundimonas diminuta* and *Massilia timonae*-it has rarely been observed among eukaryotes (multicellular organisms). However, new studies suggest that horizontal gene transfer is more common in eukaryotes than originally thought.

Which choice best states the function of the underlined sentence in the text as a whole?

A. It contrasts the frequency with which a biological phenomenon has been detected in two categories of organisms.
B. It argues that two biological phenomena are more similar than they may initially appear to be.
C. It explains why a common perception of a biological process is flawed.
D. It indicates a distinction between the mechanics of two kinds of biological processes.

6. Text 1

In parts of New Zealand, the stoat is a major predator of the house mouse. Researcher G.L. Blackwell and colleagues found that when this predation pressure on house mice was temporarily reduced, their numbers significantly increased. This finding illustrates a foundational ecological principle: predators control prey population numbers.

Text 2

William D. Gulsby and colleagues found that excluding coyotes from a site in the state of Georgia where they typically prey on white-tailed deer had no significant effect on white-tailed deer abundance. Many other predation relief studies show an increase in prey abundance, but those studies often focus on small, rapidly reproducing prey, like birds, mice, and frogs, rather than large, slowly reproducing prey, like white-tailed deer, which could account for the difference between those results and Gulsby and colleagues' results.

Based on the texts, the author of Text 2 would most likely agree with which statement about the "principle" mentioned in Text 1?

(A) It is plausible, but many of the studies that support it have methodological flaws.
(B) It has been challenged by some studies, but the findings of those studies have not been widely accepted.

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(C) It may be true for some predators but only because those predators share certain physical characteristics.
(D) It has some evidential support, but it should not be regarded as universally applicable.

7. Many artists associated with hyperpop, a movement in electronic music that emerged in the 2010s, conform to the model perfected by the American duo 100 gecs: bold synthesizer arrangements, propulsive beats, and electronically manipulated vocals. Yet the movement is hardly uniform: Swedish recording artist Namasenda incorporates hip-hop rhythms into the hyperpop sound, for example. Such stylistic diversity is encouraged in part by the music-streaming app Spotify, whose curated playlist of hyperpop songs balances cohesion with variety.
Which statement about Namasenda is best supported by the text?

(A) While some of her recordings conform to the model perfected by 100 gecs, others reject it outright.
(B) Her music diverges from the typical hyperpop sound but doesn't abandon it.
(C) She developed her unique sound without being influenced by other artists on Spotify's hyperpop playlist.
(D) Her inclusion on Spotify's hyperpop playlist inspired established artists to embrace stylistic experimentation.

8. One popular theory of the origin of the Moon, the "big whack," posits that a protoplanet called Theia collided with Earth, flinging debris into orbit that eventually coalesced into the Moon. Until recently, Theia was ____ but researcher Qian Yuan and colleagues now claim to have identified pieces of the protoplanet in the lowermost section of Earth's mantle.
Which choice completes the text with the most logical and precise word or phrase?
• A) desultory
• B) notional
• C) veritable
• D) spurious

9. To combat predation by Arizona myotis and other insectivorous bats, many moth species, including *Cynia tenera*, emit ultrasonic pulses that, in some cases, disrupt the echolocation bats rely on for foraging. Some scientists have hypothesized that this capability evolved because it imposes a lower metabolic cost than does the alternative mechanism of producing chemicals that render moths noxious to bats. Nicholas T.

Homziak et al. investigated the acoustic properties of moths' ultrasonic responses to audio of bat echolocation and then assessed the palatability of the ultrasonic pulses capable of disrupting bat echolocation are unpalatable to bats, suggesting that_____

Which choice most logically completes the text?

A. Most genera of moths that produce ultrasound capable of disrupting bat echolocation do so primarily for purposes other than the evading capture by Arizona myotis and other predators.
B. The hypothesis about the development of this ultrasonic defense likely does not account for all instances of the trait in moths.
C. Although previous findings about *Cycnia tenera* are consistent with the hypothesis about the low metabolic cost of producing noxious chemicals, the ability to disrupt bat echolocation and unpalatability are mutually exclusive traits.
D. Further investigation into moth's ability to protect themselves by disrupting bat echolocation will likely find that moth genera relying on this mechanism are also generally inedible to bats.

10. Can field mustard plants grow on Mars? Can pea plants? You might think the answer to these questions is obviously no, but researchers in the Netherlands recently showed that the seeds of many common plant species can germinate in soil designed to simulate Martian conditions, as long as water is supplied. In fact, some species actually did better in Martian soil than in Earth soil: 30 percent of field mustard seeds sprouted when planted in simulated Martian soil, compared with 4 percent that did when planted in soil from their home planet.

Which choice best states the main purpose of the text?

(A) To answer long-standing questions about how Martian soil conditions can be simulated on Earth
(B) To present a surprising finding about plants grown in soil intended to be similar to Martian soil
(C) To discuss an unexpected result about the role of water in plants grown in simulated Martian soil
(D) To explain an important study of differences in the composition of Martian soil and the composition of Earth soil

11. Associated with the development of water-repellent materials for aviation and other applications, a team including both engineers and entomologists conducted a study of the water-repellant properties of cicada wings. The team explained that the _ experts in

these two disciplines resulted in a more comprehensive approach than independent efforts by experts in either discipline could have achieved.

Which choice completes the text with the most logical and precise word or phrase?

(A) skepticism toward
(B) exaggeration of
(C) distrust among
(D) collaboration between

12. Both amphibians and crayfish can detect electrical fields around them, but the ____of their sensitives differs substantially. Whereas crayfish can detect fields generated by fair-weather atmospheric conditions, those are many times stronger than the fields created by moving prey, which amphibians are sensitive enough to detect.

Which choice completes the text with the most logical and precise word or phrase?

A. Orientation
B. Magnitude
C. Gathering
D. Firmness

13. Paintings by the Florida Highwaymen-an informal collective of prolific landscape artists active in Florida during the 1950s and '60s- are recognizable by their reiteration of the same general compositional structures and subjects: backcountry pines and fire sky sunsets, to name two. But there was room for individuation: Robert Butler's Deer in clearing, for example, may resemble other Highwaymen paintings at first glance, but his works stand out for their detailed rendering of wildlife and dramatic lighting.

Which choice best describes the overall structure of the text?

A. It offers historical context that accounts for a particular group of artists' shared style and then indicates the circumstances under which several members of that group began exploring more unconventional themes.
B. It describes the common perception that a particular group of artists' works are derivative and then provides a specific piece of evidence that reinforces that perception.
C. It describes an aesthetic framework shared by a particular group of artists and then makes and illustrates the claim that individuals introduced variations within that framework.

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D. It explains how a particular group of artists began collaborating and then recounts how one number of that group became especially influential among them.

14. Arthropods-horseshoe shrimp, luna moths, and many other invertebrate animals-have a previous system made up of a brain, never cord, and other nerves. Researchers have gained insights about this system in ancient arthropods from traces found in various fossils. For example, in a study of two fossils of the extinct arthropod species Mollisonia symmetrica , Javier Ortega-Hernandez, Rudy Lerosey-Aubril, and team observed clear signs of a nerve cord. They also saw possible indications of a synganglion, a brain-like mass of nerves. Researchers hope to identify more features of the nervous-systems of prehistoric arthropods as additional fossils are found.

Which choice best states the main idea of the text?

A. Fossil evidence can contribute to the understanding of the nervous system in ancient arthropods.
B. Researchers need to focus on finding more fossils of ancient arthropods.
C. Newly discovered fossils suggest that ancient luna moths and ancient horseshoe shrimp had spines.
D. There are several similarities between the brains of luna moths and the brains of horseshoe shrimp.

15. As exemplified by Yi songs about the natural environment and O'odham songs about desert plants, ecological information can be transmitted Indigenous songs. And in some instances is maintained only in this way. Kwaxxistalla Wathl'thia, a song keeper for the Kwakwaka'wakw people in Canada, collaborated with ethnobiologist Dana Lepofsky et.al, sharing songs referencing terraced intertidal clam gardens the people implemented in the past to foster healthy development of a dietary staple. Drawing on archaeological evidence as well, Lepofsky et al.determined that the prevalence of the practice described in the songs corresponded with growth in clam size and abundance despite increased harvesting pressure – a finding that demonstrates that_____

Which choice most logically completes the text?

A. Effective methods for the cultivation of sources of sustenance are among the ecological knowledge preserved in Indigenous songs.
B. The Kwakwaka'wakw people likely would not have detailed their creation of clam gardens in songs if their efforts had not produced significantly larger clams.
C. The clams harvested from intertidal terraces by Kwakwaka'wakw people in the past likely were a different species than the clams found in those areas today.

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D. Representation of practical applications of ecological knowledge is the defining characteristic of the music of certain Indigenous peoples.

16. Included in Half the Picture: A Feminist Look at the Collection, a 2018 group exhibition at the Brooklyn Museum in New York City, was the work of artist Lorna Simpson, who is best known for her multimedia artworks that _____ Images of African American women with text fragments. Her work is credited with expanding the horizons of conceptual photographic art, and it challenges conventional notions of race, history and memory.

Which choice completes the text so that it conforms to the conventions of Standard English?

A. juxtapose
B. juxtapose.
C. juxtapose:
D. juxtapose-

17. While the greater adjutant can be found in places like the Central Tanintharyi Coast in Myanmar and Dong Kanthung in Laos, more than 80 percent of this endangered stork species is found in Assam, India. There, wildlife biologist Dr. Purnima Devi Barman is on the front lines of conservation efforts that–through community involvement and scientific ____aim to bring adjutants back from near extinction.

Which choice completes the text so that it conforms to the conventions of Standard English?

A study,
B study
C study–
D study:

18. The unconventional literary philosophy with which Fernando Pessoa approached his writing is manifested in the Portuguese poet's "heteronyms" his term for the dozem of fictional persons in whose voices he authored many of his ____among these persons was Ricardo Reis, author of classical odes in a Horatian style.

Which choice completes the text so that it conforms to the conventions of Standard English?

A works
B works and

C works,
D. works and

19. While researching a topic, a student has taken the following notes:

- Atlapexco is a municipality in the state of Hidalgo, Mexico.
- Municipalities are government regions responsible for providing many public services to their residents.
- One service they provide is water treatment.
- Atlapexco's population was 19,812 in 2020.
- Hidalgo is divided into 84 municipalities

The student wants to provide an example of a public service that Atlapexco is responsible for. Which choice most effectively uses relevant information from the notes to accomplish this goal?

A. Atlapexco- a government region in the state of Hidalgo, Mexico– provides public services to its residents.
B. As a municipality, Atlapexco is responsible for providing water treatment to its residents.
C. Atlapexco is one of 84 municipalities in Hidalgo providing public services to their communities.
D. In 2020, the municipality of Atlapexco had a population of 19,812.

20. The prime meridian, the global indicator of zero degrees longitude established in 1884, was originally determined using astronomically derived coordinates. ____as decades passed, new calculations would reveal increasingly precise coordinates, yet the prime meridian remained unchanged; it wasn't until the 1980s that, spurred by improved geodetic data, the prime meridian was officially–roughly one hundred meters east.

Which choice completes the text with the most logical transition?

A. Specifically
B. Again and again,
C. Granted
D. To that end,

21. Diadromous fish migrate between freshwater and marine biomes during their life cycle. The migration's obligate nature is why diadromous fish can be _____those that are merely euryhaline (able to tolerate high salinity); the euryhaline blackchin tilapia can

survive high salinity, but its life cycle does not involve relocation to a different blome, as does that of the diadromous wild salmon.

Which choice completes the text with the most logical and precise word or phrase?

A. demarcated from
B. reconstituted as
C. derived from
D. conflated with

22. During Rome's republican period, which ended in the first century BCE, libraries were predominantly owned by wealthy individuals who tightly controlled access to their book collections. The first public library became available in Rome in 28 BCE and was soon followed by one commissioned by Emperor Augustus. As modern scholar Fabio Fernandes notes, however, these two traditions aren't as distinct as they seem, as both the emperor and the private library owners viewed their libraries as extensions of their personal patronage, just on vastly differing scales.

Which choice best states the main purpose of the text?

A. To give a brief overview of public access to libraries throughout Rome's republican period
B. To contend that early imperial leaders in Rome wielded to much influence over libraries
C. To assert that private and early public libraries in ancient Rome had an essential similarity.
D. To call into question the notion that private Roman libraries disappeared during the first century BCE

23. The morphological novelty of echinoderms-marine invertebrates with radial symmetry, usually starlike, around a central points–impedes comparison with most other animals, in which bilateral symmetry on an anterior–posterior (head to tall) axis through a trunk is typical. Particularly puzzling are sea stars, thought to have evolved a headless layout from a known bilateral origin. Applying genomic knowledge of *Saccoglossus kowalevskii* acorn worms (close relatives of sea stars, and thus expected to have similar markets for corresponding anatomical regions) to the body patterning genes of *Patiria miniata* sea stars. Laurent Formery et.al observed activity only in anterior genes across *P.miniata's* entire body and some posterior genes limited to the edges, suggesting that_____

Which choice most logically completes the text?

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A. despite the greater prevalence of anterior genes in sea stars' genetic makeup, posterior genes active at the body's perimeter are primarily responsible for the starlike layout that distinguishes sea stars' radial symmetry from that of other echinoderms.
B. Although the two species are closely related, there is only minimal correspondence in the genetic markers for head, tail, and trunk region development in *P.miniata* sea stars and S. *kowalevskii* acorn worms.
C. Rather than undergoing changes resulting in the eventual elimination of a head region in their radial body plan, as previously assumed, sea stars' morphology evolved to completely lack a trunk and consist primarily of a head region.
D. Contrary to the belief that they evolved from early ancestors with the bilateral form typical of many other animals, sea waters instead originated with an atypical body layout that was neither bilaterally nor radially symmetrical.

24. Some researchers have characterized the flora and fauna of the South Pacific island or Grande Terre as members of clades that inhabited nearby islands before Grande Terre completely emerged 37 million years ago. Gonzalo Giribet et al.found that the crown age (the age of the most recent common ancestor of all living end extinct species in the clade) of the clade of daddy longlegs spiders on Grande Terre is approximately 57.0 million years, while Antoine N.Nicolas and Gregory M.Plunkett found that the crown age of the clade of Apiales plants on Grande Terre is approximately 25.4 million years.

Which statement about the view put forward by "some researchers" is best supported by information in the text?

A. The view suggests that Grande Terre may have emerged as early as 57.0 million years ago.
B. The view could be true of Grande Terre's daddy longlegs spiders but its not true of the islands's Apiales plants.
C. The view depends on inaccurate assumptions about the crown age of the clades of daddy longlegs spiders and Apiales plants on Grande Terre.
D. The view has some empirical support but is weakened by the findings of Giribet et al.

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25. Vancouver, Canada, has installed engineered structures along 75% of its shoreline to protect infrastructure from storm surges and other hazards, a practice known as shoreline hardening. To evaluate the responses of waterbirds to two types of hardening structures– riprap and bulkheads–Diann Porsser et al.surveyed waterbird communities consisting of the mallard, the common loon, and 62 other species at different sites in the Chesapeake Bay on the US East Coast. Utilizing the Index of Waterbird Community Integrity (IWCI), on which a high score corresponds to high community integrity, the researchers found that bulkheads are more strongly negatively correlated with waterbird community integrity than is riprap.

Which finding, if true, would most directly illustrate the researchers' finding?

A. Waterbird communities at Curtis, a site with a high percentage of shoreline consisting of bulkheads and riprap, had lower average IWCI scores than did waterbird communities at Onancock, a site with a low percentage of shoreline consisting of bulkheads and riprap.
B. The difference in average IWCI scores for waterbird communities at Stony and Old Road, two sites with a higher percentage of shoreline consisting of bulkheads than of riprap, was statistically insignificant.
C. Waterbird communities at Old Road, a site with a relatively high percentage of shoreline consisting of bulkheads, had lower average IWCI scores than did waterbird communities at Miles, a site with a relatively high percentage of shoreline consisting of riprap.
D. Waterbird communities at Curtis, a site with equal percentages of shoreline consisting of bulkheads and riprap, had higher average IWCI scores than did waterbird communities at Miles, a site with different percentages of shoreline consisting of bulkheads and riprap.

27. Moussa Ould Ebnou is a novelist from Boutilimit, Mauritania, who has earned international acclaim in recent years, Writers of other literary forms, such as poetry and drama, are less likely to be recognized beyond their nations' borders, but many are still well _____Koulsy Lamko, for example, is a celebrated playwright from Chad.

Which choice completes the text so that it conforms to the conventions of Standard English?

A known:
B known

C known and
D known,

28. Despite the fact that what is now known as the Carmichael number was first posited by Vaclav Simerka, the number is named after the twentieth-century American mathematician Robert Carmichael. One might assume cases like this, where a discovery of a concept is not named after the first person who discovered it, to be_____they are counted among a litany of examples of Stigler's law.
Which choice completes the text so that it conforms to the conventions of Standard English?
A rare; on the contrary,
B rare on the contrary
C rare, on the contrary;
D rare, on the contrary

29. The following text is from George Eliot's 1857 short story "The Sad Fortunes of the Rev. Amos Barton." In the text, the narrator addresses the reader directly and abides to a discussion among Rev.Amos Barton's neighbors.
It was happy for the Rev. Amos Barton that he did not. Like not, overhear the conversation recorded in the last chapter. Indeed, what mortal is there of us, who would find his satisfaction enhanced by an opportunity of comparing the picture he presents himself of his own doings, with the picture they make on the mental retina of his neighbours? We are poor plants buoyed up by the air-vessels of our own conceit: alas for us, we get a few pinches that empty us of that windy self-substances! The very capacity for good would go out of us.
Which choice best states the main idea of the text?

A. Although people wish to be seen as considerance, the alightest setbacks will often discourage them from being so.
B. People tend to …. More often than they should on whether their acquaintances think highly of them.
C. Although people recognize why being direct is important, they usually avoid openly criticizing others for their shortcomings.
D. People are better off not knowing about the discrepancy between their own self-image and what others think of them.

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30. In 2016, Gabriela Gonzalex and team announced that a chirping sound captured by Laser interferometer Gravitational-Wave Observatory antennas was direct evidence of gravitational waves, which skeptics had argued would be too faint for detection. Detailed statistical analysis helped preclude claims of the event's_____, confirming the signal at a confidence level of over 99%.

Which choice completes the text with the most logical and precise word or phrase?

A ambiguity
B inconspicuousness
C probability
D discretion

31. Though John Crowley, author of *Endless Things,* is not as well known as the most widely read American writers of the past fifty years, his work has had several influential champions, including the poet James Merrill and the literary critic Harold Bloom. In his afterword to Crowley's book *Litte, Big,* Bloom argues that the novel adroitly blends what playwright Friedrich Schiller termed the naive and sentimental modes–while Schiller thought works could be classified as either naive (seeking to describe reality) or sentimental (seeking to develop ideas), *Little, Big* fuses both modes of writing.

Which choice best describes the overall structure of the text?

A. It accounts for a writer's lack of popular appeal, cites a literary figure who appreciates that writer, and summarizes the qualities that make the writer's work unique
B. It describes a writer's successful career, presents two literary figures who were suppositions of that writer's career, and explains why the writer was able to achieve what he did.
C. It mentions a writer whose work is not widely known, presents two people who hold a positive opinion of that writer, and gives a reason why one of those people holds that opinion.
D. It identifies a writer whose work is regarded as difficult to read, brings up two admires of that writer 's work, and gives information that may make the writer's work more accessible to new readers.

32. The following text is adapted from John Matheu's 1926 short story, "Mr.Bradford Teaches Sunday School." Mr.Bradford is driving through the countryside in Florida.

The moss in the towering water oaks had become enlivened with a verdant sheen of the silver and hung like festoons of carnival or like funeral decorations for the mourning of the dead. The pine green was resplendent. The bald cypresses spread themselves along the water courses while the willows wept as they always did.

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Mr.Bradford was conscious of this gorgeous display of nature.

As used in the text, what does the word "display" most nearly mean?

A disguise
B similarity
C exhibition
D pretentiousness

33. Recent analysis of 6058 Echeclus–an outer solar system object orbiting the Sun between Jupiter and Saturn–has determined its color to be gray, suggesting an Icy composition. Such interpretations are ultimately____the object's gray coloration may be an incidental effect of radiation, solar wind, or collisions with other objects rather than evidence of its physical makeup.

Which choice completes the text so that it conforms to the conventions of Standard English?

A speculative, though,
B speculative; though
C speculative, though;
D speculative, though

34. Included in Picture ID: Contemporary African, American Works on Paper, a 2020 group exhibition at the Toledo Art Museum in Ohio, was the work of artist Lorna Simpson, who is best known for her multimedia artwork that juxtapose images of African American women with text fragments. Her work challenges conventional notions of race, gender, history, and____she is credited with expanding the horizons of conceptual photographic art.

Which choice completes the text so that it conforms to the conventions of Standard English?

A memory and
B memory
C memory,
D memory, and

35. Contrasting a high saturation color palette against dark paper and stoneware. Atlanta-based artist Jiha Moon creates fused pieces, wherein Korean folk art, Western contemporary art, and global popular culture mix. New York's Derek Eller Gallery ____her work in a solo exhibition that ran in early 2022.

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Which choice completes the text so that it conforms to the conventions of Standard English?

A has been featured
B features
C will feature
D featured

36. Almost all works of fiction contain references to the progression of time, including the time of day when events in a story take place. In a 2020 study. Allen Kim, Charota Pethe, and Steven Skiena claim that an observable pattern in such references reflects a shift in human behavior prompted by the spread of electric lighting in the late nineteenth century. The researchers drew this conclusion from as analysis of more than 50,000 novels spanning many centuries and cultures, using software to recognize and tally both specific time references–that is, clock phrases, such 7 a.m or 2.30 p.m —and implied ones, such as mentions of meals typically associated with a particular time of day.

Which finding, if true, would most directly support the researcher's conclusion?

A The time references of noon (12p.m) and midnight (12 a.m) are used with roughly the same frequency in the novels.
B Novels published after 1880 contain significantly more references to activities occurring after 10p.m, than do novels from earlier periods.
C Among novels published in the nineteenth century, implied time references become steadily more common than clock phrases as publication dates approach 1990.
D Novels published after the year 1800 include the clock phrase 10 a.m, less often than novels published before the year 1800 do.

37. The human hand contains the flexor pollicis brevis, a skeletal muscle that is attached in the _____this muscle plays a role in flexing the thumb.

Which choice completes the text so that it conforms to the conventions of Standard English?

A trapezoid,
B trapezoid;
C trapezoid
D trapezoid that

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38. Puerto Rico is an island in the Caribbean Sea. Indigenous people there started raising guinea pigs about 1700 years ago. Guinea pigs had originally been domesticated much earlier in both Colombia and Peru. So were guinea pigs brought to Puerto Rico from Colombia or from Peru? Ancient Caribbean trade routes connected to Puerto Rico with Colombia but not with Peru. Therefore, guinea pigs in Puerto Rico probably came from Colombia and descended from Colombia guinea pigs.

Which finding, if true, would most directly weaken the underlined claim?

A. Ancient guinea pigs in Puerto Rico were genetically less similar to ancient guinea pigs in Colombia than to ancient guinea pigs in Peru.
B. Guinea pigs are common in ancient Puerto Rico art, especially in poetry.
C. The guinea pig population of ancient Colombia was much larger than the guinea pig population of ancient Peru.
D. Modern breeds of guinea pigs don't like images of guinea pigs in ancient art from Puerto Rico, Colombia, and Peru.

39. Reported Animal Travel Distances in Four Studies of Migrating Animal Populations

Species	Continent	Distance (km)	Measurement method
Mongolian gazelle	Asia	600	RTD
Khulan	Asia	5067	GPS
Caribou	North America	1350	RTD
Plains zebra	Africa	2356	GPS

Some studies of migrating animals measure how far the animals travel in a year by finding individuals with GPS tracking collars. Other studies track annual round–trip distance (RTD), which is equal to double the distance separating the two habitats a population migrates between each year. A researcher argues that since GPS records all of an animal's movements, using the GPS method to track a population would result in significantly higher recorded travel distances than using the RTD method would. For example, it's very likely that the distance reported for the_____

Which choice most effectively uses data from the table to complete the example?

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A. Mongolian gazelle would be greater than 5067 km if the GPS method had been used.
B. Khulan would be greater than 2356 km if the RTD method had been used.
C. Mongolian gazelle would be less than 600 km if the GPS method had been used.
D. Khulan would be less than 5067 km if the KTD method had been used.

40. William Shakespeare likely arrived in London as early as 1585, at the age of 21, to pursue a career in the theater. Little is known of his early years there, but by 1596 he was becoming known for plays such as *King John*. _____in 1605, he would delight audiences with *All's Well That Ends Well,* considered by some to be one of his greatest works.

Which choice completes the text so that it conforms to the conventions of Standard English?

A Thus,
B In other words,
C Later,
D conversely,

41. Researchers in France claim that elephants and dolphins are among the twenty most "charismatic" animals (defined as "attractive, fascinating, or appealing"). To create their top twenty list, researchers used survey data from Western Europe. European attitudes toward elephants and dolphins might not be shared around the world,____

Which choice completes the text with the most logical transition?

A in particular
B of course
C in other words
D for example

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	Live north of Center St.	Live south of Center St.	Total
Less than 45 years old	13	11	24
At least 45 years old	22	89	111
Total	35	100	135

The table summarizes members of a local organization by age and whether they live north or south of Center St. If a member of the organization is selected at random, what is the probability that the selected member is at least 45 years old?

(A) $\frac{24}{135}$

(B) $\frac{35}{135}$

(C) $\frac{100}{135}$

(D) $\frac{111}{135}$

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2 Mark for Review

Which expression is equivalent to $3(x^2 + 2)$?

(A) $3x^2 + 6$

(B) $3x^2 + 5$

(C) $3x^2 + 2$

(D) $3x^2 + 1$

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For the linear function f, the graph of $y = f(x)$ in the xy-plane has a slope of $\frac{1}{7}$ and passes through the point $(0, 2)$. Which equation defines f?

(A) $f(x) = \frac{1}{7}x + 2$

(B) $f(x) = \frac{1}{7}x + \frac{1}{2}$

(C) $f(x) = \frac{1}{7}x - \frac{2}{7}$

(D) $f(x) = \frac{1}{7}x - 2$

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4 Mark for Review

The function f is defined by $f(x) = 2 + \sqrt{x}$. What is the value of $f(100)$?

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$$5x - 4y = -40$$

For the given equation, which table gives three values of x and their corresponding values of y?

(A)

x	0	4	8
y	10	15	20

(B)

x	0	4	8
y	20	15	10

(C)

x	10	15	20
y	0	4	8

(D)

x	10	15	20
y	8	4	0

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If $20 = 12 + 4(x - 3)$, what is the value of $4(x - 3)$?

(A) 5

(B) 8

(C) 12

(D) 17

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6 Mark for Review

A geologist estimates that the volume of a boulder is greater than 13.4 cubic feet but less than 17.4 cubic feet. The geologist also estimates that the boulder weighs 160 pounds per cubic foot of volume. Which inequality represents this situation, where x represents the estimated total weight, in pounds, of the boulder?

(A) $160 - 17.4 < x < 160 - 13.4$

(B) $160 + 13.4 < x < 160 + 17.4$

(C) $160(13.4) < x < 160(17.4)$

(D) $\frac{160}{17.4} < x < \frac{160}{13.4}$

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9 Mark for Review

In triangle ABC, the measure of angle A is 52°, the measure of angle B is 90°, and the measure of angle C is $\left(\frac{k}{2}\right)^\circ$. What is the value of k?

A 38

B 45

C 76

D 104

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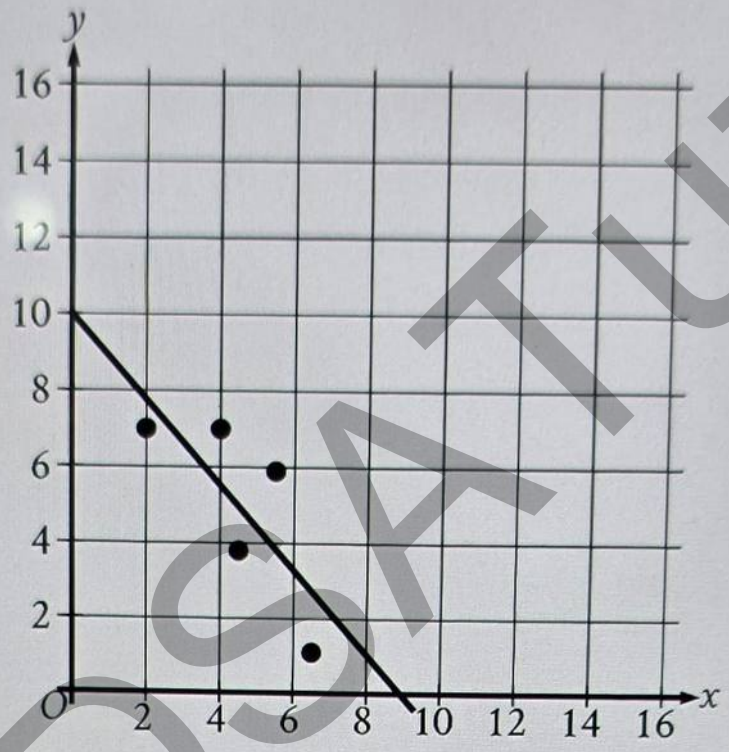
The scatterplot shows the relationship between two variables, x and y. A line of best fit is also shown.



Which of the following is closest to the slope of this line of best fit?

(A) -3.5

(B) -1.1

(C) 1.1

(D) 3.5

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11 Mark for Review

A small business owner budgets $2,800 to purchase books each year. The owner must purchase a minimum of 275 books for the year to maintain the discounted pricing. If the owner pays $4.10 per book to purchase paperback books and $11.10 per book to purchase hardcover books, what is the maximum number of hardcover books the owner can purchase to stay within the budget and maintain the discounted pricing?

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14 Mark for Review

The total mass, in kilograms, of r identical objects is t. Which expression represents the total mass, in kilograms, of $139r$ of these objects?

(A) $139 - t$

(B) $139 + t$

(C) $\frac{t}{139}$

(D) $139t$

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13 Mark for Review

$$y = 0.25x^2 - 6.5x + 98.25$$

The equation gives the estimated stock price y, in dollars, for a certain company x days after the company went public, where $0 \leq x \leq 20$. Which statement is the best interpretation of $(x, y) = (1, 92)$ in this context?

(A) 1 day after the company went public, the company's estimated stock price is $92.

(B) 92 days after the company went public, the company's estimated stock price is $1.

(C) The company's estimated stock price increased $92 every day after the company went public.

(D) The company's estimated stock price increased $1 every 92 days after the company went public.

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9 Mark for Review

For a certain type of rope, the equation $y = 900ax^2$, where a is a constant, gives the estimated breaking strength y, in pounds, of a rope with a circumference of x inches. Based on this equation, if a rope of this type has a circumference of 1.75 inches, it has an estimated breaking strength of $3{,}858.75$ pounds. What is the estimated breaking strength, in pounds, of a rope of this type that has a circumference of 7.50 inches?

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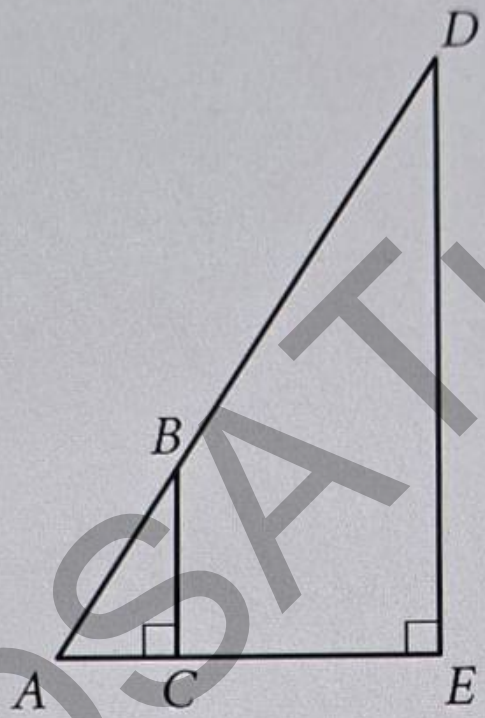
16 Mark for Review



Note: Figure not drawn to scale.

In the figure shown, $AB = \sqrt{61}$ units, $AC = 5$ units, and $CE = 35$ units. What is the area, in square units, of triangle ADE?

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22 Mark for Review

An object's speed is increasing at a rate of 3.8 meters per second squared. What is this rate, in miles per minute squared, rounded to the nearest tenth? (Use 1 mile = 1,609 meters.)

(A) 0.1 (A)

(B) 8.5 (B)

(C) 101.9 (C)

(D) 423.4 (D)

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The function f is defined by $f(x) = ax^2 + bx + c$, where a, b, and c are constants. The graph of $y = f(x)$ in the xy-plane passes through the points $(12, 0)$ and $(-9, 0)$. If a is an integer greater than 1, which of the following could be the value of $a + b$?

(A) -4 (A)

(B) -2 (B)

(C) 3 (C)

(D) 4 (D)

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20 Mark for Review

$$9x + 8y = 5$$

The given equation is one equation in a system of two linear equations. If the system of equations has at least one solution, which of the following equations could be the other equation in the system?

I. $13.5x + 12y = 7.5$

II. $13.5x - 12y = 7.5$

(A) I only (A)

(B) II only (B)

(C) I and II (C)

(D) Neither I nor II (D)

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$$x^2 - 12x - 3 = 0$$

One solution to the given equation can be written as $6 + \sqrt{k}$, where k is a constant. What is the value of k?

(A) 33 (A)

(B) 39 (B)

(C) 78 (C)

(D) 156 (D)

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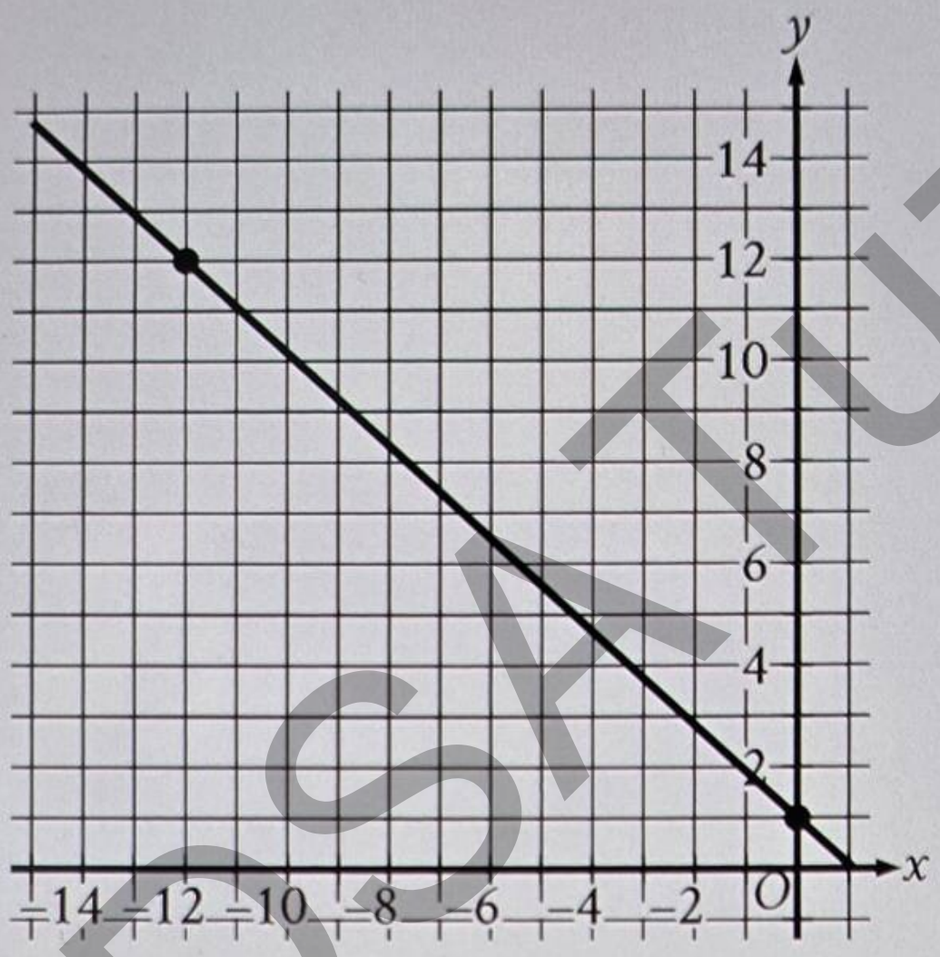

The graph of line g is shown in the xy-plane. Line k is defined by $154x + py = w$, where p and w are constants. If line k is graphed in this xy-plane, resulting in the graph of a system of two linear equations, the system of two linear equations will have infinitely many solutions. What is the value of $p + w$?

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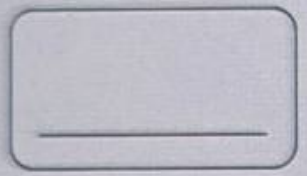
14 Mark for Review

$$4x^2 + 18 = 32x + r$$

In the given equation, r is a constant. The equation has exactly one real solution. What is the value of r?



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15 Mark for Review

For the function f, for every increase of 2 in the value of x, the value of $f(x)$ increases by a factor of c, where c is a constant. Which of the following equivalent forms of function f displays the value of c as the base or the coefficient?

(A) $f(x) = 43(2)^{6x}$ A

(B) $f(x) = 43(8)^{2x}$ B

(C) $f(x) = 43(64)^{x}$ C

(D) $f(x) = 43(4{,}096)^{\frac{x}{2}}$ D

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11 Mark for Review

If $x \geq -9$ represents all solutions to the inequality $ax - 24 \leq 21$, where a is a constant, what is the greatest possible value of a?

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13 Mark for Review

For the positive quantities h, j, and k, 86% of h is equivalent to 34% of j, and j is equivalent to 43% of k. What percentage of k is h? (Disregard the $\%$ sign when entering your answer. For example, if your answer is 39%, enter 39.)

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12 Mark for Review

$$6(3x) + 7(2y) = 21$$

$$-6(3x) + 7(2y) = 21$$

The solution to the given system of equations is (x, y). What is the value of $3x + 2y$?

(A) 0.5 (A)

(B) 1.5 (B)

(C) 3 (C)

(D) 21 (D)

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8 Mark for Review

A hemisphere is half of a sphere. If a hemisphere has a radius of 13 inches, which of the following is closest to the volume, in cubic inches, of this hemisphere?

(A) 400 A

(B) 1,400 B

(C) 3,500 C

(D) 4,600 D

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10 Mark for Review

The function h is defined by $h(x) = (x + p)(x - 6)(2x - 8)$, where p is a constant. In the xy-plane, the graph of $y = h(x)$ passes through the point $(-2, 0)$. What is the value of $h(0)$?

(A) -48 A

(B) -2 B

(C) 8 C

(D) 96 D

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9 Mark for Review

For a certain type of rope, the equation $y = 900ax^2$, where a is a constant, gives the estimated breaking strength y, in pounds, of a rope with a circumference of x inches. Based on this equation, if a rope of this type has a circumference of 1.75 inches, it has an estimated breaking strength of $3{,}858.75$ pounds. What is the estimated breaking strength, in pounds, of a rope of this type that has a circumference of 7.50 inches?

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7 Mark for Review

$$r = \sqrt{7w - 8}$$

The given equation relates the real numbers r and w, where $w > \frac{8}{7}$. Which equation correctly expresses w in terms of r?

(A) $w = \sqrt{-8r + 7}$ A

(B) $w = \sqrt{7r - 8}$ B

(C) $w = \frac{r^2}{7} + \frac{8}{7}$ C

(D) $w = \frac{r^2}{7} + 8$ D

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6 Mark for Review

A park rents beach umbrellas to visitors. The park earns revenue of $12 for each beach umbrella they rent for the day. On Wednesday, the park earned $276 in profit from renting beach umbrellas after paying daily expenses of $120. How many beach umbrellas did the park rent on Wednesday? (profit = total revenue − total expenses)

(A) 13 A

(B) 23 B

(C) 26 C

(D) 33 D

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5 Mark for Review

The function $f(x) = \frac{1}{8}(x-6)^2 + 4$ gives a toy car's height above the ground $f(x)$, in inches, x seconds after it started moving on an elevated track, where $0 \leq x \leq 10$. Which of the following is the best interpretation of the vertex of the graph of $y = f(x)$ in the xy-plane?

(A) The toy car's minimum height was 4 inches above the ground. (A)

(B) The toy car's minimum height was 6 inches above the ground. (B)

(C) The toy car's height was 4 inches above the ground when it started moving. (C)

(D) The toy car's height was 6 inches above the ground when it started moving. (D)

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2 Mark for Review

To purchase a used car at a total price of 14,000 dollars, a onetime down payment is required, and then fixed monthly payments are made for the remaining amount owed for the car. The equation $14{,}000 = 2{,}500 + 250t$ represents this situation, where t is the number of fixed monthly payments that are made. Which of the following is the best interpretation of 250 in this context?

(A) The amount, in dollars, of the down payment

(B) The amount, in dollars, of each fixed monthly payment

(C) The total amount, in dollars, paid for the car after t fixed monthly payments

(D) The total number of fixed monthly payments

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A model predicts that the population of a certain town was 18,000 in 2007. The model also predicts that each year for the next 5 years, the population p increased by 7% of the previous year's population. Which equation best represents this model, where x is the number of years after 2007, for $x \leq 5$?

(A) $p = 0.93(18{,}000)^x$ (A)

(B) $p = 1.07(18{,}000)^x$ (B)

(C) $p = 18{,}000(0.93)^x$ (C)

(D) $p = 18{,}000(1.07)^x$ (D)

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3 Mark for Review

How many solutions does the equation $9x + 4 = 9x$ have?

(A) Zero A

(B) Exactly one B

(C) Exactly two C

(D) Infinitely many D

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The value of y is 36 more than twice the value of x. Which equation represents y in terms of x?

(A) $y = 2x + 36$ (A)

(B) $y = 38x + 2$ (B)

(C) $y = 38x + 36$ (C)

(D) $y = 36x + 2$ (D)

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21 Mark for Review

Trapezoid $ABCD$ is similar to trapezoid $PQRS$. The length of each side of trapezoid $PQRS$ is 2 times the length of its corresponding side of trapezoid $ABCD$. The area of trapezoid $ABCD$ is 24 square centimeters. What is the area, in square centimeters, of trapezoid $PQRS$?

A) 26

B) 48

C) 96

D) 576

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22 Mark for Review

$$r(t) = 69t - 2t^2$$

The function r is defined by the given equation. The function s is defined by $s(t) = r(t) + 1$. Which expression represents the maximum value of $s(t)$?

(A) $1 - \left(\frac{69}{2}\right)^2$

(B) $1 - 2\left(\frac{69}{4}\right)^2$

(C) $1 + 2\left(\frac{69}{4}\right)^2$

(D) $1 + \left(\frac{69}{2}\right)^2$

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18 Mark for Review

The equation $h = \frac{9(v-273.15)}{5} + 32$ gives the corresponding temperature h, in degrees Fahrenheit, of any substance that has a temperature of v kelvins, where $v > 0$. If a substance has a temperature of 413.33 degrees Fahrenheit, what is the corresponding temperature, in kelvins, of this substance?

Answer Preview:

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19 Mark for Review

A circle in the xy-plane has its center at $(19, 14)$ and has a radius of $6k$. Which equation represents this circle?

(A) $(x-19)^2+(y-14)^2=36k$

(B) $(x-19)^2+(y-14)^2=36k^2$

(C) $(x-19)^2+(y-14)^2=6k$

(D) $(x-19)^2+(y-14)^2=6k^2$

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20 Mark for Review



Note: Figure not drawn to scale.

In the triangle shown, $RS = \sqrt{161}$. What is the value of $\sin R$?

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15 Mark for Review

If $\frac{36}{x} = 9x$, what is the value of $9x^2$?

(A) 324

(B) 36

(C) 9

(D) 4

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17 Mark for Review

$$y = \frac{2}{7}x + 3$$

One of the two equations in a system of linear equations is given. The system has infinitely many solutions. If the second equation in the system is $y = mx + b$, where m and b are constants, what is the value of b?

A -3

B $-\frac{1}{3}$

C $\frac{1}{3}$

D 3

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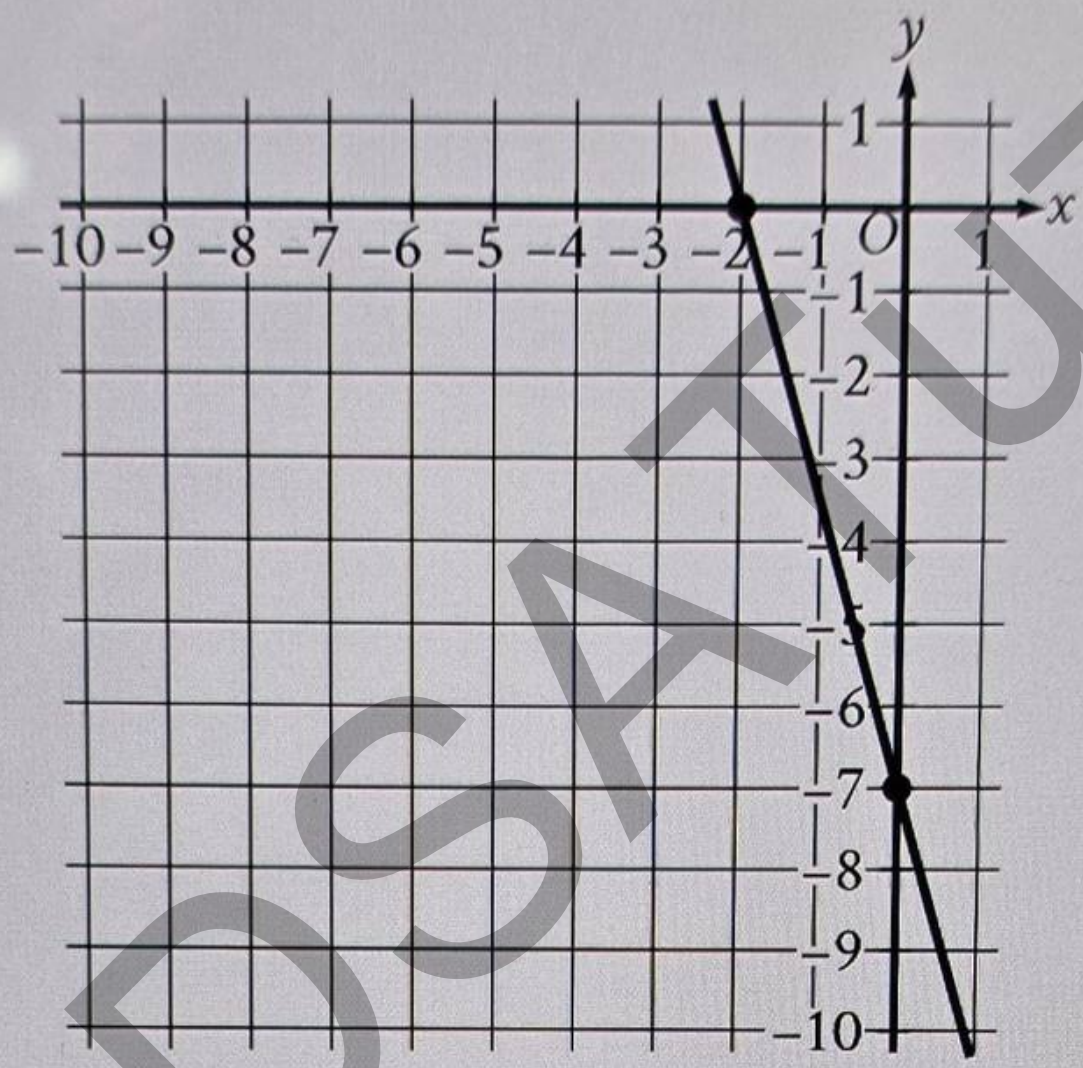
16 Mark for Review



Line k is shown in the xy-plane. Line j (not shown) is perpendicular to line k. What is the slope of line j?

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12 Mark for Review

The expression $60y^5 - 40y^4$ is equivalent to $ry^4(12y - 8)$, where r is a constant. What is the value of r?

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