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1.

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

A study by Augusta D. Gaspar and Joana Carneiro Pinto found that a bank's corporate social responsibility (CSR) efforts, including environmental and social campaigns, improve its corporate image. When CSR was mentioned in bank marketing strategies, favorability scores assigned by study participants tended to _____ the scores assigned by participants when CSR wasn't mentioned.

A. identify

B. disturb

C. replace

D. exceed

2.

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

Researchers have long debated the origins of silver used in European coins from the 600s through the early 800s CE. Geochemical analysis by Kershaw et al. of 49 coins dating to 660–820 CE provides concrete evidence that reconciles two competing theories: early coins were made from Byzantine silver, and later coins used Frankish silver, findings that provide firm details in a previously _____ area of study.

A. esoteric

B. authoritative

C. solitary

D. speculative

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3.

As used in the text, what does the word “mastery” most nearly mean?

The following text is adapted from Alice Dunbar Nelson’s 1899 short story “The Fisherman of Pass Christian.” Pass Christian is a city in the US state of Mississippi.

> The swift breezes on the beach at Pass Christian meet and conflict as though each strove for the mastery of the air. The land-breeze blows down through the pines, resinous, fragrant, cold, bringing breath-like memories of dim, dark woods shaded by myriad pine-needles. The breeze from the Gulf is warm and soft and languorous, blowing up from the south with its suggestion of tropical warmth.

A. Familiarity

B. Domination

C. Comprehension

D. Skillfulness

4.

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

Science fiction has long served as a _____ real-world technological advancements. Indeed, from Jules Verne’s 1865 novel From the Earth to the Moon inspiring developments in aerospace engineering to the television show Star Trek sparking the design of the ancestor of today’s smartphones, these narratives have spurred many actual innovations.

A. diversion from

B. catalyst of

C. constraint to

D. sponsor of

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5.

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

Any effort to raise the toll that drivers must pay to use the Lewis and Clark Bridge, which spans the Ohio River to connect Indiana and Kentucky, should explain why a higher toll is necessary; no amount of justification, however, is likely to persuade some drivers who believe the current toll is _____.

A. exorbitant

B. contentious

C. equivocal

D. warranted

6.

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

Moving beyond a simple "present or absent" designation, researchers created a new classification system that allows for a nuanced understanding of bioluminescence in marine organisms that was unavailable under binary classification systems. The new six-point scale considers varying levels of supporting evidence used to identify bioluminescent species. For example, the firefly squid scores 1 because of inconsistent reports, the emperor squid scores 4 because of its anatomical similarity to known luminous relatives, and the shaggy anglerfish scores 6 because of substantiated direct observations.

A. It emphasizes the thoroughness of the research conducted.
B. It explains how the new classification system was derived from the previous binary system.

C. It justifies the need for a new classification system for marine species.

D. It explains the basis for the new system's scoring criteria.

7.

Which choice best describes the function of the underlined portion in the text as a whole?

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Postcranial skeletal pneumaticity (PSP) refers to the presence of extensions of an animal's lungs and air sacs inside its bones. These extensions are known as pneumatic diverticula. Vascularity and other identifying characteristics of pneumatic diverticula tend not to fossilize, so paleontologists have relied on studies of living bird species to document these qualities, augmenting their findings from fossil analysis to glean additional insights into the respiratory systems of extinct genera such as Tyrannosaurus, Euhelopus, and other Cretaceous theropods and sauropods that may have also exhibited PSP.

A. It presents information about the fossilization of pneumatic diverticula that has led paleontologists to question the applicability of studies of certain living species.

B. It accounts for disagreements among paleontologists about how the respiratory systems of certain extinct genera functioned.

C. It highlights an issue with fossils that previously led paleontologists to misidentify certain characteristics of pneumatic diverticula.

D. It indicates why paleontologists have used another approach in addition to fossil analysis to learn about certain aspects of pneumatic diverticula.

8.

Which choice best describes the function of the underlined portion in the text as a whole?

Adult glass eels can be found off the coast of Maine, but the eels begin their lives in the Sargasso Sea, a biodiverse area in the North Atlantic Ocean where they are born and later return to breed. Though biologists believe they have identified the general area in the Sargasso Sea that is crucial to the endangered eels' survival, little is yet known about how the animals spawn there. Scientists believe that solving the mystery will lead to better conservation of glass eels and their habitat, helping in turn to sustain several other species that rely on them as a food source.

A. It suggests that scientists are more concerned about other species than about glass eels' habitat.

B. It indicates that the benefit of understanding glass eels' spawning behavior extends beyond the eels.

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C. It discusses a role that glass eels and other species serve in supporting the ecosystem of the Sargasso Sea.

D. It presents a finding from a study that identifies the circumstances required to ensure the survival of glass eels.

9.

According to the text, what is someone who professionally evaluates books called?

Seesaw Girl was Linda Sue Park's debut novel. It was published in 1999. A debut novel is the first book that an author has published. Debut novels are especially interesting to literary critics (people whose job it is to evaluate books) and readers because these books offer a look at new voices in the literary world.

A. A book publisher

B. A literary critic

C. A bookseller

D. An author

10.

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

Millions of Metric Tons of Copper Mined in 1995 and 2020

Country	1995	2020
Indones	0.44	0.51
Mexico	0.33	0.73
Peru	0.38	2.15

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United States 1.85 1.20

While doing research for a paper about metal exports, a student finds a table indicating how much copper was mined in each of four countries in 1995 and 2020. The student notes that in 1995, Mexico mined _____

A. 0.38 million metric tons of copper.

B. 0.33 million metric tons of copper.

C. 1.85 million metric tons of copper.

D. 0.44 million metric tons of copper.

11.

Which quotation from Peter Pan best supports the claim?

Peter Pan is a 1911 novel by J.M. Barrie. In the fantasy novel, Peter is a young boy who can fly. He brings Wendy, John, and Michael to Neverland, the mythical island where he lives. The narrator suggests that activity on the island stops when Peter is away and starts again when he is about to return: _____

A. “The rock was very small now.”

B. “Wendy and John and Michael stood on tip-toe in the air to get their first sight of the island.”

C. “Peter was alone on the lagoon.”

D. “Feeling that Peter was on his way back, the Neverland had again woke into life.”

---

12. Which quotation from a translation of The Underdogs most effectively illustrates the claim?

The Underdogs is a 1915 novel by Mariano Azuela, originally written in Spanish. In the novel, Azuela depicts the character Camilla as experiencing a change in how she perceives her immediate surroundings: _____

A. “Camilla stared up at the blue sky so [Luis] should not read the expression in her eyes.”

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B. “Camilla, standing on the beach of washed, round stones, caught a reflection of herself in the waters.”

C. “All nature was as she had found it before, evening upon evening; but in the stones and the dry weeds, amid the fragrance of the air and the light whir of falling leaves, Camilla sensed a new strangeness, a vast desolation in everything about her.”

D. “[Camilla] closed her eyes fast to hold back the tears that welled up in them. Then, with the back of her hand, she wiped her wet cheeks, and just as she had done three days ago, fled with all the swiftness of a young deer.”

13.

Which finding, if true, would most directly weaken the researcher’s claim?

The Rarámuri language of northern Mexico has 20 vowel and consonant sounds. In contrast, the Taa language of southern Africa has over 100. Why would languages differ in this way? One researcher has claimed that when modern humans arose in Africa, they spoke a single language, but as humans gradually spread throughout Africa and then around the globe, that language developed into new languages. Those developed into still more languages as small bands of humans spread even farther, with each new language retaining fewer sounds from humanity’s original language.

A. A wider range of sounds is found across the languages of Africa as a whole than across the languages of South America as a whole.

B. Languages that emerged in Europe and Western Asia tend to have more sounds than languages that emerged in Africa do.

C. Languages that emerged in Central America tend to have fewer sounds than languages that emerged in Western Europe do, and Central America is farther away from Africa than Western Europe is.

D. The number of sounds is fairly consistent across the various languages that emerged in the last parts of Africa to be settled by humans.

14.

Which choice most logically completes the text?

20.

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Antonia Olivia Dolan and colleagues had musicians and nonmusicians with clinically average hearing listen to recordings of nature sounds and music in popular genres like acoustic folk and funk and adjust the volume to optimize their listening enjoyment. The researchers found that for a given recording that a musician and nonmusician identified as their favorite among those included in the study, optimal volume tended to be higher for the musician than for the nonmusician. Thus, if a musician and nonmusician both identified Jose Gonzalez's "Heartbeats" as their favorite recording and the musician preferred to listen to it at a volume of 82.2 decibels, the nonmusician would be expected to _____

A. find listening to "Heartbeats" at 82.2 decibels less enjoyable than listening to it at a lower volume.

B. prefer listening to other music at 82.2 decibels over listening to "Heartbeats" at that volume.

C. enjoy listening to the nature sounds at 82.2 decibels more than listening to "Heartbeats" at 82.2 decibels.

D. not find it enjoyable to listen to any recordings at a volume as low as 82.2 decibels.

15.

Which choice most logically completes the text?

Outi Tervo and team studied the effect of human-caused noise on narwhals (Monodon monoceros), arctic marine mammals that are sensitive to acoustic changes in their environment. Hypothesizing that elevated sound levels affect foraging among narwhals, Tervo's team compared narwhal diving behaviors in natural sound conditions with those behaviors in two human-caused sound exposure conditions—ship sounds and ship sounds coupled with sonic pulses. Both exposure conditions resulted in significant decreases in the number and target depth of deep dives (associated with foraging) relative to natural conditions. However, differences between diving behaviors in the two exposure types were negligible, a finding that could be attributed to the fact that _____

A. narwhals forage at shallower depths in the presence of ship sounds alone than in the presence of ship sounds coupled with sonic pulses.

B. sonic pulses can be heard at significantly greater ocean depths than ship sounds can.

20.

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C. the narwhals weren't as sensitive to human-caused sounds as the researchers had predicted.

D. ship sounds contribute so much to the overall sound level that the addition of sonic pulses has little effect on the narwhals' auditory environment.

16.

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

Many works of the Greek mathematician Euclid (3rd century BCE) are _____ his Elements, a treatise of mathematical knowledge, is an extant work: it can still be read.

A. lost and conversely,

B. lost, conversely,

C. lost. Conversely,

D. lost, and conversely

17.

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

A 2024 study cataloged all the trees in Amsterdam to evaluate the biodiversity of the city's urban forest. The researchers, finding that administrative unit GK13 had a 0.62 ratio of native to non-native trees, _____ efforts to improve the biodiversity of the trees in that unit and other areas with a similarly moderate ratio.

A. recommended
B. recommending
C. to recommend
D. having recommended

20.

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18.

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

Growing as large as three meters in diameter, the leaves of the giant Amazonian waterlily feature a complex network of radiating veins that provide structural _____ in thickness from the center to the edges, these veins allow the leaves to maintain their large size and buoyancy with minimal material, optimizing light capture and photosynthesis.

A. support. Decreasing

B. support decreasing

C. support, while decreasing

D. support, decreasing

19.

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

_____ a US state when it ratified the US Constitution on December 12, 1787, was thereby empowered, via its representatives to the US Congress, to vote on whether to admit Louisiana as a state on April 30, 1812.

A. Pennsylvania would officially become

B. Pennsylvania had officially become

C. Pennsylvania officially became

D. Pennsylvania, having officially become

20.

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

Though largely eclipsed by her success as a novelist, Jessie Redmon Fauset's contributions as literary editor of The Crisis, a New York City–based periodical whose influence was arguably at its peak during her Harlem Renaissance–era tenure, _____ in recent scholarship that explores Fauset's instrumental role in shaping the magazine's aesthetic and debuting the work of Langston Hughes and other emerging Black writers.

A. has been revisited

B. have been revisited

C. revisited

D. having been revisited

21.

Which choice completes the text with the most logical transition?

Resins play several important roles in maintaining the health of conifers and many other kinds of trees. _____ resins quickly seal wounds, which helps prevent harmful insects and fungi from entering trees. These sticky substances also help trees retain water that is needed for them to survive.

A. For example,

B. However,

C. Regardless,

D. Next,

22.

Which choice completes the text with the most logical transition?

Giant dust plumes from the Sahara Desert that blow across the Atlantic Ocean can have complex and opposing effects on tropical cyclones. On one hand, the dust can enhance the

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formation of ice clouds in the cyclone's core, increasing precipitation. _____ the dust can lower sea surface temperatures around the cyclone's core, weakening the storm.

A. On the other hand,

B. Previously,

C. For example,

D. In other words,

23.

Which choice completes the text with the most logical transition?

Elvis Presley's iconic jumpsuit Red Pinwheel featured rhinestones arranged in pinwheel patterns. Historians note that adornments such as these added between twenty-five and fifty pounds to each of Elvis's stage outfits. _____ the fabric used to make the outfits was light and flexible, enabling freedom of motion.

A. On the other hand,

B. That is,

C. For instance,

D. There,

24.

Which choice completes the text with the most logical transition?

In a 1998 study by Smith et al., the researchers used microhistological fecal analysis to determine the ratio of three plant subtypes (graminoids, forbs, and browse) within the diets of North American ungulates. The researchers did not perform this analysis on all such ungulates, _____ they focused exclusively on pronghorns and wild horses in New Mexico.

A. regardless;

B. in other words;

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C. for instance;

D. however;

25.

Which choice completes the text with the most logical transition?

Though its onboard laboratory allowed it to analyze rock samples on-site, the 2011 Mars Curiosity rover was unable to preserve samples for future analysis. _____ when creating the 2020 Mars Perseverance rover, robotics technologist Yumi Iwashita and other members of NASA's Jet Propulsion Laboratory sought to implement a mechanism that could do exactly that.

A. Specifically,

B. Earlier,

C. Hence,

D. Similarly,

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26.

Which choice completes the text with the most logical transition?

As Iestyn Barr and his team of researchers discovered when establishing the glacial timeline of Antarctica, the Transantarctic Mountains—a 3,500-km mountain range spanning the continent—are home to glaciers of at least 60 million years in age. _____ the researchers concluded, Antarctica had glaciers long before the formation of its continent-wide ice sheet 34 million years ago.

A. Thus
B. By contrast,
C. Even so,
D. Nevertheless,

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27.

Which choice most effectively uses information from the given sentences to emphasize Edison's reliance on Hammer?

- Thomas Edison is regarded as one of the most important inventors in US history.
- Having received little formal schooling, Edison relied on specialist employees at his various laboratories and offices to complete the technical work for many of his inventions.
- William Joseph Hammer was a laboratory assistant who worked at the Menlo Park laboratory.
- He is best known for curating the most comprehensive collection of historic light bulbs anywhere in the world.
- William Symes Andrews was an electrical engineer who worked at the Edison Electric Light Company.
- He is best known for establishing more than thirty power plants across New York and Pennsylvania.

A. William Joseph Hammer, a laboratory assistant, worked at the Menlo Park laboratory.

B. William Joseph Hammer, a laboratory assistant, was known for his valuable contribution to the field of technology.

C. Most of Thomas Edison's employees had successful careers independent of working for him; for example, William Joseph Hammer, who worked at the Menlo Park laboratory, was an accomplished laboratory assistant.

D. Having received little formal education, Thomas Edison depended on specialized employees, including laboratory assistant William Joseph Hammer, for many of his inventions.

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Module 2

1.

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

In a 2020 experiment, Kai Ruggeri and his team presented participants from Spain, Slovenia, and seventeen other countries with questions that were _____ those used in a groundbreaking 1979 study. By using the same questions that the earlier study did, Ruggeri and his team attempted to reproduce that study's findings.

A. identical to

B. unavailable to

C. less entertaining than

D. more difficult than

2.

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

Annie Smith Peck, who was the first person to climb Mount Nevado Huascarán in the Andes, and Sophia Danenberg, who was the first Black woman to summit Mount Everest, are ensured lasting places in our historical memory. No matter what others may do in the future, nobody can ever _____ the standing of these women as the first to accomplish these feats.

A. imply

B. promote

C. undermine

D. extend

3.

As used in the text, what does the phrase "steals away" most nearly mean?

The following text is from Alice Moore Dunbar-Nelson's 1895 poem "In Memoriam." The speaker describes sunshine coming into a cathedral.

The light streams through the windows arched high,

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And o’er the stern, stone carvings breaks

In warm rich gold and crimson waves,

Then steals away in corners dark to die.

A. Restores itself

B. Works away

C. Slips away

D. Identifies itself

4.

As used in the text, what does the word “produce” most nearly mean?

The following text is from Oscar Wilde’s 1893 play Lady Windermere’s Fan.

> MRS. ERLYNNE: I am going to live abroad again. The English climate doesn’t suit me. My—heart is affected here, and that I don’t like. I prefer living in the south. London is too full of fogs and—and serious people, Lord Windermere. Whether the fogs produce the serious people or whether the serious people produce the fogs, I don’t know, but the whole thing rather gets on my nerves.

A. Attach

B. Fancy

C. Make available

D. Bring about

5.

Which choice best describes the function of the underlined portion in the text as a whole?

A study by Mohamed Alburaki, Dennis vanEngelsdorp, and colleagues suggests that overall, US honey bee populations exhibit low genetic diversity. Working with a large sample of honey bee specimens collected from most US states, the researchers determined that there

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are just three maternal evolutionary lineages in the populations: the North Mediterranean lineage, the West Mediterranean lineage, and the African lineage. They found that of the specimens from Montana, 100% descended from the North Mediterranean lineage—a finding in keeping with that for the lineage in many of the other states studied.

A. It expands on the claim made earlier in the sentence by providing specific data.

B. It indicates that a result described earlier in the sentence reflects a widespread trend.

C. It acknowledges that the results of the study discussed in the text are not entirely consistent with the researchers' hypothesis.

D. It summarizes the central conclusions of the study that is discussed in the text.

6.

Based on the texts, how would Lorde (Text 1) most likely respond to the argument presented in Text 2?

Text 1

The poet Audre Lorde once claimed that poetry is the most inexpensive of art forms to practice. While people who pursue other art forms—sculpture, architecture, theater—require large blocks of uninterrupted time as well as money to complete their work, poets can write, as Lorde said, "between shifts, in the hospital pantry, on the subway, and on scraps of surplus paper." So poets can make worthwhile art even if they must earn their living in another way.

Text 2

Any assessment of the state of contemporary poetry must reckon with the professionalization of the field. While it is possible in theory for anyone to publish in Poetry, Kenyon Review, or a similar major poetry outlet, many people who do so have professional training in poetry and extensive practice writing it, which requires time not often available to those who must also work full-time jobs. Thus, financial security indirectly affects which people become poets.

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A. By indicating that those poets who publish in major poetry journals are most likely to be able to earn a living by writing poetry

B. By pointing out that people can produce valuable poetry in other circumstances than those described by the author of Text 2

C. By suggesting that those artists who specialize in more financially rewarding artistic forms are unlikely to also be successful as poets

D. By asserting that people often work full-time jobs in order to afford the professional training described in Text 2

7.

Based on the text, what would Hincapié most likely say is a promising way to increase entrepreneurship in early adulthood?

The average age at which people in the United States start businesses is 35. Economist Andrés Hincapié studied why young adults are relatively less likely to start businesses and whether there are ways to increase entrepreneurship in early adulthood. Hincapié found that one impediment is lack of knowledge about the practical details of how businesses are started; he further found that simply providing young adults with good informational resources on the topic significantly alleviates this problem.

A. Creating social networks of young adults who are interested in starting a business

B. Providing young adults with practical information about how to start a business

C. Encouraging young adults to brainstorm business ideas

D. Giving young adults training opportunities at a variety of businesses

---

8.

According to the text, what draws divers and scientists to blue holes such as Watling's Blue Hole and the Taam Ja' Blue Hole?

Blue holes, such as Watling's Blue Hole near San Salvador Island, are large marine sinkholes. They are typically located in areas where the ocean bedrock is made of soluble material

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(e.g., marble) because rock erosion is crucial to their formation. Because of the diverse marine life they contain, blue holes attract numerous divers and scientists. Currently, the Taam Ja' Blue Hole in Chetumal Bay, Mexico, is the deepest blue hole on record, measured by Teresa Álvarez-Legorreta and colleagues to be at least 420 meters below sea level.

A. A hope to encounter a variety of marine organisms

B. A desire to witness the erosion of the rocks in the blue holes

C. A commitment to protecting the marble and other soluble materials in the blue holes

D. An interest in comparing the depths of Watling's Blue Hole and the Taam Ja' Blue Hole to the depths of other blue holes

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9.

Based on the text, what is the most likely reason Vanderburgh and colleagues chose to avoid the method used in the strawberry study?

In a 2024 study, Caihong Vanderburgh and colleagues examined whether the composition of soil microbial communities could affect plants' flavor chemistry. Whereas Jimenez-Gomez et al. (2017) showed that adding specific bacterial or fungal strains to soil can yield increased vitamin C in strawberry crops, Vanderburgh and team applied intact microbial communities gathered from ecologically distinct settings across Colorado, including areas of aspen grove and sagebrush, to mustard plants and evaluated the flavor compounds in the plants' seeds. This ensured that the microbial conditions in their experiment would better reflect the variation and complexity of naturally occurring communities.

A. The microbial community in the soil from the strawberry study affected plants' nutrition, not their flavor chemistry.

B. The diversity of species of microorganisms in the soil from the strawberry study was already abnormally high before the researchers added further microorganisms.

C. The composition of microorganisms in the soil in the strawberry study may not have been representative of a naturally existing composition.

D. The microbial community in the soil from the strawberry study likely included similar species to those in wild soils.

Answer: C

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10.

According to the table, what is the maximum speed for high-speed railway lines in China?

Maximum Speed for High-Speed Railway Lines in Four Countries

Country	Max speed (km/h)
Austria	250
Belgium	300
China	350
Norway	210

A student is comparing the speeds of trains on high-speed rail lines in different countries. The table shows information about high-speed rail in four countries.

A. 350 km/h

B. 450 km/h

C. 300 km/h

D. 110 km/h

11.

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

Examples of Hoards Found in Ireland and Northern Ireland

Hoard name	Date of contents	Year of discovery	Description
Derrynaflan Hoard	10th century CE	1980	silver and bronze pieces
Derrinboy Hoard	14th–13th century BCE	1957–1958	gold jewelry

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Hoard name	Date of contents	Year of discovery	Description
Armagh City Hoard	14th century CE	1998	silver coins

An anthropologist is recording the metal contents of various historical deposits of valuables, called hoards, found in Ireland and Northern Ireland. He notes that the hoards differed in their contents; for example, _____

A. the Derrynaflan Hoard was the only hoard that contained bronze.

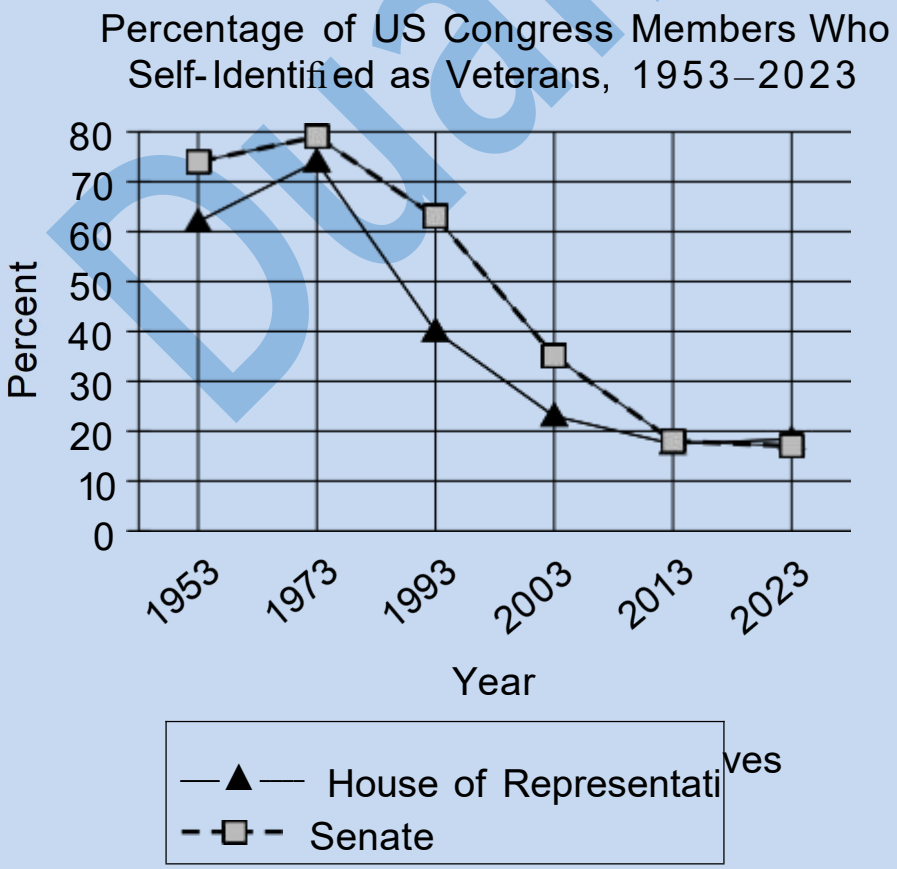
B. the Derrinboy Hoard was the only hoard that contained silver.

C. neither the Armagh City Hoard nor the Derrynaflan Hoard contained bronze.

D. the Derrinboy Hoard contained no gold or silver.

12.

Which choice most effectively uses data from the graph to complete the sentence?



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Since the nation's earliest days, both houses of the United States Congress have counted many military veterans among their elected officials, including Hiram L. Fong (who served in the US Army Air Force) and Ralph Harold Metcalfe Sr. (who served in the US Army). A research institute gathered historical data about congressional members who have reported past military experience and determined that _____

A. the percentage of those members remained fairly consistent, regardless of house, from 1993 to 2023.

B. from 2003 to 2023, the House of Representatives had a higher percentage of those members than the Senate did.

C. the percentage of those members decreased substantially in both houses of Congress from 1973 to 2013.

D. from 1953 to 2003, those members constituted a majority in both houses of Congress.

13.

Which choice most logically completes the text?

Evan MacLean and colleagues evaluated behavioral and genetic data from over 14,000 dogs, representing more than 100 breeds, and found that genetic variations track to differing extents with behavioral variations between the breeds. This was the case for the behavioral categories of dog rivalry and excitability but was especially pronounced for attachment and attention-seeking, which can be seen when a dog solicits affection or attention. In another study, researchers found that the boxer and the Yorkshire terrier breeds exhibit very different levels of attachment and attention-seeking. When considered in light of the study by MacLean and colleagues, this finding suggests that _____

A. boxers and Yorkshire terriers are more likely to share genes associated with attachment and attention-seeking than to share genes associated with dog rivalry or excitability.

B. there may be a greater tendency toward attachment and attention-seeking in boxers and Yorkshire terriers than in some other dog breeds.

C. there may be a substantial dissimilarity between boxers and Yorkshire terriers in the genes associated with attachment and attention-seeking.

D. individual boxers may display higher levels of attachment and attention-seeking than individual Yorkshire terriers do.

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14.

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

Animals Out of Paper is a 2008 play by Rajiv Joseph. _____ play was first performed at the McGinn/Cazale Theater in New York City.

A. These

B. This

C. It

D. Those

15.

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

In the twentieth century, many countries developed secret codes. These codes were used _____ plans during wartime.

A. to communicate

B. communicates

C. communicate

D. have communicated

16.

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

A portrait of Silas Wright, former governor of New York, appeared on the $50 gold certificate. This form of paper currency _____ discontinued by the US Treasury in 1933.

A. having been

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B. to be

C. was

D. being

17.

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

Still Life with Three Puppies is a painting by Paul Gauguin, a French artist. Gauguin created _____ in 1888.

A. those

B. it

C. them

D. these

18.

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

Physical barriers, chemical defenses, and protein defenses are the three main categories of plant defense mechanisms. The poplar tree uses a _____ the trees produce chemicals that prevent certain herbivorous insects from feeding on the trees' leaves.

A. chemical defense:

B. chemical defense,

C. chemical defense

D. chemical defense and

19.

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

Julia Saltz is a biologist at Rice _____ conducts research on animal behaviors.

A. University. She

B. University she

C. University, she

D. University. Where she

20.

Which choice completes the text with the most logical transition?

Artists' palettes—the surfaces on which painters arrange and mix their paints—can provide valuable insights into the painters' creative processes. In her 2024 book The Artist's Palette, Alexandra Loske analyzes the palettes of 50 different painters across 500 years. _____ Loske reveals clues about the techniques and practices of such artists as Kerry James Marshall, Artemisia Gentileschi, and Vincent van Gogh.

A. Lastly,

B. In comparison,

C. In doing so,

D. However,

21.

Which choice completes the text with the most logical transition?

The visual magnitude scale, which measures the brightness of stars, is reverse logarithmic: the brighter a star, the lower its magnitude number. _____ the star Dubhe, the 34th brightest in the sky, has a higher visual magnitude number (1 .79) than does the brighter star Adhara. The 22nd-brightest star, Adhara has a magnitude of 1.5.

A. On the other hand,

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B. Hence,

C. Nonetheless,

D. Moreover,

22.

The student wants to emphasize a similarity between the two sculptures. Which choice most effectively uses relevant information from the notes to accomplish this goal?

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

- Save Me is a 2018 sculpture by American artist Olivia Steele.
- It is crafted from pink neon lighting that spells out the title phrase (“save me”).
- Harvest Moon is a 2013 sculpture by British/Pakistani artist Shezad Dawood.
- It is crafted from yellow neon lighting that forms an abstract moon shape.

A. Both Steele’s and Dawood’s sculptures are crafted from neon lighting.

B. Dawood’s sculpture Harvest Moon consists of yellow neon lighting in an abstract moon shape.

C. Rather than spelling out a phrase, Dawood’s sculpture forms an abstract moon shape.

D. The neon lighting in Save Me is pink, but the lighting in Harvest Moon is yellow.

23.

The student wants to emphasize a similarity between Douala and Schaan. Which choice most effectively uses relevant information from the notes to accomplish this goal?

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

- Usually, a country’s capital is also its largest city by population.
- The capital of Cameroon is Yaoundé.
- Its largest city by population is Douala.
- The capital of Liechtenstein is Vaduz.
- Its largest city by population is Schaan.

A. The most populous city in Cameroon is Douala, but its capital is Yaoundé.

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B. The capital of Cameroon is Yaoundé; the capital of Liechtenstein is Vaduz.

C. While Douala is in Cameroon, Schaan is in Liechtenstein.

D. Although neither is a capital city, both Douala and Schaan are the most populous cities in their countries.

24.

Which choice most effectively uses information from the given sentences to explain the 50 Completers hiking challenge to a new audience?

- The Highpointers Club is a hiking club.
- One of the main goals among club members is to reach the highest points in all fifty US states.
- Those who achieve this are called 50 Completers.
- In Suk Han became a 50 Completer on November 15, 2013.
- The highest point in West Virginia is Spruce Knob, at 4,863 ft.
- The highest point in Colorado is Mount Elbert, at 14,440 ft.

A. Hikers aiming to count themselves among the 50 Completers must reach not only West Virginia's Spruce Knob but also the even higher peak of Mount Elbert in Colorado.

B. Not until after you have reached the highest points in all fifty US states—including Spruce Knob in West Virginia and Mount Elbert in Colorado—can you include yourself among the 50 Completers of the Highpointers Club.

C. If you are looking for a new hiking challenge, consider joining the Highpointers Club, as did In Suk Han, a hiker who successfully reached the highest point in every US state.

D. On November 15, 2013, In Suk Han finally completed the feat of reaching the highest point in all fifty US states, including Spruce Knob in West Virginia and Mount Elbert in Colorado.

25.

Which choice most effectively uses information from the given sentences to introduce Marie Hall to a new audience?

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- Antonio Stradivari (1644–1737) was an Italian instrument maker.
- He made about 1,000 violins in his lifetime.
- Musicians prize his Stradivarius violins for their famed sound quality.
- The Marie Hall Stradivarius is named for former owner Marie Hall, a British violinist.

A. The Marie Hall Stradivarius is named after Marie Hall.

B. Of the 1,000 or so violins Antonio Stradivari made, only about 500 exist today.

C. Marie Hall was a British violinist who once owned a Stradivarius violin.

D. Born in 1644, Antonio Stradivari was an Italian instrument maker whose violins are famous for their quality.

26.

The student wants to compare the length of time Fannie May Salter and Ida Lewis worked as lighthouse keepers. Which choice most effectively uses relevant information from the notes to accomplish this goal?

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

- Lighthouses send out crucial light signals to help ships and other watercraft navigate at night.
- Before automation, lighthouses were run by lighthouse keepers.
- Fannie May Salter was the lighthouse keeper at Turkey Point Light in Maryland.
- She held this position for twenty-two years (1925–1947).
- Ida Lewis was the lighthouse keeper at Lime Rock Light in Rhode Island.
- She held this position for fifty-four years (1857–1911).

A. From 1925 to 1947, the nighttime waters of Maryland were more navigable thanks to lighthouse keepers Fannie May Salter and Ida Lewis.

B. Fannie May Salter worked as a lighthouse keeper for twenty-two years, but Ida Lewis did so for even longer: fifty-four years.

C. Fannie May Salter and Ida Lewis were both lighthouse keepers at a time when such a person was needed to operate a lighthouse.

D. Before automation, lighthouse keepers like Fannie May Salter, who served for twenty-two years, and Ida Lewis were crucial to ensuring safe navigation for watercraft.

DualPrep

27.

The student wants to emphasize a difference between the meters of the two poems. Which choice most effectively uses relevant information from the notes to accomplish this goal?

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

- The meter of a poem is the rhythmic structure or pattern of accents in its lines.
- Alliterative meter is structured by a pattern of repeated sounds.
- Quantitative meter is structured by a pattern of long and short syllables.
- The Old English poem Widsith uses an alliterative meter.
- The Sanskrit poem Meghadūta uses a quantitative meter.

A. The Sanskrit poem Meghadūta uses a quantitative meter, while the meter of the Old English poem Widsith uses a pattern of long and short syllables.

B. The poem Widsith is written in Old English, but Meghadūta is written in Sanskrit.

C. Alliterative meter is a pattern of repeated sounds, but quantitative meter is a rhythmic structure or pattern of accents.

D. The lines of the poem Meghadūta use a pattern of long and short syllables, whereas Widsith's lines use a pattern of repeated sounds.

DualPrep

B. 72

Module 1 math

1.

If $9x + 4 = 67$, what is the value of $90x + 40$?

A. 7

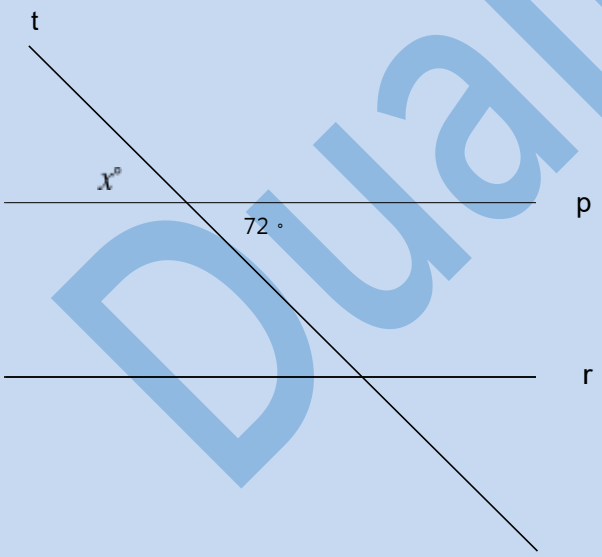
B. 70

C. 130

D. 670

DualPrep

2.



Note: Figure not drawn to scale.

In the figure, line p is parallel to line r, and line t intersects both lines. What is the value of x?

A. 36

B. 72

C. 180

D. 252

3.

A length of 450 meters is equal to how many decimeters? (1 meter = 10 decimeters)

4.

The equation $58 = 2x + 2y$ gives the perimeter of a rectangular garden that has length x, in feet, and width y, in feet. The width of the garden is 14 feet. What is the length, in feet, of the garden?

5.

The relationship between the variables x and y is defined by an exponential equation. When $x = 0$, the value of y is 40, and for every increase in the value of x by 1, the corresponding value of y increases by 50% of its previous value. Which equation represents this relationship?

A. $y = 40(1.50)^x$

B. $y = 40(1.05)^x$

C. $y = 50(1.40)^x$

D. $y = 50(1.04)^x$

6.

The function f is defined by $f(x) = \frac{1}{8x}$. What is the value of $f(x)$ when $x = 9$?

Answer: .0138

DualPrep

7.

The function f is defined by $f(x) = 3x - \frac{1}{4}$. What is the y-intercept of the graph of $y = f(x)$ in the xy-plane?

A. $(0, -\frac{1}{4})$

B. $(0, —3)$

C. $(0, 3)$

D. $(0, 4)$

8.

$$x + 6y = 28$$

$$6y = 14$$

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

Answer: 14

9.

The length of a side of square X is 9 centimeters. The area of rectangle Y is 32 square centimeters. What is the total area, in square centimeters, of square X and rectangle Y?

A. 145

B. 113

C. 82

D. 81

10.

During hibernation, American black bears do not eat or replenish calories. A certain black bear weighed 293 pounds when entering hibernation and lost weight at a mean rate of 0.9

DualPrep

pounds per day. At this rate, how many days after entering hibernation would the black bear weigh 230 pounds?

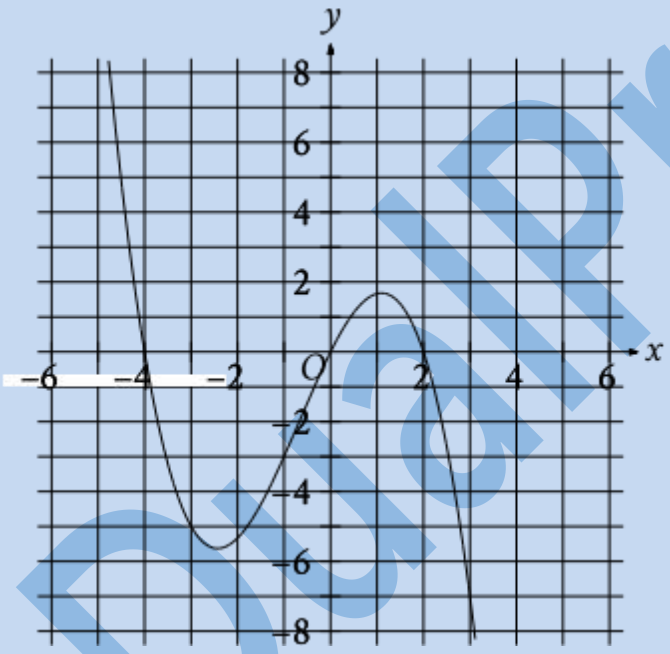
A. 57

B. 63

C. 70

D. 207

11.



The complete graph of $y = f(x)$ is shown. For how many values of x does $f(x) = 0$?

A. One

B. Two

C. Three

D. Four

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12.

$$b^2 + 4c = 7d$$

The given equation relates the real numbers b, c, and d, where $d > \frac{4}{7}c$. Which equation correctly expresses b in terms of c and d?

A. $b = \frac{7d+4c}{2}$

B. $b = \frac{7d-4c}{2}$

C. $b = \pm\sqrt{7d+4c}$

D. $b = \pm\sqrt{7d-4c}$

13.

$$x^2 - \frac{81}{16} = 0$$

How many distinct real solutions does the given equation have?

A. Zero

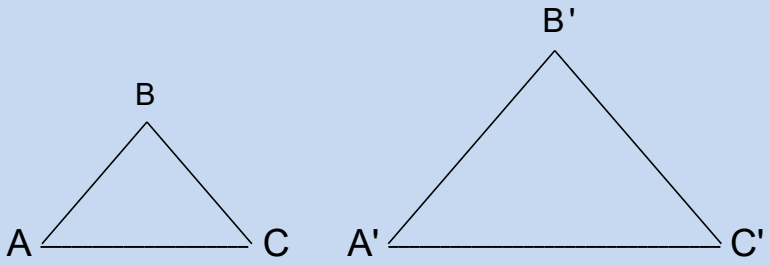
B. Exactly one

C. Exactly two

D. Infinitely many

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14.



Note: Figures not drawn to scale.

Triangles ABC and $A'B'C'$ are shown. Triangle ABC is dilated by a scale factor of 6 to form triangle $A'B'C'$. If the length of $\overline{AB}$ is 18, what is the length of $\overline{A'B'}$?

A. 3

B. 6

C. 24

D. 108

15.

What is the radius of the circle in the xy-plane defined by $(x + 3)^2 + (y + 9)^2 = 361$?

16.

In the xy-plane, which of the following does NOT contain any points that are part of the solution set to $5x - 7y > 35$?

A. The x-axis

B. The region where $x > 0$ and $y > 0$

C. The region where $x < 0$ and $y < 0$

D. The region where $x < 0$ and $y > 0$

DualPrep

17.

The table shows the distribution of people in a certain city by age group.

Age group	Proportion
Less than 18 years old	26%
18–40 years old	21%
41–65 years old	29%
Greater than 65 years old	24%

If a person in this city is selected at random, which of the following is closest to the probability of selecting a person who is greater than 65 years old, given that the person is at least 18 years old?

A. 0.24

B. 0.32

C. 0.50

D. 0.92

18.

Line h is defined by $\frac{1}{2}x + \frac{1}{9}y - 54 = 0$. Line j is perpendicular to line h in the xy-plane. What is the slope of line j?

A. $-\frac{9}{2}$

B. $-\frac{2}{9}$

C. $\frac{9}{2}$

D. $\frac{2}{9}$

DualPrep

19.

$$a, 26, 29, b, 31, 47, c$$

For the given data set, the data values are listed in ascending order, where a, b, and c are constants. For this data set, the mean is 36, the median is 29, and the range is 72. What is the value of c?

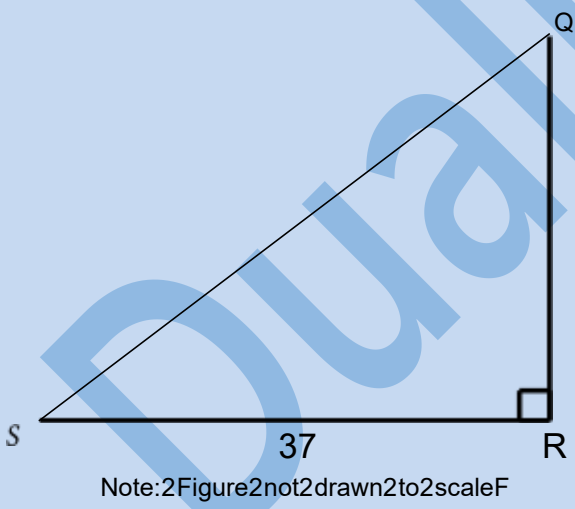
A. 54

B. 72

C. 81

D. 98

20.



Note:2Figure2not2drawn2to2scaleF

In triangle QRS shown, $QR < RS$. Which expression represents the length of $\overline{QS}$?

A. $37 \cos Q$

B. $37 \sin Q$

C. $\frac{37}{\cos Q}$

D. $\frac{37}{\sin Q}$

DualPrep

21.

$$y = 9\left(\frac{a}{7}\right)^{x+c} - b$$

How many times does the graph of the given equation in the xy-plane cross the x-axis, where a, b, and c are positive constants such that $a > 7$ and $b > c$?

A. Zero

B. One

C. Two

D. Three

22.

A certain town has an area of 4.29 square miles. What is the area, in square yards, of this town? (1 mile = 1,760 yards)

A. 410

B. 7,550

C. 722,051

D. 13,288,704

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Section: Section 2, Module 2: Math, Difficulty: easy (22 questions)

1.

What is 50% of 480?

A. 720

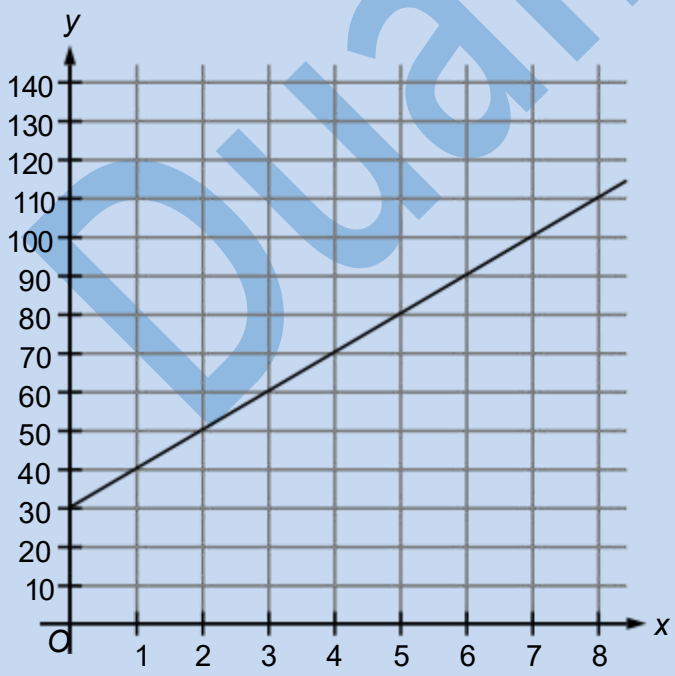
B. 480

C. 240

D. 48

2.

A biologist is studying the growth of a sunflower plant. The graph models the height y, in centimeters, of the sunflower plant after x weeks of observation.



According to the model, what is the estimated height, in centimeters, of the sunflower plant after 3 weeks of observation?

A. 3

B. 10

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C. 30

D. 60

3.

For a psychology class, a studentIs research paper needs to have no more than 5,000 words. If a student has already written 3,051 words, what is the maximum number of additional words the student can write for the research paper?

A. 8,051

B. 5,000

C. 3,051

D. 1,949

4.

During a 6-day period, a weather station recorded a total of 2.6 inches of rain and snow. During this period, the weather station recorded r inches of rain and s inches of snow. Which equation represents this situation?

A. $r + s = 2.6$

B. $r - s = 2.6$

C. $s - r = 2.6$

D. $rs = 2.6$

5.

$$y = 5x + 17$$

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

DualPrep

constants, what is the value of b?

6.

What value of p is the solution to the equation $p - 17 = 1$?

A. $\frac{1}{17}$

B. 16

C. 17

D. 18

7.

The equation $d = 25w + 100$ gives the total amount of money d, in dollars, that Janna plans to save w weeks after she starts to save. What is the total amount of money, in dollars, she plans to save in 10 weeks?

A. 300

B. 350

C. 400

D. 450

8.

A triathlon is a multisport race consisting of three different consecutive events. A triathlon participant plans to complete the cycling event with an average speed of 28,512 yards per hour. What is this average speed, in miles per hour? (1 mile = 1,760 yards)

9.

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Triangle ABC is similar to triangle DEF, where angle A corresponds to angle D, and angles C and F are right angles. If $\cos B = \frac{1}{24}$, what is the value of $\cos E$?

A. $\frac{1}{24}$

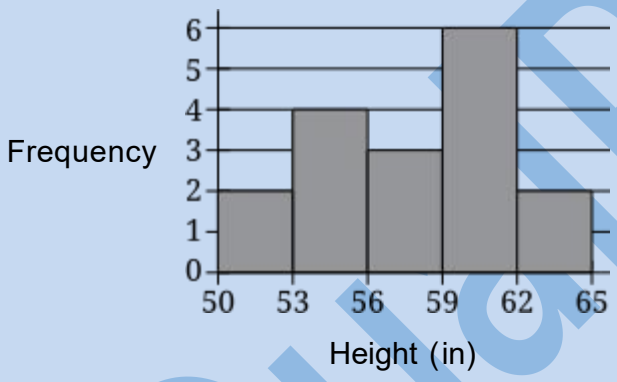
B. $\frac{1}{25}$

C. $\frac{23}{24}$

D. $\frac{24}{25}$

10.

For a project, Kayla recorded the heights of 17 people in her neighborhood. The histogram summarizes the heights, in inches (in), of these 17 people in Kaylals neighborhood. The first bar represents people with a height of at least 50 in but less than 53 in. The second bar represents people with a height of at least 53 in but less than 56 in, and so on.



How many of these 17 people in Kaylals neighborhood had a height of at least 50 in but less than 56 in?

11.

The table shows values of x and their corresponding values of y for three points on line j in the xy-plane.

x	y
0	—10
1	—4

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x	y
2	2

Line k also lies in the xy-plane and is defined by the equation $y = 4x$. At what point (x, y) do lines j and k intersect?

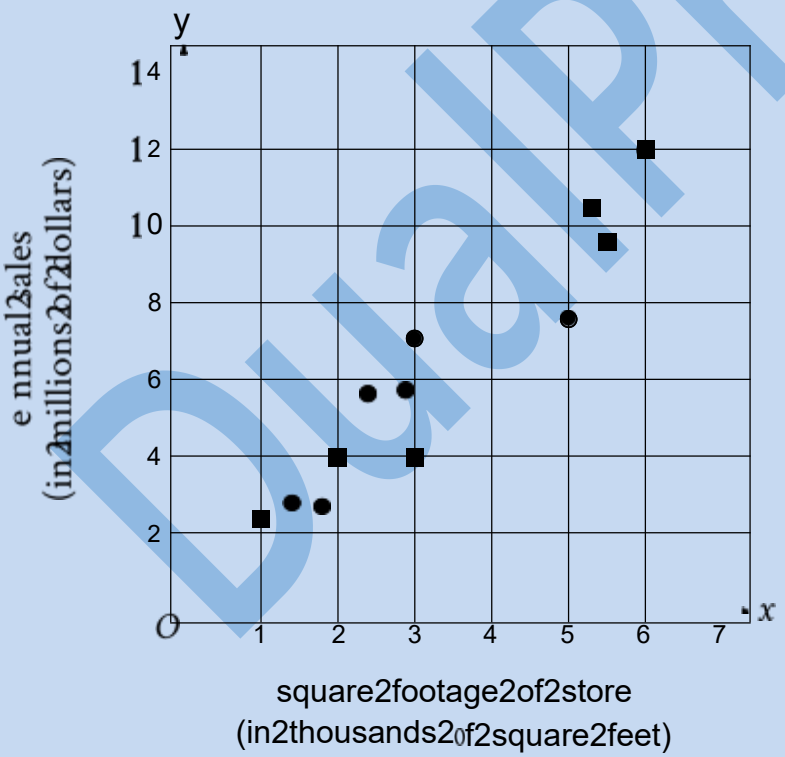
A. $(5, 20)$

B. $(5, —44)$

C. $(6, 24)$

D. $(6, 26)$

12.



The scatterplot shows the relationship between the square footage of 12 clothing stores and their annual sales, in millions of dollars. According to the trend shown by the data, which of the following is the best prediction for the annual sales, in millions of dollars, of a clothing store that is 4 thousand square feet?

A. 4.1

B. 5.4

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C. 7.5

D. 10.1

13.

In $\triangle FGH$, the measures of $\angle F$ and $\angle G$ are each $53°$. What is the measure of $\angle H$?

A. $143°$

B. $127°$

C. $106°$

D. $74°$

14.

Which expression is equivalent to $7xy(2x^2 + 9y)$?

A. $9x^3y + 16xy^2$

B. $14x^2y + 9y$

C. $14x^2y + 63xy$

D. $14x^3y + 63xy^2$

15.

$$\frac{27(k+5)}{3(k+5)}$$

The given expression is equivalent to c, where c is a constant and $k > -5$. What is the value of c?

DualPrep

16.

The graph of $y = \left(\frac{1}{9}\right)^x + 1$ in the xy-plane is shifted up 4 units. What is an equation of the resulting graph?

A. $y = \left(\frac{1}{9}\right)^{(x+4)} + 1$

B. $y = \left(\frac{1}{9}\right)^{(x-4)} + 1$

C. $y = 4\left(\frac{1}{9}\right)^x + 1$

D. $y = \left(\frac{1}{9}\right)^x + 5$

17.

The function $f(x) = 1{,}200(0.5)^{\frac{x}{17}}$ gives the predicted intensity of a beam f(x), in number of photons in the beam, x millimeters below the surface of a certain material. What is the best interpretation of f(17) = 600?

A.A beam at the surface of the material has a predicted intensity of 17 photons in the beam.

B.A beam at the surface of the material has a predicted intensity of 600 photons in the beam.

C.A beam 17 millimeters below the surface of the material has a predicted intensity of 600 photons in the beam.

D.A beam 600 millimeters below the surface of the material has a predicted intensity of 1,200 photons in the beam.

18.

$$x^2 + \left(\sqrt{k-3}\right)x + 42 = 0$$

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

A. 171

B. 168

C. 165

21.

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D. 45

19.

In the xy-plane, the graph of $y = 4x$ intersects the graph of $y = x^2 - 45$ at two points. What is the sum of the x-coordinates of the two points of intersection?

A. −45

B. −5

C. 4

D. 9

20.

For the linear function h, $h(0) = 0$ and $h(4) = 3$. Which equation defines h?

A. $h(x) = \frac{4}{3}x$

B. $h(x) = \frac{4}{3}x + 4$

C. $h(x) = \frac{3}{4}x$

D. $h(x) = \frac{3}{4}x + 3$

DualPrep

21.

$$(x - 16)(x - 12)(x + 9)(x + 19) = 0$$

What is a positive solution to the given equation?

22.

$$x^2 - 2x = 28$$

What is one of the solutions to the given equation?

A. $\sqrt{28}$

B. $1 + \sqrt{29}$

C. 29

D. $28 + \sqrt{2}$

1.

Zuri has a goal to run at least 16 miles per week while training for a race. This week, she has run 4 miles. If x represents the additional number of miles Zuri needs to run this week to meet her goal, which inequality represents this situation?

A. $4 - x \leq 16$

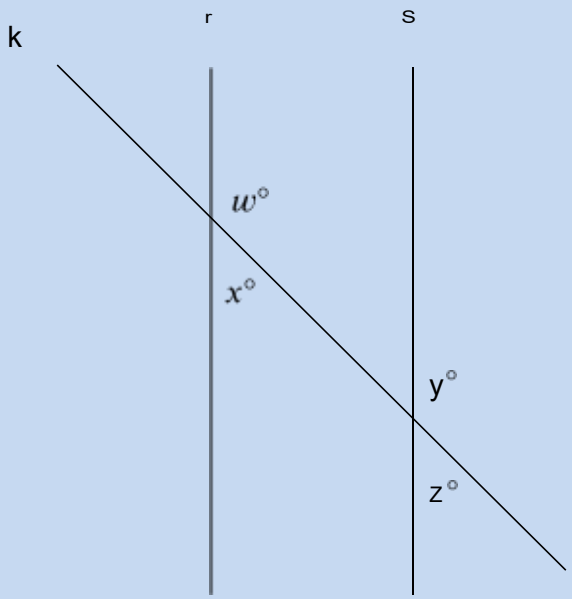
B. $4 + x \leq 16$

C. $4 - x \geq 16$

D. $4 + x \geq 16$

2.

DualPrep



Note: Figure not drawn to scale.

In the figure shown, line k intersects lines r and s. If w = 147, which additional piece of information is sufficient to prove that lines r and s are parallel?

A. x = 33

B. y = 147

C. w + y = 180

D. y + z = 180

3.

Number of food tickets	Total amount paid
10	$44.00
15	$51.50
25	$66.50

At a fundraiser, a family pays a fixed entrance fee. They then purchase food tickets, which each have the same cost. The table shows the relationship between the number of food tickets, x, that are purchased and the total amount paid y, in dollars, for both the entrance fee and the food tickets. Which equation represents the relationship between x and y?

Answer: B

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A. $y = \frac{3}{2}x + 29$

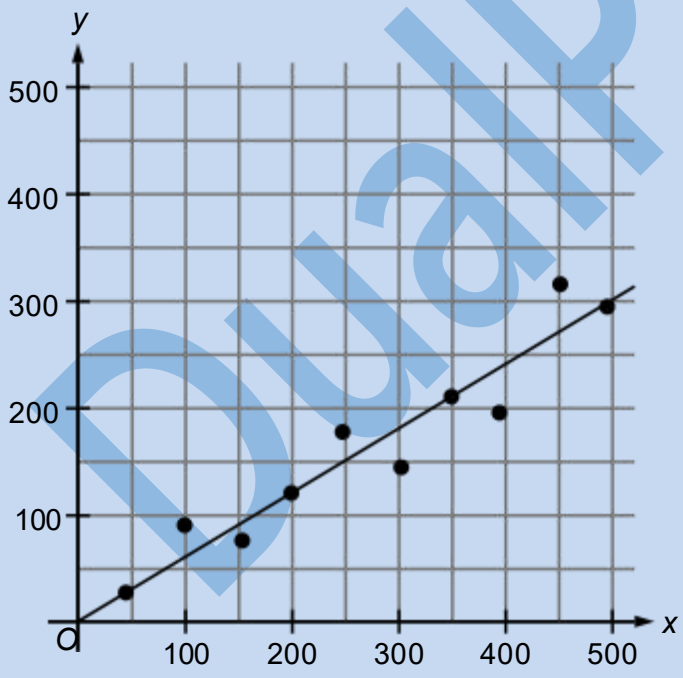
B. $y = \frac{3}{2}x - 56$

C. $y = \frac{2}{3}x + \frac{112}{3}$

D. $y = \frac{2}{3}x + \frac{58}{3}$

4.

A group of 10 gardeners recorded data on the germination rates of their tomato crop for one growing season. The scatterplot shows the relationship between the number of tomato seeds planted, x, and the number of tomato seeds that germinated, y, for each of the gardeners. A line of best fit is also shown.



Which of the following is the best interpretation of the slope of the line of best fit in this context?

A. The number of tomato seeds planted is predicted to increase by 60 seeds every 100 days.

B. The number of tomato seeds planted is predicted to increase by 300 seeds every 100 days.

Answer: B

DialPrep

C.The number of tomato seeds that germinate is predicted to increase by 60 seeds for every additional 100 tomato seeds that are planted.

E. The number of tomato seeds that germinate is predicted to increase by 300 seeds for every additional 100 tomato seeds that are planted.

5.

The graph of $2x + y = 11$ in the xy-plane is a line. What is the slope of the line?

6.

$$f(x) = 2x + 3$$

$$g(x) = 7x - 2$$

$$h(x) = 5x + 6$$

The functions f, g, and h are defined as shown. If $f(x) \cdot g(x) - h(x) = ax^2 + bx + c$, where a, b, and c are constants, what is the value of b?

A. −5

B. 12

C. 20

D. 22

The function f is defined by $f(x) = \frac{x+11}{5}$, and f(a) = —18, where a is a constant. What is the value of a?

A. —101

B. —79

C. $-\frac{79}{5}$

D. $-\frac{7}{5}$

Answer: B

DualPrep

8.

The table shows values of x and their corresponding values of y for three points on line j in the xy-plane.

x	y
0	—10
1	—4
2	2

Line k also lies in the xy-plane and is defined by the equation $y = 4x$. At what point (x, y) do lines j and k intersect?

A. $(5, 20)$

B. $(5, —44)$

C. $(6, 24)$

D. $(6, 26)$

9.

$$h(t) = —16t^2 + b$$

The function h estimates an objectIs height, in feet, above the ground t seconds after the object is dropped, where b is a constant. The function estimates that the object is 19.36 feet above the ground when it is dropped at $t = 0$. How many seconds after being dropped does the function estimate the object will hit the ground?

Answer: 1.1

10.

$$|4x — 3| = —9$$

How many solutions does the given equation have?

Answer: B

DualPrep

A. Zero

B. One

C. Two

D. Infinitely many

11.

The function h is defined by $h(x) = a^x + b$, where a and b are positive constants. The graph of $y = h(x)$ in the xy-plane passes through the points $(0, 10)$ and $(2, 13)$. What is the value of ab?

A. 13

B. 18

C. 20

D. 26

DualPrep

Answer: B

12.

A circle has center P, and points A and B lie on the circle. The measure of arc AB is 45 ° and the length of arc AB is 4π units. What is the length, in units, of the radius of the circle?

13.

The function f is defined by $f(x) = 56(0.19)^x$. For any positive integer n, the value of f(n) is p% less than the value of f(n — 1). What is the value of p?

A. 19

B. 44

C. 56

D. 81

14.

$$x^2 + \left(\sqrt{k-3}\right)x + 42 = 0$$

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

A. 171

B. 168

C. 165

D. 45

15.

$$x^2 + y^2 = 36$$

$$y = mx + \frac{b}{4}$$

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In the given system of equations, m and b are negative constants. In the xy-plane, the graphs of the equations in the given system intersect at the point (—5, y), where y < 0. Which expression represents the value of b?

A. $-\frac{5m}{4}+\frac{\sqrt{11}}{4}$

B. $\frac{5m}{4}-\frac{\sqrt{11}}{4}$

C. $-20m+4\sqrt{11}$

D. $20m-4\sqrt{11}$

16.

A biologist mixed a solution that is 0.3% sodium chloride by mass with a solution that is 0.15% sodium chloride by mass to obtain a new solution, which has a mass of 80 grams and contains 0.21 grams of sodium chloride. How many grams of 0.3% sodium chloride solution did the biologist use?

A. 0.14

B. 20

C. 60

D. 79.86

17.

For data set A, the table summarizes the distribution of the number of pieces of mail received by a business each day during a period of 11 days.

Pieces of mail	Days
0	2
3	2
4	2
5	2
6	1

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Pieces of mail	Days
7	1
13	1

The data value 13 is removed from data set A to create data set B, which consists of the remaining 10 data values. Which statement best compares the median of data set A and the median of data set B?

A. The median of data set B is less than the median of data set A.

B. The median of data set B is greater than the median of data set A.

C. The median of data set B is equal to the median of data set A.

D. There is not enough information to compare the medians of the two data sets.

18.

$$\frac{x}{5} + \frac{y}{9} = \frac{47}{45}$$

An engineer connects resistors in series, where the resistors in the series have a total resistance of $\frac{47}{45}$ ohms. In this series, there are x resistors of type A, which each have a resistance of a ohms, and y resistors of type B, which each have a resistance of b ohms. The given equation represents this situation. According to this equation, what is the positive difference between the value of a and the value of b?

A. 47

B. 4

C. $\frac{47}{45}$

D. $\frac{4}{45}$

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19.

$$9x^2 + 8 = nx$$

In the given equation, n is a constant. The equation has exactly one solution. What is the value of $\frac{n^2}{8}$?

20.

The table gives the areas and perimeters of two similar rectangles, where n is a constant.

	Area (square inches)	Perimeter (inches)
Rectangle A	630	210
Rectangle B	2,520	n

What is the value of n?

A. 2,100

B. 1,680

C. 840

D. 420

21.

The mass of object A is 444% of the mass of object B, and the mass of object A is 0.740% of the mass of object C. If the mass of object C is p% of the mass of object B, what is the value of p?

22.

Which expression is a factor of $y^2(x - 3) - 25(x - 3)^3$?

A. $y(x - 3)$

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B. $(x - 5)(x - 3)$

C. $y + x - 3$

D. $y + 5x - 15$

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