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SAT PRACTICE TEST PDF

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> **Important:** This is an independent MyCollegeBook practice test, not an official College Board test. It is nonadaptive: Module 2 is fixed and does not change based on Module 1 performance. The online MyCollegeBook Practice Test 1 uses these same questions.

How to use this PDF

- Complete Reading and Writing Module 1 and Module 2, then take a break.
- Complete Math Module 1 and Module 2. Use the time limits shown for each module.
- Do not open the answer key until you have finished the test.
- The answer key and explanations begin after all test-taking pages.

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Reading and Writing
27 + 27 questions · 32 + 32 minutes

Math
22 + 22 questions · 35 + 35 minutes

Testing time: 2 hours 14 minutes, excluding the break between sections. A raw score can be counted from the answer key; a scaled score cannot be inferred without a verified test-specific conversion method.

MYCOLLEGEBOOK PRACTICE TEST 1

Reading and Writing — Module 1

27 questions · 32 minutes · fixed, nonadaptive printable module

Question 1

Multiple choice

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.

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

A. match

B. disturb

C. replace

D. exceed

Question 2

Multiple choice

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.

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

A. esoteric

B. authoritative

C. solitary

D. speculative

Question 3 Multiple choice

> 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.

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

A. Familiarity
B. Domination
C. Comprehension
D. Skillfulness

Question 4 Multiple choice

> 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.

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

A. diversion from
B. catalyst of
C. constraint to
D. sponsor of

Question 5 Multiple choice

> 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 _____.

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

A. exorbitant
B. contentious
C. equivocal
D. warranted

Question 6 Multiple choice

> 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.

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

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.

Question 7 Multiple choice

> 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.

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

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.

Question 8 Multiple choice

> 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.

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

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.

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.

Question 9 Multiple choice

> *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.

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

A. A book publisher

B. A literary critic

C. A bookseller

D. An author

Question 10 Multiple choice

Millions of Metric Tons of Copper Mined in 1995 and 2020

Country	1995	2020
Indonesia	0.44	0.51
Mexico	0.33	0.73
Peru	0.38	2.15
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 _____.

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

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.

Question 11 Multiple choice

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: _____

Which quotation from *Peter Pan* best supports the claim?

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.”

Question 12 Multiple choice

> *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: _____

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

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

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."

Question 13 Multiple choice

> The Rarámuri language of northern Mexico has 20 vowel and consonant sounds. In contrast, the Taa language of southern Africa has over 100. 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.

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

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.

Question 14 Multiple choice

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 José González'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 _____.

Which choice most logically completes the text?

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.

Question 15 Multiple choice

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 _____.

Which choice most logically completes the text?

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.

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.

Question 16 Multiple choice

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.

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

A. lost and conversely,

B. lost, conversely,

C. lost. Conversely,

D. lost, and conversely

Question 17 Multiple choice

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.

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

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

Question 18 Multiple choice

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.

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

A. support. Decreasing
B. support decreasing
C. support, while decreasing
D. support, decreasing

Question 19 Multiple choice

_____ 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.

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

A. Pennsylvania would officially become
B. Pennsylvania had officially become
C. Pennsylvania officially became
D. Pennsylvania, having officially become

Question 20 Multiple choice

> 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.

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

A. has been revisited
B. have been revisited
C. revisited
D. having been revisited

Question 21 Multiple choice

> 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.

Which choice completes the text with the most logical transition?

A. For example,
B. However,
C. Regardless,
D. Next,

Question 22 Multiple choice

> 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 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.

Which choice completes the text with the most logical transition?

A. On the other hand,
B. Previously,
C. For example,
D. In other words,

Question 23 Multiple choice

> 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.

Which choice completes the text with the most logical transition?

A. On the other hand,
B. That is,
C. For instance,
D. There,

Question 24 Multiple choice

> 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.

Which choice completes the text with the most logical transition?

A. regardless;
B. in other words;
C. for instance;
D. however,

Question 25 Multiple choice

> 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.

Which choice completes the text with the most logical transition?

A. Specifically,
B. Earlier,
C. Hence,
D. Similarly,

Question 26 Multiple choice

> 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.

Which choice completes the text with the most logical transition?

A. Thus,

B. By contrast,

C. Even so,

D. Nevertheless,

Question 27 Multiple choice

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

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

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.

Reading and Writing — Module 2

27 questions · 32 minutes · fixed, nonadaptive printable module

Question 28 Multiple choice

Louisa May Alcott contributed *A Modern Mephistopheles* to the *No Name Series*, a collection of novels published anonymously between 1876 and 1887. The series challenged readers to guess authors' identities, reflecting the era's fascination for literary mystery. This _____ approach to publishing allowed Alcott to experiment beyond her established style.

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

A. preliminary
B. clandestine
C. unequivocal
D. inexplicable

Question 29 Multiple choice

Though copies of *The Adventures of Indiana Jones in Wenceslas Square in Prague on January 16, 1989*—an underground computer game created anonymously in 1989 as an act of political protest against the authoritarian regime of what was then Czechoslovakia—were originally distributed _____, the game is now readily available online for anyone to play.

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

A. surreptitiously
B. disingenuously
C. succinctly
D. dispassionately

Question 30 Multiple choice

In their study of caterpillars in fragmented forests (formerly contiguous forests that have been broken into isolated patches by roads or other interruptions), Riley M. Anderson et al. stress that although fragmentation inevitably _____ alterations to local ecological processes, the changes will likely have a greater impact on *Nola triquetrana*, a specialist feeding on a limited number of plant species, than on a species like *Himella intractata* that feeds on several.

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

A. engenders
B. preempts
C. subsumes
D. attenuates

Question 31 Multiple choice

> Yuen Yuen Ang et al. argue that merely tallying the number of patents filed per year _____ the degree of innovation occurring: truly novel patents—those, like a 2011 patent for an automated navigation system for planes, that combine previously unaffiliated technological domains—are vastly outnumbered by nonnovel patents (e.g., a 2008 patent for a method of making soup).

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

A. belies

B. portends

C. thwarts

D. maligns

Question 32 Multiple choice

> Magical realism, a style that weaves fantasy into realistic narratives, coalesced in Latin America in the 1960s. It is associated with Gabriel García Márquez, whose *One Hundred Years of Solitude* is a key text. The style was embraced by Mexican American writers, such as Ana Castillo, whose *So Far from God* draws on Mexican folktales as a source of fantasy. Yet *The Mixquiahuala Letters*, also by Castillo, features no fantastical plot events. And despite his popular reputation, García Márquez himself wrote several works of strict realism, including *Chronicle of a Death Foretold*.

Which choice best states the function of the underlined sentence?

A. To identify an unrecognized point of similarity between *Chronicle of a Death Foretold* and *So Far from God*

B. To suggest that Mexican American authors who were influenced by García Márquez may have, in turn, influenced him

C. To refute the possible impression that García Márquez conformed to magical realism in all of his works

D. To challenge the common assumption that *One Hundred Years of Solitude* is superior to realist works by García Márquez

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Question 33 Multiple choice

Text 1:
Sidebells wintergreen (*Orthilia secunda*) plants are native to Alaska, where harsh conditions have historically impeded potential invasive species. As the boreal climate has warmed in recent decades, however, Siberian peashrub (*Caragana arborescens*) plants have established themselves in Alaska. Previous research conducted in non-boreal ecosystems has documented warming-induced increases in summer temperatures benefiting invasive species more than native species.

Text 2:
At a site near Fairbanks, Alaska, Christa Mulder and Katie Spellman tracked *O. secunda* and *C. arborescens*, along with other native and invasive species, over several years. They observed that although average summer temperatures were substantially higher in some years of the study than in others, neither *O. secunda* nor *C. arborescens* showed any significant variation in summer growth patterns from year to year.

Which choice best describes the relationship between the two texts?

A. Text 2 describes a methodology that helps researchers avoid a problem encountered in the studies discussed in Text 1.

B. Text 2 explains a study that suggests an alternative explanation for the trend observed in the research discussed in Text 1.

C. Text 2 discusses an observation that challenges the validity of the findings described in Text 1.

D. Text 2 presents a finding that casts doubt on the generalizability of the research discussed in Text 1.

Question 34 Multiple choice

Linguist John McWhorter asserts that translation apps for smartphones and computers are—despite generally failing to convey many nuances—increasingly obviating the need to learn new languages. Advances in language processing technology have greatly boosted the utility of these apps for perfunctory tasks, like inquiring about an item on a menu and passing interactions; be that as it may, richer communication (e.g., in business dealings or meaningful personal exchanges) often hinges on conversational patterns and gradations of meaning.

What does the text most directly suggest about translation apps?

A. They have improved remarkably over time but remain insufficient to support the complexity called for in certain interactions.

B. They are coming to be embraced by international tourists but are viewed with skepticism by many business professionals.

C. They are becoming simpler to use but are inconsistent in how comprehensively they cover different languages.

D. They have gained impressive capabilities but continue to be widely viewed as inadequate for most practical purposes.

Question 35

Multiple choice

Optimal foraging theory (OFT) holds that animals' foraging behaviors reflect cost-benefit trade-offs that vary by species and with dynamic ecological circumstances. One such circumstance is lunar intensity, which Mary V. Price and colleagues found to be negatively associated with foraging by white-throated woodrats but Simon Kenneth Bearder and colleagues found to be positively associated with foraging by Mohol bushbabies. This discrepancy is explicable in terms of OFT: the bushbabies' greater reliance on vision means that higher lunar intensity benefits them more than it benefits the woodrats.

Information in the text best supports which statement about Mohol bushbabies?

A. If increased lunar intensity imposed the same costs on the bushbabies that it imposes on white-throated woodrats, there would be no association between lunar intensity and the bushbabies' foraging.

B. If the advantages that the bushbabies gain from increased lunar intensity explain the change in their foraging behavior, those advantages are likely shared by some other species that are not heavily reliant on vision.

C. If increased lunar intensity creates any disadvantages for the bushbabies, those disadvantages are more than compensated for by the advantages that the bushbabies gain.

D. If the bushbabies' foraging behavior under increased lunar intensity actually reflects a cost-benefit trade-off, their behavior should be more similar to that of white-throated woodrats than it is.

Question 36

Multiple choice

Effect of Various Soil Treatments on Mean Pineapple Fruit Weight and Size

Soil treatment	Weight (grams)	Length (centimeters)	Diameter (centimeters)
Control	825.9	6.14	13.63
Biochar	915.7	6.56	13.63
Compost	864.8	6.15	13.22
Biochar and compost	979.3	6.76	13.68
Biochar and NPK fertilizer	1032.1	6.78	13.96

Working in Ghana, Emmanuel Hanyabui and colleagues compared the impact on pineapple growth of different combinations of soil additives, including NPK fertilizer (an inorganic fertilizer containing nitrogen, phosphorus, and potassium), organic compost, and biochar (a carbon-rich material produced from organic waste matter). Based on data in the table, pineapple farmers with no access to inorganic soil additives would likely increase the weight and size of their fruits by the greatest amount by using _____.

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

A. biochar and NPK fertilizer.

B. biochar and compost.

C. biochar alone.

D. compost alone.

Question 37 Multiple choice

Percentages of New Year's Resolution Makers Who Make Certain Kinds of Resolutions

Type of resolution	Age 18–29	Age 30–49	Age 50–64	Age 65+
Health and exercise	79	80	79	76
Finances	68	63	56	47
Personal relationships	63	53	58	52
Hobbies	65	53	51	45

A Pew Research Center survey conducted in January 2024 found that three out of ten US adults make at least one New Year's resolution (a promise for the year ahead), while half of those who make a resolution make more than one. The survey asked participants what kinds of resolutions they made and separated them into several categories. The table presents percentages of people who make particular kinds of New Year's resolutions among those who choose to make them, indexed by age bracket.

Which choice best presents a conclusion about the habits of New Year's resolution makers that is best supported by information in the text and the table?

A. The majority of US adults who make resolutions related to health and exercise also make resolutions in multiple additional categories.

B. Resolution makers between the ages of 50 and 64 are more likely to make resolutions related to personal relationships and less likely to make resolutions related to finances than resolution makers between the ages of 30 and 49 are.

C. Among all US adults, people become less likely to make New Year's resolutions as they age, regardless of the type of resolution.

D. Resolution makers between the ages of 18 and 29 are more likely to make resolutions about health and exercise than resolution makers between the ages of 30 and 49 are.

Question 38 Multiple choice

Richard II is a play from the 1590s by William Shakespeare. Although King Richard has been vanquished by his cousin Henry Bolingbroke, he intimates that he is not entirely ready to show subservience to his cousin, saying, _____

Which quotation from *Richard II* most effectively illustrates the claim?

A. "Am I both priest and clerk? Well then, amen. / God save the King! although I be not he; / And yet, amen, if heaven do think him me."

B. "I have no name, no title,— / No, not that name was given me at the font,— / But 'tis usurp'd:— Alack the heavy day, / That I have worn so many winters out, / And know not now what name to call myself!"

C. "Still my griefs are mine. / You may my glories and my state depose, / But not my griefs; still am I king of those."

D. "Alack, why am I sent for to a king, / Before I have shook off the regal thoughts / Wherewith I reign'd? I hardly yet have learn'd / To insinuate, flatter, bow, and bend my knee."

Question 39 Multiple choice

Scholars cite *Men of Maize*, the 1949 novel by Guatemalan author Miguel Ángel Asturias, as a foundational text of magical realism, the Latin American style of fiction in which antirealistic plot devices—often borrowed from the spiritual and narrative traditions of Indigenous and colonial societies in the Americas—are deployed in an otherwise realistic mode of representation typical of the modern novel. This style has exerted a decisive influence on authors in the United States, including Susan Power, whose 1994 novel *The Grass Dancer* resembles classic magical realist novels in its juxtaposition of literary realism with long-established cultural traditions—namely, those of the Dakota people of the northern plains.

Which quotation from a literary scholar would most directly support the claim in the underlined portion of the text?

A. "The cultural traditions of the Dakota people of the northern plains, which figure so prominently in the magical realist tradition of Latin America, permit realistic as well as antirealistic scenarios—much as *The Grass Dancer* does."

B. "Although much of *The Grass Dancer* conforms to the conventions of realistic fiction, Susan Power also incorporates elements drawn from Dakota cultural traditions that transcend and expose the limitations of realism."

C. "Even though *The Grass Dancer* alternates between realistic and antirealistic modes of representation, the influence of Dakota cultural traditions remains constant throughout the novel."

D. "Much of the interest of *The Grass Dancer* derives from the productive tension between its competing influences—namely, Dakota cultural traditions and the magical realism of Latin America."

Question 40 Multiple choice

While mammals collectively exhibit the highest ratio of brain size to body size among vertebrates, a team led by paleontologist Ornella Bertrand demonstrates that for ten million years following the extinction of dinosaurs, that ratio in fact shrank for mammals as they evolved to fill newly vacated ecological niches and their bodies increased in size more rapidly than their brains. Competition for resources tends to favor intelligence and thus large, complex brains, but during this period, the abundance of resources relative to mammalian population numbers likely moderated competition and facilitated an increase in body size. Bertrand and her team reason that as population numbers swelled, competition intensified, creating conditions that _____.

Which choice most logically completes the text?

A. favored an evolutionary increase in brain size relative to body size among mammals.

B. restricted resources so drastically that mammals struggled to secure enough food to maintain large brain sizes.

C. encouraged mammals with large brain sizes to adapt to a range of ecological niches.

D. heightened the advantage that large body size conferred on mammals in certain ecological niches.

Question 41 Multiple choice

> Duckweed is a small freshwater plant that is often exposed to zinc pollution. Sofia Vámos and colleagues collected samples of four duckweed ecotypes (genetically and geographically distinct populations within a species), along with water from each ecotype's habitat. Hypothesizing that each ecotype is adapted to its local conditions in ways that bolster its growth and resistance to pollutants, the researchers grew each ecotype in all four water samples and with three levels of zinc (none, low, high). (The researchers did not replicate local differences in light or temperature.) They found that the ecotypes grew equally well in all four water samples and that adding zinc consistently enhanced growth, regardless of concentration, suggesting that _____.

Which choice most logically completes the text?

A. there may not be significant differences in the water that each ecotype inhabits, but there are significant differences in each ecotype's resistance to zinc pollution.

B. if each ecotype is indeed locally adapted as the researchers hypothesized, those adaptations are to other environmental conditions than the water each ecotype inhabits.

C. while the ecotypes are genetically and geographically distinct, those differences do not represent adaptations to local environmental conditions.

D. although the researchers' hypothesis does not appear to be supported, this may be because the levels of zinc exposure the plants in the experiment received did not match their exposure in their natural environments.

Question 42 Multiple choice

> Enacted in 1991, Latvia's 4,917-word constitution, in contrast to Chile's, which was enacted in 1980 and contains a far greater number (25,821) of words, _____ as the 4th shortest in the world. Such data are studied by constitutional scholars like Dominic J. Nardi, who can use them to draw broader conclusions.

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

A. ranks

B. have ranked

C. rank

D. are ranking

Question 43 Multiple choice

> Astronomers Annie and Edward Maunder meticulously studied historical records of dark areas on the sun's surface known as sunspots. Their work in the late 1800s led to the identification of a period from 1645 to 1715—now known as the Maunder _____ sunspots were notably scarce, a phenomenon that solar physicists continue to investigate.

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

A. Minimum—when

B. Minimum when

C. Minimum: when

D. Minimum, when

Question 44 Multiple choice

To British musician Jacob Collier, substituting the II chord for the ♭vii chord—its opposite in pitch and tone—adds expression to improvisation without creating dissonance. This conceptualization of harmonic opposites did not originate with _____ in 1985, the idea was first articulated in Swiss musicologist Ernst Levy's posthumously published book *A Theory of Harmony*.

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

A. Collier, though

B. Collier, though;

C. Collier, though,

D. Collier; though,

Question 45 Multiple choice

The statement "all tarantulas are venomous" is scientific because it could be proved false by a single observation to the contrary, according to Karl Popper. Popper's theory _____ that scientific hypotheses must be refutable, termed the criterion of falsifiability, rejects the confirmationist position that uses verifiability as the standard for scientific hypotheses.

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

A. dictated

B. was dictating

C. dictating

D. dictates

Question 46 Multiple choice

Novelist and playwright Mary Russell Mitford joined with 55 other prominent British writers in 1837 to petition the US Congress for greater copyright protections. This cadre of renowned _____ that American publishers' appropriation of their work caused, in the words of the petition, "deep and extensive injuries...on their reputation and property," helped sow the seeds for the International Copyright Act of 1891.

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

A. authors asserted

B. authors, asserting

C. authors, had asserted

D. authors were asserting

Question 47 Multiple choice

As anthropologist Cristina Grasseni explains, many artisanal cheeses in Italy, such as Provolone Valpadana from Trentino-Alto Adige and Ragusano from Sicily, are highly valued for their regional authenticity; _____ they are prized for being made using local ingredients and methods typical of their respective geographic regions.

Which choice completes the text with the most logical transition?

A. that is,
B. still,
C. rather,
D. then,

Question 48 Multiple choice

The early Australian railroad system of the 1800s was famously uncoordinated. Trains on the broad gauge Victorian Goldfields Railway line in Victoria couldn't travel on the Hotham Valley Railway in Western Australia, which used narrow gauge tracks, without performing time-consuming conversions. _____ historians refer to this complicated system as the "mixed gauge muddle."

Which choice completes the text with the most logical transition?

A. Rather,
B. Hence,
C. For example,
D. Likewise,

Question 49 Multiple choice

When ordering the branches of the Yukon River system, cartographers tend to begin with the riverway's lowest point, the Yukon River. _____ hydrologists begin at the top of the river system, with the Iditarod River and other tributaries fed by the riverway's source, Alaska's Llewellyn Glacier.

Which choice completes the text with the most logical transition?

A. In a similar way,
B. By contrast,
C. For example,
D. In other words,

Question 50 Multiple choice

> Charles Demuth's 1931 painting *Chimney and Water Tower* is a classic Precisionist work. The Precisionists strove for cold, machine-like perfection, with crisp lines, geometric shapes, and smooth, brushstroke-free surfaces. _____ Precisionist works often feature skyscrapers, bridges, and factories, highlighting these angular structures' engineered symmetry.

Which choice completes the text with the most logical transition?

A. However,

B. That said,

C. Accordingly,

D. In the end,

Question 51 Multiple choice

> As volcanologists like Tamsin Mather are apt to make clear, not all volcanoes are the same. Ischia in Italy, for example, is a complex volcano, a mixed landform consisting of related volcanic centers and their associated lava flows and pyroclastic rock. Mount Vsevidof in Alaska, _____ is a stratovolcano, a conical volcano built up by many layers of hardened lava and tephra.

Which choice completes the text with the most logical transition?

A. in any case,

B. in contrast,

C. in fact,

D. in conclusion,

Question 52 Multiple choice

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

- 1914: British explorer Ernest Shackleton and a small crew embarked on an expedition to Antarctica.
- 1915: Shackleton's ship *Endurance* became stuck in ice before eventually breaking apart and sinking.
- 1916: After more harrowing sea-ice adventures, the entire crew was rescued.
- 1959: Historian Alfred Lansing wrote a book called *Endurance: Shackleton's Incredible Voyage.*
- 2001: Filmmaker George Butler released a documentary called *The Endurance: Shackleton's Legendary Antarctic Expedition.*
- 2022: The wreckage of *Endurance* was discovered at the bottom of Antarctica's Weddell Sea.

The student wants to provide a historical overview of the Shackleton expedition. Which choice most effectively uses relevant information from the notes to accomplish this goal?

A. Alfred Lansing wrote about the history of Shackleton's 1914–16 expedition in the book *Endurance: Shackleton's Incredible Voyage* (1959); years later, in 2001, George Butler released a documentary about the expedition.

B. In 1914, the Shackleton expedition sailed to Antarctica, where, in 1916, they rescued the crew of a ship that had sunk, *Endurance* (the wreckage of which was discovered in 2022).

C. Leaving in 1914 for Antarctica, Shackleton and his crew underwent many harrowing sea-ice adventures, including losing their ship in 1915, before being rescued in 1916.

D. Shackleton's expedition has inspired a 1959 book, a 2001 film, and a 2022 discovery.

Question 53 Multiple choice

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

- Louis Ballard was a classical composer and citizen of the Quapaw Tribe.
- Ballard's composition *Desert Trilogy* was nominated for the Pulitzer Prize in music in 1971.
- His composition *Cacéga Ayuwípi* incorporates Hopi notched sticks, a traditional Native instrument.
- Ethnomusicologist Tara Browner claims that Ballard's compositions rely on elements originating within Native musical traditions.

The student wants to support Browner's claim about Louis Ballard's compositions. Which choice most effectively uses relevant information from the notes to accomplish this goal?

A. Classical composer Louis Ballard, who wrote *Cacéga Ayuwípi*, was nominated for the Pulitzer Prize in music in 1971.

B. Browner claims that Louis Ballard's compositions, one of which was nominated for the Pulitzer Prize, rely on elements originating within Native musical traditions.

C. According to Browner, composer Louis Ballard, who wrote *Desert Trilogy*, relies on elements with origins in Native musical traditions.

D. Browner posits that Louis Ballard's compositions rely on elements originating within Native musical traditions; *Cacéga Ayuwípi* affirms this assertion, incorporating Hopi notched sticks.

Question 54 Multiple choice

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

- The farm-size transition hypothesis predicts that economic pressures associated with modernization result in smaller farms amalgamating into larger-scale commercial farms.
- Masters et al. (2013): The average farm size in Asia "already has or will soon begin to rise."
- Promkhambut et al. (2023) argue that small rice farms in Thailand have adopted modern farming methods without a significant scaling-up of farm size.
- Promkhambut et al.: "The persistence of [small] rice farms [in Thailand] does not represent a 'failure' to modernize...or a 'truncated' transition—it is a response to modernization."

The student wants to make and support a claim regarding the applicability of the farm-size transition hypothesis to Thailand. Which choice most effectively uses relevant information from the notes to accomplish this goal?

A. Although the farm-size transition hypothesis may be applicable to some countries in Asia, it is inconsistent with the development of rice farming in Thailand.

B. Taken together, the studies by Masters et al. and Promkhambut et al. suggest that rice farms in Thailand have responded to the economic pressures associated with modernization by expanding in size.

C. Masters et al. report that the average farm size "already has or will soon begin to rise" in Asia, a finding that is consistent with the farm-size transition hypothesis.

D. The predicted shift to large-scale commercial farming may not hold true for rice farms in Thailand, where, according to Promkhambut et al., rice farms have remained small as they've modernized.

Math — Module 1

22 questions · 35 minutes · fixed, nonadaptive printable module

Question 55 Multiple choice

The function g is defined by $g(x) = 4x + 2$. What is the value of $g(x)$ when $x = 2$?

A. 0

B. 2

C. 4

D. 10

Question 56 Student-produced response

An event planner is planning an ice-skating event. It costs the event planner a onetime fee of $35 to rent the skating rink and $15.25 per attendee. The event planner has a budget of $225. What is the greatest number of attendees possible without exceeding the budget?

Response: _____

Question 57 Multiple choice

Which expression is equivalent to $42x^3 + 7x$?

A. $7x(6 + 7x)$

B. $7x(6x^2 + 1)$

C. $7x^2(6 + 7x)$

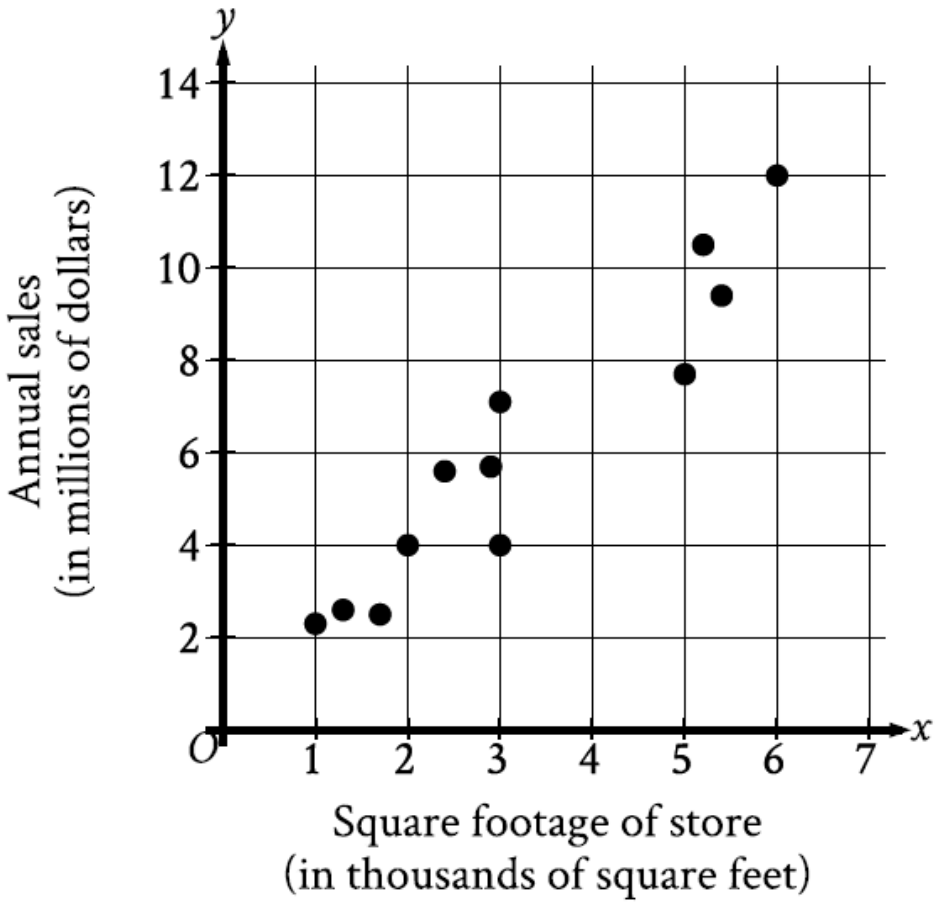
D. $7x^2(6x + 1)$

Question 58 Student-produced response

For a certain rectangle, the ratio of the width to the length is 1 to 2. If the width of the rectangle is 67 centimeters, what is the length, in centimeters, of the rectangle?

Response: _____

Question 59 Multiple choice



The scatterplot (see image) 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

C. 7.5

D. 10.2

Question 60 Student-produced response

The equation $y = 2,600(a)^x$, where a is a positive constant, gives the predicted number of bacteria y in a growth medium x hours after the number of bacteria was initially measured. According to the equation, what was the predicted number of bacteria initially measured in the growth medium?

Response: _____

Question 61 Multiple choice

If $6x - 8 = 4$, what is the value of $6x + 8$?

A. -4

B. 2

C. 10

D. 20

Question 62 Multiple choice

What is 1200% of 120?

A. 144

B. 1440

C. 14400

D. 144000

Question 63 Multiple choice

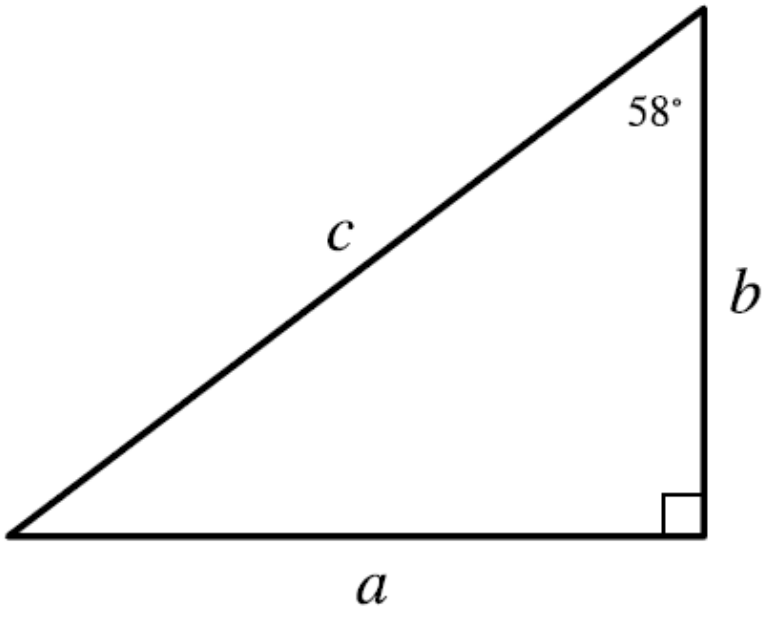
A certain university's research farm is $1{,}000$ acres, of which 71 acres contain rice. What percentage of the acres of this research farm contain rice?

A. 0.71%

B. 7.1%

C. 71%

D. 710%

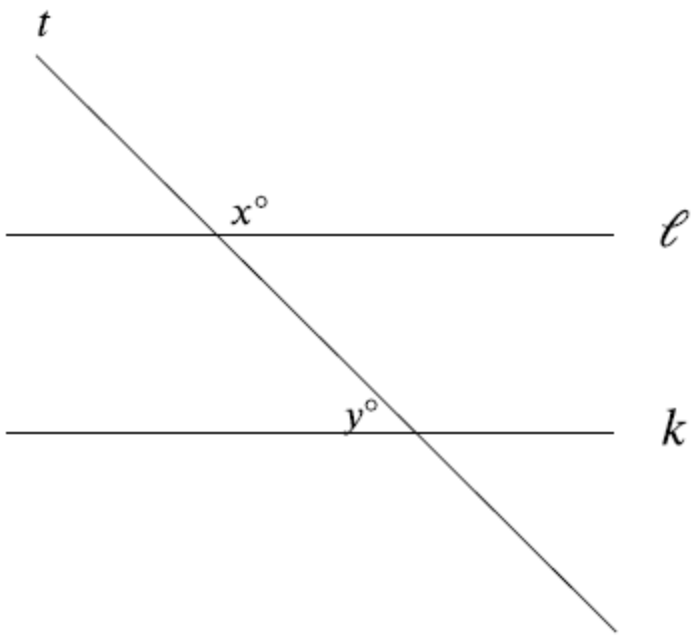


Note: Figure not drawn to scale

In the right triangle shown (see image), a, b, and c are positive constants. For an acute angle D, $\sin D = \frac{b}{c}$. What is the measure of angle D, in degrees?

Response: _____

Question 65 Multiple choice



Note: Figure not drawn to scale

In the figure shown (see image), lines ℓ and k are parallel and line t intersects both lines. If $x > 134$, which of the following must be true?

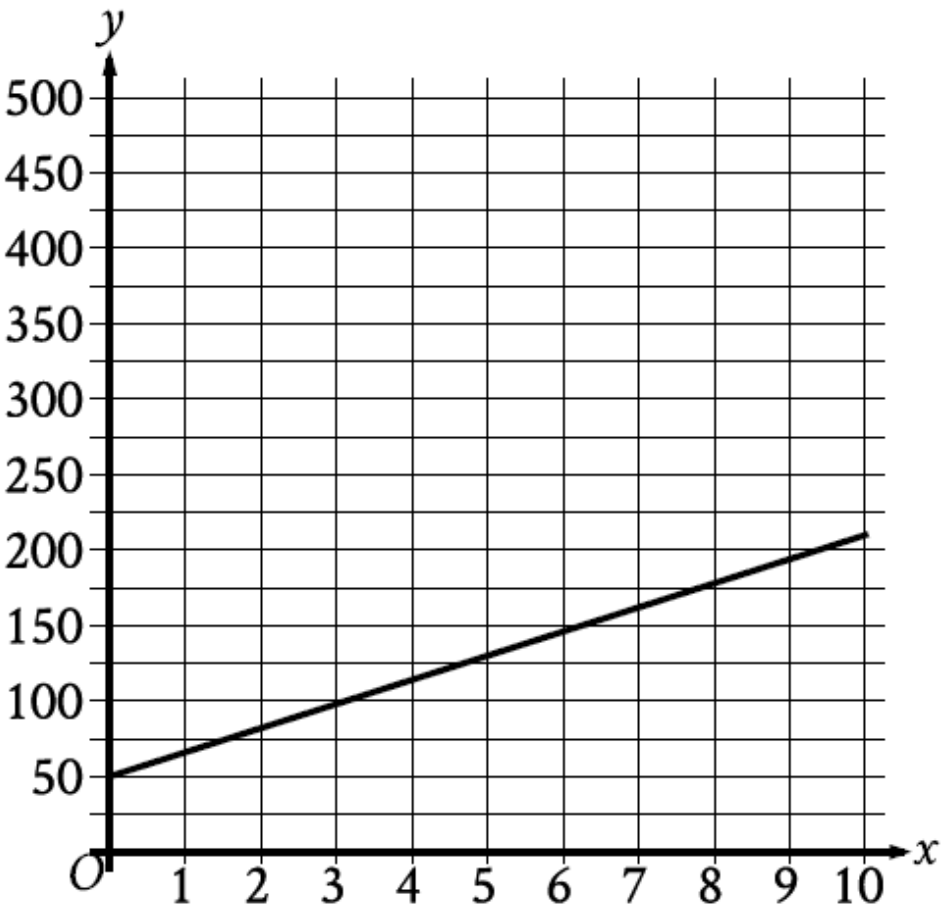
A. $y < 46$
B. $y > 46$
C. $x + y < 180$
D. $x + y > 180$

Question 66 Multiple choice

Line t in the xy-plane has a slope of $\frac{1}{8}$ and passes through the point $(32, -7)$. Which equation defines line t?

A. $y = -11x + \frac{1}{8}$
B. $y = \frac{x}{8} - 11$
C. $y = \frac{x}{8} - 7$
D. $y = 32x - 7$

Question 67 Multiple choice



The graph of the function f, where $y = f(x)$, gives the total cost y, in dollars, for a certain video game system and x games. What is the best interpretation of the slope of the graph in this context?

A. Each game costs $16.

B. The video game system costs $16.

C. Each game costs $50.

D. The video game system costs $50.

Question 68 Student-produced response

What is the radius of the circle in the xy-plane defined by $(x + 2)^2 + (y + 6)^2 = 361$?

Response: _____

Question 69 Multiple choice

$$x^2 + y^2 = 1088$$

$$y - 4x = 0$$

A solution to the given system of equations is (x, y), where $x < 0$. What is the value of y?

A. -256
B. -32
C. -8
D. -4

Question 70 Multiple choice

Given $f(x) = 10(x^2 + 47)$, what is the minimum value of the function?

A. 0.1
B. 4.7
C. 10
D. 470

Question 71 Multiple choice

The function j is defined by $j(x) = \dfrac{10x + 5}{3p}$, and the function k is defined by $k(x) = \dfrac{j(x) \cdot p}{x + 1}$, where p is a positive constant. What is the value of $k(9)$?

A. $\dfrac{19}{6}$
B. $\dfrac{10}{3}$
C. $\dfrac{95}{13}$
D. $\dfrac{85}{3}$

Question 72 Multiple choice

In the xy-plane, which of the following does NOT contain any points that are part of the solution set to $7x - 6y > 42$?

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 $y > 0$

Question 73 Multiple choice

$$3x + 2y = 10$$

$$18x + 12y = 60$$

How many solutions does the given system of equations have?

A. Exactly one
B. Exactly two
C. Infinitely many
D. Zero

Question 74 Multiple choice

What is the sum of the solutions to the equation

$$\frac{|4x - 48| + 4}{8} = 6?$$

A. 1
B. 23
C. 24
D. 48

Question 75 Multiple choice

A beekeeper's initial observation of the population of a certain bee colony was $1{,}600$ bees. The beekeeper set a goal to increase the population to $2{,}975$ bees. The beekeeper uses a model that predicts the population of this bee colony begins at $1{,}600$ and increases by 110 bees per week in the first two weeks after the initial observation, and then increases by 165 bees per week until the beekeeper's goal is reached. According to this model, at the end of week w after the initial observation, where $w > 2$, which of the following functions gives the predicted number of bees still needed to reach the beekeeper's goal?

A. $p(w) = -110 + 165w$
B. $p(w) = 1{,}485 - 165w$
C. $p(w) = 2{,}865 + 165w$
D. $p(w) = 2{,}975 - 165w$

Question 76 Student-produced response

The quadratic equation $(2x - 64)^2 = a$, where a is a constant, has exactly one real solution. What is the value of a?

Response: _____

Math — Module 2

22 questions · 35 minutes · fixed, nonadaptive printable module

Question 77 Multiple choice

The equation $d = 20w + 100$ 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. 250

B. 300

C. 350

D. 400

Question 78 Student-produced response

$x + 2y = 28$ and $2y = 15$. The solution to the given system of equations is (x, y). What is the value of x?

Response: _____

Question 79 Multiple choice

The equation $b^2 + 5c = 6d$ relates the real numbers b, c, and d, where $d > \frac{5}{6}c$. Which equation correctly expresses b in terms of c and d?

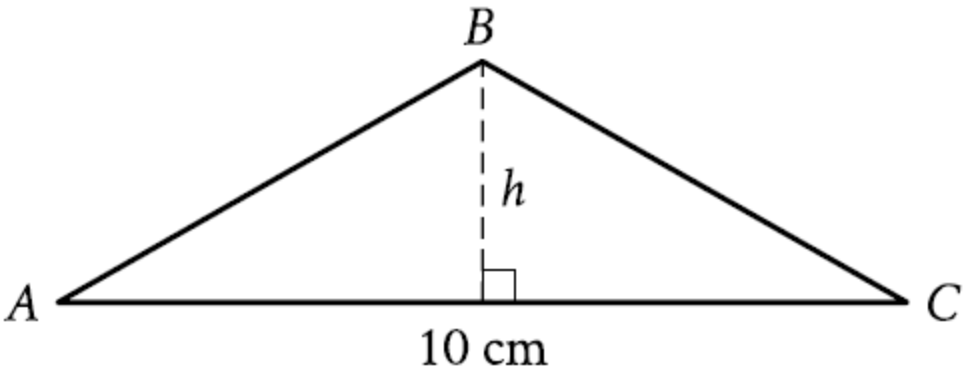
A. $b = \dfrac{6d - 5c}{2}$

B. $b = \dfrac{6d + 5c}{2}$

C. $b = \pm\sqrt{6d - 5c}$

D. $b = \pm\sqrt{6d + 5c}$

Question 80 Multiple choice



Note: Figure not drawn to scale.

In $\triangle ABC$, side AC has length 10 centimeters. The area of $\triangle ABC$ is 210 square centimeters. The altitude from B to side AC has length h (see image). What is the height h, in centimeters, of this triangle?

A. 10

B. 21

C. 42

D. 84

Question 81 Multiple choice

The function g is defined by $g(x) = 2(14x - 15)$. What is the y-coordinate of the y-intercept of the graph of $y = g(x) - 5$ in the xy-plane?

A. -35

B. -30

C. -20

D. -15

Question 82 Multiple choice

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

Age group	Proportion
Less than 18 years old	28%
18–40 years old	24%
41–65 years old	22%
Greater than 65 years old	26%

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. 0.26

B. 0.36

C. 0.46

D. 0.93

Question 83 Student-produced response

The function $h(t) = -16t^2 + b$ estimates an object's 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 23.04 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?

Response: _____

Question 84 Multiple choice

The length of a rectangle's diagonal is $\sqrt{106}$, and the length of one of the rectangle's sides is 9. What is the perimeter of the rectangle?

A. 106

B. 45

C. 28

D. 14

Question 85 Multiple choice

Circle A: $(x-7)^2+(y-p)^2=21$
Circle B: $(x+7)^2+(y-p)^2=21$

In the given equations, p is a positive constant. Which statement correctly compares the graphs of circles A and B in the xy-plane?

A. Circle B is the reflection of circle A across the x-axis.

B. Circle B is the reflection of circle A across the y-axis.

C. Circle B is the translation of circle A 14 units up.

D. Circle B is the translation of circle A 14 units to the right.

Question 86 Multiple choice

In the equation $a(9-x)=36-4x$, where a is a constant, the equation has exactly one solution. Which of the following CANNOT be the value of a?

A. 1

B. 4

C. 9

D. 36

Question 87 Multiple choice

For the data set $a, 26, 29, b, 33, 49, c$, 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. 53

B. 72

C. 79

D. 98

Question 88 Multiple choice

Given $y=3\left(\frac{a}{6}\right)^{x+c}-b$, how many times does the graph of the equation in the xy-plane cross the x-axis, where a, b, and c are positive constants such that $a>6$ and $b>c$?

A. Zero

B. One

C. Two

D. Three

Question 89 Student-produced response

A linear function g is defined by $g(x) = ax + b$, where a and b are constants. If $g(-2) = -7$ and $g(1) = 5$, what is the value of a?

Response: _____

Question 90 Multiple choice

Given the quadratic equation $2x^2 - 8x - 21 = 0$, one solution can be written as $x = h - \frac{1}{2}\sqrt{k}$, where h and k are integer constants. What is the value of $h + k$?

A. -24

B. 10

C. 29

D. 60

Question 91 Student-produced response

For the given functions r and s, n is a constant.

$$r(x) = 9(x - 3)$$

$$s(x) = x^3 + nx^2 + 3nx + 27$$

If $r(x) \cdot s(x) = 9(x^4 - 81)$, what is the value of n?

Response: _____

Question 92 Multiple choice

At different times on a certain day, a manager at a theme park recorded the number of visitors. An exponential model gives the estimated number of visitors, V, at the theme park t hours after the theme park opened, where $t \leq 3$. Based on the model, 85 visitors were estimated to be at the theme park when it opened, and every 30 minutes the estimated number of visitors increased by 140% of the estimated number of visitors 30 minutes earlier. Which of the following equations best represents this model?

A. $V = 85(1.40)^{t/30}$

B. $V = 85(1.40)^{2t}$

C. $V = 85(2.40)^{t/30}$

D. $V = 85(2.40)^{2t}$

Question 93 Multiple choice

The function v is defined by

$$v(x) = \frac{x^2 + bx + c}{(x + 5)(x - 19)},$$

where b and c are constants. In the xy-plane, the graph of $y = v(x)$ passes through the points $(0, \frac{66}{95})$ and $(11, 0)$. If $v(q) = 0$, which of the following could be the value of q?

A. -6

B. -5

C. 5

D. 6

Question 94 Student-produced response

Line s is defined by $x - 4y = 24$. Line t is perpendicular to line s in the xy-plane and passes through the points $(k, 0)$ and $(60, -k)$. What is the value of k?

Response: _____

Question 95 Multiple choice

An engineer connects resistors in series, where the resistors in the series have a total resistance of $\frac{41}{35}$ 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 equation

$$\frac{x}{7} + \frac{y}{5} = \frac{41}{35}$$

represents this situation. According to this equation, what is the positive difference between the value of a and the value of b?

A. 41

B. 2

C. $\frac{41}{35}$

D. $\frac{2}{35}$

Question 96 Multiple choice

The functions f and g are defined by the given equations, where $x \geq 0$, a and b are integer constants, $a < b$, and $a > 1$. If $y = f(x)$ and $y = g(x)$ are graphed in the xy-plane, which of the following equations displays, as a constant or coefficient, the minimum value of the function it defines, where $x \geq 0$?

$$I.\ f(x) = a(0.63)^{-bx}$$

$$II.\ g(x) = a(1.37)^{x+2} + b$$

A. I only

B. II only

C. I and II

D. Neither I nor II

Question 97 Multiple choice

In triangle XYZ, the measure of angle X is $x°$, the measure of angle Y is $y°$, and the measure of angle Z is $31°$. If $x > y > 31$, which of the following additional pieces of information is NOT sufficient to determine the values of x and y?

A. The value of $31 - x - 3y$

B. The value of $31 + 3x + y$

C. The value of $31 - x + y$

D. The value of $31 - x - y$

Question 98 Multiple choice

In 2013, Chloe earned 11% more than in 2012, and in 2014 Chloe earned 6% more than in 2013. If Chloe earned y times as much in 2012 as in 2014, which of the following is closest to the value of y?

A. 0.5455

B. 0.6600

C. 0.8499

D. 1.1766

REVIEW

Answer key

Questions are listed in test order: Reading and Writing Module 1, Reading and Writing Module 2, Math Module 1, Math Module 2.

Question	Module	Answer
1	Reading and Writing — Module 1	D — exceed
2	Reading and Writing — Module 1	D — speculative
3	Reading and Writing — Module 1	B — Domination
4	Reading and Writing — Module 1	B — catalyst of
5	Reading and Writing — Module 1	A — exorbitant
6	Reading and Writing — Module 1	D — It explains the basis for the new system’s scoring criteria.
7	Reading and Writing — Module 1	D — It indicates why paleontologists have used another approach in addition to fossil analysis to learn about certain aspects of pneumatic diverticula.
8	Reading and Writing — Module 1	B — It indicates that the benefit of understanding glass eels’ spawning behavior extends beyond the eels.
9	Reading and Writing — Module 1	B — A literary critic
10	Reading and Writing — Module 1	B — 0.33 million metric tons of copper.
11	Reading and Writing — Module 1	D — “Feeling that Peter was on his way back, the Neverland had again woke into life.”
12	Reading and Writing — Module 1	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.”
13	Reading and	B — Languages that emerged in Europe and Western Asia tend to have more sounds than

Question	Module	Answer
	Module 1	
14	Reading and Writing — Module 1	A — find listening to Heartbeats at 82.2 decibels less enjoyable than listening to it at a lower volume.
15	Reading and Writing — Module 1	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	Reading and Writing — Module 1	C — lost. Conversely,
17	Reading and Writing — Module 1	A — recommended
18	Reading and Writing — Module 1	A — support. Decreasing
19	Reading and Writing — Module 1	D — Pennsylvania, having officially become
20	Reading and Writing — Module 1	B — have been revisited
21	Reading and Writing — Module 1	A — For example,
22	Reading and Writing — Module 1	A — On the other hand,
23	Reading and Writing — Module 1	A — On the other hand,
24	Reading and Writing — Module 1	D — however,
25	Reading and Writing — Module 1	C — Hence,
26	Reading and Writing — Module 1	A — Thus,
27	Reading and Writing — Module 1	D — Having received little formal education, Thomas Edison depended on specialized employees, including laboratory assistant William Joseph Hammer, for many of his inventions.

Question	Module	Answer
28	Reading and Writing — Module 2	B — clandestine
29	Reading and Writing — Module 2	A — surreptitiously
30	Reading and Writing — Module 2	A — engenders
31	Reading and Writing — Module 2	A — belies
32	Reading and Writing — Module 2	C — To refute the possible impression that García Márquez conformed to magical realism in all of his works
33	Reading and Writing — Module 2	D — Text 2 presents a finding that casts doubt on the generalizability of the research discussed in Text 1.
34	Reading and Writing — Module 2	A — They have improved remarkably over time but remain insufficient to support the complexity called for in certain interactions.
35	Reading and Writing — Module 2	C — If increased lunar intensity creates any disadvantages for the bushbabies, those disadvantages are more than compensated for by the advantages that the bushbabies gain.
36	Reading and Writing — Module 2	B — biochar and compost.
37	Reading and Writing — Module 2	B — Resolution makers between the ages of 50 and 64 are more likely to make resolutions related to personal relationships and less likely to make resolutions related to finances than resolution makers between the ages of 30 and 49 are.
38	Reading and Writing — Module 2	D — “Alack, why am I sent for to a king, / Before I have shook off the regal thoughts / Wherewith I reign’d? I hardly yet have learn’d / To insinuate, flatter, bow, and bend my knee.”
39	Reading and Writing — Module 2	B — “Although much of The Grass Dancer conforms to the conventions of realistic fiction, Susan Power also incorporates elements drawn from Dakota cultural traditions that transcend and expose the limitations of realism.”
40	Reading and Writing — Module 2	A — favored an evolutionary increase in brain size relative to body size among mammals.
41	Reading and Writing — Module 2	B — if each ecotype is indeed locally adapted as the researchers hypothesized, those adaptations are to other environmental conditions than the water each ecotype inhabits.

Question	Module	Answer
42	Reading and Writing — Module 2	A — ranks
43	Reading and Writing — Module 2	A — Minimum—when
44	Reading and Writing — Module 2	B — Collier, though;
45	Reading and Writing — Module 2	C — dictating
46	Reading and Writing — Module 2	B — authors, asserting
47	Reading and Writing — Module 2	A — that is,
48	Reading and Writing — Module 2	B — Hence,
49	Reading and Writing — Module 2	B — By contrast,
50	Reading and Writing — Module 2	C — Accordingly,
51	Reading and Writing — Module 2	B — in contrast,
52	Reading and Writing — Module 2	C — Leaving in 1914 for Antarctica, Shackleton and his crew underwent many harrowing sea-ice adventures, including losing their ship in 1915, before being rescued in 1916.
53	Reading and Writing — Module 2	D — Browner posits that Louis Ballard’s compositions rely on elements originating within Native musical traditions; Cacéga Ayuwípi affirms this assertion, incorporating Hopi notched sticks.
54	Reading and Writing — Module 2	D — The predicted shift to large-scale commercial farming may not hold true for rice farms in Thailand, where, according to Promkhambut et al., rice farms have remained small as they’ve modernized.
55	Math — Module 1	D — 10
56	Math — Module 1	12

Question	Module	Answer
57	Math — Module 1	B — $7x(6x^2 + 1)$
58	Math — Module 1	134
59	Math — Module 1	C — 7.5
60	Math — Module 1	2600
61	Math — Module 1	D — 20
62	Math — Module 1	B — 1440
63	Math — Module 1	B — 7.1%
64	Math — Module 1	32
65	Math — Module 1	A — $y < 46$
66	Math — Module 1	B — $y = \frac{x}{8} - 11$
67	Math — Module 1	A — Each game costs $16.
68	Math — Module 1	19
69	Math — Module 1	B — -32
70	Math — Module 1	D — 470
71	Math — Module 1	A — $\frac{19}{6}$
72	Math — Module 1	D — The region where $x < 0$ and $y > 0$
73	Math — Module 1	C — Infinitely many
74	Math — Module 1	C — 24
75	Math — Module 1	B — $p(w) = 1{,}485 - 165w$
76	Math — Module 1	0

Question	Module	Answer
77	Math — Module 2	B — 300
78	Math — Module 2	13
79	Math — Module 2	C — $b = \pm\sqrt{6d - 5c}$
80	Math — Module 2	C — 42
81	Math — Module 2	A — -35
82	Math — Module 2	B — 0.36
83	Math — Module 2	1.2 / 6/5
84	Math — Module 2	C — 28
85	Math — Module 2	B — Circle B is the reflection of circle A across the y-axis.
86	Math — Module 2	B — 4
87	Math — Module 2	C — 79
88	Math — Module 2	B — One
89	Math — Module 2	4
90	Math — Module 2	D — 60
91	Math — Module 2	3
92	Math — Module 2	D — $V = 85(2.40)^{2t}$
93	Math — Module 2	A — -6
94	Math — Module 2	48
95	Math — Module 2	D — $\frac{2}{35}$
96	Math — Module 2	A — I only

Question	Module	Answer
97	Math — Module 2	D — The value of $31 - x - y$
98	Math — Module 2	C — 0.8499

REVIEW

Explanations

Use these explanations after checking the answer key. They reproduce the source explanation for each question.

1. Reading and Writing — Module 1 · M1Q1

Answer: D — exceed

The text explains that CSR efforts improve a bank's image. Thus, favorability scores when CSR is mentioned would naturally be higher than when it is absent. 'Exceed' logically captures this increase. Other options like 'match' or 'disturb' do not reflect the positive 'improvement' described.

2. Reading and Writing — Module 1 · M1Q2

Answer: D — speculative

The passage describes how new 'concrete evidence' resolved 'competing theories' and provided 'firm details'. This implies the subject was previously uncertain or based on conjecture. 'Speculative' perfectly captures this prior state of uncertainty.

3. Reading and Writing — Module 1 · M1Q3

Answer: B — Domination

In the context of breezes that 'meet and conflict' as if they are in competition, Choice B ('Domination') best captures the sense of striving for superior control or power over the air.

4. Reading and Writing — Module 1 · M1Q4

Answer: B — catalyst of

The text provides examples of science fiction stories like Jules Verne's novel and Star Trek that led to real-world advancements. This shows sci-fi acts as a Choice B ('catalyst of') or trigger for innovation.

5. Reading and Writing — Module 1 · M1Q5

Answer: A — exorbitant

The sentence suggests that some drivers won't be persuaded by any justification for a toll hike because they already find the current price unfair or too high. Choice A ('exorbitant') best describes a price that is perceived as excessive.

6. Reading and Writing — Module 1 · M1Q6

Answer: D — It explains the basis for the new system’s scoring criteria.

The previous sentence introduces a new six-point scale. The underlined sentence then explains the basis for this scale—varying levels of supporting evidence. The subsequent examples (scores 1, 4, 6) illustrate how these criteria are applied. Choice D correctly identifies this explanatory function.

7. Reading and Writing — Module 1 · M1Q7

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

The text mentions that certain characteristics 'tend not to fossilize,' which creates a limitation for fossil analysis. This explains why paleontologists also study living bird species to gain further insights. Choice D accurately describes this rationale for a the multi-method approach.

---

8. Reading and Writing — Module 1 · M1Q8

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

The passage states that biologists believe solving the mystery of eel spawning will lead to better conservation of the eels AND several other species. Choice B captures this idea that the benefits of this research extend beyond just the glass eels themselves.

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9. Reading and Writing — Module 1 · M1Q9

Answer: B — A literary critic

The text explicitly defines Choice B ('A literary critic') as 'people whose job it is to evaluate books.' This matches the definition provided in the passage.

---

10. Reading and Writing — Module 1 · M1Q10

Answer: B — 0.33 million metric tons of copper.

According to the table, the row for Mexico shows a value of 0.33 million metric tons for the year 1995. The other values provided (0.38, 1.85, 0.44) correspond to other countries (Peru, USA, Indonesia respectively) in the same year.

---

11. Reading and Writing — Module 1 · M1Q11

Answer: D — "Feeling that Peter was on his way back, the Neverland had again woke into life."

The claim focuses on the island's activity starting when Peter returns. The quotation 'the Neverland had again woke into life' directly illustrates this transition. Other options describe static scenes or the children's arrival without linking activity to Peter's presence.

---

12. Reading and Writing — Module 1 · M1Q12

Answer: 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."

The claim focuses on a shift in Camilla's perception of her environment. The third option description explicitly describes her sensing a 'new strangeness' and 'vast desolation' in things that were previously familiar. Other options focus on her actions or appearance rather than her internal perception of surroundings.

---

13. Reading and Writing — Module 1 · M1Q13

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

The researcher claims that languages lose sounds as they move further from their African origin. If languages in Europe and Western Asia actually have more sounds than those in Africa, this directly contradicts the trend of sound reduction over distance, thereby weakening the claim.

14. Reading and Writing — Module 1 · M1Q14

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

The study found that nonmusicians prefer lower volumes than musicians for favorite recordings. Therefore, if 82.2 decibels is the optimal volume for a musician, it is presumably too high for a nonmusician, making a lower volume more enjoyable for them.

---

15. Reading and Writing — Module 1 · M1Q15

Answer: 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.

The passage notes that adding sonic pulses to ship sounds did not significantly change narwhal behavior compared to ship sounds alone. This suggests that ship sounds already saturated the acoustic environment to the point where additional noise (sonic pulses) had a negligible impact.

---

16. Reading and Writing — Module 1 · M1Q16

Answer: C — lost. Conversely,

The sentence involves two independent clauses. Using a period and the capitalized transition 'Conversely' correctly separates these clauses while establishing the contrast between Euclid's lost works and his extant 'Elements'.

---

17. Reading and Writing — Module 1 · M1Q17

Answer: A — recommended

The sentence requires a main conjugated verb to complete the predicate after the parenthetical participle phrase 'finding that administrative unit...'. 'Recommended' correctly fulfills this role in the past tense, mirroring the study's timeline.

---

18. Reading and Writing — Module 1 · M1Q18

Answer: A — support. Decreasing

A period is needed to end the first independent clause ('...provide structural support'). The subsequent phrase 'Decreasing in thickness...' then serves as an introductory participial phrase for the next sentence, modifying 'these veins'.

---

19. Reading and Writing — Module 1 · M1Q19

Answer: D — Pennsylvania, having officially become

The sentence structure requires an appositive or participial phrase to modify 'Pennsylvania' before the main verb 'was empowered'. 'Pennsylvania, having officially become' correctly creates this modification, avoiding a run-on sentence.

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20. Reading and Writing — Module 1 · M1Q20

Answer: B — have been revisited

The subject of the sentence is the plural noun 'contributions'. Thus, the verb must also be plural. 'Have been revisited' correctly aligns with the plural subject.

---

21. Reading and Writing — Module 1 · M1Q21

Answer: A — For example,

The first sentence introduces the general idea that resins have multiple health-maintaining roles. The second sentence then provides a specific instance of such a role (sealing wounds). 'For example' is the most logical transition to introduce this specific illustration.

---

22. Reading and Writing — Module 1 · M1Q22

Answer: A — On the other hand,

The passage discusses 'complex and opposing effects'. After detailing a positive effect (increased precipitation), the text shifts to a negative effect (lowered temperatures weakening the storm). 'On the other hand' appropriately signals this shift to a contrasting point.

---

23. Reading and Writing — Module 1 · M1Q23

Answer: A — On the other hand,

The passage presents a contrast: the heavy weight of the rhinestone adornments versus the light, flexible fabric. Choice A ('On the other hand') is the most logical transition to signal this shift from a disadvantage (weight) to an advantage (flexibility).

---

24. Reading and Writing — Module 1 · M1Q24

Answer: D — however,

The first sentence states that the analysis wasn't performed on all ungulates. The second sentence specifies that the study was limited to pronghorns and wild horses. Choice D ('however,') correctly introduces this contrast before the independent clause that follows.

---

25. Reading and Writing — Module 1 · M1Q25

Answer: C — Hence,

The passage establishes a cause-and-effect relationship: because the Curiosity rover could not preserve samples, NASA designed the Perseverance rover specifically to address that shortcoming. Choice C ('Hence,') correctly identifies this logical consequence.

---

26. Reading and Writing — Module 1 · M1Q26

Answer: A — Thus,

The discovery of 60-million-year-old glaciers allows the researchers to conclude that glaciers existed long before the 34-million-year-mark mentioned. Choice A ('Thus,') correctly indicates that the second statement is a result or conclusion of the first.

---

27. Reading and Writing — Module 1 · M1Q27

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

Choice D effectively combines the notes to highlight the specific goal: Edison's reliance on Hammer. It connects Edison's lack of formal schooling to his dependence on specialists, naming Hammer as a key example.

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28. Reading and Writing — Module 2 · M2Q1

Answer: B — clandestine

The passage refers to a series of novels published 'anonymously' as part of a 'literary mystery.' Choice B ('clandestine') appropriately captures this sense of secret or concealed authorship.

---

29. Reading and Writing — Module 2 · M2Q2

Answer: A — surreptitiously

The text describes the game as part of an 'underground' protest against an 'authoritarian regime.' This context implies that Choice A ('surreptitiously') is the best fit, as it describes the secret or stealthy distribution required under such conditions.

---

30. Reading and Writing — Module 2 · M2Q3

Answer: A — engenders

The text describes how fragmentation 'inevitably' leads to or creates changes in the environment. Choice A ('engenders') correctly means to produce or cause something to happen, which fits the context of fragmentation triggering alterations.

---

31. Reading and Writing — Module 2 · M2Q4

Answer: A — belies

The passage suggests that raw patent numbers give a misleading impression of innovation because nonnovel patents far outnumber truly novel ones. Choice A ('belies') appropriately describes how these numbers contradict or fail to give a true notion of the underlying reality.

---

32. Reading and Writing — Module 2 · M2Q5

Answer: C — To refute the possible impression that García Márquez conformed to magical realism in all of his works

The passage establishes García Márquez's reputation as a magical realist. The underlined sentence introduces an exception to this reputation by mentioning his realist works. Choice C correctly identifies this function: to clarify that his output was not limited solely to the magical realism genre.

---

33. Reading and Writing — Module 2 · M2Q6

Answer: D — Text 2 presents a finding that casts doubt on the generalizability of the research discussed in Text 1.

Text 1 claims that previous research in non-boreal ecosystems shows warming benefits invasives. Text 2 describes a study in a boreal ecosystem (Alaska) where this trend was not observed. Choice D accurately captures this relationship: the Alaska study suggests the earlier findings may not apply globally.

---

34. Reading and Writing — Module 2 · M2Q7

Answer: A — They have improved remarkably over time but remain insufficient to support the complexity called for in certain interactions.

The passage acknowledges the increased utility of apps for 'perfunctory tasks' but notes their limitations in handling nuanced or 'richer communication.' Choice A correctly summarizes this balance between technological advancement and ongoing limitations.

---

35. Reading and Writing — Module 2 · M2Q8

Answer: C — If increased lunar intensity creates any disadvantages for the bushbabies, those disadvantages are more than compensated for by the advantages that the bushbabies gain.

The passage explains that the increase in bushbaby foraging during high lunar intensity is tied to their reliance on vision, which 'benefits them more' than its costs. Choice C correctly infers that the benefits of light must outweigh any potential drawbacks for this positive association to exist.

---

36. Reading and Writing — Module 2 · M2Q9

Answer: B — biochar and compost.

Among soil treatments that exclude inorganic additives (NPK), 'biochar and compost' yielded the highest weight (979.3g) and length (6.76cm). Choice B is therefore the most supported conclusion based on the data.

---

37. Reading and Writing — Module 2 · M2Q10

Answer: B — Resolution makers between the ages of 50 and 64 are more likely to make resolutions related to personal relationships and less likely to make resolutions related to finances than resolution makers between the ages of 30 and 49 are.

Comparison of the 50–64 and 30–49 brackets in the table confirms that the former group has a higher percentage for personal relationship resolutions (58% vs 53%) but a lower percentage for finance-related resolutions (56% vs 63%). Choice B accurately summarizes these findings.

---

38. Reading and Writing — Module 2 · M2Q11

Answer: D — “Alack, why am I sent for to a king, / Before I have shook off the regal thoughts / Wherewith I reign’d? I hardly yet have learn’d / To insinuate, flatter, bow, and bend my knee.”

Choice D directly illustrates King Richard's reluctance to yield, as he explicitly states he has 'hardly yet learn’d / To insinuate, flatter, bow, and bend my knee' to the new king.

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39. Reading and Writing — Module 2 · M2Q12

Answer: B — “Although much of The Grass Dancer conforms to the conventions of realistic fiction, Susan Power also incorporates elements drawn from Dakota cultural traditions that transcend and expose the limitations of realism.”

The underlined portion claims the novel juxtaposes literary realism with Dakota traditions. Choice B directly supports this by stating the novel 'conforms to the conventions of realistic fiction' while also incorporating 'elements drawn from Dakota cultural traditions'.

---

40. Reading and Writing — Module 2 · M2Q13

Answer: A — favored an evolutionary increase in brain size relative to body size among mammals.

The passage suggests that intelligence (large brains) is favored by competition. If the initial period of resource abundance led to larger bodies and smaller brain-to-body ratios, then the return of intense competition would logically reverse this trend. Choice A correctly identifies this shift back toward favoring larger brain sizes.

---

41. Reading and Writing — Module 2 · M2Q14

Answer: B — if each ecotype is indeed locally adapted as the researchers hypothesized, those adaptations are to other environmental conditions than the water each ecotype inhabits.

The researchers hypothesised local adaptation but found ecotypes grew equally well in all water. This implies the water itself isn't the source of local adaptation. Choice B correctly concludes that any local adaptations must be to factors OTHER than the water.

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42. Reading and Writing — Module 2 · M2Q15

Answer: A — ranks

The subject 'Latvia’s 4,917-word constitution' is singular. Therefore, the predicate requires the singular verb form Choice A ('ranks').

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43. Reading and Writing — Module 2 · M2Q16

Answer: A — Minimum—when

The dash in Choice A ('Minimum—when') correctly introduces the relative clause 'when sunspots were notably scarce' as supplementary information about the Maunder Minimum.

---

44. Reading and Writing — Module 2 · M2Q17

Answer: B — Collier, though;

Choice B ('Collier, though;') correctly uses a semicolon to separate two independent clauses. The word 'though' functions as an adverb within the first clause, and the semicolon allows the second clause ('in 1985...') to stand on its own.

---

45. Reading and Writing — Module 2 · M2Q18

Answer: C — dictating

Choice C ('dictating') provides a present participle that modifies 'Popper’s theory' without acting as a main verb, which allows the sentence to flow correctly to the main predicate 'rejects'.

---

46. Reading and Writing — Module 2 · M2Q19

Answer: B — authors, asserting

Choice B ('authors, asserting') correctly treats the phrase 'asserting that...' as a participial phrase modifying 'cadre of renowned authors,' separated by a comma from the main verb 'helped'.

---

47. Reading and Writing — Module 2 · M2Q20

Answer: A — that is,

The second clause explains the meaning of 'regional authenticity' (local ingredients and methods). Choice A ('that is,') is the most appropriate transition to introduce this clarification or definition.

---

48. Reading and Writing — Module 2 · M2Q21

Answer: B — Hence,

The passage provides specific examples of uncoordinated tracks and then shows the consequence: the system being named the 'mixed gauge muddle.' Choice B ('Hence,') correctly connects the cause (the uncoordinated system) to the effect (its common name).

49. Reading and Writing — Module 2 · M2Q22

Answer: B — By contrast,

The passage highlights a difference in starting points: cartographers at the bottom and hydrologists at the top. Choice B ('By contrast,') is the best transition to signal this opposition between the two groups' practices.

---

50. Reading and Writing — Module 2 · M2Q23

Answer: C — Accordingly,

The passage describes the Precisionist focus on 'machine-like perfection' and 'geometric shapes.' The choice of subject matter (skyscrapers, factories) is a direct consequence of this artistic goal. Choice C ('Accordingly,') correctly signals this logical progression.

---

51. Reading and Writing — Module 2 · M2Q24

Answer: B — in contrast,

The passage compares Ischia (a complex volcano) with Mount Vsevidof (a stratovolcano). Choice B ('in contrast,') is the most appropriate transition to highlight the difference between these two distinct volcanic types.

---

52. Reading and Writing — Module 2 · M2Q25

Answer: C — Leaving in 1914 for Antarctica, Shackleton and his crew underwent many harrowing sea-ice adventures, including losing their ship in 1915, before being rescued in 1916.

To provide a historical overview of the expedition itself, Choice C is most effective as it summarizes the key events from 1914 to 1916 in chronological order, including the start, the loss of the ship, and the final rescue.

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53. Reading and Writing — Module 2 · M2Q26

Answer: D — Browner posits that Louis Ballard’s compositions rely on elements originating within Native musical traditions; Cacéga Ayuwípi affirms this assertion, incorporating Hopi notched sticks.

To support Browner's claim, Choice D is the most effective because it explicitly states the claim and then provides a concrete piece of evidence (the use of Hopi notched sticks in Cacéga Ayuwípi) that verifies it.

---

54. Reading and Writing — Module 2 · M2Q27

Answer: D — The predicted shift to large-scale commercial farming may not hold true for rice farms in Thailand, where, according to Promkhambut et al., rice farms have remained small as they’ve modernized.

Choice D effectively makes a claim (that the shift may not hold true for Thailand) and provides supporting evidence (that rice farms have remained small despite modernizing, per Promkhambut et al.), fulfilling the prompt's requirements.

---

55. Math — Module 1 · MATH1_Q1

Answer: D — 10

To find $g(2)$, substitute 2 for x in the equation: $g(2) = 4(2) + 2$. This results in $8 + 2 = 10$, which corresponds to Choice D.

---

56. Math — Module 1 · MATH1_Q2

Answer: 12

The total cost can be modeled as $35 + 15.25n \leq 225$. Subtracting 35 gives $15.25n \leq 190$. Dividing both sides by 15.25 results in $n \approx 12.459$. Since we cannot have a fraction of an attendee, the maximum number is 12.

---

57. Math — Module 1 · MATH1_Q3

Answer: B — $7x(6x^2 + 1)$

Factoring out the greatest common factor $7x$ from both terms ($42x^3$ and $7x$) yields $7x(6x^2 + 1)$, which corresponds to Choice B.

---

58. Math — Module 1 · MATH1_Q4

Answer: 134

The ratio of width (w) to length (L) is $1:2$, so $L = 2w$. Given $w = 67$, the length is $2 \times 67 = 134$.

---

59. Math — Module 1 · MATH1_Q5

Answer: C — 7.5

The data show an overall positive trend: stores with greater square footage generally have higher annual sales. At x = 4 thousand square feet, an estimated value of about 7.5 million dollars is the best prediction among the choices. This matches Choice C.

---

60. Math — Module 1 · MATH1_Q6

Answer: 2600

The initially measured bacteria count occurs at $x = 0$. Substituting 0 into the equation $y = 2600(a)^x$ gives $y = 2600(a)^0 = 2600(1) = 2600$.

---

61. Math — Module 1 · MATH1_Q7

Answer: D — 20

Starting from $6x - 8 = 4$, we can find $6x + 8$ by adding 16 to both sides of the equation. This gives $(6x - 8) + 16 = 4 + 16$, simplifying to $6x + 8 = 20$, which corresponds to Choice D.

---

62. Math — Module 1 · MATH1_Q8

Answer: B — 1440

1200% of 120 is $12 \times 120 = 1440$ matching Choice B.

---

63. Math — Module 1 · MATH1_Q9

Answer: B — 7.1%

To find the percentage, divide the rice acreage by the total acreage and multiply by 100: $(71/1000) \times 100 = 7.1\%$. This corresponds to Choice B.

---

64. Math — Module 1 · MATH1_Q10

Answer: 32

The triangle is a right triangle, so its angles add to 180 degrees. Therefore, angle D = 180 - 90 - 58 = 32 degrees.

---

65. Math — Module 1 · MATH1_Q11

Answer: A — $y < 46$

Because lines ℓ and k are parallel, angles x and y are supplementary (consecutive interior), so $x + y = 180$. If $x > 134$, then $180 - y > 134$, which simplifies to $y < 46$. Choice A correctly identifies this relationship.

---

66. Math — Module 1 · MATH1_Q12

Answer: B — $y = \frac{x}{8} - 11$

Using point-slope form $y - y_1 = m(x - x_1)$, we have $y - (-7) = \frac{1}{8}(x - 32)$. Simplifying gives $y + 7 = \frac{x}{8} - 4$. Subtracting 7 from both sides yields $y = \frac{x}{8} - 11$, which is Choice B.

---

67. Math — Module 1 · MATH1_Q13

Answer: A — Each game costs $16.

The slope in a cost function y = mx + b represents the unit cost. Here, the slope is 16, so each game costs $16. This aligns with Choice A.

---

68. Math — Module 1 · MATH1_Q14

Answer: 19

The standard form of a circle's equation is $(x - h)^2 + (y - k)^2 = r^2$. Here, $r^2 = 361$. Taking the square root gives $r = 19$. Thus, the radius is 19.

---

69. Math — Module 1 · MATH1_Q15

Answer: B — -32

From $y - 4x = 0$, we get $y = 4x$. Substituting this into the first equation: $x^2 + (4x)^2 = 1088$, which simplifies to $17x^2 = 1088$. Dividing by 17 gives $x^2 = 64$. Since $x < 0$, $x = -8$. Thus, $y = 4(-8) = -32$, which is Choice B.

---

70. Math — Module 1 · MATH1_Q16

Answer: D — 470

The minimum value of x^2 is 0, occurring when $x = 0$. Substituting 0 into the function gives $f(0) = 10(0 + 47) = 470$. Choice D correctly identifies this minimum value.

---

71. Math — Module 1 · MATH1_Q17

Answer: A — $\dfrac{19}{6}$

Substituting $j(x)$ into $k(x)$ gives $k(x) = \frac{10x+5}{3(x+1)}$. For $x = 9$, $k(9) = \frac{10(9)+5}{3(9+1)} = \frac{95}{30}$. Reducing the fraction results in $19/6$, which is Choice A.

---

72. Math — Module 1 · MATH1_Q18

Answer: D — The region where $x < 0$ and $y > 0$

In the region where $x < 0$ and $y > 0$ (Choice D), $7x$ will always be negative and $-6y$ will also always be negative. Therefore, their sum can never be greater than 42.

---

73. Math — Module 1 · MATH1_Q19

Answer: C — Infinitely many

Multiplying the first equation by 6 results in $18x + 12y = 60$, which is identical to the second equation. Since the two equations describe the same line, there are infinitely many solutions (Choice C).

---

74. Math — Module 1 · MATH1_Q20

Answer: C — 24

Multiplying by 8 and subtracting 4 gives $|4x - 48| = 44$. Solving for the two cases: $4x - 48 = 44$ leads to $x = 23$, and $4x - 48 = -44$ leads to $x = 1$. The sum of these solutions, $23 + 1$, is 24, which is Choice C.

---

75. Math — Module 1 · MATH1_Q21

Answer: B — $p(w) = 1{,}485 - 165w$

After two weeks, the population is $1600 + 2(110) = 1820$. For $w > 2$, the population is $1820 + 165(w - 2) = 1490 + 165w$. Subtracting this from the goal of 2975 gives $1485 - 165w$. Choice B matches this expression.

---

76. Math — Module 1 · MATH1_Q22

Answer: 0

For a squared term set equal to a constant to have exactly one real solution, the constant must be zero ($a = 0$). If a were positive, there would be two solutions; if negative, no real solutions.

---

77. Math — Module 2 · MATH2_Q1

Answer: B — 300

Substituting $w = 10$ into the equation $d = 20w + 100$ results in $d = 20(10) + 100 = 300$. This corresponds to Choice B.

---

78. Math — Module 2 · MATH2_Q2

Answer: 13

Substituting $2y = 15$ into the first equation results in $x + 15 = 28$. Subtracting 15 from both sides gives $x = 13$.

---

79. Math — Module 2 · MATH2_Q3

Answer: C — $b = \pm\sqrt{6d - 5c}$

To isolate b, first subtract $5c$ from both sides to get $b^2 = 6d - 5c$. Taking the square root of both sides results in $b = \pm\sqrt{6d - 5c}$, which is Choice C.

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80. Math — Module 2 · MATH2_Q4

Answer: C — 42

The area of a triangle is $A = \frac{1}{2}bh$. Substituting the given values: $210 = \frac{1}{2}(10)h = 5h$. Dividing by 5 gives $h = 42$, which is Choice C.

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81. Math — Module 2 · MATH2_Q5

Answer: A — -35

The y-intercept occurs at $x = 0$. Plugging this into the function: $g(0) - 5 = 2(14(0) - 15) - 5 = 2(-15) - 5 = -35$. This corresponds to Choice A.

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82. Math — Module 2 · MATH2_Q6

Answer: B — 0.36

The total proportion of people at least 18 years old is $24\% + 22\% + 26\% = 72\%$. The probability of selecting someone greater than 65 from this group is $26/72 \approx 0.36$. This matches Choice B.

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83. Math — Module 2 · MATH2_Q7

Answer: 1.2 / 6/5

At $t = 0$, $h(0) = b = 23.04$. The object hits the ground when $h(t) = 0$, so $-16t^2 + 23.04 = 0$. This gives $t^2 = 23.04/16 = 1.44$. Taking the square root results in $t = 1.2$ seconds.

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84. Math — Module 2 · MATH2_Q8

Answer: C — 28

Using the Pythagorean theorem ($a^2 + b^2 = c^2$), we find the other side of the rectangle: $9^2 + b^2 = (\sqrt{106})^2$, so $81 + b^2 = 106$, resulting in $b^2 = 25$, or $b = 5$. The perimeter is $2(9 + 5) = 28$, which is Choice C.

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85. Math — Module 2 · MATH2_Q9

Answer: B — Circle B is the reflection of circle A across the y-axis.

The center of Circle A is at $(7, p)$, and the center of Circle B is at $(-7, p)$. Since their x-coordinates are opposites and their y-coordinates are the same, Circle B is the reflection of Circle A across the y-axis. This corresponds to Choice B.

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86. Math — Module 2 · MATH2_Q10

Answer: B — 4

Expanding the equation gives $9a - ax = 36 - 4x$. A linear equation of the form $mx + c = px + q$ has exactly one solution if and only if $m \neq p$. Here, $a \neq 4$ must be true for exactly one solution to exist. If $a = 4$, the equation becomes $36 - 4x = 36 - 4x$ (infinitely many solutions). Thus, a cannot be 4 (Choice B).

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87. Math — Module 2 · MATH2_Q11

Answer: C — 79

The median is the 4th value, so $b = 29$. The range is $c - a = 72$, so $c = a + 72$. The mean is the sum $(a + 26 + 29 + 29 + 33 + 49 + a + 72)/7 = 36$, which simplifies to $2a + 238 = 252$, meaning $a = 7$. Thus, $c = 7 + 72 = 79$, which corresponds to Choice C.

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88. Math — Module 2 · MATH2_Q12

Answer: B — One

An exponential function of the form $y = k(m)^{x+n} - p$ with $m > 1$ (since $a > 6$) is strictly increasing. It starts near its horizontal asymptote $y = -b$ and grows toward infinity. Such a function intersects the x-axis exactly once. Choice B is correct.

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89. Math — Module 2 · MATH2_Q13

Answer: 4

The slope a is found by $(y_2 - y_1)/(x_2 - x_1) = (5 - (-7))/(1 - (-2)) = 12/3 = 4$.

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90. Math — Module 2 · MATH2_Q14

Answer: D — 60

Using the quadratic formula, $x = [8 \pm \sqrt{64 - 4(2)(-21)}]/4 = (8 \pm \sqrt{232})/4 = 2 \pm \frac{1}{2}\sqrt{58}$. Matching with $x = h - \frac{1}{2}\sqrt{k}$, we find $h = 2$ and $k = 58$. Thus, $h + k = 60$, which is Choice D.

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91. Math — Module 2 · MATH2_Q15

Answer: 3

Dividing the given product by 9 results in $(x - 3)(x^3 + nx^2 + 3nx + 27) = x^4 - 81$. Using the difference of squares, $x^4 - 81 = (x - 3)(x + 3)(x^2 + 9) = (x - 3)(x^3 + 3x^2 + 9x + 27)$. This implies $n = 3$.

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92. Math — Module 2 · MATH2_Q16

Answer: D — $V = 85(2.40)^{2t}$

An increase of 140% means the new total is 240% of the previous amount, so the base is 2.40. Since the increase occurs every 30 minutes (twice per hour), the exponent should be $2t$. Thus, $V = 85(2.40)^{2t}$ (Choice D).

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93. Math — Module 2 · MATH2_Q17

Answer: A — -6

Using $(0, 66/95)$, we find $c = -66$. Using $(11, 0)$, we find $b = -5$. The roots of the numerator $x^2 - 5x - 66$ are 11 and -6. Thus, q can be -6 (Choice A).

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94. Math — Module 2 · MATH2_Q18

Answer: 48

The slope of line s is $1/4$, so the slope of perpendicular line t is -4. Using the points $(k, 0)$ and $(60, -k)$, we set the slope: $(-k - 0)/(60 - k) = -4$, which simplifies to $5k = 240$. Thus, $k = 48$.

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95. Math — Module 2 · MATH2_Q19

Answer: D — $\dfrac{2}{35}$

In a series circuit, total resistance is equal to the sum of individual resistances: $ax + by = 41/35$. Comparing this to $(1/7)x + (1/5)y = 41/35$, we find $a = 1/7$ and $b = 1/5$. The difference $|1/7 - 1/5| = 2/35$, which corresponds to Choice D.

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96. Math — Module 2 · MATH2_Q20

Answer: A — I only

The function $f(x) = a(0.63)^{-bx} = a(1/0.63)^{bx}$ is an exponential growth function. For $x \geq 0$, its minimum value is $f(0) = a$. Equation I explicitly shows the coefficient a as the minimum value. Choice A ('I only') is correct.

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97. Math — Module 2 · MATH2_Q21

Answer: D — The value of $31 - x - y$

Since $x + y + 31 = 180$, we already know $x + y = 149$. Information that simply restates this relationship (like Choice D) is insufficient because it provides no new information to solve for two unique variables.

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98. Math — Module 2 · MATH2_Q22

Answer: C — 0.8499

Let 2012 earnings be E. Then 2014 earnings are $E \times 1.11 \times 1.06 = 1.1766E$. The ratio of 2012 to 2014 earnings is $E/1.1766E \approx 0.8499$, which corresponds to Choice C.
