

Directions ▾

The Apollo Moon landings (1969–1972) brought atmospheric sensors and equipment too heavy for liftoff to the Moon and produced large amounts of data. Researcher Philip Metzger, who is investigating the long-term effects of being on the Moon, continues to use Apollo's data, demonstrating that the missions' value to science is ____.

1 Mark for Review ABC

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

- (A) controversial
- (B) displaced
- (C) original
- (D) ongoing



because cryptophytes and other microphytobenthos (MPB)—microscopic organisms inhabiting tidal flats—are consumed by clams as well as by certain shorebirds and fish, PB are _____ estuary ecosystems. Decreased MPB abundance, which may be caused by environmental stressors, thus has a direct, negative impact on coastal food webs.

2

Mark for Review

ABC

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

A imperative for

B interchangeable with

C emblematic of

D subordinate to

The social structure of medieval Bremen was heavily influenced by hierarchical institutions (e.g., kinship groups) within the settlement, a condition that some researchers suggest potentially _____ not just social but also economic fluidity—and by extension, urban growth—by constraining the range of contacts available to individuals in the settlement.

3

Mark for Review

ABC

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

- (A) protracted
- (B) disseminated
- (C) inhibited
- (D) catalyzed



The inventories of consonant sounds among the Polynesian languages of the Pacific tend toward the _____. Sikaiana in the South Pacific has a total of nine consonants, and 'Ōlelo Hawai'i, the language of the Native Hawaiian people, has one fewer, while the global median per language is over twenty-two.



5

Mark for Review

ABC

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

A minimal

B static

C replicable

D melodic

Directions ▾

Some pieces of music might have many meanings—the compositions of Marion Bauer can _____ as many different interpretations as there are people to listen to them—and so as long as a listener's interpretation isn't willfully absurd or the result of inattention, it is difficult to justify the claim that the listener has misunderstood the piece.



4

Mark for Review



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

(A) evade

(B) refute

(C) support

(D) omit



Founded in New York City in 1904, the Hispanic Society of America is dedicated to the arts and cultures of Spanish-speaking and Portuguese-speaking regions around the world. Since its founding, it has acquired more than 18,000 objects for its permanent collection. More recently founded US-based institutions devoted to Latino cultures include the Latino Cultural Center. Located in Dallas, it focuses on Latino cultures and art in the United States.

6

Mark for Review

ABC

Which choice best states the main purpose of the text?

- (A) To trace the founding of two institutions, including how they acquired funding to purchase artworks

- (B) To present information about two institutions, including each institution's area of focus

- (C) To trace a historical development that encouraged the founding of two institutions

- (D) To draw a contrast between the collection sizes of two institutions

The following text is adapted from D.A. Lozano's 1844 poem "A Remembrance of Puerto Cabello—The Mangle" (translated by Agnes Blake Poor in 1918). The poem is a dedication to Puerto Cabello, a town on the northern coast of Venezuela.

And while outside the tempest is raving o'er the ocean,
And the ship is madly driving on some lone and desert shore;
Thy warm and land-locked waters swell with an easy motion,
And gently glides the light pirogue [canoe] at dipping of the oar.

7

Mark for Review

ABC

Which choice best states the main purpose of the text?

- (A) It emphasizes the severity of a storm that is expected to arrive soon in Puerto Cabello.
- (B) It describes the speaker's attitude towards the day-to-day life in Puerto Cabello.
- (C) It compares the materials of two types of boats.
- (D) It contrasts the tranquility of the waters near Puerto Cabello with the roughness of waters elsewhere.

In what is now New Mexico, the Pueblo of Pojoaque operates the Poeh Cultural Center. Relying on traditional knowledge to guide the design of exhibits, this institution presents Pojoaque history and culture to the tribe's citizens. The Turtle Mountain Band of Chippewa, a tribe in North Dakota, employs a similar strategy in its own cultural center. Both centers contrast with museums that aren't Indigenous-led; when displaying Indigenous artifacts, such museums tend to anticipate mainly non-Indigenous audiences and rely on Euro-centric strategies for designing exhibits.

8

Mark for Review

ABC

According to the text, what is one way that non-Indigenous museums typically differ from the cultural centers operated by the Pueblo of Pojoaque and the Turtle Mountain Band of Chippewa?

- (A) The museums typically feature fewer artifacts in their exhibits.
- (B) The museums are largely aimed at non-Indigenous audiences.
- (C) The museums are often somewhat smaller in size.
- (D) The museums focus on tribal history as well as tribal culture.

The Hawaiian archipelago is home to the 'alawī (*Oreomystis mana*), one of several bird species that can only be found on the islands. Due to Hawaii's uniquely varied geographic and ecological conditions, the 'alawī became highly specialized as it adapted to survive in a specific island habitat. However, like many highly specialized species, the 'alawī is particularly vulnerable to environmental stressors, such as disease, invasive species, and habitat destruction, that disrupt the delicately balanced ecosystems in which the birds live.

9

Mark for Review

ABC

Based on the text, why is the 'alawī a highly specialized species?

- (A) It lives in a habitat that is exposed to numerous environmental stressors.
- (B) It adapted over time to share a habitat with other highly specialized bird species on the Hawaiian archipelago.
- (C) It adapted over time to live in a specific habitat found on the Hawaiian archipelago.
- (D) It lives exclusively in the most geographically isolated locations on the Hawaiian archipelago.

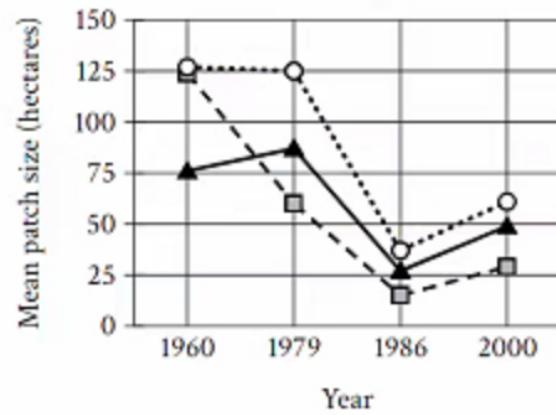
The following text is adapted from Guy de Maupassant's 1884 short story "A Recollection," from the collection *Guy de Maupassant Short Stories* (translated by Albert M.C. McMaster et al. in 1903). The narrator is taking a boat down the Seine river from Paris, France, to the surrounding countryside.

I took up a position in the bows [front of the boat], standing up and looking at the quays, the trees, the houses and the bridges disappearing behind us. And suddenly I perceived the great viaduct of Point du Jour which blocked the river. It was the end of Paris, the beginning of the country, and behind the double row of arches the Seine, suddenly spreading out as though it had regained space and liberty, became all at once the peaceful river which flows through the plains, alongside the wooded hills, amid the meadows, along the edge of the forests.

Which choice best states the main idea of the text?

- (A) The narrator is anxious for the trip to the countryside to be over as quickly as possible, and is frustrated that it is taking so long.
- (B) The narrator perceives a parallel between the shift from the urban environment to the countryside and the changes in the features of the river itself.
- (C) The narrator is surprised to see that the boat is taking him out of the city but is exhilarated by the opportunity to explore an unknown place.
- (D) The narrator contrasts his feelings of apprehension with the apparent tranquility of the river as the boat enters the countryside.

Annual Mean Forest Patch Size
for Three Land Use Capability Classes
in the Chorotega Region, Costa Rica



- ▲ Class VII (very severe limitations on use for crops)
- Class I-IV (suitable for crops)
- Class VIII (cannot be used for commercial crops)

11

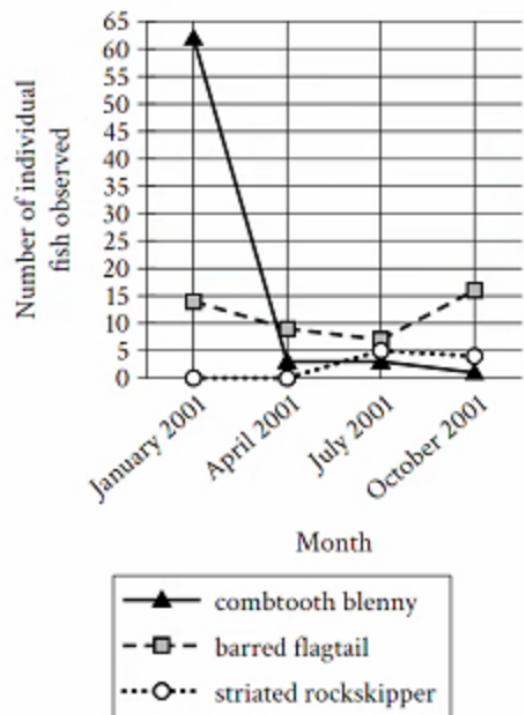
Mark for Review

ABC

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

- (A) 100 and 125 hectares.
- (B) 125 and 150 hectares.
- (C) 200 and 250 hectares.
- (D) 0 and 50 hectares.

Fish Population in a Taiwanese Tide Pool, January 2001 to October 2001



Tai Ho and colleagues monitored fish populations in a tide pool in Taiwan. They found some species were entirely absent from the tide pool at particular times of the year; for example, they did not observe even one

12

Mark for Review

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

- (A) combtooth blenny in January of 2001.
- (B) barred flagtail in October of 2001.
- (C) barred flagtail in January of 2001.
- (D) striated rockskipper in January and April of 2001.

Paleontologist Amane Tajika and colleagues analyzed the shells of two marine mollusks called nautilids that were collected from waters near New Caledonia. Sample M25 and other shell sections formed during adulthood suggest that mature New Caledonian nautilids live at the same depths as mature Fijian nautilids. However, sample F02, which formed while the nautilid was still in its egg, had a chemical signature suggesting the egg had been laid in water 140 meters deep, while Fijian nautilids typically lay eggs at depths of at least 170 meters. Because water temperature decreases as depth increases, a biology student hypothesized that the New Caledonian nautilids lay their eggs in warmer water than Fijian nautilids do.

13

Mark for Review

ABC

Which finding, if true, would most directly weaken the student's hypothesis?

- (A) New Caledonia nautilids tend to migrate upward to warmer water immediately after hatching, whereas Fijian nautilids do not.
- (B) There aren't enough suitable hatching areas at a depth of at least 170 meters in New Caledonia for nautilids to lay their eggs at that depth.
- (C) The water temperature at a given depth tends to be lower in waters near Fiji than it is at that depth in waters near New Caledonia.
- (D) The water temperature at a given depth tends to be higher in waters near Fiji than it is at that depth in waters near New Caledonia.

Many studies have found a positive association between levels of dissolved organic carbon and mercury in bodies of fresh water in North America. But Enelton Fagnani, José Roberto Guimarã, and Pedro Sérgio Fadini did not find this correlation in a study conducted in Brazil, leading some scientists to hypothesize that the pattern is particular to North America. However, Kerstin Leopold, Anja Zierhut, and Jessica Huber reported dissolved organic carbon and mercury rising or falling together in a study conducted in Germany, and several other studies from outside North America have yielded similar results, suggesting that _____

14

Mark for Review

ABC

Which choice most logically completes the text?

- (A) bodies of fresh water outside North America are more likely to show a negative association between dissolved organic carbon and mercury levels than a positive association.
- (B) there may be circumstances specific to the bodies of water examined in Fagnani, Guimarã, and Fadini's study that disrupted a general positive association between dissolved organic carbon and mercury levels.
- (C) environmental characteristics unique to Brazil likely result in dissolved organic carbon and mercury levels in bodies of fresh water both being significantly higher there than elsewhere.
- (D) the bodies of water examined in Fagnani, Guimarã, and Fadini's study may be more similar to the bodies of water examined in studies conducted in North America than to those examined in Leopold, Zierhut, and Huber's study.

After much debate, _____ finally made a decision: the judges for the 1912 Nobel Prize in Literature would award Gerhart Johann Robert Hauptmann of Germany with that year's prize "[for] his fruitful, varied and outstanding production in the realm of dramatic art."



15

Mark for Review

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

(A) it

(B) they

(C) you

(D) anyone

In June of 2005, the song "Pon de Replay" was a top-ten hit. Having climbed the charts for twenty-six weeks, _____ ranked No. 2 on the Billboard Hot 100 list of most popular songs.

16

Mark for Review

ABC

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

A they

B it

C each

D those

Directions ▾



In 1990, the fantasy novel *The Eye of the World* was published under the pen name Robert Jordan. Now, we know that _____

17 ABC

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

- (A) was the author's real name James Oliver Rigney Jr?
- (B) the author's real name was James Oliver Rigney Jr.
- (C) the author's real name was James Oliver Rigney Jr?
- (D) was the author's real name James Oliver Rigney Jr.

While the greater adjutant (*Leptoptilos dubius*) can be found in places like the Nawalparasi forests in Nepal and Ang Tropeang Thmor in _____ than 80 percent of this endangered stork species is found in Assam, India. There, wildlife biologist Dr. Purnima Devi Barman is on the front lines of conservation efforts to bring adjutants back from near extinction.

**18**

Mark for Review

APC

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

- (A) Cambodia more
- (B) Cambodia. More
- (C) Cambodia; more
- (D) Cambodia, more**

New Zealand and Canada have two of the longest constitutions in the world. At 48,438 and 19,565 words, respectively, these ____ according to research by constitutional scholars George Tsebelis and Dominic J. Nardi, correlate with GDPs (gross domestic products) that are lower than those of countries with shorter constitutions.

19

Mark for Review

ABC

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

- (A) constitutions lengths,
- (B) constitutions' length,
- (C) constitution's length,
- (D) constitutions' lengths,

A pet cat poses next to its owners in *Kiesler and Wife*, an oil painting by American ____ Will Barnet.



20

Mark for Review

ABC

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

(A) artist—

(B) artist:

(C) artist

(D) artist,

In a 2024 study, researchers investigating the biodiversity of trees in Amsterdam counted and classified the city's trees. They found notable variation in the percentage of native trees in different areas of the city. _____ more than half of the trees in administrative unit GE05 (54%) were native species, but only 12% of the trees in administrative unit GE04 were native species.



21

Mark for Review

ABC

Which choice completes the text with the most logical transition?

- (A) As was previously stated,
- (B) Exemplifying this variation,
- (C) Contrary to this finding,
- (D) Resulting from this conclusion,

Every US state has an associated state soil, which is typically selected by a group of experts, then passed through the state legislature to receive its official designation. For example, Oklahoma's Port Silt Loam soil was formally designated in 1987, and Maine's Chesuncook soil in 1999. _____ years pass between a soil's selection and official designation, as the legislative process can be notoriously slow.

22

Mark for Review

ABC

Which choice completes the text with the most logical transition?

- (A) Therefore,
- (B) Often,
- (C) Similarly,
- (D) Indeed,

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

- *Field* is a 1968 black-and-white linocut print by Black American artist Samella Lewis.
- It features a laborer raising his fist in a symbol of liberation.
- Relief printing is a technique in which an image is first carved onto a printing block made of wood, rubber, or other materials.
- The block is then painted and stamped onto a print surface.
- Lino cutting is a type of relief printing that uses linoleum tile as the printing block.

23

Mark for Review

ABC

The student wants to describe the process of relief printing. Which choice most effectively uses relevant information from the notes to accomplish this goal?

- (A) Lewis used relief printing to create the 1968 linocut *Field*.
- (B) In relief printing, an image is carved onto a printing block, which is then painted and pressed onto a print surface.
- (C) Lewis used a relief printing technique called lino cutting, carving an image onto linoleum tile.
- (D) Relief printing is a technique that can use wood, rubber, and other materials as the printing block, not just linoleum tile.

- Historian Isabel Wilkerson's book *The Warmth of Other Suns* is about the Great Migration.
- The Great Migration was a period in twentieth-century US history when over six million African Americans moved from the rural South to cities such as New York, New York.
- To document this period, Wilkerson narrates the personal journeys of Ida Mae Gladney and Robert Pershing Foster, among others.
- The book won the Hurston/Wright Legacy Award in 2011.
- It also won the Heartland Prize in 2011.

25

Mark for Review

ABC

Which choice most effectively uses information from the given sentences to emphasize how Wilkerson documents the Great Migration?

- (A) The personal journey of Ida Mae Gladney is featured in the award-winning book *The Warmth of Other Suns*.
- (B) New York, New York, is one of the cities whose African American populations grew during the Great Migration.
- (C) In 2011, Isabel Wilkerson's book *The Warmth of Other Suns* won not only the Hurston/Wright Legacy Award but also the Heartland Prize.
- (D) Isabel Wilkerson chronicles the complex history of the Great Migration in such riveting, personal detail by narrating the journeys of individuals, such as Ida Mae Gladney and Robert Pershing Foster.

- Historian Isabel Wilkerson's book *The Warmth of Other Suns* is about the Great Migration.
- The Great Migration was a period in twentieth-century US history when over six million African Americans moved from the rural South to cities such as New York, New York.
- To document this period, Wilkerson narrates the personal journeys of Ida Mae Gladney and Robert Pershing Foster, among others.
- The book won the Hurston/Wright Legacy Award in 2011.
- It also won the Heartland Prize in 2011.

25

Mark for Review

ABC

Which choice most effectively uses information from the given sentences to emphasize how Wilkerson documents the Great Migration?

- (A) The personal journey of Ida Mae Gladney is featured in the award-winning book *The Warmth of Other Suns*.
- (B) New York, New York, is one of the cities whose African American populations grew during the Great Migration.
- (C) In 2011, Isabel Wilkerson's book *The Warmth of Other Suns* won not only the Hurston/Wright Legacy Award but also the Heartland Prize.
- (D) Isabel Wilkerson chronicles the complex history of the Great Migration in such riveting, personal detail by narrating the journeys of individuals, such as Ida Mae Gladney and Robert Pershing Foster.

One way to evaluate the importance of a scholar's research is to ____ other scholars' references to that research. For example, a count of other scholars' citations shows that Yale University economist Xiaohong Chen, who studies statistical methods in economics, is referenced frequently, indicating that her work has been significant in the field.

**2** **Mark for Review**

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

- (A) enumerate
- (B) transpose
- (C) abridge
- (D) circumvent

Urban green spaces can improve air quality, as vegetation absorbs pollutants and also dilutes pollutant concentrations through ventilation. However, data from air-quality monitoring stations in locations throughout Romania suggest that this often-cited benefit of vegetation is not always ____: researchers found that when there are many trees along a busy street, ventilation has minimal effect on the air quality.

**3** **Mark for Review**

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

(A) immoderate

(B) realized

(C) unappreciated

(D) compressed

Analyzing data on *Hemiriccus diops* and 378 other bird species from the Tyranni suborder, W. Alice Boyle and Courtney J. Conway found that group foragers are much less likely to seasonally migrate in search of food than solitary foragers are, suggesting that seasonal resource scarcity can be _____ the greater foraging efficiency that group foraging confers.

**4** Mark for Review

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

A predicated on

B conflated with

C overcome by

D compelled by

Directions ▾



Run by researchers in multiple countries, the Study on Global Ageing and Adult Health (SAGE) is an examination of aging that has attempted to track approximately 66,000 people for several years. Long-running studies like this need a lot of participants not merely for statistical robustness but also because of _____: over such a length of time, a substantial number of participants will withdraw or fall out of contact with the researchers.

5 Mark for Review

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

(A) impartiality

(B) replicability

(C) attrition

(D) circumspection

Spoken in Northern California, Karuk is an isolate, or a language that has no demonstrated relationship to other documented languages. The Haida language in Alaska is an isolate as well. However, most Native languages belong to language families, or groups of languages whose similarities can be attributed to shared descent from a single language spoken thousands of years ago. Curiously, isolates are more prevalent in regions where numerous nonisolates are also spoken. Thus, the geographical circumstances that favor the development of isolates may also drive diversification within language families.

**6** Mark for Review

Which choice best describes the overall structure of the text?

- (A) It provides examples of isolates, distinguishes isolates from most other Native languages, then discusses a point of correspondence between isolates and nonisolates.
- (B) It compares two isolates, sketches the process by which nonisolates evolve from isolates, then discusses how geography affects the development of isolates and nonisolates alike.
- (C) It defines the concepts of isolate languages and nonisolate languages, distinguishes between the regions where isolates and nonisolates are found, then accounts for this geographical distribution.
- (D) It names several isolates and nonisolates, proposes a similarity between the two categories of languages, then identifies the respective regions where languages belonging to each category are likely to be found.

Directions ▾

Hide

Highlights & Notes More



The following text is adapted from Matthew Arnold's 1869 nonfiction book *Culture and Anarchy*.

The *Times* [a British newspaper], replying to some foreign strictures on the dress, looks, and behaviour of the English abroad, urges that the English ideal is that everyone should be free to do and to look just as he likes. But culture indefatigably tries, not to make what each raw person may like, the rule by which he fashions himself; but to draw ever nearer to a sense of what is indeed beautiful, graceful, and becoming, and to get the raw person to like that.

7

Mark for Review



Which choice best states the main purpose of the text?

- (A) It argues that what is beautiful is a matter of fact rather than opinion.
- (B) It analyzes the unique sense of taste of the English.
- (C) It indicates that opinions regarding culture shift over time.
- (D) It makes a claim about one of the principal effects of culture.

Text 1

In a seminal 1979 study, Daniel Kahneman and Amos Tversky presented students and college faculty from Israel, Sweden, and the United States with hypothetical questions involving financial decisions. Finding that participants' responses indicated that losses have a greater psychological impact than equivalent gains do, the researchers formulated the concept of loss aversion, which has since informed research in fields ranging from marketing to law.

Text 2

Dana Zeif and Eldad Yechiam conducted an experiment in which study participants from five countries were exposed to financial choices that involved potential losses of either relatively minor sums of money, such as 20 US dollars (low-stakes contexts), or more substantial sums, such as 100 US dollars (high-stakes contexts). The researchers concluded that only the latter contexts were associated with loss aversion.

8

Mark for Review



Based on the texts, how would Zeif and Yechiam (Text 2) most likely respond to Kahneman and Tversky's finding (Text 1)?

- (A) By contending that the attitude toward financial losses that Kahneman and Tversky observed is contingent on the magnitude of outcomes
- (B) By agreeing that experimental results support the idea that some people tend to be more cognizant of financial losses than of gains
- (C) By observing that researchers' ability to assess feelings about financial decisions is contingent on gathering adequate data about gains and losses
- (D) By disputing Kahneman and Tversky's claim that a tendency to place excessive emphasis on financial losses accounts for the loss aversion observed in fields such as marketing and law

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

9

Mark for Review

Which statement about Namasenda is best supported by the text?

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

Studies of Cougar Population Density

Study authors	Location	Methods	Study area (square kilometers)	Maximum density (cougars per 100 square kilometers)
Ross Clarke	British Columbia (Canada)	radio-collar tracking	3,045	0.72
Verónica A. Quiroga et al.	Argentina	regular camera trapping	1,882	1.26
Richard A. Beausoleil et al.	Washington (United States)	biopsy darting	7,939	2.40
David M. Choate et al.	Utah (United States)	helicopter surveying	1,300	10.24

Studies of the population density of cougars (*Puma concolor*) have yielded a range of results, which may in part reflect differences in the effectiveness of the methods that researchers have used in their studies. For example, the difference between the maximum population density reported by Ross Clarke and that reported by David M. Choate et al. might be artificially large if the use of _____

10

Mark for Review



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

- (A) helicopter surveying underestimates the density of cougars.
- (B) helicopter surveying is more common in Utah than the use of radio-collar tracking is.
- (C) radio-collar tracking underestimates the density of cougars.
- (D) radio-collar tracking is impractical outside of British Columbia.

The bird species *Malacoptila fusca* (the white-chested puffbird) practices a foraging strategy known as sallying (catching insects in flight and returning to a perch to eat them), enabling it to scan for prey and predators simultaneously. Conversely, *Myrmotherula guttata* (the rufous-bellied antwren), with which *M. fusca* shares territory in French Guiana, practices foliage gleaning (picking insects off leaves), substantially limiting the bird's field of vision while foraging. Biologist Ari Martínez and colleagues hypothesized that the greater vulnerability inherent in the latter strategy is reflected in greater sensitivity to predator warning signals from neighboring species.

11

Mark for Review

ABC

Which finding, if true, would most directly support Martínez and colleagues' hypothesis?

- (A) When Martínez and colleagues played control sounds of random noise, only *M. guttata* displayed predator-avoidance behavior, whereas both *M. guttata* and *M. fusca* displayed such behavior when alarm calls from another local bird species were played.
- (B) When Martínez and colleagues played alarm calls from a species that does not share territory with *M. fusca* and *M. guttata*, *M. fusca* displayed predator-avoidance behavior, whereas *M. guttata* did not display any behavioral change.
- (C) When Martínez and colleagues played alarm calls from another local bird species, *M. guttata* displayed predator-avoidance behavior, whereas *M. fusca* did not display any behavioral change.
- (D) When Martínez and colleagues played *M. fusca* alarm calls, only *M. fusca* displayed predator-avoidance behavior, whereas both *M. fusca* and *M. guttata* displayed such behavior when *M. guttata* alarm calls were played.

Directions ▾

Hide

In medieval England, singers and minstrels made livings as traveling performers, but the pieces they performed have been a mystery, thought to be lost or never committed to paper at all. Recently, however, James Wade has argued that a manuscript collection compiled in the fifteenth century by Richard Heege contains three pieces likely copied from a repertoire book belonging to a minstrel working in the area around Heege's home. Wade cites features of the texts indicative of live performance, such as chastising the audience, extensive use of simple structures (allowing for easy memorization), and requests for tips (payment) from listeners.

12

Mark for Review



Which statement, if true, would most strongly support Wade's argument?

- (A) Heege's collection contains the earliest examples of the three pieces in question, but each of those pieces occurs in other manuscript collections compiled after Heege's.
- (B) The three pieces in question contain references that presume that the audience is familiar with Brackonwet and other small villages near where Heege lived.
- (C) Features like simple structures also occur in other texts from the period that were widely read but are not known to have been performed for live audiences.
- (D) Traveling minstrels are thought to have performed mainly for elite audiences, and other parts of Heege's collection reflect his interest in works with popular appeal.

A student is writing a research paper on the history of irrigation in the United States, situating the development of the Bear River Reservoir (created in Amador County, California, in 1900) in a larger historical context. The student claims that innovation in irrigation practices throughout the United States has led to designs with increased efficiency.

**13** Mark for Review

ABC

Which quotation from a study of irrigation best supports the student's claim?

- (A) "While the low humidity of Southern California's desert areas makes irrigation a requirement if agriculture is to be a success there, the relatively high humidity in the northern parts of the state makes such practices less necessary."
- (B) "The importance of irrigation infrastructure in the United States today cannot be overstated, since it is the most widely utilized means of conveying water for food production. Accordingly, any increase in the efficiency of irrigation, however small, would be of significant economic and social value."
- (C) "The irrigation system developed by the Hohokam people in the 7th century CE in what is now Arizona was simple but applied hydraulic engineering design features that are still in use today."
- (D) "Competition for water as a scarce economic resource inspired the development of sprinkler irrigation systems, which have contributed to the reduction of water used for irrigation in the United States to 45% of the total water usage of its population. Comparatively, 70% of the world's water usage is dedicated to irrigation."

Directions ▾

Hide



A soil's microbial community (the microbial taxa present in their relative abundances) is known to affect plants' nutrient acquisition. Corrine Walsh and colleagues hypothesized that microbial communities could also affect plants' flavor chemistry, including volatiles and secondary metabolites like glucosinolates. Recognizing that soil moisture varies by location in the wild and could influence plants' chemistry, Walsh et al. introduced distinct microbial communities to individually potted mustard plants (*Brassica juncea*) growing in a controlled environment, then measured the plants' glucosinolates, like 3-methylthiopropyl and allyl (the most prominent), that create the spicy and bitter flavors in mustard. This method thus enabled the researchers to _____

14

Mark for Review



Which choice most logically completes the text?

- (A) distinguish variations in glucosinolates due to differences in microbial communities from those that in a natural setting may be due to differences in soil moisture.
- (B) disentangle the influence of microbial communities on soil moisture from their influence on glucosinolate content in the plants.
- (C) demonstrate that differences in plants' flavor chemistry result from differences in the level of glucosinolates regardless of the soil moisture.
- (D) re-create the conditions of studies conducted in the wild that found links between soil microbial communities and levels of 3-methylthiopropyl in mustard plants.



In September of 1989, Indonesia liberalized its stock market, meaning that it began allowing foreign individuals and businesses to invest money in Indonesian companies. This was part of a wave of stock market liberalizations around the world—Jamaica in 1991, Nigeria in 1995, and so on. The standard view among economists at the time was that liberalization would make it easier for companies to raise money from investors. Economist Peter Blair Henry examined the economies of 11 countries that were part of the liberalization wave and found that, on average, companies based in those countries received significant increases in investment in the three years following liberalization, suggesting that _____.

15

Mark for Review



Which choice most logically completes the text?

- (A) companies in Jamaica experienced a greater increase in investment following liberalization than did companies in Indonesia.
- (B) companies in the countries Henry studied did not benefit from liberalization until at least three years after liberalization occurred.
- (C) economists who held the standard view of liberalization failed to anticipate some serious negative effects of liberalization.
- (D) economists' expectations about the effect of liberalization on investment were largely correct for the countries Henry studied.

Researchers who study olfaction—the sense of smell—define valence as a person's perception of how pleasant an odor is. Conventional wisdom holds that valence is culturally mediated. A team of scientists led by Artin Arshamian evaluated this view by testing how people from ten different places—including the Semelai people from a small community in the Malay Peninsula and the Chachi people from a small community in Ecuador—ranked ten odors from most pleasant to least pleasant. In general, respondents ranked scents similarly regardless of where they lived, overwhelmingly choosing the odorant eugenol as more pleasant than caprylic acid. These results show that _____

16

Mark for Review

ABC

Which choice most logically completes the text?

- (A) valence may affect cultural traditions more strongly than researchers had previously predicted.
- (B) the respondents agreed more often on unpleasant odors than they did on pleasant ones.
- (C) the conventional belief that odor pleasantness can be objectively measured is questionable.
- (D) the standard view of culture's role in olfactory valence may be unsound.

Directions ▾

Hide



The Komi Autonomous Soviet Socialist Republic, whose residents mainly spoke Komi, was one of many nominally autonomous Soviet ____ by giving these restive republics the right to assert their prerogatives. President Mikhail Gorbachev likely hastened the Soviet Union's breakup.

17

Mark for Review



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

- (A) republics established along ethnolinguistic lines;
- (B) republics established along ethnolinguistic lines,
- (C) republics. Established, along ethnolinguistic lines,
- (D) republics; established along ethnolinguistic lines

Directions



Despite being one of the North Atlantic Treaty Organization's (NATO's) newer members, Latvia, which joined the alliance in 2004, is just as protected—and just as bound—by NATO's principle of collective defense as is founding _____.

18

Mark for Review

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

(A) member—Norway.

(B) member: Norway.

(C) member; Norway.

(D) member Norway.

Directions ▾

Hide

Highlights & Notes

More

In ancient Mesoamerica, cotton was used as a commodity currency. By using specific goods like cotton as common units of exchange, commodity currency economies streamline trade, which is why they often replaced barter economies. Barter economies eschew _____ that requires what economist W.S. Jevons deems a "double coincidence of wants"—in other words, each trading party must want precisely what the other has.



19

Mark for Review

ABC

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

- (A) currency in favor of a direct trade system
- (B) currency, in favor of a direct trade system,
- (C) currency, in favor of a direct trade system
- (D) currency—in favor of a direct trade system

In recent years, the English writer Ann Yearsley (1753–1806), whose poetry was widely read during her lifetime, has been rediscovered by contemporary audiences—a resurgence of interest that is largely due to literary scholars such as Stacey McDowell, whose work _____ the richness of Yearsley's poems and the poet's historical importance to the Romantic literary movement encourages a broader rethinking of British Romanticism itself.



20

Mark for Review

ABC

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

- (A) highlights
- (B) highlighting
- (C) has highlighted
- (D) is highlighting



Directions



Not all plants benefit equally or from the same kind of _____ sweet gum and carrot, for example, benefit from endomycorrhizal associations; many tree species, such as pine and oak, benefit from ectomycorrhizal associations; and plants in the Ericaceae family, such as cranberry, don't benefit from mycorrhizae at all.

21

Mark for Review

ABC

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

- (A) mycorrhizae,
- (B) mycorrhizae;
- (C) mycorrhizae:
- (D) mycorrhizae



Hide



Highlights & Notes

More



Kho kho, a tag-like sport that originated in India, was not a medal sport at the 1936 Berlin Summer Olympic Games. ____ kho kho was featured at the Games as a demonstration sport. Demonstration sports have been featured at past Olympics to showcase lesser-known or regionally significant sports.

22

Mark for Review



Which choice completes the text with the most logical transition?

- (A) For example,
- (B) Rather,
- (C) Thus,
- (D) Additionally,

Directions

Hide

The names of geological eras uniformly describe phases in Earth's evolutionary history (e.g., Cenozoic means "new life"). Names given to geological periods, _____ are of diverse origins. The Silurian period is named after the Celtic tribe the Silures, for example, while the Permian period takes its name from the historical region of Perm in Russia.



23

Mark for Review



Which choice completes the text with the most logical transition?

- (A) in turn,
- (B) furthermore,
- (C) on the other hand,
- (D) therefore,

Connecticut lawyer and statesman Roger Sherman strategically adopted the pen name "A Citizen of New Haven" when voicing support for the ratification of the US Constitution in the *New-Haven Gazette*. Publishing pseudonymously offered a number of advantages, such as shielding a writer from criticism and controversy. ____ by removing a potential source of bias (the writer's name), it encouraged readers to focus on an essay's arguments.

**24**

Mark for Review



Which choice completes the text with the most logical transition?

- (A) Moreover,
- (B) In other words,
- (C) Specifically,
- (D) For example,

As technology has advanced, many countries have sought to gain an advantage in, or even control parts of, space and its celestial bodies. _____ it is the 1967 Outer Space Treaty—signed by Austria, Finland, and over 100 other nations—that curtails these ambitions and ensures that space remains a neutral place for the international community.



25

Mark for Review



Which choice completes the text with the most logical transition?

(A) Consequently,

(B) Specifically,

(C) Alternatively,

(D) Ultimately,

Directions

Hide

Highlights & Notes

More



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

- In botany, strawberries (*Fragaria ananassa*) are classified as fruits.
- In botany, green beans (*Phaseolus vulgaris*) are classified as fruits.
- Green beans are commonly considered vegetables because they taste savory.
- Strawberries are commonly considered fruits because they taste sweet.

26

Mark for Review



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

- (A) Unlike strawberries, green beans taste savory.
- (B) In botany, strawberries (*Fragaria ananassa*) and green beans (*Phaseolus vulgaris*) are both classified as fruits.
- (C) While strawberries are commonly considered fruits, green beans are commonly considered vegetables.
- (D) Strawberries, which are botanically classified as fruits, taste sweet and thus are commonly considered fruits.

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

- The United States has designated more than 500 areas National Wildlife Refuges (NWRs).
- Some NWRs were established specifically to protect endangered species.
- The Bear Valley NWR is a 4,200-acre area in Oregon.
- It was established to protect the endangered bald eagle.
- The Ellicott Slough NWR is a 139-acre area in California.
- It was established to protect the endangered Santa Cruz long-toed salamander.

27

Mark for Review

ABC

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

- (A) The US has designated more than 500 areas NWRs, including the Bear Valley NWR in Oregon.
- (B) While the Bear Valley NWR extends across a 4,200-acre area, the Ellicott Slough NWR encompasses only 139 acres.
- (C) Some NWRs, such as California's Ellicott Slough, were established specifically to protect endangered species.
- (D) Both the Bear Valley NWR and the Ellicott Slough NWR were established to protect endangered species.

1

Mark for Review



Jasmin grows bean pods in her garden. This year, she harvested 480 bean pods and saved 10% of them to plant next year. How many of the harvested bean pods did Jasmin save to plant next year?

(A) 38

(B) 48

(C) 56

(D) 58



Directions ▾

2

Mark for Review

abc

Which expression is equivalent to $7(x^2 + 6)$?

(A) $7x^2 + 42$

(B) $7x^2 + 13$

(C) $7x^2 + 6$

(D) $7x^2 + 1$



3

Mark for Review



The area of a rectangle is 108 square inches. The length of the longest side of the rectangle is 18 inches. What is the length, in inches, of the shortest side of this rectangle?

A 6

B 18

C 36

D 90

4

Mark for Review



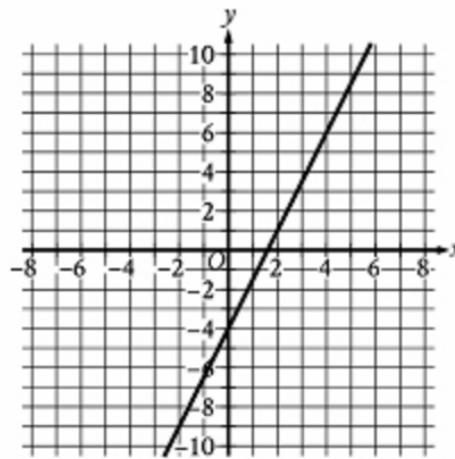
A piece of a metal alloy called delta metal has a total mass of 200.0 grams. The equation $c + z + 3.6 = 200.0$ relates the mass of copper c , in grams, and the mass of zinc z , in grams, in this piece of metal. If this piece of metal contains 110.0 grams of copper, how many grams of zinc does it contain?

A 86.4

B 90.0

C 110.0

D 196.4



$$\begin{matrix} (2, 1) \\ (0, -4) \end{matrix}$$

$$y = \frac{5}{2}x + b$$

Line j is shown in the xy -plane. Line k (not shown) is parallel to line j and passes through the point $(0, 8)$. Which equation defines line k ?

(A) $y = \frac{2}{5}x + 8$

(B) $y = \frac{2}{5}x - 8$

(C) $y = \frac{5}{2}x + 8$

(D) $y = \frac{5}{2}x - 8$

6

Mark for Review



In $\triangle JKL$, the measures of both $\angle J$ and $\angle K$ are equal and the measure of $\angle L$ is 124° .
What is the measure of $\angle J$?

- A 28°

- B 56°

- C 62°

- D 90°

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3 \frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666 0.667	0.66 .66 0.67 .67

7

Mark for Review

A marine biologist uses a linear model to estimate the weight of a blue whale after it is born. The model estimates that a certain blue whale weighs 5,910 pounds at birth and gains 10.0 pounds per hour, for 120 hours, after it is born. Based on this model, what is the estimated weight, in pounds, of this blue whale 7 hours after it is born?

5980

Answer Preview:

irections ▾

Hide



8 Mark for Review

The ratio of the side length of square A to the side length of square B is 3 to 6. Square A has a side length of 23 inches. What is the side length, in inches, of square B?

46

Answer Preview:



Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 .6666	.66 .67 .67

9

Mark for Review



Which expression is NOT a factor of $37,500x^4 - 960$?

(A) $25x^2 + 4$

(B) $5x^2 - 2$

(C) $5x + 2$

(D) 60

10

 Mark for Review

$$b^2 + 6c = 7d$$

The given equation relates the real numbers b , c , and d , where $d > \frac{6}{7}c$. Which equation correctly expresses b in terms of c and d ?

(A) $b = \frac{7d-6c}{2}$

(B) $b = \frac{7d+6c}{2}$

(C) $b = \pm\sqrt{7d - 6c}$

(D) $b = \pm\sqrt{7d + 6c}$

11

Mark for Review



If $3(7x) = 12$, what is the value of $7x$?

(A) $\frac{9}{7}$

(B) $\frac{7}{4}$

(C) $\frac{4}{7}$

(D) 9



x	$g(x)$
-1	27
0	1
1	$\frac{1}{27}$
2	$\frac{1}{729}$

For the exponential function g , the table shows four values of x and their corresponding values of $g(x)$. Which equation defines g ?

(A) $g(x) = -27^x$

(B) $g(x) = -\left(\frac{1}{27}\right)^x$

(C) $g(x) = 27^x$

(D) $g(x) = \left(\frac{1}{27}\right)^x$

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3 \frac{1}{2}$
	$\frac{2}{3}$	$0.\overline{66}$

13

Mark for Review

$$20.5x + 25.75y = 411$$

Odalys ordered mulch and river rock, which cost a total of \$411, for her home. The given equation represents the relationship between the number of cubic yards of mulch, x , and the number of tons of river rock, y , Odalys ordered. How much more, in dollars, did a ton of river rock cost Odalys than a cubic yard of mulch?

5.25

5.25

Answer Preview: 5.25

Hide


14 Mark for Review

A team of researchers plans to spend no more than 310 hours in total collecting observation data for two projects. For one of the projects, the team will observe at least 13 penguins and will spend 5 hours observing the behavior of each penguin. For the other project, the team will observe at least 16 seals and will spend 6 hours observing the behavior of each seal. Based on this plan, what is the maximum number of penguins the team can observe?

$$5x + 6y \leq 310$$

$$x \geq 7, \quad 13$$

$$y \geq 16$$

Answer Preview:

42

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	<u>3.5</u> <u>3.50</u> <u>7/2</u>	<u>31/2</u> <u>3 1/2</u>
$\frac{2}{3}$	<u>2/3</u> <u>.6666</u> <u>.6667</u> <u>0.666</u>	<u>0.66</u> <u>.66</u> <u>0.67</u> <u>.67</u>

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3 \frac{1}{2}$
	$\frac{2}{3}$	$0.\overline{66}$

13

Mark for Review

$$20.5x + 25.75y = 411$$

Odalys ordered mulch and river rock, which cost a total of \$411, for her home. The given equation represents the relationship between the number of cubic yards of mulch, x , and the number of tons of river rock, y , Odalys ordered. How much more, in dollars, did a ton of river rock cost Odalys than a cubic yard of mulch?

5.25

5,25

Answer Preview: 5.25

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$\frac{31}{2}$ $3\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666	.66 0.67


14 Mark for Review

A team of researchers plans to spend no more than 310 hours in total collecting observation data for two projects. For one of the projects, the team will observe at least 13 penguins and will spend 5 hours observing the behavior of each penguin. For the other project, the team will observe at least 16 seals and will spend 6 hours observing the behavior of each seal. Based on this plan, what is the maximum number of penguins the team can observe?

42

42

Answer Preview: 42

15

Mark for Review



$$(x + 5)^2 + (y + 8)^2 = 15^2$$

In the xy -plane, the graph of the given equation is a circle. What is the length of a radius of this circle?

A $\sqrt{15}$

B $\frac{15}{2}$

C 15

D 15^2



15 [Mark for Review](#)

$$(x + 5)^2 + (y + 8)^2 = 15^2$$

In the xy -plane, the graph of the given equation is a circle. What is the length of a radius of this circle?

A $\sqrt{15}$

B $\frac{15}{2}$

C 15

D 15^2

Directions ▾

Hide



Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666 0.667	.66 .67 0.67

16

Mark for Review

$$x + 21y = 33$$

$$5x + 3y = 29$$

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

4/3

Answer Preview:



17

Mark for Review



$$y < -4x + 12$$

Which point (x, y) is a solution to the given inequality in the xy -plane?

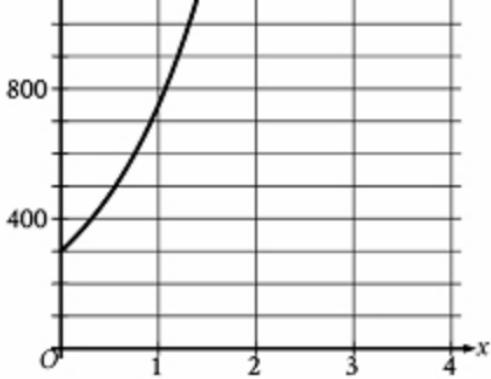
(A) $(0, 13)$

(B) $(-1, 17)$

(C) $(-4, 0)$

(D) $(4, -1)$





The graph models the number of online newsletter subscribers at the end of every six-month period, where x is the number of six-month periods since the end of January 1992 and $0 \leq x \leq 4$. Which statement is the best interpretation of the point $(1, 750)$ in this context?

- (A) The estimated number of online newsletter subscribers at the end of the first six-month period was 750.

- (B) The estimated number of online newsletter subscribers increased every six months by 750 subscribers.

- (C) The estimated number of online newsletter subscribers at the end of January 1992 was 750.

- (D) The estimated number of online newsletter subscribers at the end of January 1993 was 750.

19

Mark for Review

$$ax - by = 72$$

$$2ax - 8y = 48$$

$$\begin{array}{r} x^2 \\ \hline 6 \\ \hline 72 \end{array}$$

$$\begin{array}{r} 2x^2 \\ \hline 8 \\ \hline 48 \end{array}$$

In the given system of equations, a and b are constants. The graphs of these equations in the xy -plane intersect at the point $(x, 6)$. What is the value of b ?

A -8

B -4

C 4

D 6

Directions ▾

Hide

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	$\frac{3.5}{1}$ 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3 \frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$ $.6666$ $.6667$ 0.666	0.66 $.66$ 0.67 $.67$

20

Mark for Review

$$2|3x - 3| = 5$$

What is the sum of the solutions to the given equation?

$$3x - 3 = 5$$

$$\frac{3x}{2} = \frac{8}{2}$$

Answer Preview:

$$3x - 3 = \frac{-5}{2}$$

$$\frac{11}{6} + \frac{1}{6}$$

22

Mark for Review

$$y = 2x^2 - 12x + 22$$

$$y + 3 = 0$$

How many solutions are there to the given system of equations?

(A) There is exactly 1 solution.

(B) There are exactly 2 solutions.

(C) There are exactly 3 solutions.

(D) There are no solutions.



5 minutes left in this part of the test. X

22

Mark for Review



$$\begin{aligned}y &= 2x^2 - 12x + 22 \\y + 3 &= 0\end{aligned}$$

How many solutions are there to the given system of equations?

(A) There is exactly 1 solution.

(B) There are exactly 2 solutions.

(C) There are exactly 3 solutions.

(D) There are no solutions.



1

Mark for Review



Jasmin grows bean pods in her garden. This year, she harvested 480 bean pods and saved 10% of them to plant next year. How many of the harvested bean pods did Jasmin save to plant next year?

(A) 38

(B) 48

(C) 56

(D) 58

2

Mark for Review



Which expression is equivalent to $7(x^2 + 6)$?

 A

$$7x^2 + 42$$

 B

$$7x^2 + 13$$

 C

$$7x^2 + 6$$

 D

$$7x^2 + 1$$

3 Mark for Review

The area of a rectangle is 108 square inches. The length of the longest side of the rectangle is 18 inches. What is the length, in inches, of the shortest side of this rectangle?

A 6

B 18

C 36

D 90

4

Mark for Review



A piece of a metal alloy called delta metal has a total mass of 200.0 grams. The equation $c + z + 3.6 = 200.0$ relates the mass of copper c , in grams, and the mass of zinc z , in grams, in this piece of metal. If this piece of metal contains 110.0 grams of copper, how many grams of zinc does it contain?

 A

86.4

 B

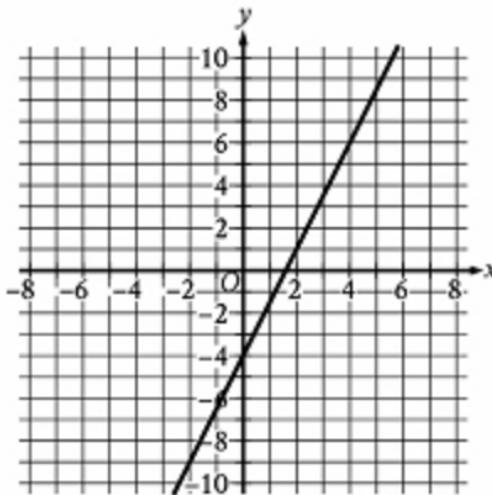
90.0

 C

110.0

 D

196.4



Line j is shown in the xy -plane. Line k (not shown) is parallel to line j and passes through the point $(0, 8)$. Which equation defines line k ?

(A) $y = \frac{2}{5}x + 8$

(B) $y = \frac{2}{5}x - 8$

(C) $y = \frac{5}{2}x + 8$



6

Mark for Review



In $\triangle JKL$, the measures of both $\angle J$ and $\angle K$ are equal and the measure of $\angle L$ is 124° . What is the measure of $\angle J$?

A 28°

B 56°

C 62°

D 90°



Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	<u>3.5</u> <u>3.50</u> <u>7/2</u>	<u>31/2</u> <u>3 1/2</u>
$\frac{2}{3}$	<u>2/3</u> <u>.6666</u> <u>.6667</u> <u>0.666</u>	<u>0.66</u> <u>.66</u> <u>0.67</u> <u>.67</u>

7

Mark for Review

A marine biologist uses a linear model to estimate the weight of a blue whale after it is born. The model estimates that a certain blue whale weighs 5,910 pounds at birth and gains 10.0 pounds per hour, for 120 hours, after it is born. Based on this model, what is the estimated weight, in pounds, of this blue whale 7 hours after it is born?

5980



Answer Preview: 5980

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$ $.6666$ $.6667$ 0.666	0.66 $.66$ 0.67 $.67$

8 Mark for Review

The ratio of the side length of square A to the side length of square B is 3 to 6. Square A has a side length of 23 inches. What is the side length, in inches, of square B?

46

Answer Preview: 46

9

Mark for Review



Which expression is NOT a factor of $37,500x^4 - 960$?

 A

$$25x^2 + 4$$

 B

$$5x^2 - 2$$

 C

$$5x + 2$$

 D

$$60$$

10

Mark for Review



$$b^2 + 6c = 7d$$

The given equation relates the real numbers b , c , and d , where $d > \frac{6}{7}c$. Which equation correctly expresses b in terms of c and d ?

(A) $b = \frac{7d - 6c}{2}$

(B) $b = \frac{7d + 6c}{2}$

(C) $b = \pm\sqrt{7d - 6c}$

(D) $b = \pm\sqrt{7d + 6c}$

11 **Mark for Review**

If $3(7x) = 12$, what is the value of $7x$?

(A) $\frac{9}{7}$

(B) $\frac{7}{4}$

(C) 4

(D) 9



x	$g(x)$
-1	27
0	1
1	$\frac{1}{27}$
2	$\frac{1}{729}$

For the exponential function g , the table shows four values of x and their corresponding values of $g(x)$. Which equation defines g ?

(A) $g(x) = -27^x$

(B) $g(x) = -\left(\frac{1}{27}\right)^x$

(C) $g(x) = 27^x$

(D) $g(x) = \left(\frac{1}{27}\right)^x$

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	<p>3.5 3.50 $\frac{7}{2}$</p>	<p>$3\frac{1}{2}$ $3\frac{1}{2}$</p>
$\frac{2}{3}$	<p>$\frac{2}{3}$.6666 .6667 0.6666 0.6667</p>	<p>0.66 .66 0.67 17</p>

13

Mark for Review

$$20.5x + 25.75y = 411$$

Odalys ordered mulch and river rock, which cost a total of \$411, for her home. The equation represents the relationship between the number of cubic yards of mulch, x , the number of tons of river rock, y , Odalys ordered. How much more, in dollars, did river rock cost Odalys than a cubic yard of mulch?

5.25



Answer Preview: 5.25

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666 $\frac{667}{1000}$	0.66 .66 0.67 .67

14

Mark for Review

A team of researchers plans to spend no more than 310 hours in total collecting data for two projects. For one of the projects, the team will observe at least 13 penguins. For the other project, the team will spend 5 hours observing the behavior of each penguin. For the other project, the team will observe at least 16 seals and will spend 6 hours observing the behavior of each seal. Based on this plan, what is the maximum number of penguins the team can observe?

42



Answer Preview: 42

15 **Mark for Review**

$$(x + 5)^2 + (y + 8)^2 = 15^2$$

In the xy -plane, the graph of the given equation is a circle. What is the length of a radius of this circle?

(A) $\sqrt{15}$

(B) $\frac{15}{2}$

(C) 15

(D) 15^2



Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3 \frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666 0.667	0.66 .66 0.67 .67

16

Mark for Review

$$x + 21y = 33$$

$$5x + 3y = 29$$

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

4 / 3



Answer Preview: $\frac{4}{3}$

17

Mark for Review



$$y < -4x + 12$$

Which point (x, y) is a solution to the given inequality in the xy -plane?

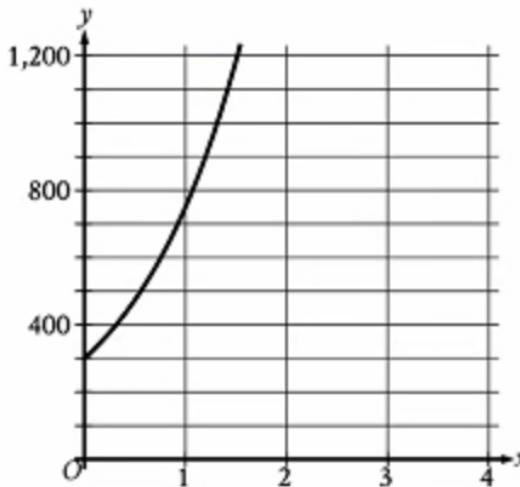
- A $(0, 13)$

- B $(-1, 17)$

- C $(-4, 0)$

- D $(4, -1)$





The graph models the number of online newsletter subscribers at the end of every six-month period, where x is the number of six-month periods since the end of January 1992 and $0 \leq x \leq 4$. Which statement is the best interpretation of the point $(1, 750)$ in this context?

- A The estimated number of online newsletter subscribers at the end of the first six-month period was 750.

- B The estimated number of online newsletter subscribers increased every six months by 750 subscribers.

19

Mark for Review



$$ax - by = 72$$

$$2ax - 8y = 48$$

In the given system of equations, a and b are constants. The graphs of these equations in the xy -plane intersect at the point $(x, 6)$. What is the value of b ?

(A) -8

B -4

(C) 4

(D) 6



Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3~\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 .6666 .6667	0.66 .66 0.67 .67

20

Mark for Review

$$2|3x - 3| = 5$$

What is the sum of the solutions to the given equation?



Answer Preview: 2

student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 0.666 0.667	0.66 .66 0.67 .67

21

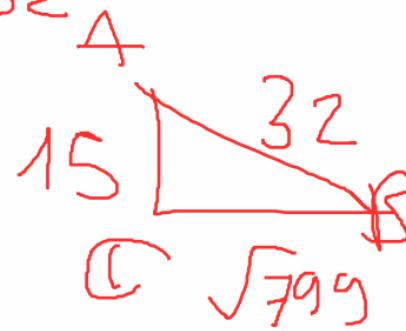
Mark for Review

In right triangle ABC , side BC has a length of $\sqrt{799}$. The hypotenuse, side AB , has a length of 32. What is the value of $\sin B$?

15/32

15
32

Answer Preview: $\frac{15}{32}$



22

Mark for Review



$$y = 2x^2 - 12x + 22$$

$$y + 3 = 0$$

How many solutions are there to the given system of equations?

(A) There is exactly 1 solution.

(B) There are exactly 2 solutions.

(C) There are exactly 3 solutions.

(D) There are no solutions.



There are no solutions.

1

Mark for Review



The function f is defined by $f(x) = 3x - \frac{1}{5}$. What is the y -intercept of the graph of $y = f(x)$ in the xy -plane?

A $(0, -\frac{1}{5})$

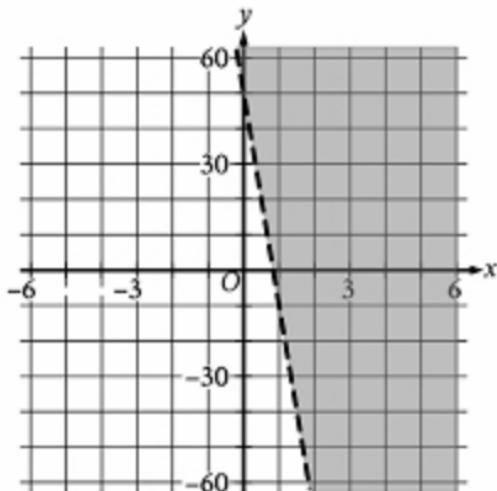
B $(0, -3)$

C $(0, 3)$

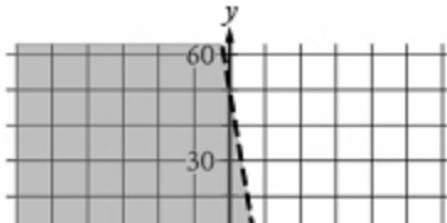
D $(0, 5)$

Which shaded region represents the solutions to the inequality $y < -60x + 50$?

A



B



3

Mark for Review



Antonia has \$130 in an account. Each year she expects to have 2.5% more money in the account than she had the previous year. Which of the following models best describes how Antonia expects the money in her account to change over time?

- (A) Decreasing exponential
- (B) Decreasing linear
- (C) Increasing exponential
- (D) Increasing linear



4

Mark for Review



The measure of an angle is $(51)\left(\frac{k}{2}\right)\pi$ radians, where k is a constant. What is the measure of this angle, in degrees?

A $(51)\left(\frac{k}{360}\right)$

B $(51)(180k)$

C $(51)\left(\frac{k}{180}\right)$

D $(51)(90k)$

4

Mark for Review



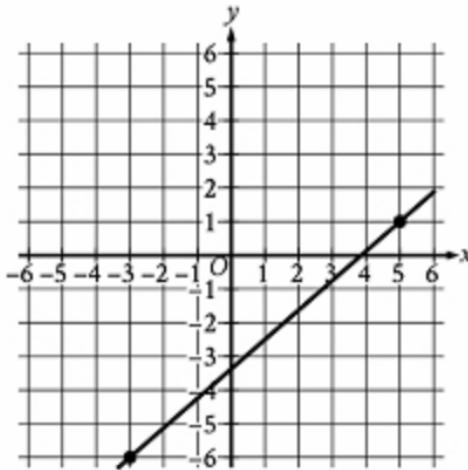
The measure of an angle is $(51)\left(\frac{k}{2}\right)\pi$ radians, where k is a constant. What is the measure of this angle, in degrees?

A $(51)\left(\frac{k}{360}\right)$

B $(51)(180k)$

C $(51)\left(\frac{k}{180}\right)$

D $(51)(90k)$



What is an equation of the graph shown?

(A) $7x - 8y = 189$

(B) $8x - 7y = 189$

(C) $49x - 56y = 189$

(D) $56x - 49y = 189$

7

Mark for Review



The function $T(x) = \frac{20,000 - 6.5x}{1,000}$ gives the estimated air temperature $T(x)$, in degrees Celsius ($^{\circ}\text{C}$), surrounding a hot air balloon at an altitude of x meters. If the estimated air temperature surrounding the hot air balloon is 15°C , which of the following is closest to the altitude, in meters, of the hot air balloon?

(A) 20

(B) 769

(C) 1,333

(D) 5,385

7

 Mark for Review

The function $T(x) = \frac{20,000 - 6.5x}{1,000}$ gives the estimated air temperature $T(x)$, in degrees Celsius ($^{\circ}\text{C}$), surrounding a hot air balloon at an altitude of x meters. If the estimated air temperature surrounding the hot air balloon is 15°C , which of the following is closest to the altitude, in meters, of the hot air balloon?

(A) 20

(B) 769

(C) 1,333

(D) 5,385

8

Mark for Review



$$x^2 - 5x + 3 = 0$$

What is one of the solutions to the given equation?

A $\frac{5+\sqrt{13}}{2}$

B $\frac{5+\sqrt{37}}{2}$

C $\frac{-5+\sqrt{13}}{2}$

D $\frac{-5+\sqrt{37}}{2}$

8

Mark for Review



$$x^2 - 5x + 3 = 0$$

What is one of the solutions to the given equation?

A

$$\frac{5+\sqrt{13}}{2}$$

B

$$\frac{5+\sqrt{37}}{2}$$

C

$$\frac{-5+\sqrt{13}}{2}$$

D

$$\frac{-5+\sqrt{37}}{2}$$

9

Mark for Review



A right triangle has sides of length $3\sqrt{2}$, $5\sqrt{2}$, and $\sqrt{68}$ units. What is the area of the triangle, in square units?

(A) $8\sqrt{2} + \sqrt{68}$

(B) $30\sqrt{68}$

(C) 30

(D) 15

Hide


10 Mark for Review

For a school competition, each student in the sixth, seventh, and eighth grades is assigned to either the red team or the green team. The table shows the distribution of grade and team for the students in the school.

	Red team	Green team	Total
Sixth grade	47	42	89
Seventh grade	49	36	85
Eighth grade	38	52	90
Total	134	130	264

A student from the competition will be selected at random. What is the probability of selecting a student who is in the sixth or seventh grade, given that the student is on the green team? (Express your answer as a decimal or fraction, not as a percent.)

0 . 6

Answer Preview: 0.6

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

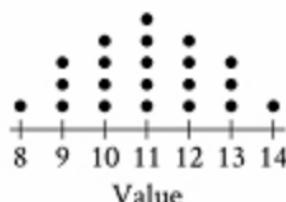
Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3 \cdot \frac{1}{2}$
$\frac{2}{3}$	0.6666 0.6667 0.666	0.66 .66 0.67

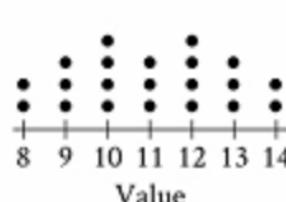


The dot plots represent the distributions of values in data sets A and B.

Data Set A



Data Set B



Which of the following statements must be true?

- I. The median of data set A is equal to the median of data set B.
- II. The standard deviation of data set A is equal to the standard deviation of data set B.

(A) I and II

(B) I only

(C) II only

(D) Neither I nor II

12

Mark for Review



The function f is defined by $f(x) = 53(0.15)^x$. For any positive integer n , the value of $f(n)$ is $p\%$ less than the value of $f(n - 1)$. What is the value of p ?

(A) 15

(B) 47

(C) 53

(D) 85

12

Mark for Review



The function f is defined by $f(x) = 53(0.15)^x$. For any positive integer n , the value of $f(n)$ is $p\%$ less than the value of $f(n - 1)$. What is the value of p ?

(A) 15

(B) 47

(C) 53

(D) 85

Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$ $3\cdot\frac{1}{2}$
$\frac{2}{3}$	$\frac{2}{3}$.6666 .6667 .6666 .6667	0.66 .66 .67

13

Mark for Review

$$f(x) = (x - a)(x - b)$$

The function f is defined by the given equation, where a and b are integer constants. If $f(17) > 0$, $f(20) < 0$, and $f(23) > 0$, what is one possible value of $a + b$?

Answer Preview:



14 **Mark for Review**

In a collection of items, 10% are red, 25% are green, 35% are blue, and 30% are yellow. If there are 40 green items, how many blue items are in the collection?

(A) 14

(B) 16

(C) 48

(D) 56

15

Mark for Review



The number of bacteria in a growth medium is expected to increase by 170% every 2 hours during a period of observation. The number of bacteria in the growth medium was estimated to be 5,000 when the period of observation began. Which function P gives the expected number of bacteria in this growth medium t hours after the period of observation began?

(A) $P(t) = 5,000(1.70)^{\frac{t}{2}}$

(B) $P(t) = 5,000(1.70)^{2t}$

(C) $P(t) = 5,000(2.70)^{\frac{t}{2}}$

(D) $P(t) = 5,000(2.70)^{2t}$

The daily precipitation total at a weather station is recorded by a weather instrument each day. The daily precipitation total recorded on Monday was 19.00 millimeters. The daily precipitation total recorded on Tuesday was a 134.00% increase from the daily precipitation total recorded on Monday. What was the daily precipitation total, in millimeters, recorded on Tuesday?

(A) 8.12

(B) 14.18

(C) 25.46

(D) 44.46

18 Mark for Review

One gallon of paint will cover 310 square feet of a surface. A room has a total wall area of w square feet. Which equation represents the total amount of paint P , in gallons, needed to paint the walls of the room twice?

(A) $P = \frac{w}{155}$

(B) $P = 620w$

(C) $P = \frac{w}{310}$

(D) $P = 310w$

One gallon of paint will cover 310 square feet of a surface. A room has a total wall area of w square feet. Which equation represents the total amount of paint P , in gallons, needed to paint the walls of the room twice?

A $P = \frac{w}{155}$

B $P = 620w$

C $P = \frac{w}{310}$

D $P = 310w$

19

Mark for Review



$$f(x) = 3x^2 + 48x + 193$$

The function g is defined by $g(x) = f(x + 7)$. What is the minimum value of $g(x)$?

(A) -15

(B) -8

(C) 1

(D) 8



Student-produced response directions

- If you find **more than one correct answer**, enter only one answer.
- You can enter up to 5 characters for a **positive** answer and up to 6 characters (including the negative sign) for a **negative** answer.
- If your answer is a **fraction** that doesn't fit in the provided space, enter the decimal equivalent.
- If your answer is a **decimal** that doesn't fit in the provided space, enter it by truncating or rounding at the fourth digit.
- If your answer is a **mixed number** (such as $3\frac{1}{2}$), enter it as an improper fraction ($\frac{7}{2}$) or its decimal equivalent (3.5).
- Don't enter **symbols** such as a percent sign, comma, or dollar sign.

Examples

Answer	Acceptable ways to enter answer	Unacceptable: will NOT receive credit
3.5	3.5 3.50 $\frac{7}{2}$	$3\frac{1}{2}$
$\frac{2}{3}$	0.6666 0.6667 0.666	0.66 .66 0.67



22

Mark for Review

$$r^2 + qr = 8r - 97$$

In the given equation, q is an integer constant. The given equation has no real solutions. What is the largest possible value of q ?

Answer Preview: 27