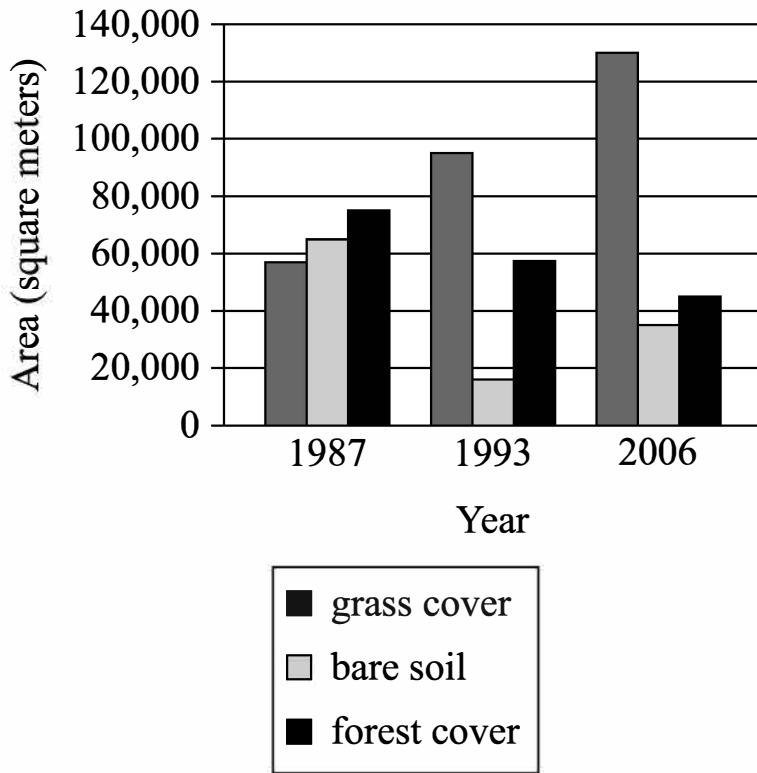


Although many transposons, DNA sequences that move within an organism's genome through shuffling or duplication, have become corrupted and inactive over time, those from the long interspersed nuclear elements (LINE) family appear to remain active in the genomes of some species. In humans, they are functionally important within the hippocampus, a brain structure that supports complex cognitive processes. When the results of molecular analysis of two species of octopus—an animal known for its intelligence—were announced in 2022, the confirmation of a LINE transposon in *Octopus vulgaris* and *Octopus bimaculoides* genomes prompted researchers to hypothesize that that transposon family is tied to a species' capacity for advanced cognition.

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

- A. The LINE transposon in *O. vulgaris* and *O. bimaculoides* genomes is active in an octopus brain structure that functions similarly to the human hippocampus.
- B. The human genome contains multiple transposons from the LINE family that are all primarily active in the hippocampus.
- C. A consistent number of copies of LINE transposons is present across the genomes of most octopus species, with few known corruptions.
- D. *O. vulgaris* and *O. bimaculoides* have smaller brains than humans do relative to body size, but their genomes contain sequences from a wider variety of transposon families.

Characteristics of the Banks of the Provo River Downstream of the Jordanelle Dam



The Jordanelle Dam was built on the Provo River in Utah in 1992. Earth scientist Adriana E. Martinez and colleagues tracked changes to the environment on the banks of the river downstream of the dam, including how much grass and forest cover were present. They concluded that the dam changed the flow of the river in ways that benefited grass plants but didn't benefit trees.

Which choice best describes data from the graph that support Martinez and colleagues' conclusion?

- A. The lowest amount of grass cover was approximately 58,000 square meters, and the highest amount of forest cover was approximately 75,000 square meters.
- B. There was more grass cover than forest cover in 1987, and this difference increased dramatically in 1993 and again in 2006.
- C. There was less grass cover than bare soil in 1987 but more grass cover than bare soil in 1993 and 2006, whereas there was more forest cover than bare soil in all three years.
- D. Grass cover increased from 1987 to 1993 and from 1993 to 2006, whereas forest cover decreased in those periods.

"Loon Point" is a 1912 poem by Amy Lowell. In the poem, which presents a nighttime scene on a body of water, Lowell describes an element of nature as an active participant in the experience, writing, _____

Which quotation from "Loon Point" most effectively illustrates the claim?

- A. "Through the water the moon writes her legends / In light, on the smooth, wet sand."
- B. "Softly the water ripples / Against the canoe's curving side."
- C. "Or like the snow-white petals / Which drop from an overblown rose."
- D. "But the moon in her wayward beauty / Is ever and always the same."

Accomplished printmaker and sculptor Elizabeth Catlett (1915–2012) used her art to explore the Black experience in the United States. In a paper for an art history class, a student claims that Catlett had a particular talent for unifying various artistic traditions and styles in her work.

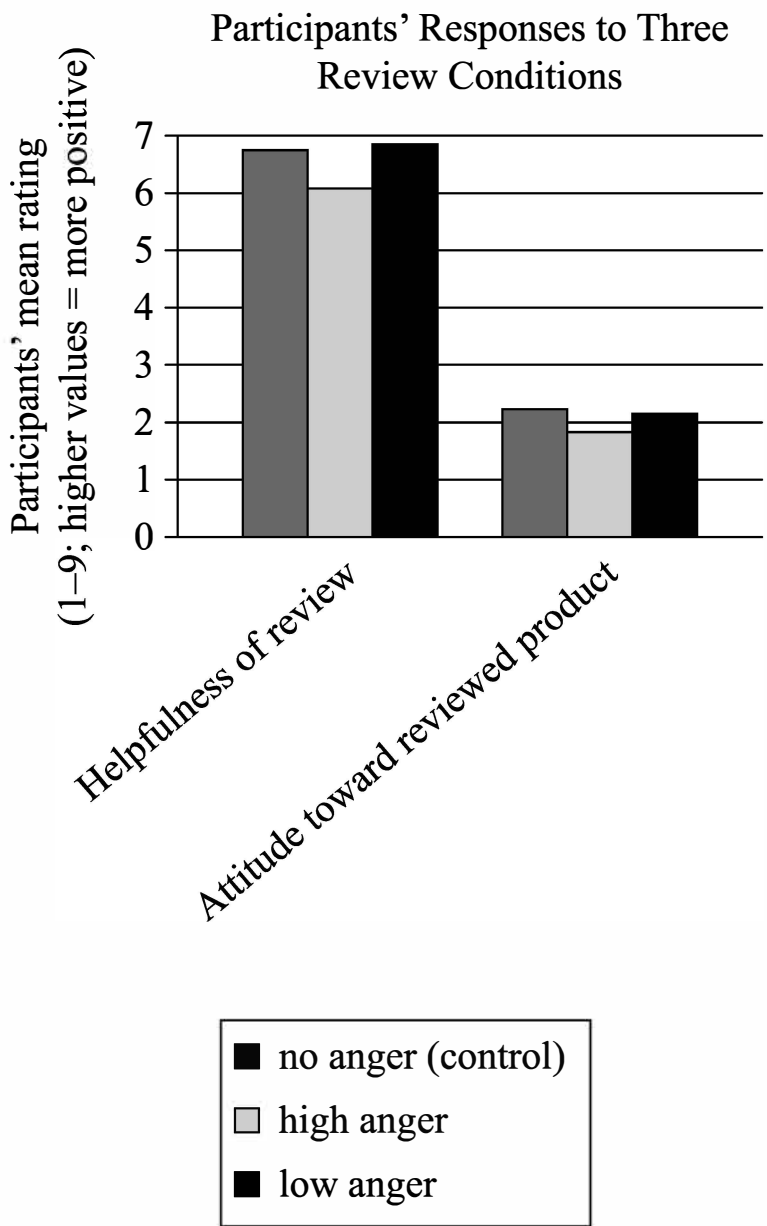
Which quotation from a scholar describing Catlett’s work would best support the student’s claim?

- A. “In *Mother and Child*, a sculpture of two Black figures, Catlett used an ancient Indigenous sculpting technique and combined the visual aesthetic of modern Mexican muralists with that of German artist Kathe Kollwitz.”
- B. “In her collage *New Generation*, Catlett overlaid fabric onto the canvas to represent the clothing of a father and his toddler, positioned to evoke classic images of a mother and child.”
- C. “Created in 1968, Catlett’s sculpture *Black Unity*, a stylized fist sculpted from mahogany and measuring two feet across, remains an important piece and has received renewed and well-deserved attention in recent years.”
- D. “One series of Catlett’s prints, made by the artist using the linoleum cut method, depicts several notable African American women, including Harriet Tubman and Sojourner Truth.”

A student is examining a long, challenging poem that was initially published in a quarterly journal without explanatory notes, then later republished in a stand-alone volume containing only that poem and accompanying explanatory notes written by the poet. The student asserts that the explanatory notes were included in the republication primarily as a marketing device to help sell the stand-alone volume.

Which statement, if true, would most directly support the student's claim?

- A. The text of the poem as published in the quarterly journal is not identical to the text of the poem published in the stand-alone volume.
- B. Many critics believe that the poet's explanatory notes remove certain ambiguities of the poem and make it less interesting as a result.
- C. The publishers of the stand-alone volume requested the explanatory notes from the poet in order to make the book attractive to readers who already had a copy of the poem in a journal issue.
- D. Correspondence between the poet and the publisher reveals that the poet's explanatory notes went through several drafts.



To understand how expressions of anger in reviews of products affect readers of those reviews, business scholar Dezhi Yin and colleagues measured study participants' responses to three versions of the same negative review—a control review expressing no anger, a review expressing a high degree of anger, and a review expressing a low degree of anger. Reviewing the data, a student concludes that the mere presence of anger in a review may not negatively affect readers' perceptions of the review, but a high degree of anger in a review does worsen readers' perceptions of the review.

Which choice best describes data from the graph that support the students' conclusion?

- On average, participants' ratings of the helpfulness of the review were substantially higher than were participants' ratings of the reviewed product regardless of which type of review participants had seen.
- Compared with participants who saw the control review, participants who saw the low-anger review rated the review as slightly more helpful, whereas participants who saw the high-anger review rated the review as less helpful.
- Participants who saw the low-anger review rated the review as slightly more helpful than participants who saw the control review did, but participants' attitude toward the reviewed product was slightly worse when participants saw the low-anger review than when they saw the no-anger review.

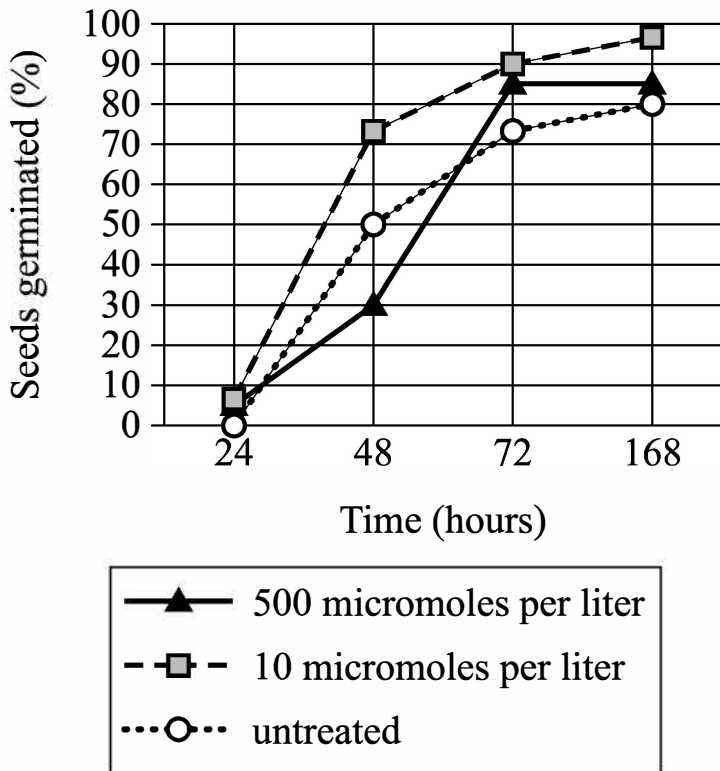
D. Compared with participants who saw the low-anger review, participants who saw the high-anger review rated the review as less helpful and had a less positive attitude toward the reviewed product.

Sandra Cisneros's 1984 novella *The House on Mango Street* made a lasting impact on US literature. Its depiction of Mexican American culture inspired later authors to examine their own heritage within their fictional works. Also influential was the book's portrayal of the main character, Esperanza, during a pivotal year of her youth. This insightful depiction of a preteen girl encouraged authors who, like Cisneros herself, are Latina to use fictional works to examine experiences from their own youth.

Which statement, if true, would most strongly support the claim in the underlined sentence?

- A. In interviews, a number of Latina authors say that *The House on Mango Street* inspired them to write about their own adolescence in their novels.
- B. In published writings, several prominent authors who are not Latina say that reading *The House on Mango Street* influenced their approach to writing fiction.
- C. *The House on Mango Street* has sold over six million copies and is one of the most commonly read books among high school and university students in the US.
- D. Since 1984, new novels about young Latina characters by Latina authors have often been compared to *The House on Mango Street*.

Seed Germination with and without H₂S Treatment



In high concentrations, hydrogen sulfide (H₂S) is typically toxic to many plants. Frederick D. Dooley and colleagues wanted to understand what effects low doses of H₂S might have on plant growth. They treated bean, corn, wheat, and pea seeds with various concentrations (measured in micromoles per liter) of H₂S and tracked the germination of those seeds along with the germination of untreated seeds. Treatment with particular concentrations of H₂S was associated with accelerated germination: for example, _____

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

- A. at 24 hours, less than 10% of seeds treated with H₂S at a concentration of 10 micromoles per liter had germinated, whereas more than 90% of those seeds had germinated at 168 hours.
- B. at 48 hours, more than 70% of seeds treated with H₂S at a concentration of 10 micromoles per liter had germinated, whereas only approximately 50% of untreated seeds had germinated.
- C. at 168 hours, more than 90% of seeds treated with H₂S at concentrations of 10 or 500 micromoles per liter had germinated, whereas less than 70% of untreated seeds had germinated.
- D. at 48 hours, approximately 50% of seeds treated with H₂S at a concentration of 10 micromoles per liter had germinated, whereas only approximately 30% of untreated seeds had germinated.

Rivers rich in sediment appear yellow, while increases in red algae make rivers appear red. To track things like the sediment or algae content of large US rivers, John R. Gardner and colleagues used satellite data to determine the dominant visible wavelengths of light measured for various segments of these rivers. The researchers classified wavelengths of 495 nanometers (nm) and below as red, wavelengths between 495 and 560 nm as blue, and wavelengths of 560 nm and above as yellow. The researchers concluded that for the Missouri River, segments flowing into lakes tend to carry more sediment than those flowing out of lakes.

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

- A. The segments of the Missouri River that had higher levels of chlorophyll-a, which contributes to the green color of photosynthetic organisms, have dominant wavelengths of light between 490 and 560 nm.
- B. In lakes through which segments of the Missouri River pass, the dominant wavelength of light tended to be above 560 nm near the lakes' shores and below 560 nm in the lakes' centers.
- C. The majority of the segments of the Missouri River were found to have dominant wavelengths of light significantly higher than 560 nm.
- D. Segments of the Missouri River flowing into lakes typically had dominant wavelengths of light above 560 nm, while segments flowing out of lakes typically had dominant wavelengths below 560 nm.

"Mrs. Spring Fragrance" is a 1912 short story by Sui Sin Far. In the story, Mrs. Spring Fragrance, a Chinese immigrant living in Seattle, is traveling in California. In letters to her husband and friend, she demonstrates her concern for what's happening at her home in Seattle while she is away: _____

Which quotation from Mrs. Spring Fragrance's letters most effectively illustrates the claim?

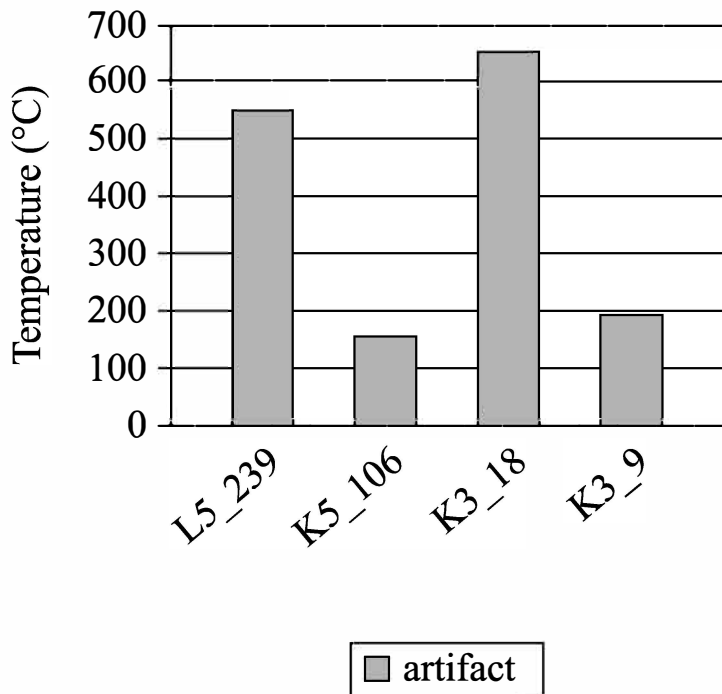
- A. "My honorable cousin is preparing for the Fifth Moon Festival, and wishes me to compound for the occasion some American 'fudge,' for which delectable sweet, made by my clumsy hands, you have sometimes shown a slight prejudice."
- B. "Next week I accompany Ah Oi to the beautiful town of San José. There will we be met by the son of the Illustrious Teacher."
- C. "Forget not to care for the cat, the birds, and the flowers. Do not eat too quickly nor fan too vigorously now that the weather is warming."
- D. "I am enjoying a most agreeable visit, and American friends, as also our own, strive benevolently for the accomplishment of my pleasure."

Plants like potatoes, tomatoes, and soybeans are susceptible to bacterial wilt disease caused by the bacteria *Ralstonia solanacearum*. A multinational team of scientists led by Zhong Wei studied whether other microbes in the soil might influence the degree to which plants are affected by the disease. The team sampled soil surrounding individual tomato plants over time and compared the results of plants that became diseased with those that remained healthy. They concluded that the presence of certain microbes in the soil might explain the difference between healthy and diseased plants.

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

- A. The soil surrounding healthy plants contained significantly higher concentrations of microbes known to inhibit *Ralstonia solanacearum* than the soil surrounding diseased plants did.
- B. The soil surrounding the plants contained high concentrations of *Ralstonia solanacearum* regardless of whether the plants were affected by wilt disease.
- C. The soil surrounding healthy plants tended to have significantly higher moisture levels than the soil surrounding diseased plants did.
- D. By the end of the experiment, over half the plants had been affected by wilt disease regardless of differences in the types and concentrations of microbes in the surrounding soil.

Estimated Temperatures to which
Evron Quarry Artifacts Were Exposed



Flint artifacts dating to 800,000 to 1,000,000 years ago have been recovered from the Evron Quarry in Israel. Likely created by the hominin *Homo erectus*, the artifacts have no visual features suggesting that they were exposed to fire, leading some scholars to conclude that these hominins had not acquired control of fire. But Zane Stepka and colleagues recently used a new method to determine whether these artifacts had been exposed to temperatures above 400°C (the typical temperature campfires reach) and concluded that the hominins who inhabited the site may have had control of fire.

Which choice best describes data in the graph that support the team's conclusion?

- A. Artifacts K5_106 and K3_9 were exposed to temperatures above 400°C.
- B. Artifacts L5_239 and K3_18 were exposed to temperatures of approximately 550°C and 650°C, respectively.
- C. All of the artifacts were exposed to temperatures above 100°C.
- D. Artifact K3_9 was exposed to a higher temperature than was artifact K5_106.

Although it's clear that Mars once had liquid water on its surface, astronomers have debated whether the evidence of ancient water reflects a prolonged phase of warm, wet conditions—the so-called wet and warm scenario—or a brief period of melting in an otherwise consistently frozen environment. Researchers Benjamin T. Cardenas and Michael P. Lamb recently added to this debate by using data from NASA and the Mars Orbiter Laser Altimeter to map the topography of what is now a large basin in Mars's northern hemisphere. Cardenas and Lamb concluded that the wet and warm scenario is likely correct.

Which finding about the basin, if true, would most directly support Cardenas and Lamb's conclusion?

- A. Its dimensions and shape indicate that it is unlikely to have formed as the result of an asteroid or comet impact.
- B. It has features suggesting that it once held an ocean that underwent gradual sea-level changes over an extended time.
- C. Its physical characteristics are most consistent with it having formed as a result of a massive but short-lived influx of liquid water.
- D. It is surrounded by channels that could have been formed either by running water or by flowing lava.

The Land of Enchantment is a 1906 travel book by Lilian Whiting. In the book, which describes the experience of traveling through the southwestern United States by train, Whiting reflects on the escape from everyday life that such a journey provides: _____

Which quotation from *The Land of Enchantment* most effectively illustrates the claim?

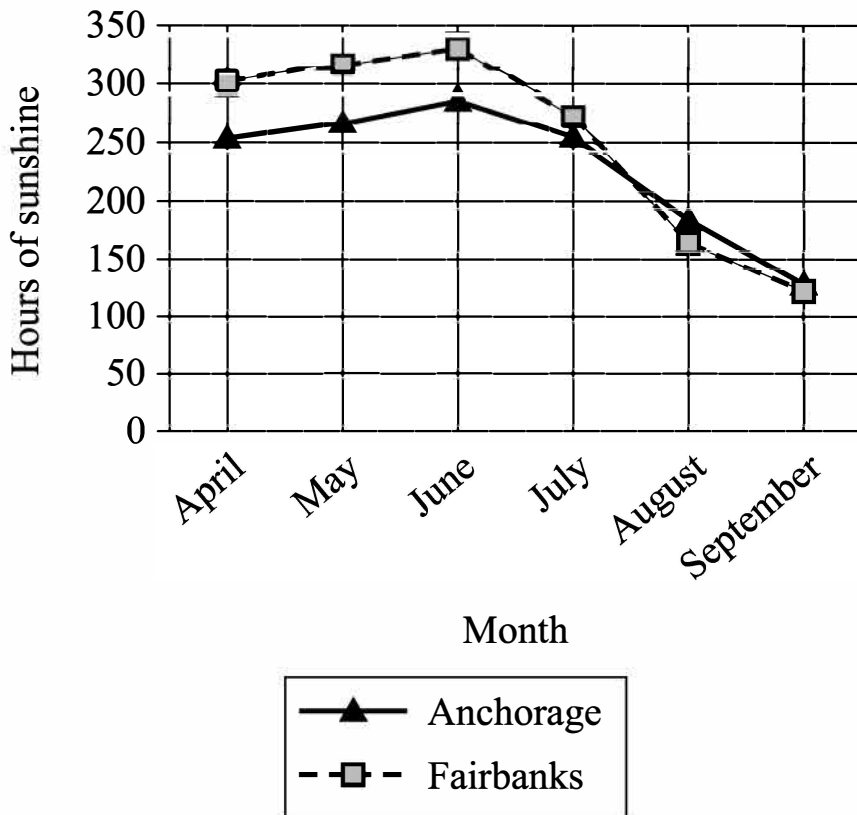
- A. "The opportunities and advantages already offered and constantly increasing are greater than would at first be considered possible."
- B. "The social and the picturesque charm of the long journey is singularly enhanced by the leisurely stops made for refreshment."
- C. "The real journey begins, of course, at Chicago, and as these trains leave in the evening the traveller fares forth in the seclusion of his berth."
- D. "One experiences a certain sense of detachment from ordinary day and daylight duties that is exhilarating."

Sense and Sensibility is an 1811 novel by Jane Austen. In the novel, Austen describes Marianne Dashwood's ability to persuade others of the rightness of her artistic judgments, as is evident when Marianne visits with John Willoughby, a potential suitor: _____

Which quotation from *Sense and Sensibility* most effectively illustrates the claim?

- A. "Above all, when she heard him declare, that of music and dancing he was passionately fond, she gave him such a look of approbation as secured the largest share of his discourse to herself for the rest of his stay."
- B. "Their taste was strikingly alike. The same books, the same passages were idolized by each—or if any difference appeared, any objection arose, it lasted no longer than till the force of her arguments and the brightness of her eyes could be displayed."
- C. "It was only necessary to mention any favourite amusement to engage her to talk. She could not be silent when such points were introduced, and she had neither shyness nor reserve in their discussion."
- D. "They speedily discovered that their enjoyment of dancing and music was mutual, and that it arose from a general conformity of judgment in all that related to either. Encouraged by this to a further examination of his opinions, she proceeded to question him on the subject of books."

Monthly Hours of Sunshine from April to September in Anchorage and Fairbanks, Alaska



A student is researching monthly hours of sunshine in different cities in Alaska. When comparing trends in Anchorage and Fairbanks, the student concludes that the two cities show a similar pattern in the monthly hours of sunshine from April to September.

Which choice best describes data from the graph that support the student's conclusion?

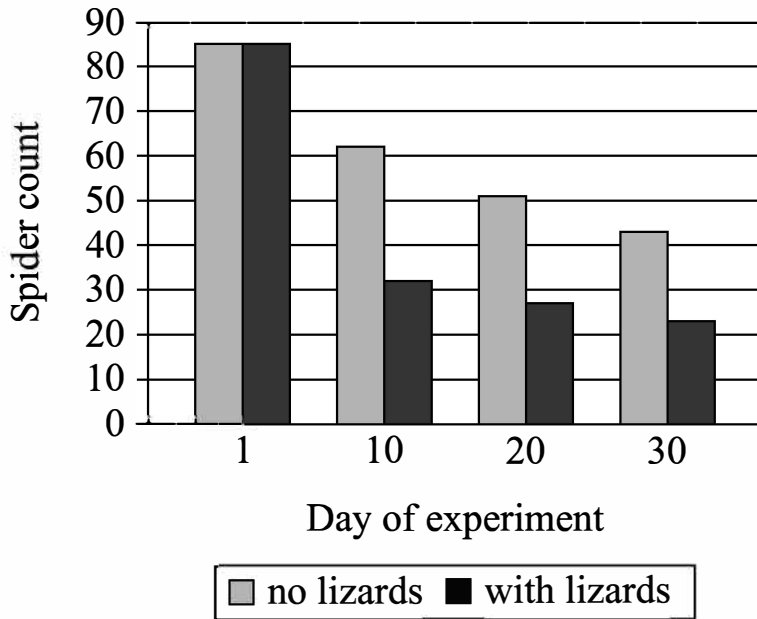
- A. The monthly hours of sunshine in both Anchorage and Fairbanks hold steady in June and July before beginning to decline in August.
- B. The monthly hours of sunshine in both Anchorage and Fairbanks increase from April to June and then decrease from June to September.
- C. Anchorage and Fairbanks both have less than 200 monthly hours of sunshine from April to September.
- D. Anchorage and Fairbanks both have more than 300 monthly hours of sunshine from April to June and less than 200 hours from July to September.

"Mr. Cornelius Johnson, Office-Seeker" is a 1900 short story by Paul Laurence Dunbar. In the story, the narrator describes Mr. Cornelius Johnson's appearance as conveying his exaggerated sense of his importance: _____

Which quotation from "Mr. Cornelius Johnson, Office-Seeker" most effectively illustrates the claim?

- A. "He carried himself always as if he were passing under his own triumphal arch."
- B. "The grey Prince Albert was scrupulously buttoned about his form, and a shiny top hat replaced the felt of the afternoon."
- C. "It was a beautiful day in balmy May and the sun shone pleasantly on Mr. Cornelius Johnson's very spruce Prince Albert suit of grey as he alighted from the train in Washington."
- D. "Mr. Cornelius Johnson always spoke in a large and important tone."

Spider Population Count

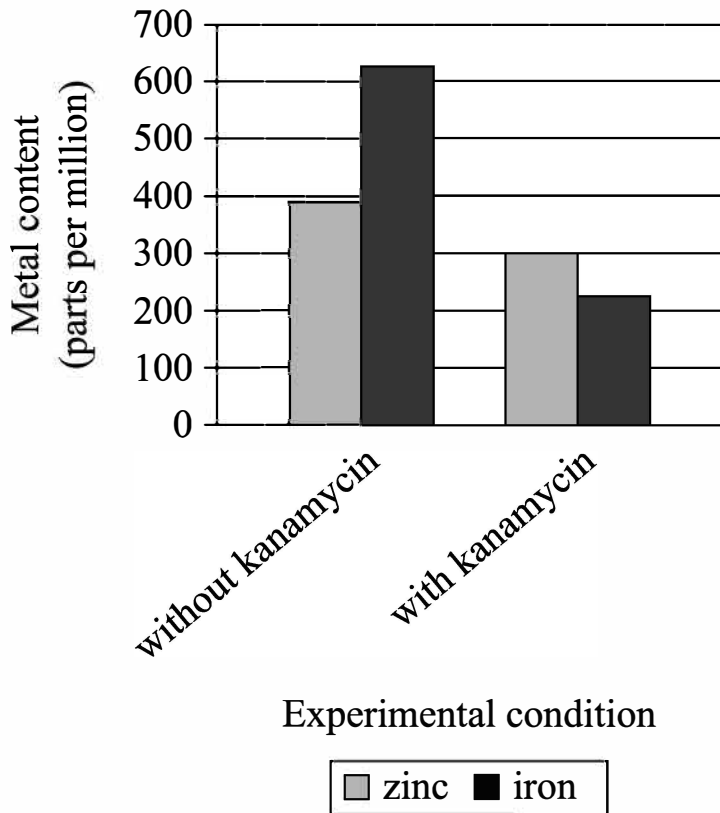


To investigate the effect of lizard predation on spider populations, a student in a biology class placed spiders in two enclosures, one with lizards and one without, and tracked the number of spiders in the enclosures for 30 days. The student concluded that the reduction in the spider population count in the enclosure with lizards by day 30 was entirely attributable to the presence of the lizards.

Which choice best describes data from the graph that weaken the student's conclusion?

- A. The spider population count was the same in both enclosures on day 1.
- B. The spider population count also substantially declined by day 30 in the enclosure without lizards.
- C. The largest decline in spider population count in the enclosure with lizards occurred from day 1 to day 10.
- D. The spider population count on day 30 was lower in the enclosure with lizards than in the enclosure without lizards.

Metal Content of Plants with
and without Kanamycin
Exposure



Many plants lose their leaf color when exposed to kanamycin, an antibiotic produced by some soil microorganisms. Spelman College biologist Mentewab Ayalew and her colleagues hypothesized that plants' response to kanamycin exposure involves altering their uptake of metals, such as iron and zinc. The researchers grew two groups of seedlings of the plant *Arabidopsis thaliana*, half of which were exposed to kanamycin and half of which were a control group without exposure to kanamycin, and measured the plants' metal content five days after germination.

Which choice best describes data in the graph that support Ayalew and her colleagues' hypothesis?

- A. The control plants contained higher levels of zinc than iron, but plants exposed to kanamycin contained higher levels of iron than zinc.
- B. Both groups of plants contained more than 200 parts per million of both iron and zinc.
- C. Zinc levels were around 300 parts per million in the control plants but nearly 400 parts per million in the plants exposed to kanamycin.
- D. The plants exposed to kanamycin showed lower levels of iron and zinc than the control plants did.

Many insects are iridescent, or have colors that appear to shimmer and change when seen from different angles. Scientists have assumed that this feature helps to attract mates but could also attract predators. But biologist Karin Kjernsmo and a team had the idea that the shifting appearance of colors might actually make it harder for other animals to see iridescent insects. To test this idea, the team put beetle forewings on leaves along a forest path and then asked human participants to look for them. Some of the wings were naturally iridescent. Others were painted with a nonchanging color from the iridescent spectrum, such as purple or blue.

Which finding, if true, would most directly support the team's idea?

- A. On average, participants found most of the purple wings and blue wings and far fewer of the iridescent wings.
- B. On average, participants found the iridescent wings faster than they found the purple wings or blue wings.
- C. Some participants reported that the purple wings were easier to see than the blue wings.
- D. Some participants successfully found all of the wings on the leaves.

"Often Rebuked, Yet Always Back Returning" is an 1846 poem by Emily Brontë. The poem conveys the speaker's determination to experience the countryside around her: _____

Which quotation from the poem most effectively illustrates the claim?

- A. "Often rebuked, yet always back returning / To those first feelings that were born with me, / And leaving busy chase of wealth and learning / For idle dreams of things which cannot be."
- B. "I'll walk, but not in old heroic traces, / And not in paths of high morality, / And not among the half-distinguished faces, / The clouded forms of long-past history."
- C. "I'll walk where my own nature would be leading: / It vexes me to choose another guide: / Where the grey flocks in ferny glens are feeding; / Where the wild wind blows on the mountain side."
- D. "To-day, I will seek not the shadowy region; / Its unsustaining vastness waxes drear; / And visions rising, legion after legion, / Bring the unreal world too strangely near."

Average Nitrate and Phosphate Concentrations in Seawater after Volcanic Eruption

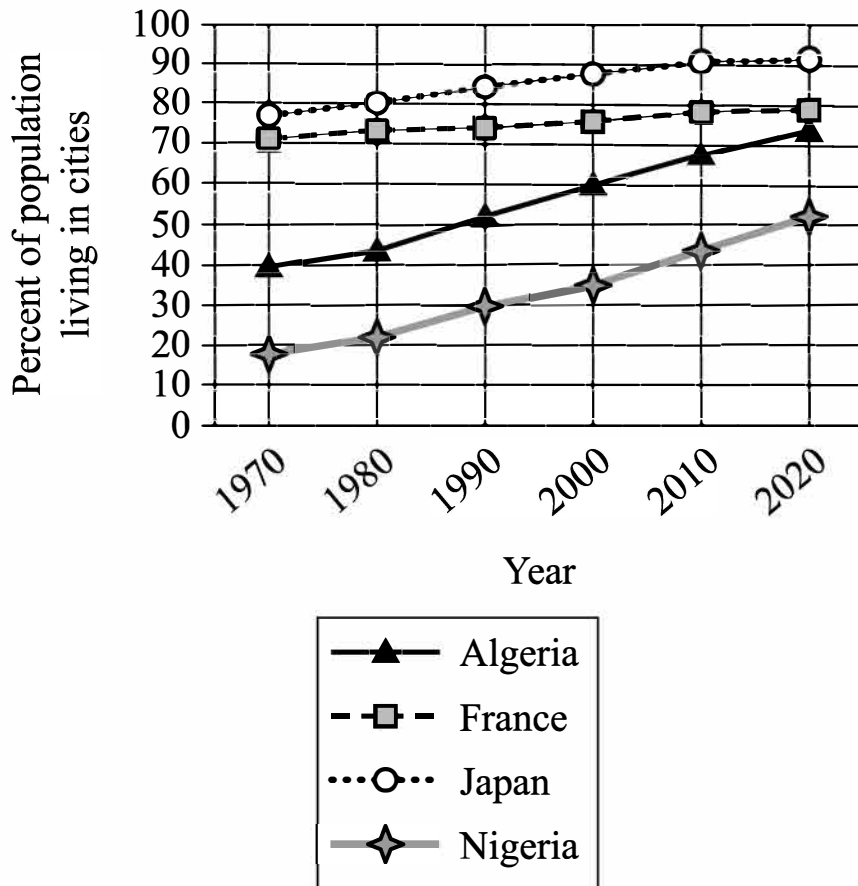
Nutrient	Seawater in lava-affected area, 5–45 meters below surface	Seawater in lava-affected area, 75–125 meters below surface	Seawater outside of lava-affected area, 5–45 meters below surface	Seawater outside of lava-affected area, 75–125 meters below surface
Nitrate (micromoles per liter)	3.1	0.4	≤ 0.03	≤ 0.01
Phosphate (micromoles per liter)	0.17	0.09	0.14	0.06

After a volcanic eruption spilled lava into North Pacific Ocean waters, a dramatic increase of diatoms (a kind of phytoplankton) near the surface occurred. Scientists assumed the diatoms were thriving on nutrients such as phosphate from the lava, but analysis showed these nutrients weren't present near the surface in forms diatoms can consume. However, there was an abundance of usable nitrate, a nutrient usually found in much deeper water and almost never found in lava. Microbial oceanographer Sonya Dyrhman and colleagues believe that as the lava plunged nearly 300 meters below the surface it dislodged pockets of this nutrient, releasing it to float upward, given that _____

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

- A. at 5–45 meters below the surface, the average concentration of phosphate was about the same in the seawater in the lava-affected area as in the seawater outside of the lava-affected area.
- B. for both depth ranges measured, the average concentrations of nitrate were substantially higher in the seawater in the lava-affected area than in the seawater outside of the lava-affected area.
- C. for both depth ranges measured in the seawater in the lava-affected area, the average concentrations of nitrate were substantially higher than the average concentrations of phosphate.
- D. in the seawater outside of the lava-affected area, there was little change in the average concentration of nitrate from 75–125 meters below the surface to 5–45 meters below the surface.

Urban Population of
Algeria, France, Japan, and Nigeria



The share of the world's population living in cities has increased dramatically since 1970, but this change has not been uniform. France and Japan, for example, were already heavily urbanized in 1970, with 70% or more of the population living in cities. The main contributors to the world's urbanization since 1970 have been countries like Algeria, whose population went from _____

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

- A. around 50% urban in 1970 to around 90% urban in 2020.
- B. less than 40% urban in 1970 to around 90% urban in 2020.
- C. less than 20% urban in 1970 to more than 50% urban in 2020.
- D. around 40% urban in 1970 to more than 70% urban in 2020.

Matthew D. Rocklage and team examined whether consumer ratings of movies can predict box office success. The team considered both numeric star ratings and written reviews in their research. To analyze the written reviews, the team measured the emotionality—the degree to which a written review expresses an emotional reaction—of user reviews on a movie rating website, assigning each review an emotionality score. After reviewing this research, a student argues that the emotionality of movie reviews is unrelated to a movie’s success at the box office.

Which finding, if true, would most directly weaken the student’s conclusion?

- A. Movies that had the highest average emotionality scores received the lowest average star ratings on the movie rating website.
- B. The average emotionality score of a movie’s reviews was a positive predictor of that movie’s box office earnings.
- C. More than half of the movies that the team examined received an average star rating of 3 out of 5 stars.
- D. The movies that were most successful at the box office tended to have high average star ratings.

"On Virtue" is a 1766 poem by Phillis Wheatley. Wheatley addresses the poem directly to the quality of virtue, imploring it to assist her in reaching a future goal: _____

Which quotation from "On Virtue" most effectively illustrates the claim?

- A. "Attend me, *Virtue*, thro' my youthful years! / O leave me not to the false joys of time! / But guide my steps to endless life and bliss."
- B. "I cease to wonder, and no more attempt / Thine height t'explore, or fathom thy profound."
- C. "O thou bright jewel in my aim I strive / To comprehend thee. Thine own words declare / Wisdom is higher than a fool can reach."
- D. "But, O my soul, sink not into despair, / *Virtue* is near thee, and with gentle hand / Would now embrace thee, hovers o'er thine head."

Body Length, Filter Time, and Lunges per Dive for Four Whale Species

Whale species	Typical adult body length (meters)	Average time to filter all engulfed water (seconds)	Average number of lunges per dive deeper than 50 meters
fin	18–22	31.30	3.95
humpback	11–17	17.12	6.28
minke	7–10	8.88	7.48
blue	24–34	60.27	4.02

Some whale species practice lunge feeding, in which they lunge toward prey with their mouths open at wide angles, collect the prey and the surrounding water, and then filter out the water through baleen plates in their mouths. Although the volume of water engulfed increases with whales' body length, the surface area of whales' baleen plates, which influences the rate at which water can be filtered, does not increase with body length to the same degree, which helps explain why _____

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

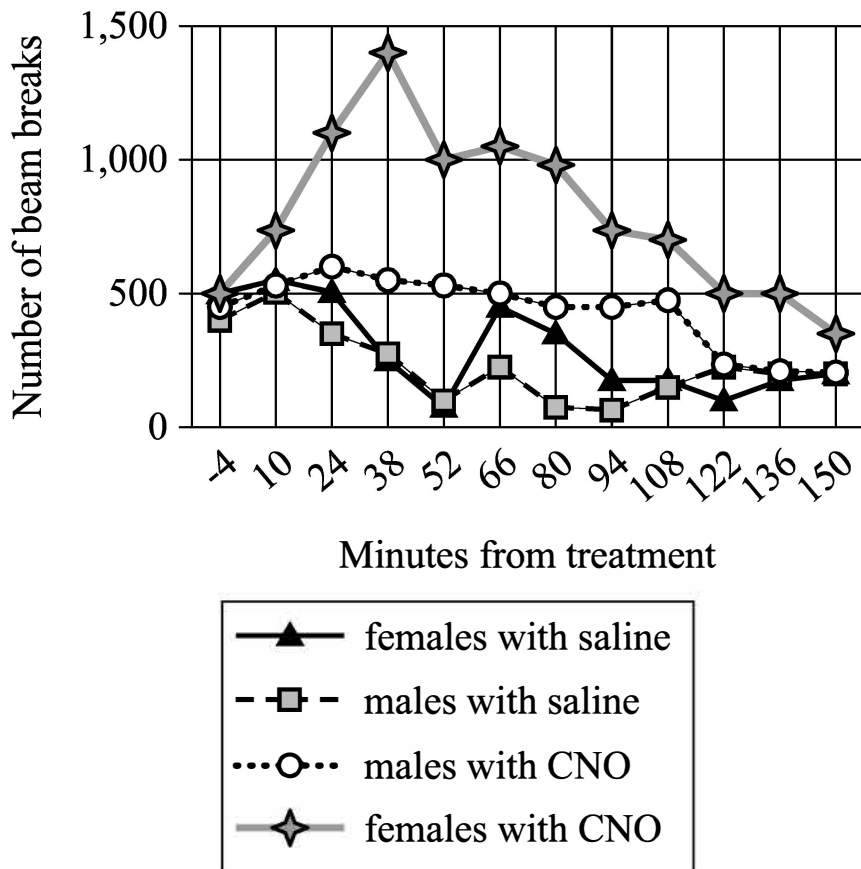
- A. minke whales and humpback whales show similar average filter times.
- B. humpback whales show an average of 6.28 lunges per dive.
- C. fin whales show a longer average filter time than minke whales do.
- D. blue whales show the longest average filter time and the highest average number of lunges per dive.

"When Dawn Comes to the City" is a 1922 poem by Claude McKay, who immigrated to the United States from the island nation of Jamaica as an adult. The poem conveys McKay's contrasting feelings about New York City—his adopted home in the US—and his home country: _____

Which quotation from "When Dawn Comes to the City" most effectively illustrates the claim?

- A. "A lonely newsboy hurries by, / Humming a recent ditty; / Red streaks strike through the gray of the sky, / The dawn comes to the city [New York City]."
- B. "Dark figures start for work; / I watch them sadly shuffle on, / 'Tis dawn, dawn in New York. / But I would be on the island of the sea, / In the heart of the island of the sea."
- C. "And the shaggy Nannie goat is calling, calling, calling / From her little trampled corner of the long wide lea / That stretches to the waters of the hill-stream falling / Sheer upon the flat rocks joyously!"
- D. "The tired cars go grumbling by, / The moaning, groaning cars, / And the old milk carts go rumbling by / Under the same dull stars."

Number of Infrared Beam Breaks by Mice Treated with CNO or Saline, by Sex



To investigate the influence of certain estrogen-responsive neurons on energy expenditure, biologist Stephanie Correa et al. treated female and male mice with either saline solution or clozapine-N4-oxide (CNO), which activates the neurons. Monitoring the activity levels of the mice by measuring how frequently the animals broke infrared beams crossing their enclosures, Correa et al. found that the mice in their study showed sex-specific differences in response to neuron activation:

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

- A. the four groups of mice differed greatly in their activity levels before treatment but showed identical activity levels at the end of the monitoring period.
- B. saline-treated females showed substantially more activity at certain points in the monitoring period than saline-treated males did.
- C. CNO-treated females showed more activity relative to saline-treated females than CNO-treated males showed relative to saline-treated males.
- D. CNO-treated females showed a substantial increase and then decline in activity over the monitoring period, whereas CNO-treated males showed a substantial decline in activity followed by a steep increase.

"John of God, the Water-Carrier" is a 1913 short story by María Cristina Mena. In the story, the narrator presents John as being a hard worker who is fully dedicated to his job as water carrier, or *aguador*. _____

Which quotation from "John of God, the Water-Carrier" most effectively illustrates the claim?

- A. "Very happy, he would jog home, the heavy silver pieces in his leather pockets making a discreet and dulcet '*trink-trak*' between his jugs and his body."
- B. "He learned that the city *aguador* may not blow his whistle to halt the traffic while he gravely crosses the street, but must wait for the passing of many vehicles, some with horses and some outlandishly without."
- C. "From early morn to the fall of the afternoon he would go from fountain to fountain and from portal to portal, his lean body so accustomed to bending that he never thought of straightening it, his head bowed as if in prayer."
- D. "When his first jugs had worn out—the sweet-scented, porous red clay becomes perforated in time—he had buried them to their necks in the corner where he slept, and they were now his treasury."

"Odalie" is an 1899 short story by Alice Dunbar-Nelson. In the story, a young woman named Odalie attends the annual Mardi Gras carnival in New Orleans, where she lives with her guardian Tante Louise. Dunbar-Nelson portrays Odalie as eager to escape the monotony of her everyday life: _____

Which quotation from "Odalie" most effectively illustrates the claim?

- A. "Mardi Gras was a tiresome day, after all, she sighed, and Tante Louise agreed with her for once."
- B. "In the old French house on Royal Street, with its quaint windows and Spanish courtyard green and cool, and made musical by the plashing of the fountain and the trill of caged birds, lived Odalie in convent-like seclusion."
- C. "When one is shut up in a great French house with a grim sleepy tante and no companions of one's own age, life becomes a dull thing, and one is ready for any new sensation."
- D. "It was Mardi Gras day at last, and early through her window Odalie could hear the jingle of folly bells on the [participants'] costumes, the tinkle of music, and the echoing strains of songs."

E-book Sales as a Percentage of Total Unit Sales in All Book Formats for a Large US Trade Publisher, by Genre, 2006, 2011, 2016

Genre	2006	2011	2016
science fiction and fantasy	0.6	27.7	36.7
cookbooks	0	2.9	10.5
travel guides	0	5.5	24.6
romance	0.3	40.6	56.2

E-books became an increasingly popular means of reading in the United States in the 2000s and 2010s, though that popularity was concentrated in titles that, like those in most fiction genres, are meant to be read straight through from beginning to end. For books in nonfiction genres that do not tell stories and require the reader to flip back and forth through a volume, e-books were significantly less commercially successful. This can be seen by comparing _____

Which choice most effectively uses data from the table to illustrate the claim?

- A. the percentage of 2016 cookbook sales that were e-books with the percentage of 2016 science fiction and fantasy sales that were e-books.
- B. the percentage of 2006 romance sales that were e-books with the percentage of 2016 romance sales that were e-books.
- C. the percentage of 2006 romance sales that were e-books with the 2006 science fiction and fantasy sales that were e-books.
- D. the percentage of 2011 travel guide sales that were e-books with the percentage of 2016 travel guide sales that were e-books.

The Post Office is a 1912 play by Rabindranath Tagore, originally written in Bengali. The character Amal is a young boy who imagines that the people he sees passing the window of his home are carefree even when engaged in work or chores, as is evident when he says to the daughter of a flower seller, _____

Which quotation from *The Post Office* most effectively illustrates the claim?

- A. "I see, you don't wish to stop; I don't care to stay on here either."
- B. "Oh, flower gathering? That is why your feet seem so glad and your anklets jingle so merrily as you walk."
- C. "I'll pay when I grow up—before I leave to look for work out on the other side of that stream there."
- D. "Wish I could be out too. Then I would pick some flowers for you from the very topmost branches right out of sight."

Characteristics of Five Recently Discovered Gas Exoplanets

Exoplanet designation	Mass (Jupiters)	Radius (Jupiters)	Orbital period (days)	Distance from the Sun (parsecs)
TOI-640 b	0.88	1.771	5.003	340
TOI-1601 b	0.99	1.239	5.331	336
TOI-628 b	6.33	1.060	3.409	178
TOI-1478 b	0.85	1.060	10.180	153
TOI-1333 b	2.37	1.396	4.720	200

“Hot Jupiters” are gas planets that have a mass of at least 0.25 Jupiters (meaning that their mass is at least 25% of that of Jupiter) and an orbital period of less than 10 days (meaning that they complete one orbit around their star in less than 10 days), while “warm Jupiters” are gas planets that meet the same mass criterion but have orbital periods of more than 10 days. In 2021, Michigan State University astronomer Joseph Rodriguez and colleagues announced the discovery of five new gas exoplanets and asserted that four are hot Jupiters and one is a warm Jupiter.

Which choice best describes data from the table that support Rodriguez and colleagues’ assertion?

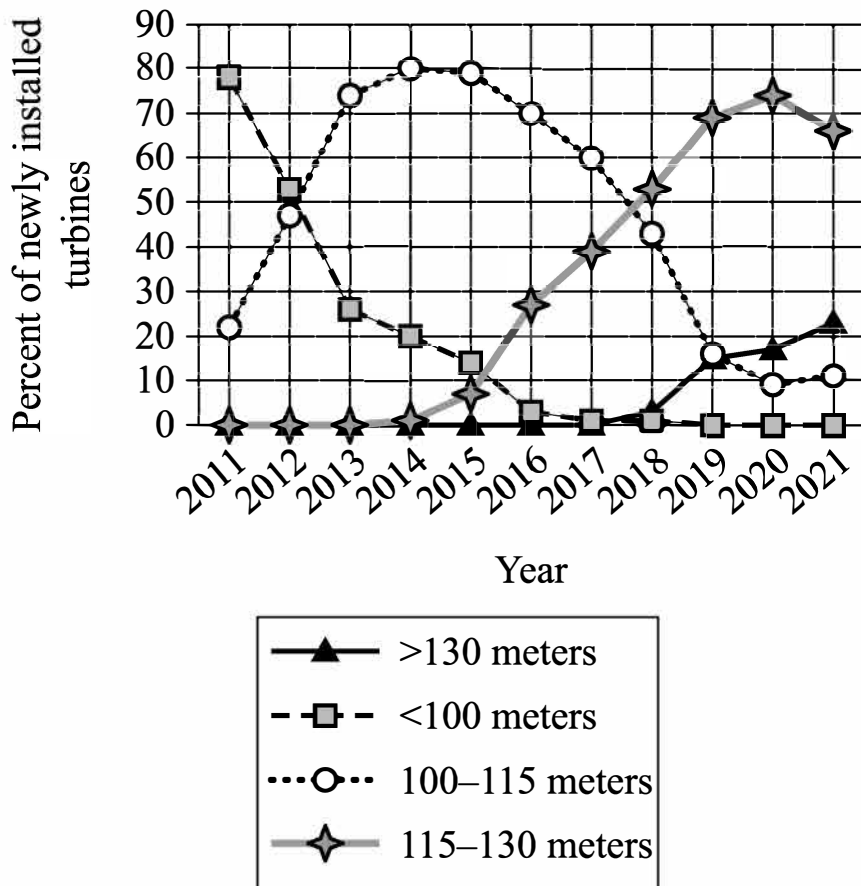
- A. None of the planets have an orbital period of more than 10 days, and TOI-628 b has a mass of 6.33 Jupiters.
- B. TOI-1478 b has an orbital period of 153 days, and the masses of all the planets range from 0.85 to 6.33 Jupiters.
- C. All the planets have a radius between 1.060 and 1.771 Jupiters, and only TOI-1333 b has an orbital period of more than 10 days.
- D. Each of the planets has a mass greater than 0.25 Jupiters, and all except for TOI-1478 b have an orbital period of less than 10 days.

Jan Gimsa, Robert Sleigh, and Ulrike Gimsa have hypothesized that the sail-like structure running down the back of the dinosaur *Spinosaurus aegyptiacus* improved the animal's success in underwater pursuits of prey species capable of making quick, evasive movements. To evaluate their hypothesis, a second team of researchers constructed two battery-powered mechanical models of *S. aegyptiacus*, one with a sail and one without, and subjected the models to a series of identical tests in a water-filled tank.

Which finding from the model tests, if true, would most strongly support Gimsa and colleagues' hypothesis?

- A. The model with a sail took significantly less time to complete a sharp turn while submerged than the model without a sail did.
- B. The model with a sail displaced significantly more water while submerged than the model without a sail did.
- C. The model with a sail had significantly less battery power remaining after completing the tests than the model without a sail did.
- D. The model with a sail took significantly longer to travel a specified distance while submerged than the model without a sail did.

Rotor Diameters of Newly Installed Wind Turbines in the United States, 2011–2021

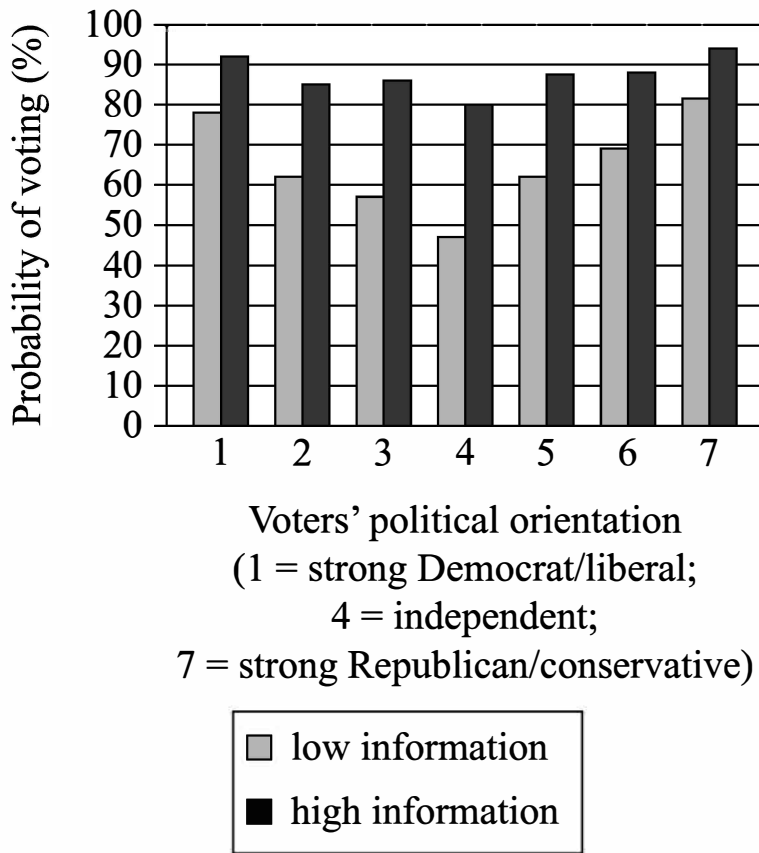


All other things being equal, the larger a wind turbine's rotor diameter (the diameter of the imaginary circle swept by the turbine's rotating blades), the greater amount of energy the turbine can generate. In a research paper on wind power, a student claims that in the United States, the amount of energy generated per newly installed turbine increased substantially between 2011 and 2021.

Which choice best describes data in the graph that support the student's claim?

- A. The percentage of newly installed turbines with rotor diameters greater than 130 meters increased every year between 2011 and 2021.
- B. In 2011, nearly 80% of turbines installed had rotor diameters of less than 100 meters, whereas only a little more than 20% of turbines installed that year had rotor diameters of 100–115 meters.
- C. No turbines installed in 2011 had rotor diameters greater than 115 meters, whereas the majority of turbines installed in 2021 had rotor diameters greater than 130 meters.
- D. Most turbines installed in 2011 had rotor diameters of less than 100 meters, whereas most turbines installed in 2021 had rotor diameters of at least 115 meters.

Voters' Political Orientation, Level of Political Information, and Probability of Voting



Economists Kerwin Kofi Charles and Melvin Stephens Jr. investigated a variety of factors that influence voter turnout in the United States. Using survey data that revealed whether respondents voted in national elections and how knowledgeable respondents are about politics, Charles and Stephens claim that the likelihood of voting is driven in part by potential voters' confidence in their assessments of candidates—essentially, the more informed voters are about politics, the more confident they are at evaluating whether candidates share their views, and thus the more likely they are to vote.

Which choice best describes data in the graph that support Charles and Stephens's claim?

- A. At each point on the political orientation scale, high-information voters were more likely than low-information voters to vote.
- B. Only low-information voters who identify as independents had a voting probability below 50%.
- C. The closer that low-information voters are to the ends of the political orientation scale, the more likely they were to vote.
- D. High-information voters were more likely to identify as strong Democrats or strong Republicans than low-information voters were.

"To You" is an 1856 poem by Walt Whitman. In the poem, Whitman suggests that he deeply understands the reader, whom he addresses directly, writing, _____

Which quotation from "To You" most effectively illustrates the claim?

- A. "Your true soul and body appear before me."
- B. "Whoever you are, now I place my hand upon you, that you be my poem."
- C. "I should have made my way straight to you long ago."
- D. "Whoever you are, I fear you are walking the walks of dreams."

Pulitzer Prize–winning writer Héctor Tobar has built a multifaceted career as both a journalist and an author of short stories and novels. In an essay about Tobar’s work, a student claims that Tobar blends his areas of expertise by applying journalism techniques to his creation of works of fiction.

Which quotation from a literary critic best supports the student’s claim?

- A. “For one novel, an imagined account of a real person’s global travels, Tobar approached his subject like a reporter, interviewing people the man had met along the way and researching the man’s own writings.”
- B. “Tobar got his start as a volunteer for *El Tecolote*, a community newspaper in San Francisco, and wrote for newspapers for years before earning a degree in creative writing and starting to publish works of fiction.”
- C. “Many of Tobar’s notable nonfiction articles are marked by the writer’s use of techniques usually associated with fiction, such as complex narrative structures and the incorporation of symbolism.”
- D. “The protagonist of Tobar’s third novel is a man who wants to be a novelist and keeps notes about interesting people he encounters so he can use them when developing characters for his stories.”

Participants' Evaluation of the Likelihood That Robots Can Work Effectively in Different Occupations

Occupation	Somewhat or very unlikely (%)	Neutral (%)	Somewhat or very likely (%)
television news anchor	24	9	67
teacher	37	16	47
firefighter	62	9	30
surgeon	74	9	16
tour guide	10	8	82

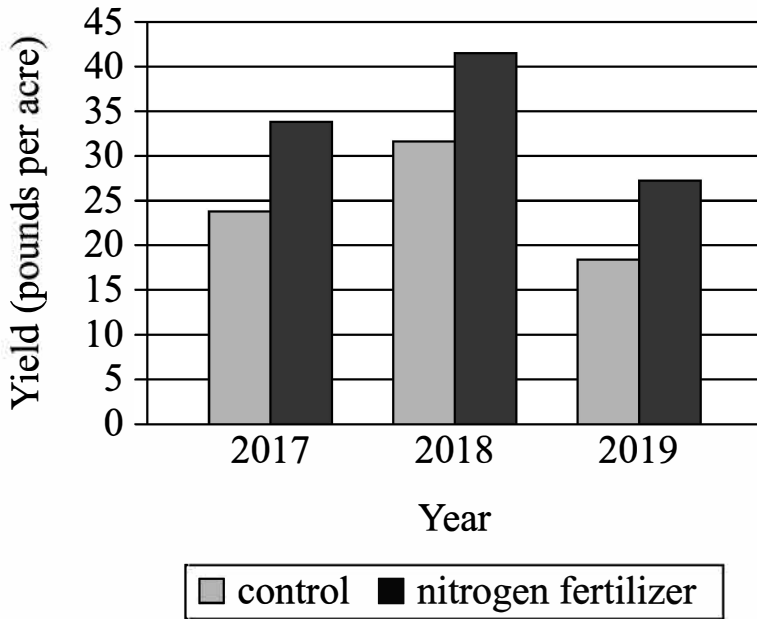
Rows in table may not add up to 100 due to rounding.

Georgia Tech roboticists De'Aira Bryant and Ayanna Howard, along with ethicist Jason Borenstein, were interested in people's perceptions of robots' competence. They recruited participants and asked them how likely they think it is that a robot could do the work required in various occupations. Participants' evaluations varied widely depending on which occupation was being considered; for example, _____

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

- A. 47% of participants believe that it is somewhat or very likely that a robot could work effectively as a teacher, but 37% of respondents believe that it is somewhat or very unlikely that a robot could do so.
- B. 9% of participants were neutral about whether a robot could work effectively as a television news anchor, which is the same percent of participants who were neutral when asked about a robot working as a surgeon.
- C. 82% of participants believe that it is somewhat or very likely that a robot could work effectively as a tour guide, but only 16% believe that it is somewhat or very likely that a robot could work as a surgeon.
- D. 62% of participants believe that it is somewhat or very unlikely that a robot could work effectively as a firefighter.

Cantaloupe Yield



To test the effects of a nitrogen fertilizer on cantaloupe production, researchers grew cantaloupe plants and harvested their fruit over three years. In each year, half the plants were grown using a nitrogen fertilizer, and the other half were grown using a control fertilizer that contained no nitrogen. The researchers concluded that the nitrogen fertilizer increases cantaloupe yield.

Which choice best describes data in the graph that support the researchers' conclusion?

- A. In every year of the experiment, plants treated with the nitrogen fertilizer had a yield of at least 30 pounds per acre.
- B. In every year of the experiment, plants treated with the nitrogen fertilizer had a greater yield than did plants treated with the control fertilizer.
- C. The 2018 yield for plants treated with the control fertilizer was greater than was the 2019 yield for plants treated with the nitrogen fertilizer.
- D. The yield for plants treated with the nitrogen fertilizer increased from 2017 to 2018.

An Ideal Husband is an 1895 play by Oscar Wilde. In the play, which is a satire, Wilde suggests that a character named Lady Gertrude Chiltern is perceived as both extremely virtuous and unforgiving, as is evident when another character says _____

Which quotation from *An Ideal Husband* most effectively illustrates the claim?

- A. "Lady Chiltern is a woman of the very highest principles, I am glad to say. I am a little too old now, myself, to trouble about setting a good example, but I always admire people who do."
- B. "Do you know, [Lady Chiltern], I don't mind your talking morality a bit. Morality is simply the attitude we adopt towards people whom we personally dislike."
- C. "[Lady Chiltern] does not know what weakness or temptation is. I am of clay like other men. She stands apart as good women do—pitiless in her perfection—cold and stern and without mercy."
- D. "Lady Chiltern, you are a sensible woman, the most sensible woman in London, the most sensible woman I know."

Born in 1891 to a Quechua-speaking family in the Andes Mountains of Peru, Martín Chambi is today considered to be one of the most renowned figures of Latin American photography. In a paper for an art history class, a student claims that Chambi's photographs have considerable ethnographic value—in his work, Chambi was able to capture diverse elements of Peruvian society, representing his subjects with both dignity and authenticity.

Which finding, if true, would most directly support the student's claim?

- A. Chambi took many commissioned portraits of wealthy Peruvians, but he also produced hundreds of images carefully documenting the peoples, sites, and customs of Indigenous communities of the Andes.
- B. Chambi's photographs demonstrate a high level of technical skill, as seen in his strategic use of illumination to create dramatic light and shadow contrasts.
- C. During his lifetime, Chambi was known and celebrated both within and outside his native Peru, as his work was published in places like Argentina, Spain, and Mexico.
- D. Some of the peoples and places Chambi photographed had long been popular subjects for Peruvian photographers.

Five of the Responses to Survey about Actions to Conserve Energy

Action	Action category	Percentage of respondents selecting action (%)
Use efficient cars/hybrids	efficiency	2.8
Change thermostat setting	curtailment	6.3
Use bike or public transportation instead of car	curtailment	12.9
Use efficient light bulbs	efficiency	3.6
Turn off lights	curtailment	19.6

In a survey of public perceptions of energy use, researcher Shahzeen Attari and her team asked respondents to name the most effective action ordinary people can take to conserve energy. The team categorized each action as either an efficiency or a curtailment and found that respondents tended to name curtailments more often than they did efficiencies. For example, 19.6% of respondents stated that the most effective way to conserve energy is to turn off the lights, while only

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

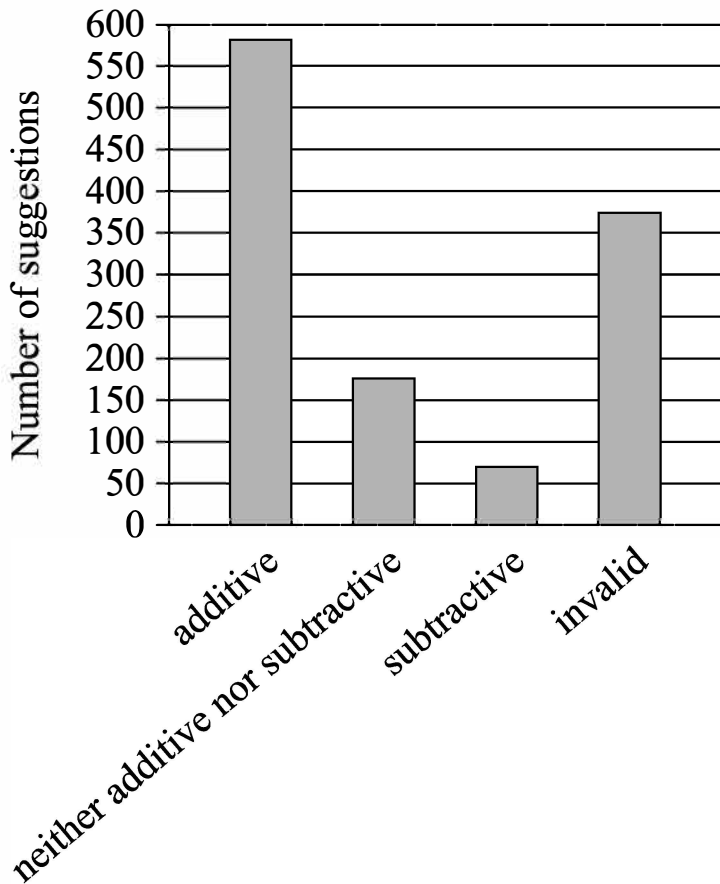
- A. 6.3% of respondents said it was most effective to use efficient cars or hybrids.
- B. 2.8% of respondents said it was most effective to change the thermostat setting.
- C. 12.9% of respondents said it was most effective to use a bike or public transportation.
- D. 3.6% of respondents said it was most effective to use efficient light bulbs.

Although most songbirds build open, cupped nests, some species build domed nests with roofs that provide much more protection. Many ecologists have assumed that domed nests would provide protection from weather conditions and thus would allow species that build them to have larger geographic ranges than species that build open nests do. To evaluate this assumption, a research team led by evolutionary biologist Iliana Medina analyzed data for over 3,000 species of songbirds.

Which finding from Medina and her colleagues' study, if true, would most directly challenge the assumption in the underlined sentence?

- A. Species that build open nests tend to have higher extinction rates than species that build domed nests.
- B. Species that build open nests tend to be smaller in size than species that build domed nests.
- C. Species that build open nests tend to use fewer materials to build their nests than species that build domed nests do.
- D. Species that build open nests tend to have larger ranges than species that build domed nests.

Suggestions for Improving a University



■ suggestion type

Gabrielle Adams and colleagues reviewed suggestions for improving a university that had been submitted to the university's president. They coded each suggestion as additive (the idea suggested adding something new to the university), subtractive (the idea suggested removing something from the university), neither additive nor subtractive, or invalid (the idea was not comprehensible). The data illustrated people's tendency to overlook the possibility of removing things to achieve improvements: _____

Which choice most effectively uses data in the graph to complete the statement?

- A. around 175 suggestions were coded as neither additive nor subtractive, whereas around 575 suggestions were coded as additive.
- B. more than 350 suggestions were coded as invalid, whereas fewer than 100 suggestions were coded as subtractive.
- C. fewer than 100 suggestions were coded as subtractive, whereas more than 550 suggestions were coded as additive.
- D. around 575 suggestions were coded as additive, whereas around 175 suggestions were coded as subtractive.

Approximate Rates of Speech and Information Conveyed for Five Languages

Language	Rate of speech (syllables per second)	Rate of information conveyed (bits per second)
Serbian	7.2	39.1
Spanish	7.7	42.0
Vietnamese	5.3	42.5
Thai	4.7	33.8
Hungarian	5.9	34.6

A group of researchers working in Europe, Asia, and Oceania conducted a study to determine how quickly different Eurasian languages are typically spoken (in syllables per second) and how much information they can effectively convey (in bits per second). They found that, although languages vary widely in the speed at which they are spoken, the amount of information languages can effectively convey tends to vary much less. Thus, they claim that two languages with very different spoken rates can nonetheless convey the same amount of information in a given amount of time.

Which choice best describes data from the table that support the researchers' claim?

- A. Among the five languages in the table, Thai and Hungarian have the lowest rates of speech and the lowest rates of information conveyed.
- B. Vietnamese conveys information at approximately the same rate as Spanish despite being spoken at a slower rate.
- C. Among the five languages in the table, the language that is spoken the fastest is also the language that conveys information the fastest.
- D. Serbian and Spanish are spoken at approximately the same rate, but Serbian conveys information faster than Spanish does.

In 1967 the US Congress created the Corporation for Public Broadcasting, which in turn created National Public Radio (NPR). NPR began producing and distributing high-quality news and cultural programming to affiliate stations across the United States in 1971. In a research paper, a student claims that the Corporation for Public Broadcasting and NPR were inspired by the British Broadcasting System (BBC), which had been established in the 1920s.

Which quotation from a work by a historian would be the most effective evidence for the student to include in support of this claim?

- A. "Although the BBC had begun as a private corporation, politicians successfully argued to make it a public company because they believed a public broadcaster could help build national unity in the aftermath of World War I."
- B. "For many decades, the BBC had no competition since it held Britain's only broadcasting license, whereas in the United States, the Corporation for Public Broadcasting launched NPR in a broadcasting market already filled with competitors."
- C. "Congress's embrace of publicly funded broadcasting reflected a common belief among US politicians that the role of government was not only to ensure people's safety and liberty but also to enrich people's lives in other ways."
- D. "The goal of the BBC was to support British democracy by promoting an informed citizenry, and US legislators believed that ensuring access to high-quality programming could do the same for democracy in the United States."

Hedda Gabler is an 1890 play by Henrik Ibsen. As a woman in the Victorian era, Hedda, the play's central character, is unable to freely determine her own future. Instead, she seeks to influence another person's fate, as is evident when she says to another character, _____

Which quotation from a translation of *Hedda Gabler* most effectively illustrates the claim?

- A. "Then what in heaven's name would you have me do with myself?"
- B. "I want for once in my life to have power to mould a human destiny."
- C. "Then I, poor creature, have no sort of power over you?"
- D. "Faithful to your principles, now and for ever! Ah, that is how a man should be!"

In the 1970s, a roughly 60,000-year-old piece of hyena bone marked with nine notches was discovered at a site in western France once inhabited by Neanderthals. Although many believe that only modern humans developed systems for notating numbers, one archaeologist asserts that this artifact may be a sign that Neanderthals also recorded numerical information. The notches on the bone are unevenly spaced but approximately parallel, and microscopic analysis reveals that they were made with a single stone tool; according to the archaeologist, this suggests that the notches were all made at one time by one individual as a means of counting something.

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

- A. Parallel lines are a common feature in modern humans' early systems for recording numerical information.
- B. More than nine approximately parallel notches made with a different stone tool are present on another artifact found at a site in western France.
- C. It would have taken careful effort to make evenly spaced lines on bone with the stone tools typically used by Neanderthals.
- D. Decorative art discovered at another Neanderthal site in western France primarily features patterns of unevenly spaced parallel lines.

"Ghosts of the Old Year" is an early 1900s poem by James Weldon Johnson. In the poem, the speaker describes experiencing an ongoing cycle of anticipation followed by regretful reflection: _____

Which quotation from "Ghosts of the Old Year" most effectively illustrates the claim?

- A. "What does this brazen tongue declare, / That falling on the midnight air / Brings to my heart a sense of care / Akin to fright?"
- B. "The snow has ceased its fluttering flight, / The wind sunk to a whisper light, / An ominous stillness fills the night, / A pause—a hush."
- C. "It tells of many a squandered day, / Of slighted gems and treasured clay, / Of precious stores not laid away, / Of fields unreaped."
- D. "And so the years go swiftly by, / Each, coming, brings ambitions high, / And each, departing, leaves a sigh / Linked to the past."