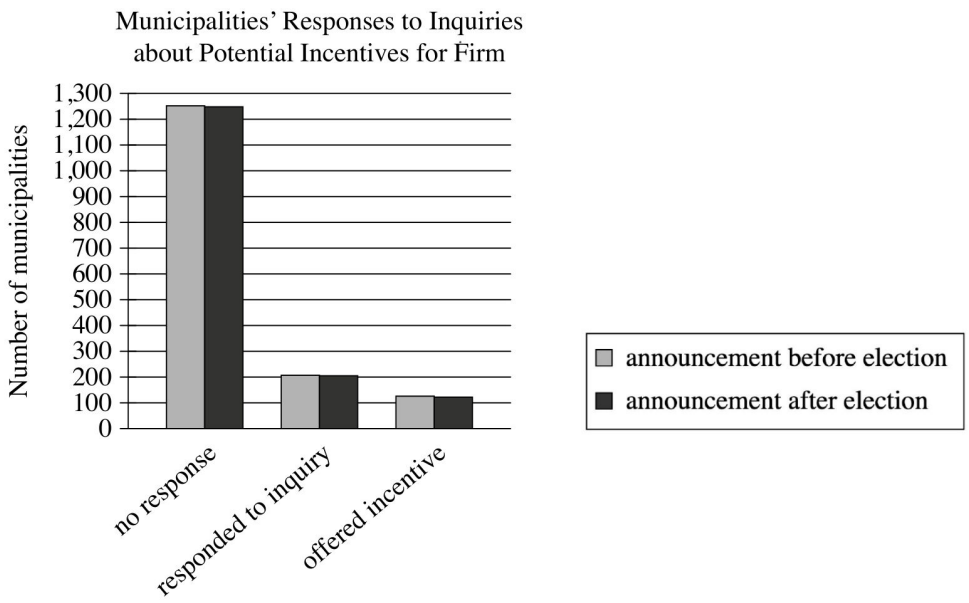
SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.1 a15b3219



In the United States, firms often seek incentives from municipal governments to expand to those municipalities. A team of political scientists hypothesized that municipalities are much more likely to respond to firms and offer incentives if expansions can be announced in time to benefit local elected officials than if they can't. The team contacted officials in thousands of municipalities, inquiring about incentives for a firm looking to expand and indicating that the firm would announce its expansion on a date either just before or just after the next election.

Which choice best describes data from the graph that weaken the team's hypothesis?

A. A large majority of the municipalities that received an inquiry mentioning plans for an announcement before the next election didn't respond to the inquiry.

B. The proportion of municipalities that responded to the inquiry or offered incentives didn't substantially differ across the announcement timing conditions.

C. Only around half the municipalities that responded to inquiries mentioning plans for an announcement before the next election offered incentives.

D. Of the municipalities that received an inquiry mentioning plans for an announcement date after the next election, more than 1,200 didn't respond and only around 100 offered incentives.

3.2 7a1877be

Nucleobase Concentrations from Murchison Meteorite and Soil Samples in Parts per Billion

Nucleobase	Murchison meteorite sample 1	Murchison meteorite sample 2	Murchison soil sample
Isoguanine	0.5	0.04	not detected
Purine	0.2	0.02	not detected
Xanthine	39	3	1
Adenine	15	1	40
Hypoxanthine	24	1	2

Employing high-performance liquid chromatography—a process that uses pressurized water to separate material into its component molecules—astrochemist Yashiro Oba and colleagues analyzed two samples of the Murchison meteorite that landed in Australia as well as soil from the landing zone of the meteorite to determine the concentrations of various organic molecules. By comparing the relative concentrations of types of molecules known as nucleobases in the Murchison meteorite with those in the soil, the team concluded that there is evidence that the nucleobases in the Murchison meteorite formed in space and are not the result of contamination on Earth.

Which choice best describes data from the table that support the team's conclusion?

A. Isoguanine and purine were detected in both meteorite samples but not in the soil sample.

B. Adenine and xanthine were detected in both of the meteorite samples and in the soil sample.

C. Hypoxanthine and purine were detected in both the Murchison meteorite sample 2 and in the soil sample.

D. Isoguanine and hypoxanthine were detected in the Murchison meteorite sample 1 but not in sample 2.

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Command of Evidence 3

Question # **ID**

3.3 04cbeca3

In 1534 CE, King Henry VIII of England split with the Catholic Church and declared himself head of the Church of England, in part because Pope Clement VII refused to annul his marriage to Catherine of Aragon. Two years later, Henry VIII introduced a policy titled the Dissolution of the Monasteries that by 1540 had resulted in the closure of all Catholic monasteries in England and the confiscation of their estates. Some historians assert that the enactment of the policy was primarily motivated by perceived financial opportunities.

Which quotation from a scholarly article best supports the assertion of the historians mentioned in the text?

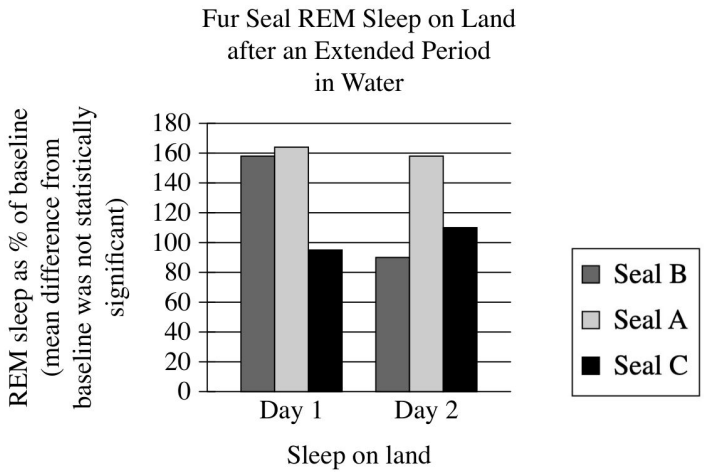
A. "At the time of the Dissolution of the Monasteries, about 2 percent of the adult male population of England were monks; by 1690, the proportion of the adult male population who were monks was less than 1 percent."

B. "A contemporary description of the Dissolution of the Monasteries, Michael Sherbrook's *Falle of the Religious Howses*, recounts witness testimony that monks were allowed to keep the contents of their cells and that the monastery timber was purchased by local yeomen."

C. "In 1535, the year before enacting the Dissolution of the Monasteries, Henry commissioned a survey of the value of church holdings in England—the work, performed by sheriffs, bishops, and magistrates, began that January and was swiftly completed by the summer."

D. "The October 1536 revolt known as the Pilgrimage of Grace had several economic motives: high food prices due to a poor harvest the prior year; the Dissolution of the Monasteries, which closed reliable sources of food and shelter for many; and rents and taxes throughout Northern England that were not merely high but predatory."

3.4 ccb1ab92



Research suggests that REM sleep in animals is homeostatically regulated: animals compensate for periods of REM sleep deprivation by increasing subsequent REM sleep. When on land, fur seals get enough REM sleep, but during the weeks they're in the water, they get almost none. In a study of fur seals' sleep habits, researchers recorded the REM sleep (as a percentage of baseline) of fur seals once they had returned to land. They concluded that REM sleep may not be homeostatically regulated in fur seals, citing as evidence the fact that the seals in the study _____

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

A. didn't show significantly less REM sleep during the second day after returning to land than they did during the first day.

B. showed no significant differences from one another in baseline levels of REM sleep.

C. didn't consistently demonstrate a significant increase in REM sleep after their period of deprivation in the water.

D. showed no significant difference between REM sleep after returning to land and REM sleep while in the water.

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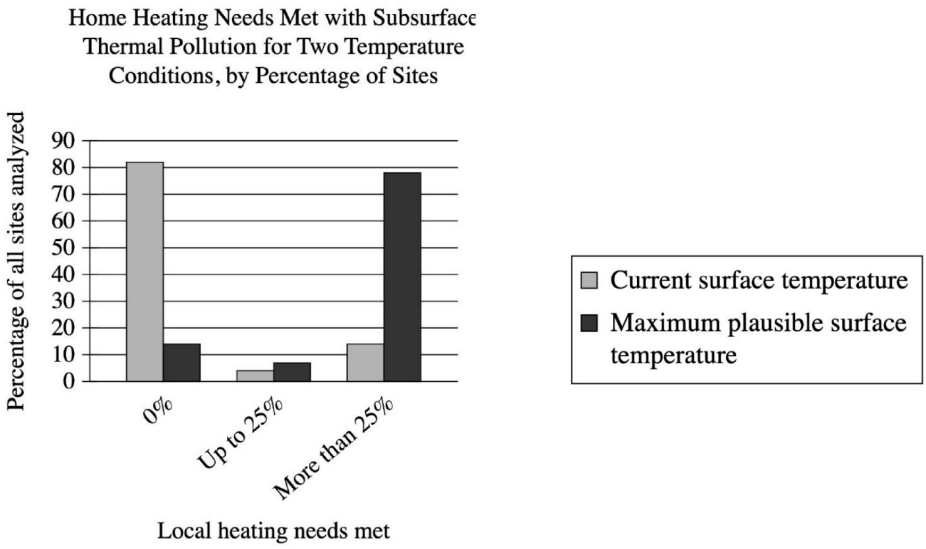
Question # **ID**

3.5 be19faa1



Urbanization, industrialization, and the warming climate create thermal pollution (excess heat) in the shallow subsurface soil. Susanne A. Benz and colleagues analyzed thousands of sites on three continents under one scenario in which surface temperature remains at the current level and under another in which the surface reaches the maximum plausible temperature. They then categorized each site according to the percentage of local home heating needs that could be met using this excess subsurface heat. The team concluded that if surface temperature approaches the maximum plausible level, the percentage of sites where thermal pollution could feasibly contribute to meeting home heating needs will increase.

Which choice best describes data in the graph that support Benz and colleagues' conclusion?

A. Under both temperature conditions, less than 10% of sites were in the up-to-25% group, but at the maximum plausible surface temperature, almost 80% of sites could have all their local heating needs met by thermal pollution.

B. At current surface temperatures, more than 80% of the sites have no need for supplemental local home heating from subsurface thermal pollution, but at the maximum plausible surface temperature, more than 70% of sites exhibit significantly greater home heating needs.

C. At current surface temperatures, more than 80% of sites can meet, at most, 25% of local home heating needs with subsurface thermal pollution, but at the maximum plausible surface temperature, more than 80% of sites can meet greater than 25% of local home heating needs.

D. At current surface temperatures, more than 80% of the sites cannot use subsurface thermal pollution to meet any portion of local home heating needs, but at the maximum plausible surface temperature, that percentage drops below 20%.

3.6 dd1757fd

Neural networks are computer models intended to reflect the organization of human brains and are often used in studies of brain function. According to an analysis of 11,000 such networks, Rylan Schaeffer and colleagues advise caution when drawing conclusions about brains from observations of neural networks. They found that when attempting to mimic grid cells (brain cells used in navigation), while 90% of the networks could accomplish navigation-related tasks, only about 10% of those exhibited any behaviors similar to those of grid cells. But even this approximation of grid-cell activity has less to do with similarity between the neural networks and biological brains than it does with the rules programmed into the networks.

Which finding, if true, would most directly support the claim in the underlined sentence?

A. The rules that allow for networks to exhibit behaviors like those of grid cells have no equivalent in the function of biological brains.

B. The networks that do not exhibit behaviors like those of grid cells were nonetheless programmed with rules that had proven useful in earlier neural-network studies.

C. Neural networks can often accomplish tasks that biological brains do, but they are typically programmed with rules to model multiple types of brain cells simultaneously.

D. Once a neural network is programmed, it is trained on certain tasks to see if it can independently arrive at processes that are similar to those performed by biological brains.

SAT Reading & Writing

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Question #	ID	
3.7	09f9edb0	In the 1980s, many musicians and journalists in the English-speaking world began to draw attention to music from around the globe—such as mbaqanga from South Africa and quan họ from Vietnam—that can't be easily categorized according to British or North American popular music genres, typically referring to such music as "world music." While some scholars have welcomed this development for bringing diverse musical forms to prominence in countries where they'd previously been overlooked, musicologist Su Zheng claims that the concept of world music homogenizes highly distinct traditions by reducing them all to a single category. Which finding about mbaqanga and quan họ, if true, would most directly support Zheng's claim? A. Mbaqanga and quan họ developed independently of each other and have little in common musically. B. Mbaqanga is significantly more popular in the English-speaking world than quan họ is. C. Mbaqanga and quan họ are now performed by a diverse array of musicians with no direct connections to South Africa or Vietnam. D. Mbaqanga and quan họ are highly distinct from British and North American popular music genres but similar to each other.
3.8	39e440e4	Archaeologists have held that the Casarabe culture, which emerged in the southwestern Amazon basin in the first millennium CE, was characterized by a sparse, widely distributed population and little intervention in the surrounding wilderness. Recently, however, archaeologist Heiko Prümers and colleagues conducted a study of the region using remote-sensing technology that enabled them to create three-dimensional images of the jungle-covered landscape from above, and the researchers concluded that the Casarabe people developed a form of urbanism in the Amazon basin. Which finding about the remote-sensing images, if true, would most directly support Prümers and colleagues' conclusion? A. They show shapes consistent with widely separated settlements of roughly equal small size surrounded by uncultivated jungle. B. They show shapes consistent with long-distance footpaths running from Casarabe territories to large cities outside the region inhabited by the Casarabe people. C. They show shapes consistent with scattered small farms created by clearing jungle areas near sources of fresh water. D. They show shapes consistent with monumental platforms and dense central settlements linked to smaller settlements by a system of canals and roadways.
3.9	156ff681	Many governments that regularly transfer money to individuals—to provide supplemental incomes for senior citizens, for example—have long done so electronically, but other countries typically have distributed physical money and have only recently developed electronic transfer infrastructure. Researchers studied the introduction of an electronic transfer system in one such location and found that recipients of electronic transfers consumed a different array of foods than recipients of physical transfers of the same amount did. One potential explanation for this result is that individuals conceive of and allocate funds in physical money differently than they conceive of and allocate funds in electronic form. Which finding from the study, if true, would most directly weaken the potential explanation? A. Recipients of electronic transfers typically spent their funds at a slower rate than recipients of physical transfers did. B. Nearly every recipient of an electronic transfer withdrew the entire amount in physical money shortly after receiving the transfer. C. Recipients of physical transfers tended to purchase food about as frequently as recipients of electronic transfers did. D. Some recipients of physical transfers received small amounts of money relatively frequently, while others received large amounts relatively infrequently.

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Question #	ID	
3.10	8545ccfe	Icebergs generally appear to be mostly white or blue, depending on how the ice reflects sunlight. Ice with air bubbles trapped in it looks white because much of the light reflects off the bubbles. Ice without air bubbles usually looks blue because the light travels deep into the ice and only a little of it is reflected. However, some icebergs in the sea around Antarctica appear to be green. One team of scientists hypothesized that this phenomenon is the result of yellow-tinted dissolved organic carbon in Antarctic waters mixing with blue ice to produce the color green. Which finding, if true, would most directly weaken the team's hypothesis? A. White ice doesn't change color when mixed with dissolved organic carbon due to the air bubbles in the ice. B. Dissolved organic carbon has a stronger yellow color in Antarctic waters than it does in other places. C. Blue icebergs and green icebergs are rarely found near each other. D. Blue icebergs and green icebergs contain similarly small traces of dissolved organic carbon.
3.11	dc87adf4	*Barchester Towers* is an 1857 novel by Anthony Trollope. In the novel, Trollope's portrayal of Dr. Proudie underscores the character's exaggerated sense of his own abilities: _____ Which quotation from *Barchester Towers* most effectively illustrates the claim? A. "It must not…be taken as proved that Dr. Proudie was a man of great mental powers, or even of much capacity for business, for such qualities had not been required in him." B. "[Dr. Proudie] was comparatively young, and had, as he fondly flattered himself, been selected as possessing such gifts, natural and acquired, as must be sure to recommend him to a yet higher notice." C. "[Dr. Proudie's] residence in the metropolis, rendered necessary by duties thus entrusted to him, his high connexions, and the peculiar talents and nature of the man, recommended him to persons in power." D. "[Dr. Proudie] was certainly possessed of sufficient tact to answer the purpose for which he was required without making himself troublesome."
3.12	3bfcb73b	An archaeological team led by Piotr Bieliński and Sultan al-Bakri found remnants of a 4,000-year-old Bronze Age board game at a site in Oman. Little is left of the game except a stone board, which is carved with a grid and has places to hold game pieces. Some scholars claim that the game was largely played by traders. Which finding, if true, would most directly support the scholars' claim? A. Other examples of the game dating to the same period have been found in the remains of several homes in the region, including in one home that may have belonged to a trader. B. Similar games have been found in other sites dating to the same period that were connected to the site in Oman via trade routes. C. The other known examples of the game dating to the same period have been found along routes that seem to have been used primarily by traders at the time. D. Remnants of other goods have been found at the site in Oman that probably also reached the location through trade.

SAT Reading & Writing

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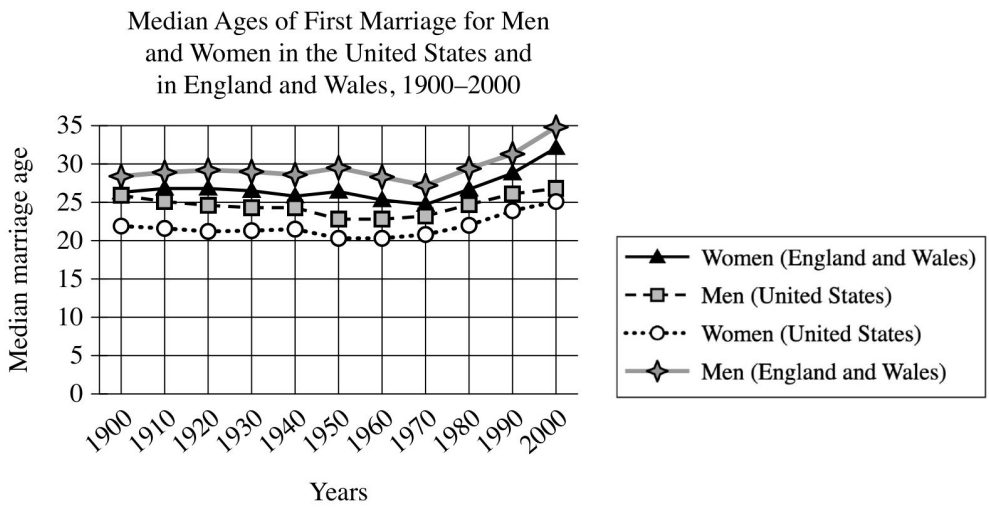
Question # **ID**

3.13 53c6c179



A sociology student is reading an essay on the median age of first marriage in Western countries throughout the twentieth century. The author of the essay cites factors common to these countries that the author believes caused an increase in the median age of first marriage, such as new technologies that shortened the time needed for domestic chores, making two-person households less necessary and living alone more viable. The student asserts that beyond these factors there must be additional ones specific to particular Western countries that influenced the increase of age at first marriage.

Which choice most effectively uses data from the graph that support the student's assertion?

A. Between 1970 and 2000, the median age of first marriage rose more sharply for men in England and Wales than it did for men in the United States.

B. In England and Wales, the median age of first marriage was consistently higher for men than for women between 1900 and 2000, but this was not always the case in the United States.

C. The median age of first marriage for men in England and Wales was lower in 1970 than in 1950 or 1990.

D. Between 1900 and 2000, the median age of first marriage for women in England and Wales was consistently higher than for women in the United States, as was the case for men.

3.14 a44bbd6b

Several studies of sediment (e.g., dirt, pieces of rock, etc.) in streams have shown an inverse correlation between sediment grain size and downstream distance from the primary sediment source, suggesting that stream length has a sorting effect on sediment. In a study of sediment sampled at more than a dozen sites in Alpine streams, however, geologists Camille Litty and Fritz Schlunegger found that cross-site variations in grain size were not associated with differences in downstream distance, though they did not conclude that downstream distance is irrelevant to grain size. Rather, they concluded that sediment influx in these streams may have been sufficiently spatially diffuse to prevent the typical sorting effect from being observed.

Which finding about the streams in the study, if true, would most directly support Litty and Schlunegger's conclusion?

A. The streams regularly experience portions of their banks collapsing into the water at multiple points upstream of the sampling sites.

B. The streams contain several types of sediment that are not typically found in streams where the sorting effect has been demonstrated.

C. The streams mostly originate from the same source, but their lengths vary considerably due to the different courses they take.

D. The streams are fed by multiple tributaries that carry significant volumes of sediment and that enter the streams downstream of the sampling sites.

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Question # **ID**

3.15 63e7799d

In vertical inheritance, parents pass genes to their offspring, but in horizontal transfer (HT), one species, often bacteria, passes genetic material to an unrelated species. In a 2022 study, herpetologist Atsushi Kurabayashi and his team investigated HT in multicellular organisms—namely, snakes and frogs in Madagascar. The team detected *BovB*—a gene transmitted vertically in snakes—in many frog species. The apparent direction of gene transfer seems counterintuitive because frogs usually don't survive encounters with snakes and so wouldn't be able to transmit the newly acquired gene to offspring, but the team concluded that *BovB* is indeed transmitted from snakes to frogs, either directly or indirectly, via HT.

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

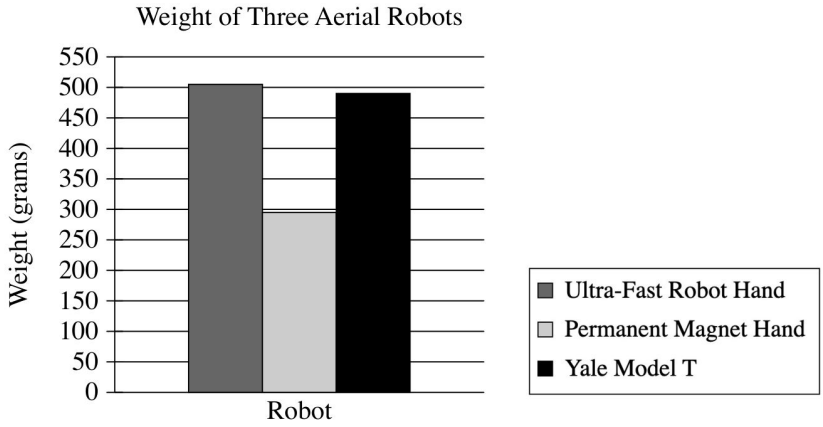
A. *BovB* can be transmitted across frog species through HT.

B. Parasites known to feed on species of snakes and frogs in which the *BovB* gene occurs also carry *BovB*.

C. *BovB* cannot be reliably transmitted from a snake species to bacteria that are usually encountered by frog species.

D. Frog species with *BovB* show few discernible advantages as compared with frog species that do not carry *BovB*.

3.16 df37c087



Aerial robots vary considerably in their holding force; the Ultra-Fast Robot Hand, for example, has a holding force of 56 newtons, more than twice that of the Permanent Magnet Hand and more than four times that of the Yale Model T. Since an aerial robot must lift its own weight along with its cargo, engineer Jiawei Meng and colleagues used a ratio of each robot's holding force to the robot's weight to calculate payload capacity, with higher ratios corresponding to greater capacity, concluding that the Ultra-Fast Robot Hand has a higher payload capacity than the Yale Model T.

Which choice best describes data in the graph that support Meng and colleagues' conclusion?

A. The Ultra-Fast Robot Hand and the Yale Model T each weigh more than 450 grams.

B. The Ultra-Fast Robot Hand and the Yale Model T each weigh more than the Permanent Magnet Hand does.

C. The Yale Model T has a lower holding force than the Permanent Magnet Hand despite weighing more.

D. The Ultra-Fast Robot Hand weighs only slightly more than the Yale Model T does.

3.17 af9e3240

Electra is a circa 420–410 BCE play by Sophocles, translated in 1870 by R.C. Jebb. Electra, who is in mourning for her dead father and her long-absent brother, is aware of the intensity of her grief but believes it to be justified:

_____

Which quotation from *Electra* most effectively illustrates the claim?

A. "O thou pure sunlight, and thou air, earth's canopy, how often have ye heard the strains of my lament, the wild blows dealt against this bleeding breast, when dark night fails!"

B. "Send to me my brother; for I have no more the strength to bear up alone against the load of grief that weighs me down."

C. "I know my own passion, it escapes me not; but, seeing that the causes are so dire, will never curb these frenzied plaints, while life is in me."

D. "But never will I cease from dirge and sore lament, while I look on the trembling rays of the bright stars, or on this light of day."

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Question # **ID**

3.18 2c06139b

Tadpole Body Mass and Toxin Production after Three Weeks in Ponds

Population density	Average tadpole body mass (milligrams)	Average number of distinct bufadienolide toxins per tadpole	Average amount of bufadienolide per tadpole (nanograms)	Average bufadienolide concentration (nanograms per milligram of tadpole body mass)
High	193.87	22.69	5,815.51	374.22
Medium	254.56	21.65	5,525.72	230.10
Low	258.97	22.08	4,664.99	171.43

Ecologist Veronika Bókony and colleagues investigated within-species competition among common toads (*Bufo bufo*), a species that secretes various unpleasant-tasting toxins called bufadienolides in response to threats. The researchers tested *B. bufo* tadpoles' responses to different levels of competition by creating ponds with different tadpole population densities but a fixed amount of food. Based on analysis of the tadpoles after three weeks, the researchers concluded that increased competition drove bufadienolide production at the expense of growth.

Which choice uses data from the table to most effectively support the researchers' conclusion?

A. The difference in average tadpole body mass was small between the low and medium population density conditions and substantially larger between the low and high population density conditions.

B. Tadpoles in the low and medium population density conditions had substantially lower average bufadienolide concentrations but had greater average body masses than those in the high population density condition.

C. Tadpoles in the high population density condition displayed a relatively modest increase in the average amount of bufadienolide but roughly double the average bufadienolide concentration compared to those in the low population density condition.

D. Tadpoles produced approximately the same number of different bufadienolide toxins per individual across the population density conditions, but average tadpole body mass decreased as population density increased.

3.19 01c1d9ee

Swahili Speakers in Three African Countries

Country	Approximate number of speakers (in millions)	Estimated % of population
Democratic Republic of the Congo	22	25
Kenya	55	100
Tanzania	61	100

Swahili is estimated to be the first language of up to 15 million people worldwide. It's also an officially recognized language in Tanzania, Kenya, and the Democratic Republic of the Congo, which means these countries use Swahili in government documents and proceedings. But even in countries where almost everyone speaks Swahili, for many it isn't their first language but is instead their second, third, or even fourth language.

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

A. Tanzania has approximately 61 million Swahili speakers, which is much more than the estimated total number of people worldwide for whom Swahili is their first language.

B. Tanzania is estimated to have at most 15 million Swahili speakers, while the country's total population is approximately 61 million people.

C. Approximately 100 percent of the people who speak Swahili as their first language live in Kenya, which has a total population of approximately 55 million people.

D. Approximately 100 percent of Kenya's population speaks Swahili, while only about 25 percent of the Democratic Republic of the Congo's population speaks Swahili.

SAT Reading & Writing

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Question # **ID**

3.20 b2e54b50

Correlations Between Congestion Ratings and Features of the Crowd in Raters' Immediate Vicinity

Crowd feature	Before obstacle	After obstacle	Overall
Density	0.8592	0.7308	0.7447
Velocity	−0.9357	−0.9518	−0.8587

Researcher Xiaolu Jia and colleagues monitored individuals' velocity and the surrounding crowd density as a group of study participants walked through a space and navigated around an obstacle. Participants rated how congested it seemed before the obstacle, after the obstacle, and overall, and the researchers correlated those ratings with velocity and density. (Correlations range from –1 to 1, with greater distance from 0 indicating greater strength). The researchers concluded that the correlations with velocity are stronger than those with density.

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

A. The correlation between congestion ratings before the obstacle and density is further from 0 than the correlation between overall congestion rating and velocity is.

B. The correlation between congestion ratings before the obstacle and velocity is further from 0 than the correlation between congestion overall and velocity is.

C. For each of the three ratings, the correlation with velocity is negative while the correlation with density is positive.

D. For each of the three ratings, correlations with velocity are further from 0 than the corresponding correlations with density are.

3.21 378c66d5

A member of the Otomi, an Indigenous people in Central Mexico, Octavio Medellín immigrated to the United States as a child, and his sculpture bears the impress of traditions on both sides of the border: US-based modernist sculpture, Mexican modernist painting, Otomi art, and the ancient sculpture of other Mexican Indigenous peoples, including the Maya. In his 1950 masterpiece *History of Mexico*, Medellín fuses these influences into a style so idiosyncratic that it resists efforts to view his work through the lens of nationality or cultural identity. Artists, he insisted, should strive for individual expression, even as they draw inspiration from their heritage and the communities where they live and work.

Which quotation from an art critic most directly challenges the underlined claim in the text?

A. "Although a number of ancient Indigenous artistic traditions pictured human forms in profile, the forms populating the surface of *A History of Mexico* suggest a specifically Maya influence."

B. "In *A History of Mexico*, the synthesis of ancient and modernist traditions functions as a stylistic parallel to the work's subject matter: a survey of centuries of Mexican history."

C. "Many critics focus on Indigenous influences in *A History of Mexico* and other key works by Medellín to the exclusion of influences from non-Indigenous art."

D. "While *A History of Mexico* features modernist motifs, it relies primarily on angular human forms in profile—a staple of Maya sculpture—and thus invites classification as Indigenous art."

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Question # **ID**

3.22 35ec767c

Corn-Related Vocabulary in Various Southeastern Languages

Language family	Word (language)	English translation	Proposed origin in vocabulary of the Totozoquean language family
Muskogean	tanchi’ (Chickasaw); tanchi (Choctaw); vce (Muscogee, pronounced “uh-chi”)	corn	no
Iroquoian	se-lu (Cherokee)	corn	no
Caddoan	-k’as- (Caddo)	dried corn	yes
Chitimacha	k’asma (Chitimacha)	corn	yes

In Caddo, a language from what is now the US Southeast, vocabulary pertaining to corn cultivation resembles equivalent vocabulary in the Totozoquean language family in Mexico. This resemblance is perhaps attributable to cultural contact: such words could have entered Caddo through the intermediary of the neighboring but unrelated Chitimacha language, concurrent with the dissemination of corn itself from Mexico into the Southeast after 700 CE. That the vocabulary pertaining to domestic crops accompanies them as they diffuse into new regions is an established phenomenon globally. Crops may also be decoupled from vocabulary altogether: corn cultivation became ubiquitous among the Southeastern tribes, yet _____

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

A. the origins of vocabulary pertaining to the crop vary across languages in the region, with the words for corn in Cherokee and the Muskogean languages showing no demonstrable relationship to Totozoquean vocabulary.

B. the region is linguistically diverse, being home not only to Chitimacha and Caddo, but also to the Muskogean language family (including Chickasaw, Choctaw, and Muscogee) and to one Iroquoian language (Cherokee).

C. corn-related vocabulary underwent changes when entering other, unrelated languages, as can be seen by the divergence of the Caddo word from the Chitimacha word it originated in.

D. words for corn in the languages of the Muskogean family evolved from a common root, with the Muscogee word having lost certain consonant sounds still present in the Chickasaw and Choctaw words.

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Question # **ID**

3.23 24c1b7e4

Percentage Point Changes in US Federal Outlays Relative to GDP by Congressional Status

Period	Congressional status	Change in total outlays	Change in nondefense outlays	Change in defense outlays
1981–1988	divided	–0.4	–1.3	0.9
1975–1976	divided	2.7	3.0	–0.3
1977–1980	undivided	0.3	0.6	–0.3
1964–1968	undivided	1.9	1.4	0.5
1969–1974	divided	–1.8	2.1	–3.9

Economist Steve H. Hanke has shown that divided US Congresses—which occur when one party holds the majority in the House of Representatives and another holds the majority in the Senate—tend to accompany reductions in total federal outlays (spending) relative to gross domestic product (GDP), which Hanke interprets to reflect decreases in government size. Hanke calculated the percentage point change in total outlays (encompassing nondefense and defense outlays) for consecutive US Congresses. Hanke has pointed to his calculations as evidence that a divided Congress may be a "necessary but not sufficient condition" for a decrease in government size to occur.

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

A. The periods of undivided Congresses were associated with increases in nondefense outlays, whereas all the periods of divided Congresses except one were associated with reductions in defense outlays.

B. All the periods of divided Congresses were associated with reductions in total outlays, although two periods were also associated with increases in nondefense outlays.

C. The periods of undivided Congresses were associated with increases in total outlays, whereas all the periods of divided Congresses were associated with reductions in either nondefense outlays or defense outlays.

D. All the periods of divided Congresses except one were associated with reductions in total outlays, whereas the periods of undivided Congresses were associated with increases in total outlays.

3.24 56f477fb

Distribution of Ecosystem Services Affected by Invasive Species by Service Type

Region (Overall)	Provisioning (75%)	Regulating (21%)	Cultural (4%)
West	73%	27%	0%
North	88%	12%	0%
South	79%	14%	7%
East	83%	6%	11%
Central	33%	67%	0%

To assess the impact of invasive species on ecosystems in Africa, Benis N. Egoh and colleagues reviewed government reports from those nations about how invasive species are undermining ecosystem services (aspects of the ecosystem on which residents depend). The services were sorted into three categories: provisioning (material resources from the ecosystem), regulating (natural processes such as cleaning the air or water), and cultural (nonmaterial benefits of ecosystems). Egoh and her team assert that countries in each region reported effects on provisioning services and that provisioning services represent the majority of the reported services.

Which choice best describes data from the table that support Egoh and colleagues' assertion?

A. Provisioning services represent 73% of the services reported for the West region and 33% of those for the Central region, but they represent 75% of the services reported overall.

B. None of the percentages shown for provisioning services are lower than 33%, and the overall percentage shown for provisioning services is 75%.

C. Provisioning services are shown for each region, while no cultural services are shown for some regions.

D. The greatest percentage shown for provisioning services is 88% for the North region, and the least shown for provisioning services is 33% for the Central region.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.25 2644644a

In countries with right-hand traffic, drivers who want to make a left turn at a traffic intersection with stoplights have to wait for either a gap in oncoming traffic or a designated left-turn signal to turn green. At busy intersections, this often causes a backup of vehicles waiting to turn left or being prevented from proceeding by left-turning vehicles in front of them. Transportation researcher Vikash V. Gayah claims that in urban areas eliminating the option to turn left at busy intersections—both with and without dedicated left-turn signals—would improve traffic flow and, as a result, reduce overall travel times even if such a restriction would require drivers to sometimes travel a slightly longer distance.

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

A. In a town that installed left-turn signals at all busy intersections, seven out of ten survey respondents agreed with the statement "the streets in my community are easier to navigate by motor vehicle than before."

B. A traffic study of intersections in a large city shows that on average drivers wait longer to make a left turn at intersections without left-turn signals than at intersections with such signals.

C. After a city eliminated left turns at busy intersections, a package-delivery company reports that its drivers have been able to reach more addresses in the city daily, on average, and therefore deliver more packages there annually.

D. Statistics reveal that school buses in a city that eliminated left turns at most intersections took on average two minutes longer to complete their routes after the restriction took effect than they did before.

3.26 a7c52fa4

Mean Time (in Seconds) Spent per Flower for Four Pollinator Genera

Pollinator genus	Seconds per intact pin flower	Seconds per damaged pin flower	Seconds per intact thrum flower	Seconds per damaged thrum flower
Habropoda	2.7	5.4	4.1	9.5
Osmia	5.2	8.2	7.1	8.3
Pierid	2.6	4.0	2.4	1.9
Xylocopa	2.3	2.8	2.5	2.2

To study how floral damage affects the behavior of pollinators, such as bees, a team of researchers punched holes in the floral tissue of flowers from the vine yellow jessamine (*Gelsemium sempervirens*), a plant that produces flowers that have either a long pistil and a short stamen (pin morphs) or a short pistil and a long stamen (thrum morphs). The researchers then compared the time different insect pollinators spent visiting intact pin and thrum flowers to the time such pollinators spent visiting the artificially damaged pin and thrum flowers. The researchers concluded that the effect of floral damage on time spent per flower varied by both floral morph and the genus of the pollinator.

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

A. For pin flowers, damage led to longer times per flower in all pollinator genera, whereas for thrum flowers, damage led to longer times per flower only in *Habropoda* and *Osmia*.

B. Compared with pollinators belonging to the genus *Osmia*, pollinators belonging to the genus *Xylocopa* spent less time on damaged pin flowers but more time on damaged thrum flowers.

C. Damage led to shorter times per thrum flower in three pollinator genera (*Osmia*, *Pierid*, and *Xylocopa*), whereas it led to longer times per thrum flower in one pollinator genus (*Habropoda*).

D. Pollinators belonging to the genus *Habropoda* spent 2.7 seconds on intact pin flowers and 4.1 seconds on intact thrum flowers.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.27 bc7b1a04

Three Studies' Estimated Average Velocity of LMC

Researchers	Study year	Estimated average velocity
Murai and Fujimoto	1980	344 km/s
Kallivayalil and colleagues	2006	378 km/s
Gardiner and colleagues	1994	297 km/s

In 2006, Nitya Kallivayalil and colleagues calculated the most accurate estimate yet of the average velocity (in kilometers per second) of the Large Magellanic Cloud (LMC) galaxy. Before the 2006 study, estimates of the average velocity were low enough for the LMC to maintain an orbit around the Milky Way galaxy, but according to an analysis by Gurtina Besla and colleagues, the estimated velocity from the 2006 study is too high for the LMC to maintain such an orbit. Therefore, if Besla and colleagues are correct, the maximum average velocity for the LMC that would allow it to maintain orbit around the Milky Way is likely _____

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

A. above 344 km/s but below 378 km/s.

B. above 297 km/s but below 344 km/s.

C. above 378 km/s.

D. below 297 km/s.

3.28 124fdcd7

Many archaeologists will tell you that categorizing excavated fragments of pottery by style, period, and what objects they belong to relies not only on standard criteria, but also on instinct developed over years of practice. In a recent study, however, researchers trained a deep-learning computer model on thousands of images of pottery fragments and found that it could categorize them as accurately as a team of expert archaeologists. Some archaeologists have expressed concern that they might be replaced by such computer models, but the researchers claim that outcome is highly unlikely.

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

A. In the researchers' study, the model was able to categorize the pottery fragments much more quickly than the archaeologists could.

B. In the researchers' study, neither the model nor the archeologists were able to accurately categorize all the pottery fragments that were presented.

C. A survey of archaeologists showed that categorizing pottery fragments limits the amount of time they can dedicate to other important tasks that only human experts can do.

D. A survey of archaeologists showed that few of them received dedicated training in how to properly categorize pottery fragments.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.29 55df0275

Ablation Rates for Three Elements in Cosmic Dust, by Dust Source

Element	SPC	AST	HTC	OCC
iron	20%	28%	90%	98%
potassium	44%	74%	97%	100%
sodium	45%	75%	99%	100%

Earth's atmosphere is bombarded by cosmic dust originating from several sources: short-period comets (SPCs), particles from the asteroid belt (ASTs), Halley-type comets (HTCs), and Oort cloud comets (OCCs). Some of the dust's material vaporizes in the atmosphere in a process called ablation, and the faster the particles move, the higher the rate of ablation. Astrophysicist Juan Diego Carrillo-Sánchez led a team that calculated average ablation rates for elements in the dust (such as iron and potassium) and showed that material in slower-moving SPC or AST dust has a lower rate than the same material in faster-moving HTC or OCC dust. For example, whereas the average ablation rate for iron from AST dust is 28%, the average rate for _____

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

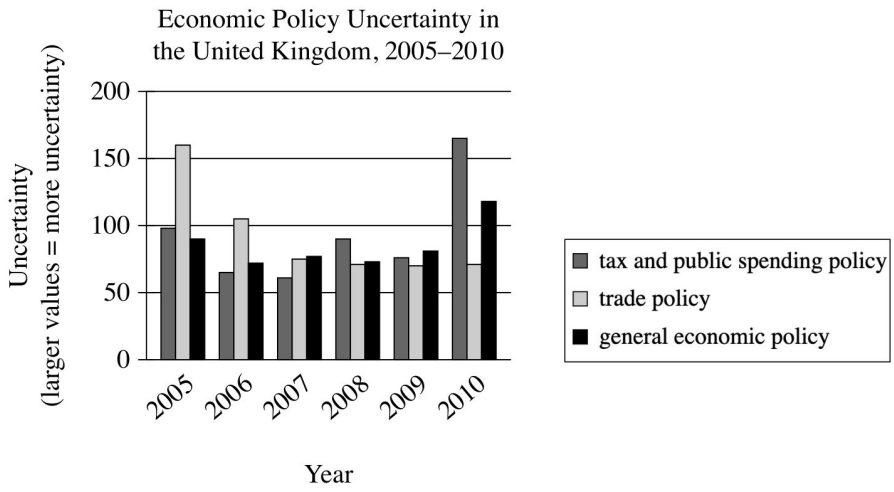
A. iron from SPC dust is 20%.

B. sodium from OCC dust is 100%.

C. iron from HTC dust is 90%.

D. sodium from AST dust is 75%.

3.30 702eb7e3



High levels of public uncertainty about which economic policies a country will adopt can make planning difficult for businesses, but measures of such uncertainty have not tended to be very detailed. Recently, however, economist Sandile Hlatshwayo analyzed trends in news reports to derive measures not only for general economic policy uncertainty but also for uncertainty related to specific areas of economic policy, like tax or trade policy. One revelation of her work is that a general measure may not fully reflect uncertainty about specific areas of policy, as in the case of the United Kingdom, where general economic policy uncertainty _____

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

A. aligned closely with uncertainty about tax and public spending policy in 2005 but differed from uncertainty about tax and public spending policy by a large amount in 2009.

B. was substantially lower than uncertainty about tax and public spending policy each year from 2005 to 2010.

C. reached its highest level between 2005 and 2010 in the same year that uncertainty about trade policy and tax and public spending policy reached their lowest levels.

D. was substantially lower than uncertainty about trade policy in 2005 and substantially higher than uncertainty about trade policy in 2010.

SAT Reading & Writing

Command of Evidence 3

Question #	ID	
3.31	8391a002	Black beans (*Phaseolus vulgaris*) are a nutritionally dense food, but they are difficult to digest in part because of their high levels of soluble fiber and compounds like raffinose. They also contain antinutrients like tannins and trypsin inhibitors, which interfere with the body's ability to extract nutrients from foods. In a research article, Marisela Granito and Glenda Álvarez from Simón Bolívar University in Venezuela claim that inducing fermentation of black beans using lactic acid bacteria improves the digestibility of the beans and makes them more nutritious. Which finding from Granito and Álvarez's research, if true, would most directly support their claim? A. When cooked, fermented beans contained significantly more trypsin inhibitors and tannins but significantly less soluble fiber and raffinose than nonfermented beans. B. Fermented beans contained significantly less soluble fiber and raffinose than nonfermented beans, and when cooked, the fermented beans also displayed a significant reduction in trypsin inhibitors and tannins. C. When the fermented beans were analyzed, they were found to contain two microorganisms, *Lactobacillus casei* and *Lactobacillus plantarum*, that are theorized to increase the amount of nitrogen absorbed by the gut after eating beans. D. Both fermented and nonfermented black beans contained significantly fewer trypsin inhibitors and tannins after being cooked at high pressure.
3.32	7f293254	Art collectives, like the United States- and Vietnam-based collective The Propeller Group or Cuba's Los Carpinteros, are groups of artists who agree to work together: perhaps for stylistic reasons, or to advance certain shared political ideals, or to help mitigate the costs of supplies and studio space. Regardless of the reasons, art collectives usually involve some collaboration among the artists. Based on a recent series of interviews with various art collectives, an arts journalist claims that this can be difficult for artists who are often used to having sole control over their work. Which quotation from the interviews best illustrates the journalist's claim? A. "The first collective I joined included many amazingly talented artists, and we enjoyed each other's company, but because we had a hard time sharing credit and responsibility for our work, the collective didn't last." B. "We work together, but that doesn't mean that individual projects are equally the work of all of us. Many of our projects are primarily the responsibility of whoever originally proposed the work to the group." C. "Having worked as a member of a collective for several years, it's sometimes hard to recall what it was like to work alone without the collective's support. But that support encourages my individual expression rather than limits it." D. "Sometimes an artist from outside the collective will choose to collaborate with us on a project, but all of those projects fit within the larger themes of the work the collective does on its own."
3.33	e946a32e	Boldly mixing elements of poetry, fiction, drama, philosophy, and manifesto, Puerto Rican writer Giannina Braschi creates cross-genre literature that explores themes such as immigration and independence. Her works have inspired responses from individuals across different fields and in a wide range of formats, from musical compositions and a comic book to architecture and furniture design. In an essay, a student asserts that the production of these diverse creations by others is reflective of Braschi's own approach to crafting literature. Which quotation from a scholarly review of Braschi's work best supports the student's claim? A. "Braschi is the focus of a 2020 collection of essays in which fifteen scholars from seven different countries delved into the linguistic and structural patterns of her writings." B. "Braschi's eagerness to push boundaries and blend genres within literature invites us to consider how other art forms might also engage with literature." C. "Before settling in New York City, where she would go on to become a college professor, Braschi studied both literature and philosophy in several cities around the world." D. "In addition to her creative literary works, Braschi has produced academic pieces analyzing writings by Miguel de Cervantes, Federico García Lorca, and other authors."

SAT Reading & Writing

Command of Evidence 3

Question #	ID	
3.34	37e15265	"The Young Girl" is a 1920 short story by Katherine Mansfield. In the story, the narrator takes an unnamed seventeen-year-old girl and her younger brother out for a meal. In describing the teenager, Mansfield frequently contrasts the character's pleasant appearance with her unpleasant attitude, as when Mansfield writes of the teenager, _____ Which quotation from "The Young Girl" most effectively illustrates the claim? A. "I heard her murmur, 'I can't bear flowers on a table.' They had evidently been giving her intense pain, for she positively closed her eyes as I moved them away." B. "While we waited she took out a little, gold powder-box with a mirror in the lid, shook the poor little puff as though she loathed it, and dabbed her lovely nose." C. "I saw, after that, she couldn't stand this place a moment longer, and, indeed, she jumped up and turned away while I went through the vulgar act of paying for the tea." D. "She didn't even take her gloves off. She lowered her eyes and drummed on the table. When a faint violin sounded she winced and bit her lip again. Silence."
3.35	c83e0b43	*O Pioneers!* is a 1913 novel by Willa Cather. In the novel, Cather depicts Alexandra Bergson as a person who takes comfort in understanding the world around her: _____ Which quotation from *O Pioneers!* most effectively illustrates the claim? A. "She looked fixedly up the bleak street as if she were gathering her strength to face something, as if she were trying with all her might to grasp a situation which, no matter how painful, must be met and dealt with somehow." B. "She had never known before how much the country meant to her. The chirping of the insects down in the long grass had been like the sweetest music. She had felt as if her heart were hiding down there, somewhere, with the quail and the plover and all the little wild things that crooned or buzzed in the sun. Under the long shaggy ridges, she felt the future stirring." C. "Alexandra drove off alone. The rattle of her wagon was lost in the howling of the wind, but her lantern, held firmly between her feet, made a moving point of light along the highway, going deeper and deeper into the dark country." D. "Alexandra drew her shawl closer about her and stood leaning against the frame of the mill, looking at the stars which glittered so keenly through the frosty autumn air. She always loved to watch them, to think of their vastness and distance, and of their ordered march. It fortified her to reflect upon the great operations of nature, and when she thought of the law that lay behind them, she felt a sense of personal security."
3.36	df91532e	In the "language nest" model of education, Indigenous children learn the language of their people by using it as the medium of instruction and socialization at pre-K or elementary levels. In their 2016 study of a school in an Anishinaabe community in Ontario, Canada, scholars Lindsay Morcom and Stephanie Roy (who are Anishinaabe themselves) found that the model not only imparted fluency in the Anishinaabe language but also enhanced students' pride in Anishinaabe culture overall. Given these positive effects, Morcom and Roy predict that the model increases the probability that as adults, former students of the school will transmit the language to younger generations in their community. Which finding, if true, would most strongly support the researchers' prediction? A. Anishinaabe adults who didn't attend the school feel roughly the same degree of cultural pride as the former students of the school feel. B. After transferring to the school, new students experience an increase in both fluency and academic performance overall. C. As adults, former students of the school are just as likely to continue living in their community as individuals who didn't attend the school. D. As they complete secondary and higher education, former students of the school experience no loss of fluency or cultural pride.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.37 825dc766

King Lear is a circa 1606 play by William Shakespeare. In the play, the character of King Lear attempts to test his three daughters' devotion to him. He later expresses regret for his actions, as is evident when he _____

Which choice most effectively uses a quotation from *King Lear* to illustrate the claim?

A. says of himself, "I am a man / more sinned against than sinning."

B. says during a growing storm, "This tempest will not give me leave to ponder / On things would hurt me more."

C. says to himself while striking his head, "Beat at this gate that let thy folly in / And thy dear judgement out!"

D. says of himself, "I will do such things— / What they are yet, I know not; but they shall be / The terrors of the earth!"

3.38 9452092c

Effects of Mycorrhizal Fungi on 3 Plant Species

Plant species	Mycorrhizal host	Average mass of plants grown in soil containing mycorrhizal fungi (in grams)	Average mass of plants grown in soil treated to kill fungi (in grams)
Corn	yes	15.1	3.8
Marigold	yes	10.2	2.4
Broccoli	no	7.5	7

Mycorrhizal fungi in soil benefits many plants, substantially increasing the mass of some. A student conducted an experiment to illustrate this effect. The student chose three plant species for the experiment, including two that are mycorrhizal hosts (species known to benefit from mycorrhizal fungi) and one nonmycorrhizal species (a species that doesn't benefit from and may even be harmed by mycorrhizal fungi). The student then grew several plants from each species both in soil containing mycorrhizal fungi and in soil that had been treated to kill mycorrhizal and other fungi. After several weeks, the student measured the plants' average mass and was surprised to discover that _____

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

A. broccoli grown in soil containing mycorrhizal fungi had a slightly higher average mass than broccoli grown in soil that had been treated to kill fungi.

B. corn grown in soil containing mycorrhizal fungi had a higher average mass than broccoli grown in soil containing mycorrhizal fungi.

C. marigolds grown in soil containing mycorrhizal fungi had a much higher average mass than marigolds grown in soil that had been treated to kill fungi.

D. corn had the highest average mass of all three species grown in soil that had been treated to kill fungi, while marigolds had the lowest.

3.39 09775cbf

In a series of experiments, Julio Sevilla and Claudia Townsend showed that manipulating the space between products in store displays can influence consumers' views of those products. Participants in several of the experiments regarded the same products in the same (generic) retail settings as significantly more valuable when the product-to-space ratio was low than when it was high. But in one of the experiments, Sevilla and Townsend arranged the same jewelry with different levels of intervening space at an upscale retailer (Tiffany & Co.) and a relatively inexpensive retailer (Forever 21). The result of this experiment suggests that a store context associated with inexpensive products may moderate the effect Sevilla and Townsend observed in their other experiments.

Which finding from the experiment with Tiffany & Co. and Forever 21, if true, would most directly support the conclusion presented in the text?

A. At Tiffany & Co., participants judged jewelry spaced far apart to be substantially more valuable than jewelry spaced close together, but at Forever 21, participants judged jewelry spaced far apart to be only slightly more valuable than jewelry spaced close together.

B. At both Tiffany & Co. and Forever 21, participants judged jewelry spaced far apart to be less valuable than jewelry spaced close together, but the difference in perceived value was significantly greater at Tiffany & Co. than at Forever 21.

C. Participants judged jewelry spaced far apart at Tiffany & Co. to be similar in value to jewelry spaced far apart at Forever 21, but participants judged jewelry spaced close together at Tiffany & Co. to be more valuable than jewelry spaced close together at Forever 21.

D. When jewelry was spaced far apart, participants judged the jewelry at Tiffany & Co. to be more valuable than the jewelry at Forever 21, but when jewelry was spaced close together, participants judged the jewelry at Tiffany & Co. to be less valuable than the jewelry at Forever 21.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.40 cca6fae9

Delta 15-N Values in Seagrass Samples from Four Sites on the Yucatan, 2016–2017

Site	February 2016	October 2016	February 2017	October 2017
Akumal Bay	no data available	3.3	2.0	6.3
Mahahual	0.7	no data available	2.5	3.4
Tulum	6.1	5.9	2.3	5.5
Xahuayxol	0.9	0.3	−0.9	1.4

Because water from natural, uncontaminated sources is less enriched with the stable nitrogen isotope ^{15}N than wastewater from human activities is, the presence of such wastewater in nature can be detected by examining delta 15-N values (a measure of the ratio of ^{15}N to ^{14}N) in plants. Karla A. Camacho-Cruz and colleagues assessed delta 15-N values in the seagrass *Thalassia testudinum* from sites on Mexico's Yucatan peninsula with intermediate tourism development, including Akumal Bay and Tulum, and low tourism development, including Mahahual and Xahuayxol, throughout 2016 and 2017. The data suggest that the intermediate-tourism sites experienced influxes of human wastewater. However, the researchers concluded that this happened intermittently.

Which choice best describes data from the table that support the underlined conclusion?

A. Although delta 15-N values were generally higher in Akumal Bay and Tulum than in Mahahual and Xahuayxol, the values were lower in Akumal Bay than in Mahahual and Xahuayxol in February 2017.

B. Delta 15-N values reached their lowest level in February 2017 in both Akumal Bay and Tulum, but no data were available for Akumal Bay in February 2016, when the values reached their highest level in Tulum.

C. Although all sites showed considerable variation in delta 15-N values, the values remained relatively constant in Akumal Bay from October 2016 to February 2017 and in Tulum from February 2016 to October 2016.

D. In Akumal Bay and Tulum, delta 15-N values fluctuated considerably across the three measurements made from October 2016 to October 2017.

3.41 31ad8024

Water flowing around an obstruction creates vortices (patterns of swirls) of varying size; by detecting the vortices, fish can determine the size and position of the obstruction. Testing by Yuzo R. Yanagisuru, Otar Akanyeti, and James C. Liao using models of three head shapes—narrow (low ratio of width to length), intermediate, and wide (high ratio of width to length)—showed that for medium-sized vortices, fish with wide heads would be least able to distinguish between vortices and general turbulence in the water. A second research team has therefore hypothesized that in low-visibility conditions, wider-headed fish will be less likely than narrower-headed fish to detect obstructions.

Which finding, if true, would most directly support the second research team's hypothesis?

A. A study using obstructions that created medium-sized vortices in low-visibility conditions found that the bristlemouth (*Chaetostoma yurubiense*), which has a relatively wide head, bumped into more than half of the obstructions.

B. A study using obstructions that created medium-sized vortices in low-visibility conditions found that some specimens of dusky smooth-hound (*Mustelus canis*), which has a relatively narrow head, bumped into the obstructions more often than other specimens of the same fish did.

C. A study using obstructions that created medium-sized vortices in low-visibility conditions found that the wider-headed bristlemouth (*Chaetostoma yurubiense*) bumped into obstructions more often than the narrower-headed dusky smooth-hound (*Mustelus canis*) did.

D. A study using obstructions that created medium-sized vortices in low-visibility conditions found that the narrower-headed dusky smooth-hound (*Mustelus canis*) bumped into the obstructions just as often as the wider-headed bristlemouth (*Chaetostoma yurubiense*) did.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.42 4a07be59

Neurobiologists Laura Cuaya, Raúl Hernández-Pérez, and colleagues investigated the language detection abilities of eighteen dogs. The researchers monitored the brain activity of Joey (an Australian shepherd), Mini (a mixed breed), and other dogs while the animals listened to three recordings: one of *The Little Prince* being read in Spanish, the second in Hungarian, and a third made up of short, randomly selected fragments of the first two, scrambled so that they didn't resemble human speech. Each dog was familiar with either Spanish or Hungarian, but not both. The team concluded that differences in dogs' anatomical features may affect their ability to distinguish speech from nonspeech.

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

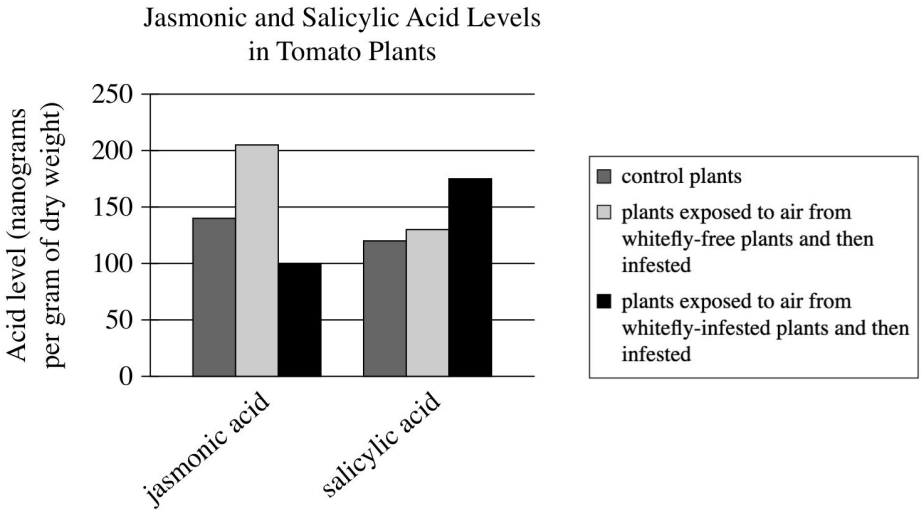
A. Long-headed dogs accustomed to hearing Spanish tended to show more brain activity when hearing Spanish than long-headed dogs accustomed to hearing Hungarian showed when hearing Hungarian.

B. Compared with shorter-headed dogs, longer-headed dogs showed a greater difference in brain activity when hearing either Spanish or Hungarian than when hearing the scrambled recording.

C. The pattern of brain activity that long-headed dogs showed when hearing the scrambled recording was different from the pattern of brain activity that short-headed dogs showed when hearing the language they were accustomed to.

D. Compared with shorter-headed dogs, longer-headed dogs showed a greater difference in brain activity when hearing the language they were accustomed to than when hearing the other language.

3.43 d5da74be



In tomato plants, herbivory induces defensive production of jasmonic acid, while microbial infection induces defensive production of salicylic acid; plants also emit airborne chemicals to initiate the appropriate defense in nearby tomato plants. Researchers investigated the poor resistance tomato plants show to whitefly herbivory by exposing some plants to airborne chemicals from whitefly-free plants and others to airborne chemicals from whitefly-infested plants, then infesting both groups of plants with whiteflies. The researchers concluded that whiteflies induce tomato plants to emit chemicals that cause other tomato plants to preferentially defend against microbial infection even when under herbivorous attack.

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

A. When plants exposed to air from whitefly-free plants were infested, they produced more jasmonic acid than did control plants, whereas when plants exposed to air from whitefly-infested plants were infested, they produced less jasmonic acid and more salicylic acid than did control plants.

B. When plants exposed to air from whitefly-infested plants were infested, they produced less jasmonic acid than salicylic acid, whereas when plants exposed to air from whitefly-free plants were infested, they produced about the same amount of jasmonic acid and salicylic acid.

C. When plants exposed to air from whitefly-free plants were infested, they produced both jasmonic acid and salicylic acid, whereas when plants exposed to air from whitefly-infested plants were infested, they exclusively produced salicylic acid.

D. When plants exposed to air from whitefly-infested plants were infested, they produced less jasmonic acid than did control plants, whereas when plants exposed to air from whitefly-free plants were infested, they produced more jasmonic acid and salicylic acid than did control plants.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.44 626a1308

Data Sources for Neptune Temperature Analysis

Instrument	Observatory	Data type	Observation years
TEXES (Texas Echelon Cross Echelle Spectrograph)	Gemini Observatory	spectroscopy	2007, 2019
T-ReCS (Thermal-Region Camera Spectrograph)	Gemini Observatory	infrared imaging	2007, 2010
LWS (Long Wavelength Spectrometer)	Keck Observatory	infrared imaging	2003
VISIR (VLT Imager and Spectrometer for mid-InfraRed)	European Southern Observatory	spectroscopy	2006

Julianne I. Moses and colleagues have reported that Neptune may have cooled significantly between 2003 and 2020. The team reached this conclusion by analyzing existing infrared imaging and spectroscopy data about the planet obtained from various instruments in different years. Of the team's sources listed in the table, the earliest example of spectroscopy data included in the analysis was obtained in _____

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

A. 2007 using TEXES at the Gemini Observatory.

B. 2007 using T-ReCS at the Gemini Observatory.

C. 2006 using VISIR at the European Southern Observatory.

D. 2003 using LWS at the W.M. Keck Observatory.

3.45 44da37eb

The variety of species with adaptations to produce toxins is matched by the variety of uses of those toxins: northern stargazers, for example, use toxins for defense, whereas tiger snakes use toxins for predation and skeleton shrimp use toxins for intraspecific competition. In fact, a species may have adaptations enabling it to produce a toxin with multiple uses. Finding that the venom used by the Panamanian scorpion *Centruroides granosus* to subdue prey also inhibits growth of the pathogenic bacteria *Escherichia coli*, Dumas Gálvez and colleagues conclude that the particular form of venom production observed in *C. granosus* may have propagated through the species because it mitigates risk during feeding in addition to enhancing predation success.

Which finding, if true, would most directly support Gálvez and colleagues' conclusion?

A. *E. coli* does not appear to be virulent for *C. granosus* even when transmitted from prey captured without the use of venom.

B. *E. coli* is frequently found in species preyed on by *C. granosus* and can survive exposure to the digestive juices of *C. granosus*.

C. *C. granosus* appears to be chemically sensitive to prey infected with *E. coli* and tends to favor uninfected individuals.

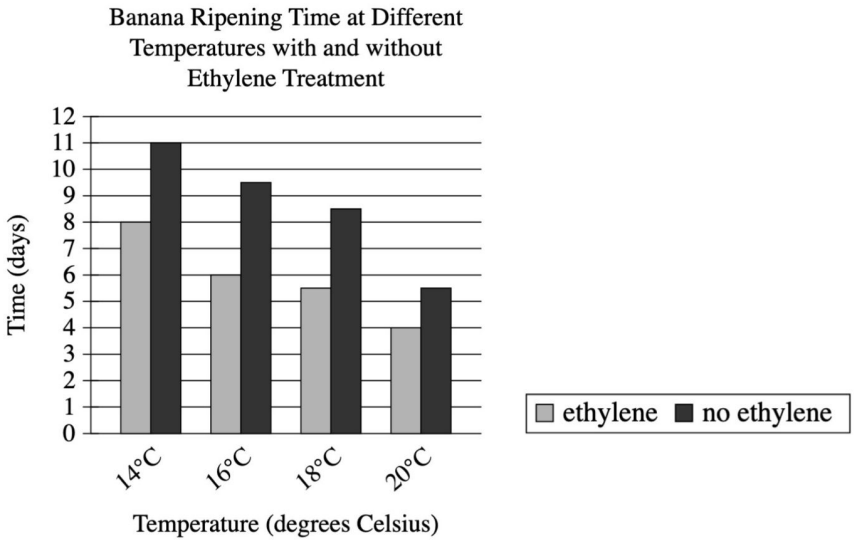
D. Exposure to *C. granosus* venom also inhibits the growth of nonpathogenic bacteria species common in the native environment of *C. granosus*.

SAT Reading & Writing

Command of Evidence 3

Question # **ID**

3.46 040583a5



A student is conducting an experiment to test the effect of temperature and ethylene treatment on the ripening speed of bananas. The student treated some bananas with ethylene while leaving others untreated, then allowed both types of bananas to ripen at one of four different temperatures. Comparing the data for bananas with and without ethylene, the student concluded that _____

Which choice most effectively uses data from the graph to complete the student's conclusion?

A. 20°C is the ideal temperature at which to store bananas to slow ripening time.

B. for those bananas that were not treated with ethylene, differences in temperature were not associated with absolute differences in ripening time.

C. bananas treated with ethylene ripen faster at 14°C and 16°C than at 18°C and 20°C.

D. ethylene was associated with a greater absolute change in ripening time at 14°C, 16°C, and 18°C than at 20°C.

3.47 068f939b

The ancient Greek concept of "mimesis," a term used in the works of Plato, Aristotle, and other Greek philosophers in discussions of representational art—visual, performance, or literary art that aims to depict the real world—is a foundational concept of the Western philosophy of aesthetics. Mimesis is typically translated as "imitation" in modern editions of ancient Greek texts, but scholar Stephen Halliwell warns that this is overly reductive: "imitation" implies that art merely copies—and is thus by definition entirely derivative of—a reality that exists outside and prior to the work of art, and translating "mimesis" thusly obscures the multifaceted ways in which the ancient Greeks understood the relationship between art and reality.

Which statement, if true, would most directly support the claim by Halliwell presented in the text?

A. One of the earliest appearances of mimesis's root word, *mimos*, can be found in an ancient Greek tragedy in reference to dramatic impersonation, and the *mim-* root came to be generally associated with the musical and poetic arts by the fifth century BCE.

B. Both Plato's and Aristotle's theorizations of mimesis examine the psychological effects that works of art induce in the viewer or listener.

C. Although several of Plato's earliest philosophical works discuss aesthetic ideas, the term "mimesis" doesn't appear in Plato's discussions of art until *Cratylus*, a relatively late work.

D. Although Plato's writings typically characterize representational art as an inferior reflection of the physical world, Aristotle suggests that mimesis can refer to art's capacity to envision hypothetical conditions that could, but don't yet, exist.

SAT Reading & Writing

Command of Evidence 3

Question #	ID
3.48	0d7f4966

Jean-Bernard Caron and colleagues recently discovered a cache of jellyfish fossils in the Burgess Shale, a site in the Canadian Rockies that is rich in fossils from the Cambrian period (over 500 million years ago). Caron and colleagues claim that these are the oldest jellyfish fossils ever discovered. In the past twenty years, two sites in China and the United States have yielded fossils of a similar age that some experts believe are most likely jellyfish due to their shapes and the appearance of projecting tentacles. But Caron and colleagues argue that the apparent tentacles are in fact the comb rows of ctenophores, gelatinous animals that are only distantly related to jellyfish.

Which statement, if true, would most directly weaken the claim by Caron and colleagues about the fossils found in China and the United States?

A. Sites in the Canadian Rockies from later periods than the Cambrian period have yielded fossils that have been conclusively identified as ctenophore fossils.

B. The fossils found in China and the United States are so poorly preserved that though they cannot be conclusively identified as jellyfish, they cannot be conclusively identified as ctenophores either.

C. While ctenophore fossils have been discovered in China and the United States, they have never been discovered in the Burgess Shale.

D. The fossils discovered by Caron and colleagues in the Burgess Shale were better preserved than the fossils discovered by other researchers in China and the United States.