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Reading Test

65 MINUTES, 52 QUESTIONS

Turn to Section 1 of your answer sheet to answer the questions in this section.

DIRECTIONS

Each passage or pair of passages below is followed by a number of questions. After reading each passage or pair, choose the best answer to each question based on what is stated or implied in the passage or passages and in any accompanying graphics.

Questions 1–12 are based on the following passage.

Passage 1 is adapted from Nicholas Heidorn, “*The Enduring Political Illusion of Farm Subsidies*.” ©2004 The Independent Institute. Originally Published August 18, 2004 in the San Francisco Chronicle. Passage 2 is ©2015 by Mark Anestis. Since 1922, the U.S. government has subsidized the agricultural industry by supporting the price of crops (commodity subsidies), paying farmers let their fields go fallow (conservation subsidies), helping farmers purchase crop insurance (crop insurance subsidies), and compensating farmers for uninsured losses due to disasters (disaster subsidies). The following passages discuss these programs.

Passage 1

Line Something is rotten down on the farm. A recent
 U.S. farm subsidy program, a multibillion-dollar
 system of direct payments to American farm-
 5 ers, uses administrators who are ill-trained and
 poorly monitored, and who give away millions
 of taxpayer dollars to farmers who are actually
 ineligible for the program. This report should hor-
 rify lawmakers, but it probably won’t.

10 From 1995 to 2002, the United States Congress
 doled out more than \$114 billion to farmers. Why?

One misconception is that subsidies are
 a boon to consumers because they lower food
 prices. This ignores the fact that consumers are
 15 also paying for these subsidies through taxes.
 Because of inefficiencies in the program, we tax-
 payers will pay more in taxes than we will ever get
 back in lower corn or wheat prices.

In fact, farm subsidies are not even intended to
 20 reduce food prices significantly. When prices are too
 low, farmers lose money. To prevent this situation,
 Congress also pays farmers additional “conservation
 subsidies” to leave their land fallow, thereby lower-
 ing supply and boosting prices again. We’re taxed to
 25 lower prices, and then taxed to raise them again.

Another myth is that subsidies increase
 exports, and thereby benefit the American econ-
 omy, by lowering the price of farm products and so
 making them more attractive to foreign consum-
 30 ers. This ignores two realities. First, farm subsidies
 transfer wealth from taxpayers to foreign con-
 sumers just as efficiently as they transfer wealth
 to domestic consumers. Second, farm subsidies
 are actually harming American exporters. In
 35 March 2005, the World Trade Organization ruled
 that American cotton subsidies violated global

CONTINUE

free-trade rules, which could lead to billions of dollars in retaliatory tariffs or penalties.

40 The worst misconception is that we need these subsidies to save the small family farmer. Indeed, according to a 2009 poll, about 77 percent of Americans support giving subsidies to small family farms. But according to the Environmental Working Group, 71 percent of farm subsidies go to the top 10 percent of beneficiaries, almost all of which are large corporate farms. By subsidizing these rich farmers, we actually make it much harder for the small family farmers to compete, not to mention the millions of impoverished third world farmers who rely on farming for their livelihood.

50 Rich corporate farmers are an enormously powerful lobby in American politics. Agribusiness and farm insurance lobbies pump nearly \$100 million into political campaigns every year, and the floodgates show no sign of closing. So don't be surprised if the GAO's reports of mismanagement and waste go unheeded. Politicians like their payouts almost as much as the big farmers and their insurance companies do.

Passage 2

60 The critics of the U.S. farm subsidy program fail to recognize just how vital these subsidies really are. They are not as burdensome to American taxpayers as the critics claim, and indeed provide important benefits. By protecting farmers from damaging fluctuations in commodity prices due to weather disasters or market disruptions, these

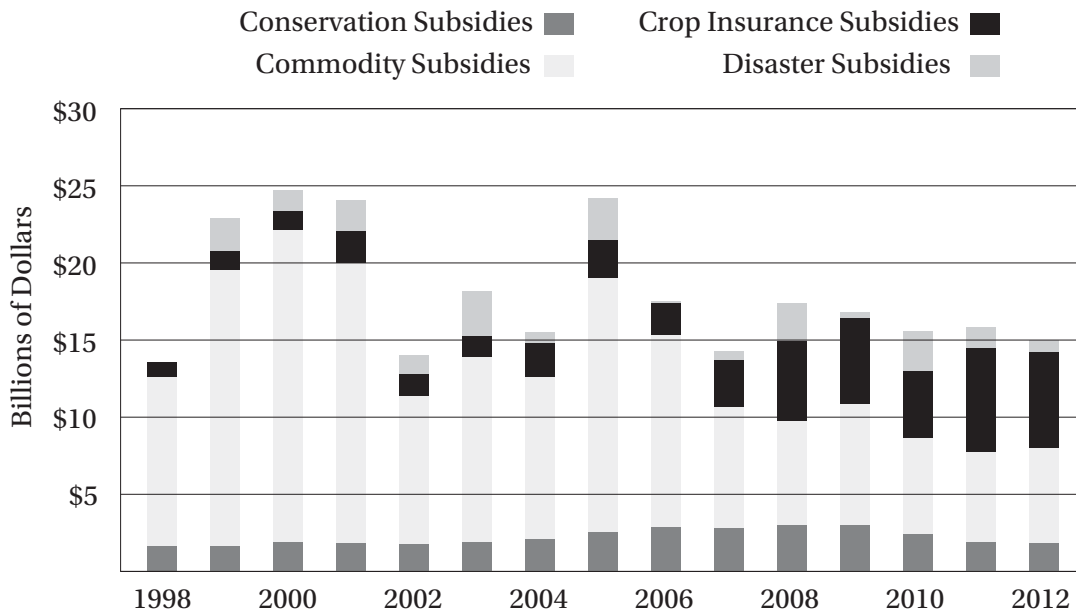
subsidies help sustain a vital American industry. At the same time, they protect consumers from price spikes that can accompany steep drops in crop inventories. Before price supports became common in the 20th century, crop failures devastated the lives of farmers and consumers with horrifying frequency.

70 Opponents say that subsidies distort the free market and create surpluses in supply. But halting subsidies would allow regular shortfalls, which are far more damaging. The year-to-year carry-over of these surpluses protects farmers from low prices and consumers from high prices.

75 Another misconception is that subsidies only benefit the producers. In fact, they help many related industries as well, including food processing, distribution, and marketing, chiefly by helping to lower the cost of production. And, of course, the consumers receive the benefit of lower prices.

80 When assessing the costs and benefits of farm payments, it is important to compare these subsidies to those of other industrialized nations. American farmers receive an average of just 20% of their incomes from subsidies, compared to 70% for farmers from some other countries. The European Union spends about five times what the United States spends on farm subsidies, amounting to 45% of the EU budget, compared to less than 1% of the U.S. federal budget. Although the U.S. farm subsidies programs are not perfect, they provide enormous benefits not only to farms but also to associated industries employing millions of people and to nearly every American consumer.

FEDERAL AGRICULTURAL SUBSIDIES IN THE UNITED STATES



Source: From Environmental Working Group (farm.ewg.org)

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Both passages acknowledge the effectiveness of U.S. farm subsidies in

- A) stabilizing commodity prices.
- B) expanding American exports.
- C) assisting smaller farms.
- D) increasing agricultural productivity.

2

The first sentence of Passage 1 refers primarily to the author's belief that

- A) the American government is not doing enough to help small farmers.
- B) some American farmers are violating the law.
- C) a federal agricultural program is unfair and ineffective.
- D) American farmers are struggling to compete in international markets.

3

The author of Passage 2 would most likely regard the "taxes" mentioned in line 15 as

- A) a worthwhile expenditure.
- B) a misplaced priority.
- C) a political delusion.
- D) a technical misnomer.

4

The author of Passage 1 believes that the GAO report "probably won't" (line 9) horrify lawmakers because

- A) the report indicates that farm subsidies are not as harmful as many suggest.
- B) most members of congress do not live in districts that receive farm subsidies.
- C) the legislature is too divided along ideological party lines.
- D) many members of congress receive benefits from pro-subsidy farm lobbies.

5

Which of the following provides the strongest evidence for the answer to the previous question?

- A) Lines 16–18 ("Because of . . . wheat prices")
- B) Lines 21–24 ("To prevent this . . . prices again")
- C) Lines 40–43 ("Indeed . . . family farms")
- D) Lines 53–55 ("Agribusiness . . . sign of closing")

6

Unlike Passage 1, Passage 2 emphasizes the danger of

- A) corrupt political officials.
- B) sudden changes in commodity prices.
- C) competition in international markets.
- D) onerous public tax burdens.

7

Passage 1 mentions the results of the 2009 poll (lines 40–43) primarily to

- A) confirm a general sentiment.
- B) refute a misconception.
- C) change the focus of the discussion.
- D) reveal a surprising finding.

8

If the author of Passage 1 were to use the data in the graph to support his main thesis, he would most likely mention

- A) the general decline in total farm subsidies from 2005 to 2012.
- B) the overall rate of change in commodity subsidies from 1998 to 2012.
- C) the expansion of crop insurance subsidies from the late 1990s to the late 2000s.
- D) the sudden spike in disaster subsidies from 2004 to 2005.



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9

If the author of Passage 2 were to use the data in the graph to support his main thesis, he would most likely mention

- A) the general decline in total farm subsidies from 2005 to 2012.
- B) the overall rate of change in commodity subsidies from 1998 to 2012.
- C) the expansion of crop insurance subsidies from the late 1990s to the late 2000s.
- D) the sudden spike in disaster subsidies from 2004 to 2005.

10

The author of Passage 1 would most likely say that the “benefit” in line 85 is

- A) offset by its costs.
- B) an exception to a rule.
- C) enjoyed only by the wealthy.
- D) misrepresented by legislators.

11

Unlike Passage 2, Passage 1 makes a direct appeal to the reader’s

- A) sense of humor.
- B) distaste for ineptitude.
- C) environmental responsibility.
- D) fiscal prudence.

12

In line 55, the “floodgates” are controls against

- A) environmental destruction.
- B) unscrupulous funding.
- C) emotional outbursts.
- D) necessary capital.

CONTINUE

Questions 13–22 are based on the following passage.

This passage is adapted from Marie Myung-Ok Lee, *Somebody's Daughter*. ©2006 Beacon Press. The story is about a Korean-American girl adopted by an American family and raised in the Midwest.

When I was eight, they told me that my mother's death was preordained. She had been murdered.

Line One Sunday after service, our minister,
Reverend Jansen of the Lutheran Church of the
5 Good Shepherd, bent down in a cloud of Aqua
Velva to explain. We had been learning in Sunday
school about Heaven and Hell, and in the middle
of class I had fallen into a panic, wondering how
I would recognize my Korean mother when I saw
10 her in Heaven—or in Hell, if perhaps she and I
both sinned too much.

Not to worry, I was told.

“God called your Korean parents home so
that you could become the daughter of your
15 mother and father,” he said, his eyes sliding
sidewise, for just a second. His breath smelled
vaguely of toast.

“It was all part of His plan—you see how much
your mommy and daddy love you? When the time
20 comes, if you're a very good girl, you, your mommy,
daddy, and your sister, Amanda—the whole
Thorson family—will be in heaven together, thanks
to the Lord's wonderful and mysterious ways.”

“That's why we named you Sarah,” Christine
25 and Ken added. “Because it means ‘God's
precious treasure.’”

God kills, I thought then. The same God who
brought us Christmas and the Easter Bunny—he
murdered my mother.

30 Shortly after that Sunday, I brought up my
Korean mother again, asking about the car acci-
dent, how it happened, exactly—was it like Phil
Haag's father, who fell asleep at the wheel? Or like
our plumber's teenage son who drove into a semi
35 head-on?

“Sarah,” Christine said patiently, looking up
from the chopping board, where she was slicing
carrot discs for pot roast. “We really knew nothing
about her. *I'm* your mommy. Let's not talk

40 about this any more, it makes me sad.” She made
little crying motions, pretending to wipe away
tears, the same thing she did when I was bad, to
show how I had disappointed her.

I grew up in a house in which *Korea* had
45 always been the oddly charged word, never to be
mentioned in connection to me, the same way
we never said “Uncle Henry” and “alcoholic” in
the same sentence. It was almost as if Ken and
Christine thought I needed to be protected from
50 it, the way small children need to be protected
from boors itching to tell them that Santa Claus
is not real. The ban on *Korea* extended even to
the aforementioned Uncle Henry, who was then
deprived of his war stories at our Memorial Day
55 cookouts. Although he proudly wore his felt VFW
hat with its flurry of pins, including ones from his
tour “overseas,” Christine or Ken would quietly
slip him some of his favorite Pabst or Schlitz, and
in return he'd set up residence in the lawn chair
60 at the far corner of our yard, away from everyone.

Somewhere back in the fuzzy clot of my
teens (now, I'm at the worldly-wise age of almost-
twenty), the '88 Summer Olympics were held
in Seoul. We couldn't buck the Thorson family
65 tradition of watching absolutely everything (that
winter we'd raptly watched curling, for God's
sakes!). But I was aware that pains were taken to
modulate voices, vocal cords twisted to an excru-
ciating, studied casualness until *Korea* came out
70 “*Korea*,” exactly the same way we'd say “*Russia*”
or “*Carl Lewis*” or “*Flo-Jo*.”

Then Bryant Gumbel invaded our living room
with his special segment on how *Korea*, one of the
four “*Little Tiger*” economic miracle countries, was
75 so enterprising that it had even made an export
product out of its babies. Since the Korean War,
more than a *hundred thousand children*, Made-
in-Korea stamped on their foreheads, had left the
country, their adoption fees fattening the govern-
80 ment coffers.

Top that, Singapore! Gumbel's cheery smirk
seemed to say.

“Well, Sarah's really American, not Kor—”
Amanda began, until the look on Christine's
85 face—despairing, fierce—stopped her.

We invent what becomes us.

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13

The narrator characterizes Reverend Jansen primarily as

- A) an aloof scholar.
- B) a fierce taskmaster.
- C) a sympathetic caregiver.
- D) a patronizing figure.

14

The narrator's statement that her mother "had been murdered" (line 2) is best taken to mean that

- A) her mother was killed by a negligent driver.
- B) the reputation of her mother had been severely impugned.
- C) the death of her mother was deliberate.
- D) her adoptive family was trying to obliterate all memory of her biological mother.

15

The narrator's description of the reverend's "eyes" and "breath" in lines 15–16 primarily convey a sense of

- A) empathy.
- B) detachment.
- C) geniality.
- D) severity.

16

Christine believes that Sarah's ethnicity is

- A) a source of pride.
- B) an exotic mystery.
- C) a sacred blessing.
- D) an unfortunate fact.

17

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 13–16 ("God called . . . second")
- B) Lines 24–26 ("That's why . . . treasure")
- C) Lines 48–52 ("It was almost . . . is not real")
- D) Lines 76–80 ("Since the Korean . . . government coffers")

18

Lines 26–28 ("God kills . . . my mother") are striking for their use of

- A) juxtaposition.
- B) metaphor.
- C) personification.
- D) understatement.

19

Lines 36–49 chiefly describe Christine's

- A) cunning deceitfulness.
- B) sense of superiority.
- C) motherly sympathy.
- D) emotional immaturity.

20

In line 45, "charged" most nearly means

- A) loaded.
- B) entrusted.
- C) attacked.
- D) demanded.

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21

The passage suggests that Uncle Henry's role in the Thorson family is that of

- A) a stern patriarch.
- B) a bigoted lout.
- C) a pitiable embarrassment.
- D) a noble hero.

22

The "cheery smirk" (line 81) is taken by the narrator to indicate Gumbel's

- A) satisfaction with the publicity the Olympics were receiving.
- B) admiration for Korea's economic competitiveness.
- C) pleasure that Korean children would be well cared for.
- D) happiness that Singapore had finally been defeated.

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Questions 23–32 are based on the following passage and any accompanying material.

This passage is adapted from Christopher F. Black, “Baby Pictures of the Universe.” ©2015 by Christopher F. Black and College Hill Coaching.

At the breathtaking Gettysburg Cyclorama, a 377-foot-long, 42-foot-high painting of the bloody 1863 Battle of Gettysburg, visitors can turn in every direction and feel as if they have been thrust into the midst of perhaps the most important battle in American history, a snapshot of a chaotic chapter in the early life of a nation. Yet right now you sit in the midst of an even more spectacular cyclorama of an even more cataclysmic historical event that took place *billions* of years ago. Unfortunately, to appreciate its full splendor, you would have to be able to see micro-waves, which are invisible to our human eyes.

This real-life cyclorama is the cosmic microwave background (CMB) radiation, a 13-billion-year-old panoramic snapshot of the universe as it appeared the moment it first released its primordial photons. Although it is an astonishingly detailed confirmation of the Big Bang theory, it is not actually a picture of the Big Bang. On a human scale, it corresponds not to the instant of childbirth, but rather the moment a swaddled one-day-old opens its eyes and keeps them open.

For the first 380,000 years of its life (a mere blink of an eye in cosmic history), the universe was “invisible” because its photons—the particles that are emitted from an object or event and that must reach a detector in order for us to “see” it—were trapped in a hot, opaque fog of hydrogen plasma. Only when this super-heated plasma cooled to the point where protons and electrons could combine to form hydrogen atoms—a period called the “epoch of recombination”—did these photons begin to travel unimpeded through the universe.

35 Some of those photons, having traveled for half a billion generations, are just now reaching us.

One of the most striking aspects of the CMB radiation is its near-uniformity, or “isotropism.” No matter where we look in the sky, the temperature of the CMB radiation varies by no more than one part in 100,000. It’s almost impossible to find another real-life example of such thermal homogeneity.

This uniformity is somewhat counterintuitive: the remnants of most explosions seem to spread out in a spherical but non-uniform “debris field.” For instance, the embers of a firework explosion are confined to a region around the explosion, but nowhere else. So why is the CMB radiation still found everywhere in the universe, and not just on its “edges?” The first reason is that the universe *has* no edges: it is “boundless,” just as the surface of a sphere is boundless. The second reason is that the CMB radiation did not originate from just one point in space, but from virtually *every* point in space. Thus, every point in the modern universe is not only equally likely to be the source of the CMB radiation, it is also equally likely to be the current location of the CMB radiation.

This uniformity was predicted in a theory published by George Gamow in 1948. His theory also made two other predictions that have been confirmed to astonishing precision by our current data. First, Gamow predicted that the CMB radiation should have a distinctive spectrum known as a “blackbody” curve. Second, he predicted that the expanding universe would have cooled this radiation to below 5 degrees Kelvin today.

The CMB radiation went undetected until 1964, when Arno Penzias and Robert Wilson at Bell Laboratories in Murray Hill, New Jersey became troubled by persistent background noise in a radio telescope that they had just built. Their initial explanation was that it was due to a “white dielectric substance,” more commonly known as pigeon droppings. Remarkably, less than 40 miles away, Princeton researchers Robert Dicke and

Dave Wilkinson had been searching for evidence supporting Gamow's predictions, and instantly knew of a much better explanation for the noise.

80 Penzias and Wilson shared the 1978 Nobel Prize in physics for their discovery of the CMB radiation.

Since then, much more careful observations, made by the NASA Cosmic Background Explorer (COBE) and the Wilkinson Microwave Anisotropy

85 Probe (WMAP) have confirmed that the CMB radiation indeed has a nearly perfect blackbody

spectrum corresponding to a temperature of 2.725° Kelvin, barely more than 2 degrees from Gamow's guess. In addition to confirming many

90 aspects of the Big Bang theory, these data have also helped scientists calibrate the age of the universe (13.772 ± 0.059 billion years), gauge the speed at which the universe is expanding, and even verify the existence of "dark energy," the

95 mysterious energy that propelled the rapid expansion of the early universe.

COSMIC BACKGROUND RADIATION SPECTRUM FROM COBE AND BLACKBODY RADIATION CURVES FOR VARIOUS TEMPERATURES

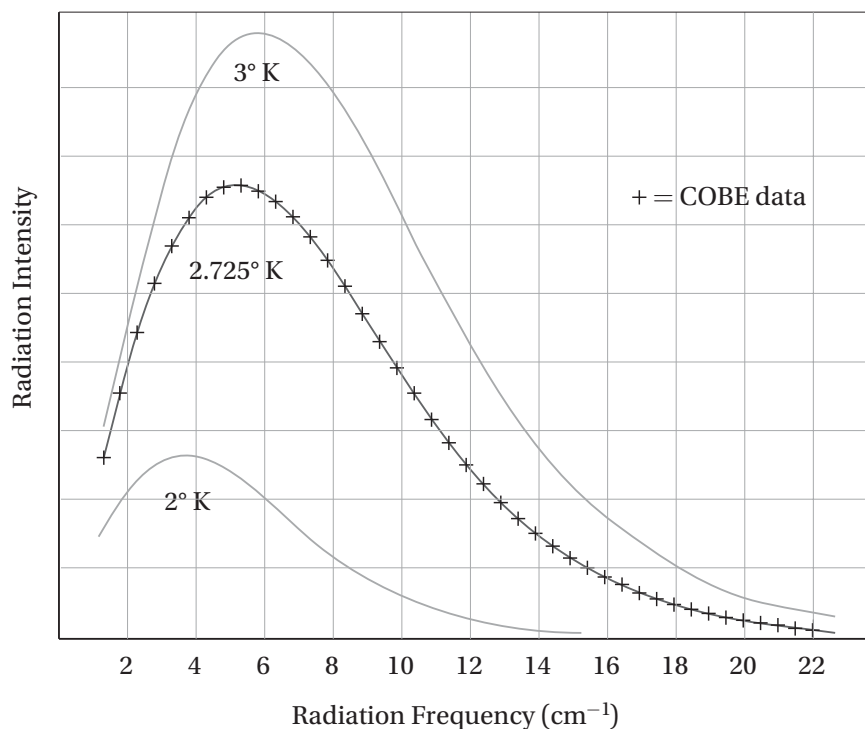


Figure 1. Comparison of COBE radiation data to blackbody curves for 2°K and 3°K

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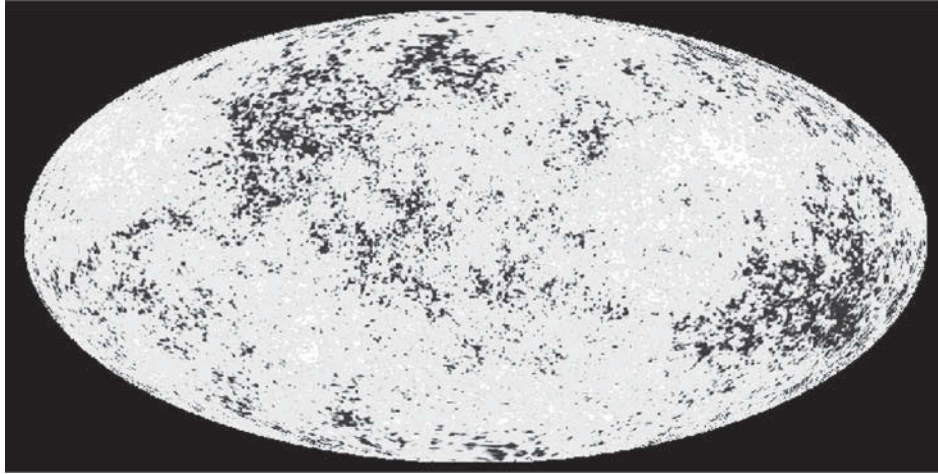


Figure 2. Panoramic map of the cosmic background radiation showing temperatures ranging from 2.7248°K (dark) to 2.7252°K (white)

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23

This passage is primarily concerned with

- A) chronicling the discoveries yielded by recent satellite telescopes.
- B) examining the controversies surrounding a physical theory.
- C) discussing the analysis and significance of a cosmological phenomenon.
- D) describing similarities between the study of human history and the study of astronomy.

24

The author presents the “Gettysburg Cyclorama” (line 1) primarily as

- A) an illustrative analogy.
- B) a historical precedent.
- C) a quaint anachronism.
- D) an accidental success.

25

Lines 11–13 (“Unfortunately . . . human eyes”) convey the author’s disappointment in

- A) the appropriateness of a comparison.
- B) an audience’s level of interest.
- C) the magnitude of an event.
- D) the accessibility of a phenomenon.

26

The quotation marks around the words “invisible” (line 26) and “see” (line 28) serve primarily to

- A) draw attention to two relatively recent coinages.
- B) imply that the author is speaking speculatively.
- C) suggest an irony implicit in conventional terms.
- D) indicate a technical usage of common words.

27

The “moment a swaddled one-day-old opens its eyes” (lines 22–23) corresponds to the instant that

- A) scientists first discovered the cosmic microwave background radiation.
- B) all of the particles and energy in the universe were created in the Big Bang.
- C) the cosmic microwave background radiation was first released from the hydrogen plasma.
- D) George Gamow first published his theory about the cosmic microwave background radiation.

28

In line 64, “distinctive” most nearly means

- A) bizarre.
- B) distinguishing.
- C) elite.
- D) irreconcilable.

29

Which of the following can be inferred about the work that earned Penzias and Wilson the Nobel Prize?

- A) It was the product of decades of research.
- B) It was the result of an accidental discovery.
- C) It depended greatly on the data from the COBE satellite.
- D) It provided a more plausible alternative to Gamow’s theory.

30

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 60–63 (“His theory . . . current data”)
- B) Lines 72–75 (“Their initial . . . droppings”)
- C) Lines 82–89 (“Since then . . . Gamow’s guess”)
- D) Lines 89–96 (“In addition . . . early universe”)

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31

Figure 1 best confirms which claim made in the passage?

- A) “For the first 380,000 years of its life . . . the universe was ‘invisible’” (lines 24–26)
- B) “the CMB radiation did not originate from just one point in space” (lines 53–54)
- C) “the expanding universe would have cooled this radiation to below 5 degrees Kelvin today” (lines 66–67)
- D) “CMB radiation . . . has a nearly perfect blackbody spectrum” (lines 85–87)

32

Figure 2 best confirms which claim made in the passage?

- A) “For the first 380,000 years of its life . . . the universe was ‘invisible’” (lines 24–26)
- B) “the CMB radiation did not originate from just one point in space” (lines 53–54)
- C) “the expanding universe would have cooled this radiation to about 5 degrees Kelvin” (lines 66–67)
- D) “CMB radiation . . . has a nearly perfect blackbody spectrum” (lines 85–87)

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Questions 33–42 are based on the following passage.

This passage is from John Adams, “*A Dissertation on Canon and Feudal Law*.” Originally published in 1765.

Liberty cannot be preserved without a general
 knowledge among the people, who have a right,
 from the frame of their nature, to knowledge,
 and who have been given understandings,
 5 and a desire to know. But besides this, they have a
 right, an indisputable, unalienable, indefeasible,
 divine right to that most dreaded and envied
 kind of knowledge of the characters and conduct
 of their rulers. Rulers are no more than attor-
 10 neys, agents, and trustees, for the people. And
 if the cause, the interest and trust, is insidiously
 betrayed, or wantonly trifled away, the people
 have a right to revoke the authority that they
 themselves have deputed, and to constitute abler
 15 and better agents, attorneys and trustees. And the
 preservation of the means of knowledge among
 the lowest ranks is of more importance to the
 public than all the property of all the rich men in
 the country. It is even of more consequence to
 20 the rich themselves, and to their posterity. The only
 question is whether it is a public emolument;¹
 and if it is, the rich ought undoubtedly to contrib-
 ute, in the same proportion as to all other public
 burdens—that is, in proportion to their wealth,
 25 which is secured by public expenses. But none
 of the means of information are more sacred, or
 have been cherished with more tenderness and
 care by the settlers of America, than the press.
 Care has been taken that the art of printing
 30 should be encouraged, and that it should be easy
 and cheap and safe for any person to communi-
 cate his thoughts to the public.

Let us dare to read, think, speak and write.
 Let every order and degree among the people

35 rouse their attention and animate their resolu-
 tion. Let them all become attentive to the grounds
 and principles of government, ecclesiastical² and
 civil. Let us study the law of nature; search into
 the spirit of the British Constitution; read the
 40 histories of ancient ages; contemplate the great
 examples of Greece and Rome; set before us the
 conduct of our own British ancestors, who have
 defended for us the inherent rights of mankind
 against foreign and domestic tyrants and usurp-
 45 ers, against arbitrary kings and cruel priests, in
 short, against the gates of earth and hell. Let us
 read and recollect and impress upon our souls
 the views and ends of our own more immediate
 forefathers in exchanging their native country for
 50 a dreary, inhospitable wilderness. Let us examine
 the nature of that power, and the cruelty of that
 oppression, which drove them from their homes.
 Recollect their amazing fortitude, their bitter
 sufferings—the hunger, the nakedness, the cold,
 55 which they patiently endured—the severe labors
 of clearing their grounds, building their houses,
 raising their provisions, amidst dangers from
 wild beasts and savage men, before they had time
 or money or materials for commerce. Recollect
 60 the civil and religious principles and hopes and
 expectations which constantly supported and
 carried them through all hardships with patience
 and resignation. Let us recollect it was liberty,
 the hope of liberty for themselves and us and
 65 ours, which conquered all the discouragements,
 dangers and trials. In such researches as these
 let us all in our several departments cheerfully
 engage—but especially the proper patrons and
 supporters of law, learning, and religion!

¹ benefit

² related to church matters

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33

The first paragraph is primarily concerned with the right of citizens to

- A) pursue academic interests.
- B) learn more about their leaders.
- C) become proficient in the art of printing.
- D) propose helpful legislation.

34

In line 14, “constitute” most nearly means

- A) place in power.
- B) account for.
- C) amount to.
- D) be regarded as.

35

The passage indicates that our “forefathers” (line 49) endured all of the following EXCEPT

- A) physical deprivation.
- B) political oppression.
- C) arduous physical labor.
- D) a sense of despair.

36

The passage indicates that all people are born with

- A) a curious nature.
- B) a desire for power.
- C) a dread of tyranny.
- D) a sense of thrift.

37

Which sentence provides the best evidence for the answer to the previous question?

- A) Lines 1–5 (“Liberty . . . to know”)
- B) Lines 10–15 (“And if the cause . . . trustees”)
- C) Lines 20–25 (“The only question . . . public expenses”)
- D) Lines 38–46 (“Let us study . . . earth and hell”)

38

In line 34, the phrase “every order and degree” refers to

- A) an anthology of official declarations.
- B) a set of civic responsibilities.
- C) the diverse groups within a society.
- D) the highest standards of academic achievement.

39

Compared to the first paragraph, the second paragraph is more

- A) prescriptive.
- B) despondent.
- C) critical.
- D) ironic.

40

In line 51, “power” refers to

- A) a personal ability.
- B) a social virtue.
- C) a despotic agent.
- D) a mysterious spirit.

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41

In line 46, “the gates of earth and hell” refer primarily to

- A) the privations endured by our forefathers.
- B) the superstitions of ancient cultures.
- C) the dangers posed by an ignorant populace.
- D) the brutality of oppressive leaders.

42

In the second paragraph, the discussion of the “views and ends” (line 48) of our forefathers primarily serves to

- A) remind the reader of the importance of liberty.
- B) establish a contrast between the past and the present.
- C) emphasize the significance of hard work.
- D) draw attention to an unfortunate tradition.

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Questions 43–52 are based on the following passage and supplementary material.

This passage is from David Biello, “*Can Tiny Plankton Help Reverse Climate Change?*” ©2015 by David Biello. Originally published in Aeon (<http://aeon.co/>) on July 1, 2014.

The forbidding sea known as the Southern Ocean surrounds Antarctica with a chilly current, locking it in a deep freeze like a moat reaching to the ocean floor. Dangerous icebergs hide in its gloom. Its churning swells sometimes serve up freak waves that can easily flip ships. In this violent place Victor Smetacek hopes to transform Earth’s atmosphere.

Since the 1980s, Smetacek has studied the plankton—tiny animals, protists, algae, and bacteria—that fill the Southern Ocean. Plankton is our planet’s most prolific life form, providing the base layer of the global food chain.

Much of the oxygen we breathe comes from just one species of cyanobacteria, *Prochlorococcus*, which has dominated Earth’s oxygen production for the last 2.4 billion years. These minuscule marine plants produce more oxygen than all of the planet’s forests combined. Their steady breathing is limited only by a lack of key nutritional elements. If enough of these nutrients are supplied by dust off a continent or fertilizer run-off from farm fields, the oceans can produce blooms that can be seen from space.

Many of these plankton pastures are held back by iron shortages, especially in places that are largely cut off from continental dust and dirt. With access to more iron, the plankton would proliferate and siphon more and more planet-heating CO₂ from the atmosphere. Back in 1988, the late John Martin, then an oceanographer at the Moss Landing Marine Observatory, said: “Give me a half tanker of iron, and I will give you an ice age.”

Iron fertilization could potentially sequester as much as one billion metric tons of carbon dioxide annually, and keep it deep in the ocean for centuries. That is slightly more than the CO₂ output of the German economy, and roughly one-eighth of humanity’s entire greenhouse gas output.

Using an iron sulphate waste sold as a lawn treatment in Germany, Smetacek and his colleagues set out in 2004 to supply the plankton with the nutrient they needed. Fertilizing the waters, they hoped, would promote blooms to help sea life thrive all the way up the food chain, even to whale populations, which were still recovering from overhunting. And, more importantly, the uneaten plankton could suck out CO₂ from the air until they died and sank to the sea floor, thereby providing natural carbon sequestration.

Smetacek’s ship dumped enough of the iron sulfate to raise the iron concentration by 0.01 gram per square meter in a 167-square-kilometer self-contained swirl of water that could maintain its shape for weeks or even months. Smetacek and his crew waited, as he described in his log, “with the fatalistic patience of the farmer, watching the crop develop in the painstakingly selected field.” Over the course of two weeks, thirteen species of diatoms bloomed down to depths of 100 meters. Then the bloom began to die in large enough numbers to overwhelm natural systems of decay, falling like snow to depths of 500 meters. About half of them continued on even further, sinking more than 3,000 meters to the sea floor.

For two weeks, Smetacek induced carbon to fall to the sea floor at the highest rate ever observed—34 times faster than normal. This marine tinkering could help buffer the ever-increasing concentrations of CO₂ in the atmosphere, concentrations that have touched 400 parts-per-million, levels never before experienced in the history of our species.

Yet environmentalists were outraged by Smetacek’s project. Activists stoked fears that the iron could lead to a toxic algal bloom or a “dead zone” like the one created each summer in the Gulf of Mexico, where the fertilizers from Midwestern cornfields gush out of the Mississippi river, stoking algal blooms that then die and are consumed by other microbes, which consume all the available oxygen in the surrounding waters, causing fish to flee and suffocating crabs and worms. As a result of these objections, there have been no scientific research cruises since 2009, and none are planned for the immediate future.

CONTINUE

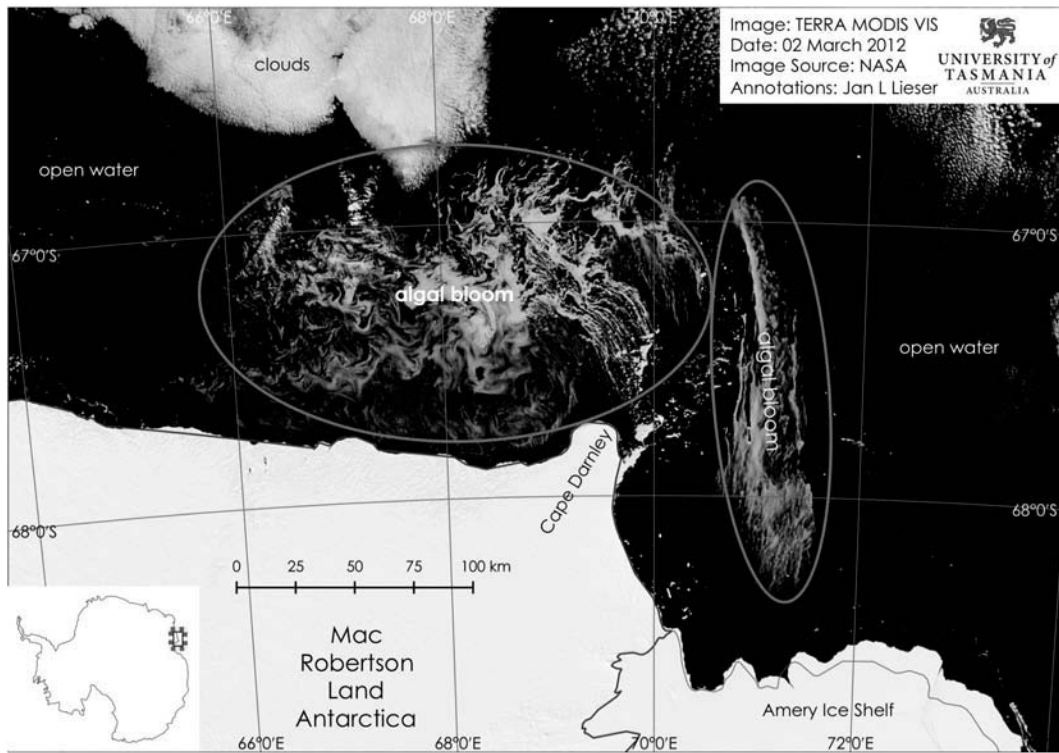
1

1

90 Smetacek suggests that commerce might be the only way to motivate further research into iron fertilization. Replenishing missing krill, and the whales it supports, could be the best route to broader acceptance of the practice.

The ocean is no longer a vast, unknowable wilderness. Instead, it's a viable arena

95 for large-scale manipulation of the planetary environment. We have tamed the heaving, alien world of the sea and, though doing so can make us uncomfortable, in the end it might undo a great deal of the damage we have already done.



Source: Image from Jan Lieser and NASA Terra Modis

NASA satellite image of the largest recorded natural phytoplankton bloom in February 2012, believed to have been caused by the addition of iron dust blown into the sea around Antarctica by strong offshore winds.

CONTINUE

1

1

43

The characterization of the Southern Ocean in the first paragraph (lines 1–8) primarily serves to emphasize

- A) the improbability of Smetacek’s success.
- B) the pessimism of Smetacek’s detractors.
- C) the boldness of Smetacek’s experiment.
- D) the promise of Smetacek’s hypothesis.

44

In line 13, the word “base” most nearly means

- A) sordid.
- B) precarious.
- C) stark.
- D) foundational.

45

The passage indicates that the “fertilizer run-off” (line 23) is

- A) an unfortunate by-product.
- B) an environmental hazard.
- C) a potential sustenance.
- D) a source of oxygen.

46

The author regards the fertilization of oceans with iron as

- A) a well-intentioned but environmentally dangerous activity.
- B) a brave but needlessly expensive endeavor.
- C) a promising and feasible solution to a global problem.
- D) an established and valuable component of the worldwide economy.

47

Which sentence provides the best evidence for the answer to the previous question?

- A) Lines 5–6 (“Its churning . . . ships”)
- B) Lines 75–84 (“Activists stoked . . . crabs and worms”)
- C) Lines 90–92 (“Replenishing . . . the practice”)
- D) Lines 94–96 (“Instead, it’s . . . environment”)

48

Which of the following statements about Smetacek’s research is best supported by Figure 1?

- A) The iron fertilization from Smetacek’s experiment created a secondary algal bloom nearly as large as the primary bloom.
- B) Smetacek’s experiment would likely have been more successful if it were conducted in February, which is the warmest month in the southern hemisphere.
- C) Naturally occurring algal blooms in the Southern Ocean can be more than 30 times as large as the one created in Smetacek’s experiments.
- D) Algal blooms are likely to get smaller as they move away from the ice shelves that surround Antarctica.

49

The passage suggests that Smetacek regarded the death of the alga bloom described in lines 61–65 as

- A) vindication of his theory that iron fertilization can lead to carbon sequestration.
- B) an indication of the potential dangers of “dead zones” such as those in the Gulf of Mexico.
- C) evidence that there was insufficient oxygen in the Southern Ocean to support large blooms.
- D) a disappointment because the diatoms were being removed from the food chain.

1

1

50

The passage suggests that iron fertilization could potentially help the whale population primarily by

- A) increasing the concentration of oxygen in the ecosphere.
- B) decreasing the concentration of carbon dioxide in the atmosphere.
- C) supporting an important food source for the whales.
- D) reducing the demand for hunting in areas where the whales are endangered.

51

The “route” mentioned in line 91 refers to

- A) an experimental procedure.
- B) an economic difficulty.
- C) an idealistic approach.
- D) a mode of persuasion.

52

The tone of the final paragraph is best described as

- A) sanguine.
- B) awestruck.
- C) apprehensive.
- D) fatalistic.

STOP

**If you finish before time is called, you may check your work on this section only.
Do not turn to any other section of the test.**

Writing and Language Test

35 MINUTES, 44 QUESTIONS

Turn to Section 2 of your answer sheet to answer the questions in this section.

DIRECTIONS

Each passage below is accompanied by a number of questions. For some questions, you will consider how the passage might be revised to improve the expression of ideas. For other questions, you will consider how the passage might be edited to correct errors in sentence structure, usage, or punctuation. A passage or a question may be accompanied by one or more graphics (such as a table or graph) that you will consider as you make revising and editing decisions.

Some questions will direct you to an underlined portion of a passage. Other questions will direct you to a location in a passage or ask you to think about the passage as a whole.

After reading each passage, choose the answer to each question that most effectively improves the quality of writing in the passage or that makes the passage conform to the conventions of Standard Written English. Many questions include a “NO CHANGE” option. Choose that option if you think the best choice is to leave the relevant portion of the passage as it is.

Questions 1–11 are based on the following passage.

The Carrot or the Stick?

Good teachers want their students to do well, but getting students **1** responding is not always easy. Simple suggestion works occasionally, but not often enough. Reasoning sometimes works, too, but explaining the logical nuances of behavioral standards **2** is often time-consuming and too often falls on deaf ears.

1

- A) NO CHANGE
- B) to become responsive
- C) to respond
- D) becoming more responsive

2

- A) NO CHANGE
- B) are often time-consuming
- C) is consuming time
- D) consume time

CONTINUE 

2

2

So the practical question becomes: the carrot or the stick? It's not always easy to choose **3** the potential motivator to consider: by punishment or incentive.

Most educators and psychologists agree that, as a teaching tool, **4** to reward is generally better than punishment, but a growing group of psychologists suggest that rewards can often be as **5** harmful, if not more so, than punishment. The introduction of a reward system, like gold stars on an attendance sheet or extra recess time for good behavior, can change the nature not only of the desired behavior, **6** but also of the student-teacher relationship.

Psychologist Edward Deci conducted a study in which people were given a challenging puzzle to solve. Some subjects were offered money as a reward for solving the puzzle, and others were not.

Afterward, both groups were observed secretly after the researcher left the room. Many of those who had not been paid as a reward for their work continued to play with the puzzle, presumably because they found

3

- A) NO CHANGE
- B) between punishment and incentive when considering potential motivators
- C) the potential motivator to consider: either punishment or incentive
- D) between punishment and incentive as potential motivators to be considered

4

- A) NO CHANGE
- B) reward
- C) rewarding
- D) a reward

5

- A) NO CHANGE
- B) harmful as, if not more harmful than,
- C) harmful, if not more harmful, than
- D) equally harmful, if not more harmful than,

6

- A) NO CHANGE
- B) but also the nature of the student-teacher relationship
- C) but the student-teacher relationship as well
- D) but the nature of the student-teacher relationship is changed as well



2

2

it interesting for its own sake. **7** Those who had received the cash rewards, however, showed significantly less interest in returning to the puzzle.

8 Interpreting these results, the subjects who were paid probably construed the task as being manipulative: the experimenter was trying to get them to do something through bribery. The unpaid subjects, however, could engage the puzzle on their own terms simply because it was fun.

This study and others like it have profound **9** implications for the classroom. Several experiments have demonstrated that “pay-to-read” programs, where students are given money or gift credits to read books, have surprisingly negative effects on literacy. Such programs do get students to “read” more books, but the kind of reading they do is not ideal. Students tend to read superficially and only to get the reward. In follow-up studies, these students show not only lower reading skills but also less desire to read. **10** Nevertheless, the reward system turns reading from a fun activity into drudgery. Students think, if reading is such a rewarding experience, why do they need to pay us to do it?

It would be a mistake to conclude from a few experiments that all rewards are bad. Certainly, honest praise from a respectful teacher can do a great deal to encourage not only good behavior but also intellectual curiosity. Teachers must be aware of their students’ need to feel independent and in control. **11**

7

The author is considering deleting the final sentence to make the paragraph more concise. Should the author make this change?

- A) Yes, because it conveys information that is already implied elsewhere in the paragraph.
- B) Yes, because it conveys information that distracts from the discussion of student motivation.
- C) No, because it explains why the experiment was so difficult to conduct.
- D) No, because it provides information that is essential to this discussion of student motivation.

8

- A) NO CHANGE
- B) While interpreting these results
- C) One interpretation of these results is that
- D) In interpreting these results,

9

- A) NO CHANGE
- B) indications
- C) improvisations
- D) instigations

10

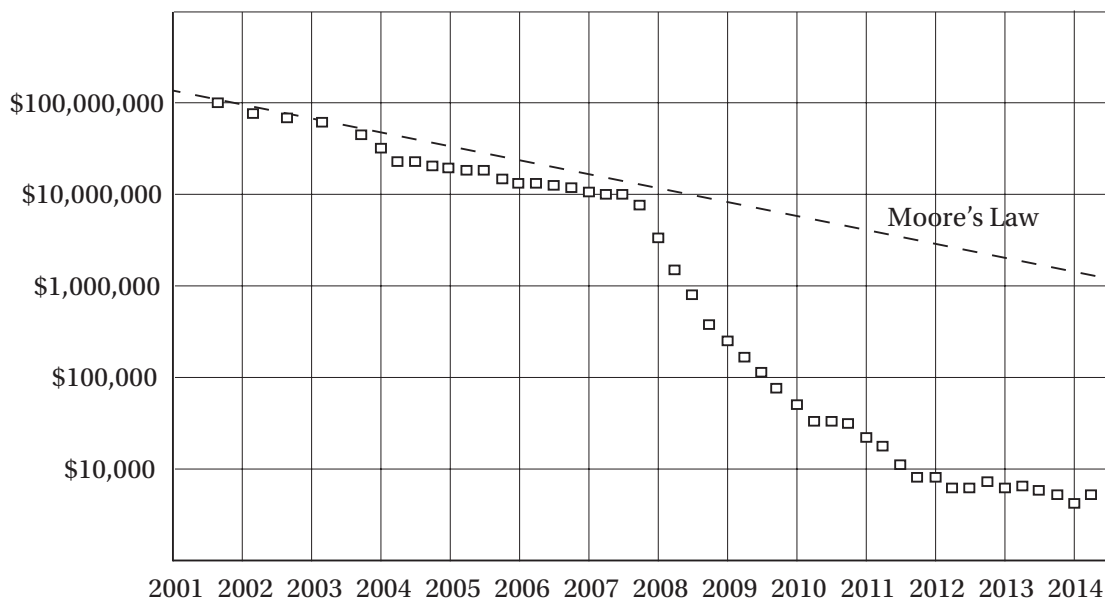
- A) NO CHANGE
- B) Evidently
- C) However
- D) Lastly

11

The final paragraph is notable primarily for its use of which two rhetorical devices?

- A) prescription and qualification
- B) illustration and quantification
- C) anecdote and metaphor
- D) irony and humor

COST PER GENOME DECODED



Source: National Human Genome Research Institute: genome.gov/sequencingcosts

Questions 12–22 are based on the following passage.

The Promise of Bio-Informatics

Although scientists have always been interested in data, modern biologists are increasingly becoming “information scientists.” Biological information science is the study of how chemical signals govern life processes. The most familiar biomolecular code is of course DNA, **12** serving as the chemical compound for the blueprint of life. Another biochemical code tells a fertilized egg how to differentiate into scores of unique cell types—heart, muscle, bone, nerve, gland, **13** blood—that assemble themselves into organs, which in turn assemble themselves into a complex organism.

12

- A) NO CHANGE
- B) this is the chemical compound serving as
- C) the chemical compound that serves as
- D) which is the chemical compound that is serving as

13

- A) NO CHANGE
- B) blood, that assemble themselves
- C) blood; assembling themselves
- D) blood—assembling itself

2

2

Yet another code governs **14** how the immune system “reads” the chemical signatures of invading pathogens and then manufactures specialized attack cells to fight infections.

15 Today we are seeing dramatic progress in all three of these areas of biochemistry. The science of genomics is developing better, cheaper, and faster ways to decode our DNA, and doctors are becoming more **16** apropos at using this information to create “personalized medicine.” Other researchers are learning how to turn the most rudimentary human cells, “stem cells,” into specialized tissues **17** for helping to repair damaged human organs. And oncologists—cancer specialists—are now coming to understand how the human immune system can be decoded to provide a crucial weapon against the most dangerous tumors.

14

Which of the following would not be an acceptable replacement for the underlined phrase?

- A) NO CHANGE
- B) the way of the immune system
- C) the way the immune system
- D) the way that the immune system

15

- A) NO CHANGE
- B) Therefore,
- C) Nevertheless,
- D) Ironically,

16

- A) NO CHANGE
- B) adept
- C) liable
- D) essential

17

- A) NO CHANGE
- B) in helping repair of
- C) in order to help repairing
- D) to help repair

2

2

18 In particular, the success of these new biological technologies **19** depends on our ability in translating vast quantities of chemical information into digital form. Specialized software and hardware **20** is needed to be developed to turn biochemical data into information that doctors and researchers can use to streamline research and make patients' lives better. Fortunately, the progress has so far been good. Since the Human Genome Project was completed in 2003, the National Human Genome Research Institute has monitored the cost of decoding a single human-sized genome. A famous law in computer science, known as "Moore's Law," says that the cost of processing a given quantity of information should decline by 50% every two years or so. In fact, with "second generation" techniques developed in 2008, the cost of decoding human genomes has plummeted even faster than Moore's Law predicted. **21**

18

Which choice most effectively establishes the main topic of the paragraph?

- A) Some scientists are skeptical about the viability of such radical new therapies.
- B) Researchers from all over the world are collaborating in these new discoveries.
- C) These new therapies and cures depend heavily on progress in the computer sciences.
- D) Many forms of alternative medicine are being combined with traditional therapies to treat a wide range of diseases.

19

- A) NO CHANGE
- B) depend on our ability to translate
- C) depends on the ability of our translating
- D) depends on our ability to translate

20

- A) NO CHANGE
- B) must be developed
- C) must develop
- D) needs developing

21

Which of the following statements is best supported by the data in Figure 1?

- A) Since 2003, more people have been taking advantage of genome sequencing technologies, thereby reducing costs.
- B) By the start of 2014, the cost per genome was less than 1% what Moore's Law had predicted.
- C) Nevertheless, it still costs more than \$10,000 to decode a single genome.
- D) The cost of genome sequencing is declining more rapidly than that of any other information-based technology.

CONTINUE 

2

2

This integration of medicine and information technology is perhaps today's most promising scientific development. Using these new resources, perhaps **22** treatments and even cures for the most intractable diseases can be discovered by researchers.

22

- A) NO CHANGE
- B) researchers will discover treatments and even cures for the most intractable diseases
- C) treatments and even cures will be discovered by researchers for the most intractable diseases
- D) researchers have discovered treatments and even cures for the most intractable diseases

CONTINUE

Questions 23–33 are based on the following passage.

What is Art?

Look around you. Do you see art in your immediate surroundings? What qualities **23** decide that certain things are art? Definitions of art vary widely, but most tend to fall within general notions **24** that have developed over the centuries. The technical ability of an ancient Egyptian potter to produce a well-made clay vessel defined his “art.” In Europe 600 years ago, trade and professional organizations from shoemaking to banking **25** would hold to this broad definition of art as skill in a particular field. The currently popular notion of the artist as the creator and definer of art—put simply, “Art is what artists create”—is a relatively recent one.

Some items and activities in our environment **26** stand out in a conspicuous way as somehow more “art” than others. The way that the visual elements of particular buildings, chairs, album covers, or athletic performances—their line, color, shape, texture, and other visual elements—combine to please the senses, is so satisfying that we call them beautiful. **27**

Prior to the twentieth century, most philosophers of art believed that beauty was the defining feature of art. By the turn of the twentieth century, however, some aestheticians had begun to find this definition insufficient. Some said that the defining

23

- A) NO CHANGE
- B) arrange
- C) regulate
- D) determine

24

- A) NO CHANGE
- B) developing
- C) which are developed
- D) as developed

25

- A) NO CHANGE
- B) hold
- C) had held
- D) held

26

- A) NO CHANGE
- B) are conspicuous for how they stand out
- C) stand out
- D) stand out conspicuously

27

The end of the second paragraph could be best enhanced with a sentence about

- A) an alternate theory of beauty
- B) why a particular chair is beautiful
- C) how to design more beautiful buildings
- D) the benefits of art therapy

2

2

characteristic of art was the effective expression of **28** emotion; but others said the effective communication of ideas. One influential group, the formalists, argued that an object or activity qualifies as art **29** when its form is sufficiently compelling or inspiring or beautiful to provoke an intense sensory response. This echoed the ancient Greek definition of aesthetic: “of or pertaining to the senses” or “sensuous perception.”

Aesthetic experiences are not as rare as you might think. If you have ever felt yourself swept away in the sensuous experience of a sports event, a musical performance, a film, a sunset, or a **30** painting; you have had an aesthetic experience. Look around again. Do any objects in your field of vision provoke an aesthetic experience? **31** Is it skill, beauty, expression, communication, compelling form, or all of the above that make these art for you? Or is it some other quality, such as originality or creativity, **32** that makes these objects or activities stand out as art?

28

- A) NO CHANGE
- B) emotion; others said it was
- C) emotion, others said it was
- D) emotion; while others said it was

29

- A) NO CHANGE
- B) if its form sufficiently compels
- C) if its form is sufficiently compelling
- D) if it's form is sufficiently compelling

30

- A) NO CHANGE
- B) painting; you
- C) painting—you
- D) painting, you

31

- A) NO CHANGE
- B) Are they
- C) Do
- D) Are

32

- A) NO CHANGE
- B) making these objects that stand out
- C) that make these objects stand out
- D) that stands out in these objects to make them

2

2

Does setting matter? Would a sports photo become more “artistic” if it were placed in an art museum? According to George Dickie’s “institutional theory of art,” major art institutions, such as museums, determine what is art in a given culture. **33**

Perhaps art is a concept that cannot have a fixed definition. Perhaps, like a living organism, it must evolve.

33

Which of the following sentences serves as the most effective concluding sentence for this paragraph?

- A) Dickie, a professor emeritus of philosophy at the University of Illinois, has championed the work of philosopher David Hume.
- B) Nearly every major city has museums dedicated to the display of works of fine art such as paintings, sculptures, and performance art.
- C) Other institutions, such as schools and governments, also provide definitions for concepts like education and public value.
- D) This theory forces us to ask: is art truly in the eye of the beholder, or is it in the eye of the artist, the curator, or some critical mass of the consuming public?

Questions 34–44 are based on the following passage.

The Little Tramp

Few people have had as strong an impact on an industry **34** as the impact that Charlie Chaplin had on the world of film. **35** Born in 1889 into an impoverished London family, Chaplin crossed the Atlantic and became a pioneer in silent comedic movies. **36** Early in his film career, Chaplin developed his signature character, the “Little Tramp,” who amused audiences repeatedly with his clever physical comedy and endearing sensitivity. Modest yet clearly intelligent, shy yet always at the center of action, the **37** Tramp’s embodiment was the genius of Chaplin’s artistry.

34

- A) NO CHANGE
- B) as what Charlie Chaplin
- C) than Charlie Chaplin
- D) as Charlie Chaplin

35

- A) NO CHANGE
- B) He was born in 1889 into
- C) Being born in 1889 into
- D) He was born in 1889 of

36

The author is considering inserting the following sentence at this point in the paragraph.

Charlie’s mother suffered from severe mental illness and was institutionalized for a significant part of Charlie’s young life.

Do you think this is appropriate?

- A) Yes, because it helps to explain how Chaplin became a pioneer in film.
- B) Yes, because it provides an important detail about health care in 19th-century London.
- C) No, because it detracts from the discussion of Chaplin’s impact on the film industry.
- D) No, because it diminishes the humorous tone of the paragraph.

37

- A) NO CHANGE
- B) genius of Chaplin’s artistry was embodied by the Tramp
- C) Tramp embodied the genius of Chaplin’s artistry
- D) Tramp’s embodiment was of the genius of Chaplin’s artistry

2

2

38 Being writer, director, and editing his own work, Chaplin faced a daunting challenge with the rise of “talkie” films, which drew audiences away from silent stars like the Tramp. Chaplin responded by taking on the additional role of composer, writing beautiful scores to accompany his films and **39** thus allowing the Tramp to remain speechless. Chaplin managed to defy the odds and maintain a remarkable level of popularity and success in the face of technological advancement. **40** Not just a master of the craft of acting and filmmaking, but also the face of a character that resonated deeply with those suffering through the Depression.

A vocal liberal in a time of conservative domination, **41** he became a target for Senator Joseph McCarthy and his House Un-American Activities Committee. While he managed to avoid being named to McCarthy’s Hollywood Ten, a list of black listed entertainment industry figures suspected of Communist connections, he drew the ire of J. Edgar Hoover **42** in the messages imbedded within his films.

Chaplin saw the dangers in Hitler’s rise to power before most of the world had heard of the dictator. He

38

- A) NO CHANGE
- B) Writing, directing, and being editor of his own work,
- C) Writing his own work, as well as directing and editing it too,
- D) As the writer, director, and editor of his own work,

39

- A) NO CHANGE
- B) therefore he allowed the Tramp to remain
- C) allowing the Tramp thus remaining
- D) he allowed the Tramp thus to remain

40

- A) NO CHANGE
- B) Besides being
- C) He was not only
- D) In addition to being

41

- A) NO CHANGE
- B) Senator Joseph McCarthy and his house Un-American Activities Committee targeted him
- C) the House Un-American Activities Committee of Senator Joseph McCarthy targeted him
- D) he became targeted for Senator Joseph McCarthy’s House Un-American Activities Committee.

42

- A) NO CHANGE
- B) by
- C) because of
- D) from



2

2

also believed that the development of the atomic bomb was a crime. Outraged at what **43** they viewed as subversive propaganda created by an immoral man, the United States government **44** eradicated Chaplin's reentry visa during a trip to London in 1952. Sixty-three years old and tired of fighting against a force unwilling to hear his message, Chaplin agreed to exile rather than going back to America and facing interrogation and lived the rest of his years in Europe. He returned twenty years later to receive an Academy Award for lifetime achievement.

43

- A) NO CHANGE
- B) it
- C) would have been
- D) were

44

- A) NO CHANGE
- B) revoked
- C) excluded
- D) abolished

STOP

**If you finish before time is called, you may check your work on this section only.
Do not turn to any other section of the test.**

3



3

Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

Turn to Section 3 of your answer sheet to answer the questions in this section.

DIRECTIONS

For questions 1–15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. For questions 16–20, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

1. The use of a calculator is NOT permitted.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers for which $f(x)$ is a real number.

REFERENCE

$A = \pi r^2$
 $C = 2\pi r$

$A = lw$

$A = \frac{1}{2}bh$

$c^2 = a^2 + b^2$

Special Right Triangles

$V = lwh$

$V = \pi r^2 h$

$V = \frac{4}{3}\pi r^3$

$V = \frac{1}{3}\pi r^2 h$

$V = \frac{1}{3}lwh$

The number of degrees of arc in a circle is 360.
 The number of radians of arc in a circle is 2π .
 The sum of the measures in degrees of the angles of a triangle is 180.

CONTINUE

3



3

1

If $8x + 6 = 6m$, what is the value of $4x + 3$ in terms of m ?

- A) $2m - 3$
- B) $2m$
- C) $3m - 3$
- D) $3m$

2

$$3x + 4y = 18$$

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

Which of the following ordered pairs (x, y) is a solution of the system of equations above?

- A) (2, 3)
- B) (3, 2.25)
- C) (4, 1.5)
- D) (4, 6)

3

Which of the following is equivalent to $\frac{3x + 4}{12}$?

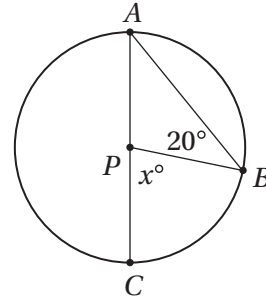
- A) $\frac{x + 4}{4}$
- B) $\frac{3x + 1}{3}$
- C) $\frac{x}{4} + \frac{1}{3}$
- D) $\frac{x}{3} + \frac{1}{4}$

4

If $x - 3$ is a factor of the expression $x^2 + kx + 12$, what is the value of k ?

- A) -7
- B) -5
- C) 5
- D) 7

5



Note: Figure not drawn to scale.

In the figure above, P is the center of a circle and AC is its diameter. What is the value of x ?

- A) 60
- B) 50
- C) 40
- D) 30

6

The n th term of a sequence is given by the expression $bn + 4$, where b is a positive constant. Which of the following is necessarily equal to b ?

- A) the value of the first term
- B) the difference between the fourth term and the third term
- C) the average (arithmetic mean) of the first three terms
- D) the ratio of the second term to the first term

3



3

7

If $m^3 = \sqrt{\sqrt{n}}$, where $n > 0$, what is the value of m in terms of n ?

- A) $n^{\frac{1}{12}}$
- B) $n^{\frac{1}{7}}$
- C) $n^{\frac{7}{12}}$
- D) $n^{\frac{3}{4}}$

8

One bag of grass seed can cover 5,000 square feet of new lawn. If each bag costs p dollars, which of the following expressions gives the cost, in dollars, to cover a new rectangular lawn that measures a feet by b feet?

- A) $\frac{5,000p}{ab}$
- B) $\frac{abp}{5,000}$
- C) $\frac{5,000ab}{p}$
- D) $5,000abp$

9

If $\frac{5}{m} \leq \frac{2}{3}$, where $m > 0$, what is the least possible value of m ?

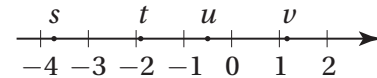
- A) 6.5
- B) 7
- C) 7.5
- D) 8

10

If $f(x) = 3x + n$, where n is a constant, and $f(2) = 0$, then $f(n) =$

- A) -24
- B) -18
- C) -12
- D) 12

11



If s , t , u , and v are the coordinates of the indicated points on the number line above, which of the following is greatest?

- A) $|s - v|$
- B) $|s - t|$
- C) $|s + v|$
- D) $|u + v|$

12

How many solutions to the equation $4 \cos x = 1$ lie between $x = 0$ and $x = 3\pi$?

- A) Two
- B) Three
- C) Four
- D) Six

13

If $i = \sqrt{-1}$, which of the following is NOT equal to $i^3 + i$?

- A) $(2i)^2 + 4$
- B) $2 - 2i^4$
- C) $2i^2 - 2$
- D) $i^4 - 1$

3

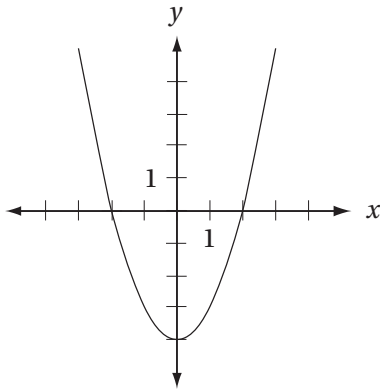


3

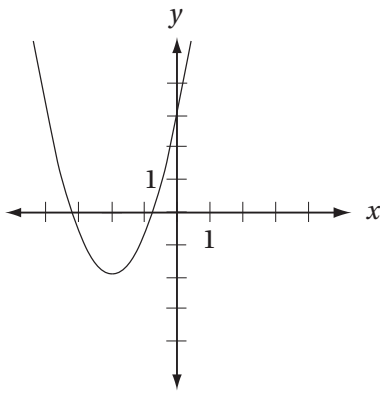
14

If $m > 1$, which of the following could be the graph of $y = -(x + m)^2 + m$ in the xy -plane?

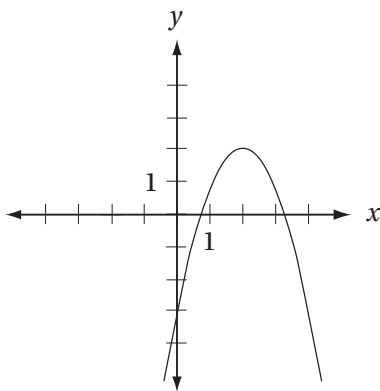
A)



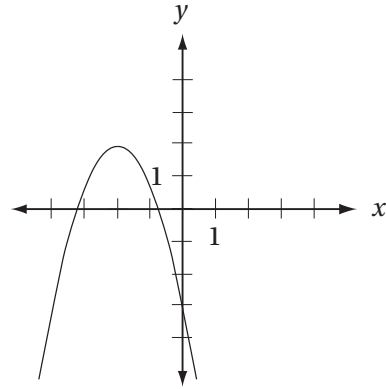
B)



C)



D)



15

$$\begin{aligned}x - 3y &= -2 \\ y &= \frac{5}{x}\end{aligned}$$

The values of x that satisfy the system of equations above also satisfy which of the following equations?

- A) $(x - 5)(x + 3) = 0$
- B) $(x - 3)(x + 5) = 0$
- C) $(x - 2)(x - 5) = 0$
- D) $(x + 2)(x + 5) = 0$



DIRECTIONS

For questions 16–20, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
- Mark no more than one circle in any column.
- No question has a negative answer.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or $\frac{7}{2}$.

(If $3\frac{1}{2}$ is entered into the grid as

3	1	/	2
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$).
- Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.

Write answer in boxes. →

Grid in result. →

Answer: $\frac{7}{12}$

7	/	1	2
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

← Fraction line

Answer: 2.5

2	.	5
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○

← Decimal point

Answer: 201
Either position is correct.

2	0	1
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○

2	0	1
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○

Acceptable ways to grid $\frac{2}{3}$ are:

2	/	3
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○
○	○	○

.	6	6	6
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

.	6	6	7
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○
○	○	○	○

3



3

16

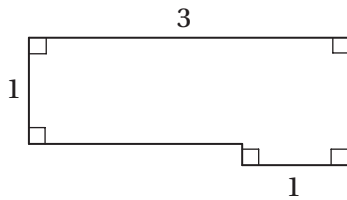
If $\frac{2}{3}a + \frac{1}{2}b = 5$, and $b = 4$, what is the value of a ?

17

What is the smallest integer value of x such that

$\frac{6}{x} + \frac{1}{2x}$ is less than 1?

18



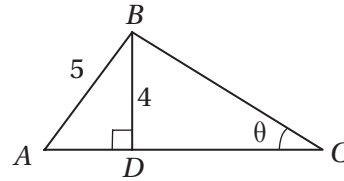
If the area of the figure above is $\frac{16}{5}$ square units, what is its perimeter?

19

What is one possible solution to the equation

$$\frac{6}{x+1} - \frac{3}{x-1} = \frac{1}{4}?$$

20



In the figure above, triangle ABC has an area of 19. What is the value of $\tan \theta$?

STOP

**If you finish before time is called, you may check your work on this section only.
Do not turn to any other section of the test.**



Math Test – Calculator

55 MINUTES, 38 QUESTIONS

Turn to Section 4 of your answer sheet to answer the questions in this section.

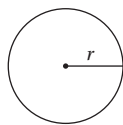
DIRECTIONS

For questions 1–30, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. For questions 31–38, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 31 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

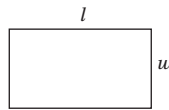
1. The use of a calculator is permitted.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers for which $f(x)$ is a real number.

REFERENCE

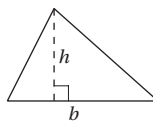


$$A = \pi r^2$$

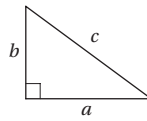
$$C = 2\pi r$$



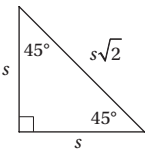
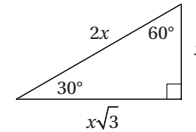
$$A = lw$$



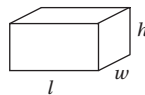
$$A = \frac{1}{2}bh$$



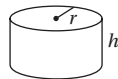
$$c^2 = a^2 + b^2$$



Special Right Triangles



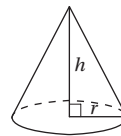
$$V = lwh$$



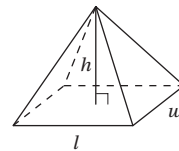
$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}lwh$$

The number of degrees of arc in a circle is 360.

The number of radians of arc in a circle is 2π .

The sum of the measures in degrees of the angles of a triangle is 180.

4



4

1

The fraction $\frac{n}{20}$ is equal to 0.8. What is the value of n ?

- A) 4
- B) 8
- C) 12
- D) 16

2

The median of the numbers x , 10, and 12 is 12. Which of the following CANNOT be the value of x ?

- A) 8
- B) 12
- C) 16
- D) 20

3

x	y
0	2
1	4
2	6
4	8

Based on the ordered pairs in the table above, which of the following could express a relationship between x and y ?

- A) $y = x + 4$
- B) $y = 2x$
- C) $y = 2x + 2$
- D) $y = 2x + 4$

4

The average (arithmetic mean) of a set of 3 positive integers is m . If the number 24 is added to this set, what is the average (arithmetic mean) of the new set of numbers?

- A) $\frac{3m + 24}{24}$
- B) $\frac{3m + 24}{4}$
- C) $m + 8$
- D) $\frac{m + 24}{4}$

5

If $\frac{6}{x} + 3 = -1$, what is the value of x ?

- A) -3
- B) -2
- C) $-\frac{3}{2}$
- D) $-\frac{2}{3}$

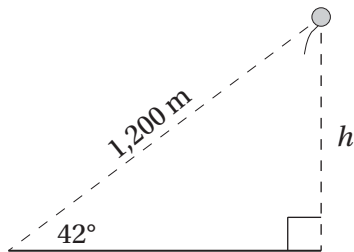
6

The Municipal Electric Company charges each household \$0.15 per kilowatt-hour of electricity plus a flat monthly service fee of \$16. If a household uses 30 kilowatt-hours of electricity and is charged \$ P in a given month, which of the following equations is true?

- A) $0.15(30) + 16 = P$
- B) $0.15P + 16 = 30$
- C) $\frac{30}{0.15} + 16 = P$
- D) $\frac{0.15}{P} + 16 = 30$



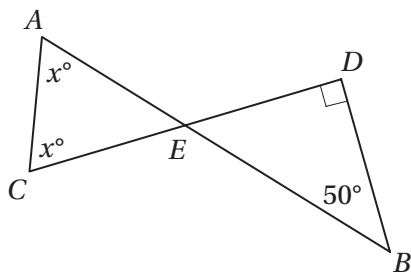
7



Alyssa determines that a floating balloon is 1,200 meters away from her at an angle of 42° from the ground, as in the figure above. What is the height, h , of the balloon from the ground? ($\sin 42^\circ = 0.669$, $\cos 42^\circ = 0.743$, $\tan 42^\circ = 0.900$)

- A) 802.8 meters
- B) 891.6 meters
- C) 1,080 meters
- D) 1,793 meters

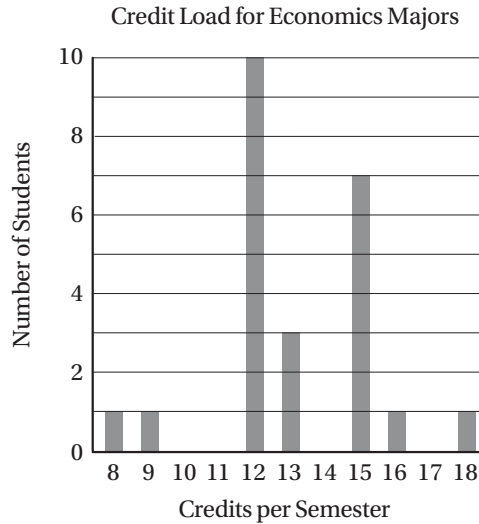
8



In the figure above, line segments \overline{AB} and \overline{CD} intersect at point E . What is the value of x ?

- A) 60°
- B) 65°
- C) 70°
- D) 75°

Questions 9 and 10 are based on the graph below.



9

A university surveyed 24 economics majors and asked them how many credits they received the previous semester. The results are represented in the graph above. What percentage of these students received 15 or more credits that semester?

- A) 29%
- B) $33\frac{1}{3}\%$
- C) $37\frac{1}{2}\%$
- D) 54%

10

What is the median number of credits these students received the previous semester?

- A) 10.5
- B) 11.5
- C) 12
- D) 12.5

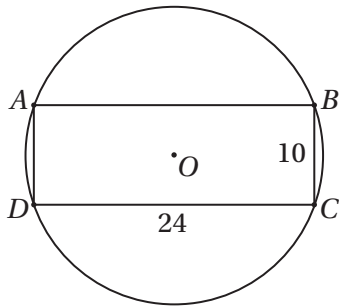


11

If a and b are the coordinates of two points on the number line, then which of the following is equivalent to the statement that the absolute distance from a to b is greater than the absolute distance from -2 to 6 ?

- A) $|a| > -2$ and $|b| > 6$
- B) $|a - b| > -8$
- C) $|a + 2| > |b - 6|$
- D) $|a - b| > 8$

12



Note: Figure not drawn to scale.

In the figure above, rectangle $ABCD$ is inscribed in the circle with center O . What is the area of the circle?

- A) 26π
- B) 121π
- C) 144π
- D) 169π

13

Everyone in Niko's class has a different birth date. If Niko is both the 8th oldest person and the 12th youngest person in his class, how many students are in Niko's class?

- A) 18
- B) 19
- C) 20
- D) 21

14

If $i = \sqrt{-1}$, which of the following is equivalent to $(2 - i)(3 - 2i)$?

- A) $8 - 7i$
- B) $6 + 2i$
- C) $6 - 6i$
- D) $4 - 7i$

15

If $f(x) = (x^2)^{-2b}$ and $f(3) = 3$, what is the value of b ?

- A) $-\frac{1}{2}$
- B) $-\frac{1}{4}$
- C) $\frac{1}{4}$
- D) $\frac{1}{2}$

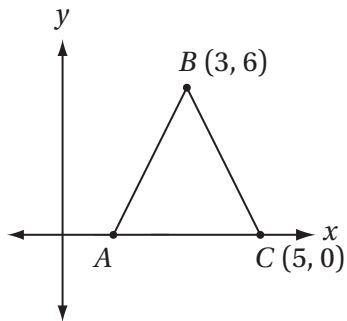
16

In a survey of 80 students, 55 students stated that they play a varsity sport, and 35 stated that they are taking at least one AP level course. Which of the following statements must be true?

- A) At least 10 of these students are both playing a varsity sport and taking at least one AP level course.
- B) Less than half of the students who play a varsity sport are also taking at least one AP level course.
- C) The number of students who do not play a varsity sport is greater than the number of students who do not take at least one AP level course.
- D) At least one student who takes an AP level course does NOT play a varsity sport.



17



Note: Figure not drawn to scale.

In the figure above, $AB = BC$. If \overline{AB} has a slope of m and \overline{BC} has a slope of n , what is the value of mn ?

- A) -9
- B) $-\frac{1}{9}$
- C) $\frac{1}{9}$
- D) 9

18

The functions f , g , and h are defined by the equations $f(x) = x^2$, $g(x) = x$, and $h(x) = \sqrt{x}$. Which of the following must be true?

- A) $h\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right)$
- B) $h\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right)$
- C) $g\left(\frac{1}{2}\right) < h\left(\frac{1}{2}\right) < f\left(\frac{1}{2}\right)$
- D) $f\left(\frac{1}{2}\right) < g\left(\frac{1}{2}\right) < h\left(\frac{1}{2}\right)$

19

Which of the following scatterplots provides the strongest evidence in support of the hypothesis that y varies inversely as the square of x ?

- A)
- B)
- C)
- D)



20

The bird department of a pet store has 12 canaries, 30 finches, and 18 parrots. If the pet store purchased n more finches, then 80% of its birds would be finches. Which of the following equations must be true?

- A) $\frac{1}{2} + n = \frac{4}{5}$
 B) $\frac{30 + n}{60} = \frac{4}{5}$
 C) $\frac{30 + n}{60 + n} = \frac{4}{5}$
 D) $\frac{n}{60 + n} = \frac{4}{5}$

21

Let function $f(x)$ be defined by the equation $f(x) = x^2 - 1$. If b is a positive real number, then $f\left(\frac{1}{b}\right) =$

- A) $\frac{(b-1)(b+1)}{b^2}$
 B) $\frac{(1-b)(1+b)}{b^2}$
 C) $\frac{b^2-1}{b}$
 D) $\frac{b-1}{b^2}$

22

The value of y varies with x according to the equation $y = kx^2$, where $k > 0$. When the value of x increases from 3 to 12, which of the following best describes the behavior of y ?

- A) It increases by 81.
 B) It increases by 135.
 C) It is multiplied by 4.
 D) It is multiplied by 16.

23

If the function f is defined by the equation $f(x) = k(x+6)(x-1)$, where $k > 5$, then which of the following is equivalent to $f(7)$?

- A) $f(-78)$
 B) $f(-12)$
 C) $f(-2)$
 D) $f(78)$

24

After its initial offering, the price of a stock increased by 20% in the first year, decreased by 25% in the second year, then increased by 10% in the third year. What was the net change in the stock price over the entire three-year period?

- A) It increased by 5%.
 B) It increased by 1%.
 C) It decreased by 1%.
 D) It decreased by 5%.

25

If $y = x^2$, where $x \neq 0$, and $w = y^6$, which of the following expresses the value of $\frac{w}{y^3}$ in terms of x ?

- A) x^2
 B) x^4
 C) x^5
 D) x^6



26

0	1	2	3	4	5
1	2	4	7		
2					
3					
4				x	
5					

With the exception of the shaded squares in the first row and first column, every square in the table above is to be filled in with a number equal to the sum of the number directly above it and the number directly to its left. For instance, the number 7 in the second row is the sum of 3 in the square above it and 4 in the square directly to its left. What is the value of x ?

- A) 16
- B) 84
- C) 96
- D) 112

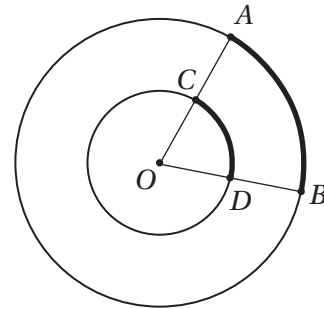
27

$$3x^2 = 4x + c$$

In the equation above, c is a constant. If $x = -1$ is a solution of this equation, what other value of x satisfies the equation?

- A) $\frac{1}{7}$
- B) $\frac{4}{3}$
- C) $\frac{7}{3}$
- D) 7

28



Note: Figure not drawn to scale.

The figure above shows two concentric circles with center O . If $OD = 3$, $OB = 5$, and the length of arc AB is 5π , what is the length of arc CD ?

- A) $\frac{7}{4}\pi$
- B) $\frac{15}{8}\pi$
- C) 3π
- D) $\frac{25}{8}\pi$

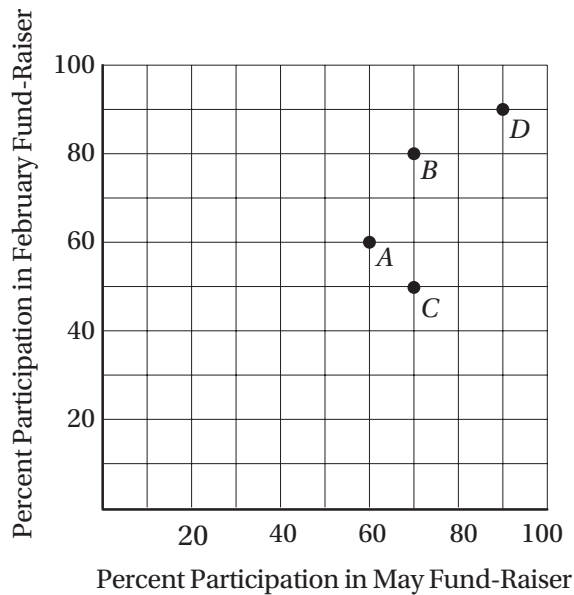
4



4

Questions 29 and 30 refer to the following graph.

PARTICIPATION IN FUND-RAISERS
FOR FOUR CLASSES



29

Four different classes at Corbett Elementary School participated in two fund-raisers last year, one in February and another in May. The rates of participation for each class are recorded in the graph above. Which class had the greatest change in percent participation from the February fund-raiser to the May fund-raiser?

- A) Class A
- B) Class B
- C) Class C
- D) Class D

30

If there were 20 students each in Class A and Class C, and 30 students each in Class B and Class D, how many students participated in the May fund-raiser?

- A) 71
- B) 72
- C) 74
- D) 76



DIRECTIONS

For questions 31–38, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
- Mark no more than one circle in any column.
- No question has a negative answer.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- Mixed numbers** such as $3\frac{1}{2}$ must be gridded as 3.5 or $\frac{7}{2}$.

(If $3\frac{1}{2}$ is entered into the grid as

3	1	/	2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)
- Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.

Write answer in boxes. →

Answer: $\frac{7}{12}$

7	/	1	2
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
8	8	8	8
9	9	9	9

← Fraction line

Grid in result. →

Answer: 2.5

2	.	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9

← Decimal point

Answer: 201
Either position is correct.

2	0	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

2	0	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4

Acceptable ways to grid $\frac{2}{3}$ are:

2	/	3
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6

.	6	6	6
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

.	6	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6

4



4

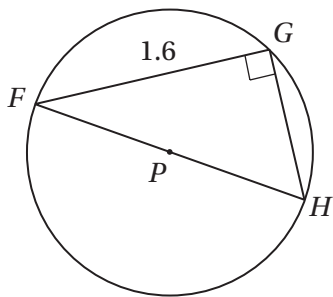
31

If $4 + \sqrt{b} = 7.2$, what is the value of $4 - \sqrt{b}$?

32

In the xy -plane, the graph of the equation $y = 3x^2 - kx - 35$ intersects the x -axis at $(5, 0)$. What is the value of k ?

33



In the figure above, triangle FGH is inscribed in the circle with center P . If the area of the circle is π , what is the area of triangle FGH ?

34

If $-\frac{3}{5} < -2t + 1 < -\frac{3}{7}$, what is one possible value of $6t$?

35

If $\cos(x - \pi) = 0.4$, what is the value of $\sin^2 x$?

36

If one pound of grain can feed either 5 chickens or 2 pigs, then ten pounds of grain can feed 20 chickens and how many pigs?

Questions 37 and 38 are based on the following information

Section	Price per Ticket	Number Sold
Front Orchestra	\$60	50
Rear Orchestra	\$50	60
First Mezzanine	\$40	x
Second Mezzanine	\$35	y
Third Mezzanine	\$30	100

The table above shows information about the tickets sold for a recent performance by a theater troupe. The total revenue in ticket sales for this performance was \$15,000.

37

If 15 more tickets were sold in the second mezzanine than in the first mezzanine, what is the total number of tickets that were sold for this performance?

38

Before the tickets for this performance went on sale, a consultant for the theater had predicted that n , the number of tickets sold per section, would vary with p , the price in dollars for a ticket in that section, according to the formula $n = \frac{2,800}{p}$. By how many tickets did this model underestimate the actual total number of tickets sold?

STOP

If you finish before time is called, you may check your work on this section only.
Do not turn to any other section of the test.

5

5

Essay

50 MINUTES, 1 QUESTION**DIRECTIONS**

As you read the passage below, consider how Ellis Parker Butler uses

- evidence, such as facts or examples, to support his claims
- reasoning to develop ideas and connect claims and evidence
- stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed

Adapted from Ellis Parker Butler, “On Spelling.” Originally published in 1906.

- 1 My own opinion of the spelling profession is that it has nothing to do with genius, except to kill it. I know that Shakespeare was a promiscuous sort of speller, even as to his own name, and no one can deny that he was a greater genius than Noah Webster. The reason America so long lagged behind Europe in the production of genius is that America, for many decades, was the slave of the spelling-book. No man who devotes the fiery days of his youth to learning to spell has time to be a genius.
- 2 My wife, Serena, says, and I agree with her, that it is the jealousy of a few college professors who are trying to undermine the younger writers. They know that it is excusable to spell incorrectly now, but they want this new phonetic spelling brought into use so that there shall be no excuse for bad spelling, and that then, Serena says, self-made authors like me, who never can spell but who simply blaze with genius, will be hooted out of the magazines to make room for a stupid sort of literature that is spelled correctly. Serena looks upon the whole thing as a direct, personal stab at me. I look at it more philosophically.
- 3 To me it seems that the spelling reformers are entirely on the wrong track. Their proposed changes are almost a revolution, and we Americans do not like sudden changes. We like our revolutions to come about gradually. Think how gradually automobiles have come to pass. If, in our horse age, the streets had suddenly been covered with sixty horsepower snorters going thirty miles an hour and smelling like an eighteenth-century literary debate, and killing people right and left, we Americans would have arisen and destroyed every vestige of the automobile. But the automobile came gradually—first the bicycle, then the motorcycle, and so, by stages, to the present monsters. So slowly and progressively did the automobile increase in size and number that it seemed a matter of course. We take to being killed by the automobile quite naturally now.
- 4 Of course, the silent letters in our words are objectionable. They are lazy letters. We want no idle class in America, whether tramp, aristocrat, or silent letter, but we do not kill the tramp and the aristocrat. We set them to work, or we would like to. My theory of spelling reform is to set the idle letters to work.
- 5 Take that prime offender, *although*. *Altho* does all the work, and *ugh* sits on the fence and whittles. I would put *ugh* to work. *Ugh* is a syllable in itself. I would have the *ugh* follow the pronounced *altho* as a third syllable. Doubtless the asthmatic islanders who concocted our English language actually pronounced it so.

CONTINUE 

5

5

- 6 I propose to have some millionaire endow my plan, and Serena and I will then form a society for the reforming of English pronunciation. I will not punch out the *i* of any chief, nor shall any one drag *me* from any programme, however dull. I will pronounce *programme* as it should be pronounced—*programmy*—and, as for *chief*, he shall be pronounced *chy-ef*.
- 7 The advantage of this plan is manifest. It is so manifest that I am afraid it will never be adopted.
- 8 Serena's plan is, perhaps, less intellectual, but more American. Serena's plan is to ignore all words that contain superfluous letters. She would simply boycott them. Serena would have people get along with such words as are already phonetically spelled. Why should people write *although*, when they can write *notwithstanding that*, and not have a silent letter in it? I have myself often written a phrase twelve words long to stand instead of a single word I did not know how to spell. In fact, I abandoned my Platonic friendship for Serena, and replaced it with ardent love, because I did know how to spell *sweetheart*, but could not remember whether she was my *friend* or *freind*.

Write an essay in which you explain how Ellis Parker Butler builds an argument to persuade his audience that American English spelling conventions of 1906 need to be reformed. In your essay, analyze how Butler uses one or more of the features listed in the box above (or features of your own choice) to strengthen the logic and persuasiveness of his argument. Be sure that your analysis focuses on the most relevant features of the passage.

Your essay should NOT explain whether you agree with Butler's claims, but rather explain how Butler builds an argument to persuade his audience.