Chapter 26
Diagnostic Test 2

TAKING THE SECOND DIAGNOSTIC

The purpose of the second diagnostic is to gauge how far you've come!

To maximize the effectiveness of this second diagnostic, don't rush to take it. If there are a couple topics you are still uneasy with, take the time to review them, practice them, and turn them into strengths. Make sure you've overturned every stone this book has to offer before taking this test. Why? Because using this test as a measure of progress is effective only once. If your brain is giving you any sense that you may want to work through another section again before starting this section, listen to that instinct.

Similar to the first diagnostic, there are a couple things you should keep in mind. This test does not include an essay or integrated reasoning section. The diagnostic is separated out into different content sections. Each section has a mix of problem solving and data sufficiency questions ranging in difficulty from easy to hard.

HOW TO SCORE THE SECOND DIAGNOSTIC

At the end of the diagnostic, we provide both a diagnostic answer key and explanations for each question. Keep track of the number of questions you get correct and the content areas of the questions that you missed. The total number of questions you get correct is considered your "score." While this is not an accurate representation of an actual GMAT score, it is a way for you to monitor progress and compare how you perform on this diagnostic with how well you performed on the first diagnostic.

Once done, compare the content areas that you answer questions incorrectly in the second diagnostic to the content areas of incorrect questions on the first diagnostic. How have you improved? Are there still areas you are still struggling with?

WHAT TO DO AFTER THE SECOND DIAGNOSTIC?

What happens if the results of this second diagnostic reveal that you are still struggling in some of the same areas you struggled with on the first? If you've read through every page on this topic and answered every practice question in this book about it, then don't fear. You are not out of options. There are many resources from The Princeton Review available to you to continue pushing your studies forward. You can check out one of our other titles that contain even more practice questions. You can contact your local office and inquire about picking up a couple hours of private tutoring. You can email our editorial support team to ask specific questions about what you did wrong on any given question and get another explanation for how to approach a problem.

We are here to help achieve the goal we outlined in the letter at the beginning of this book: to help you achieve the GMAT score of your dreams. Don't be afraid to reach out to us to lament your struggles and celebrate your successes. We will gladly be one of your biggest fans.

Clear your calendar and get ready for the second diagnostic. Best of luck!

Diagnostic Test 2

61 Questions

Arithmetic

1. If k is a positive, two-digit integer, what is the value of k ?

    (1) The remainder when k is divided by 9 is 8
    (2) The remainder when k is divided by 8 is 7

    (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
    (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
    (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
    (D) EACH statement ALONE is sufficient.
    (E) Statements (1) and (2) TOGETHER are not sufficient.

2. If the size of a rug is 25,0000 square millimeters, what is the size of the rug in square centimeters? (1 millimeter = 0.1 centimeter)

    (A)   0.25
    (B)   2.5
    (C)   25
    (D)   250
    (E)   2,500

3.   Set $P = \{1, 3, 4, 7, 9\}$

    If d is a random two-digit integer formed by any two distinct members chosen from set P, what is the probability that d is prime?

    (A) $\dfrac{7}{20}$

    (B) $\dfrac{2}{5}$

    (C) $\dfrac{1}{2}$

    (D) $\dfrac{3}{5}$

    (E) $\dfrac{13}{20}$

4. What is the remainder when positive integer n is divided by 17 ?

    (1) n divided by 51 has a remainder of 36
    (2) n divided by 31 has a remainder of 4

    (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
    (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
    (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
    (D) EACH statement ALONE is sufficient.
   (E) Statements (1) and (2) TOGETHER are not sufficient.

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5. During a summer Chemistry course, Phyllis earned 1 hour of course credit for every 3 labs she completed and 0.25 hours of course credit for every hour of class she attended. The course lasted 8 weeks, offering 2 three-hour classes per week. If Phyllis went to all classes and completed 9 labs, how much course credit did she earn?

   (A)   3.5
   (B)   5
   (C)   9.5
   (D)   15
   (E)   17

6. If $a + b$ is the average (arithmetic mean) of c and d, what is the average of a, b, c, and d ?

   (1) $a + b = 2$
   (2) $c + d = 4$

   (A)   Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B)   Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C)   BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D)   EACH statement ALONE is sufficient.
   (E)   Statements (1) and (2) TOGETHER are not sufficient.

7. The yield last week from a garden was 15 apples and 20% more pears than apples. How many total pears and apples did the garden yield last week?

   (A)   3
   (B)   6
   (C)   15
   (D)   18
   (E)   33

8. If x is an even integer, then what is the value of x ?

   (1) $x + 5$ is prime
   (2) $x - 16$ is prime

   (A)   Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B)   Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C)   BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D)   EACH statement ALONE is sufficient.
   (E)   Statements (1) and (2) TOGETHER are not sufficient.

9. In a gumball machine, the probability of <u>not</u> getting a red gumball is 60%. The probability of <u>not</u> getting a lettered gumball is 45%. If none of the red gumballs are lettered, what is the probability of getting a red gumball or a lettered gumball?

   (A)   18%
   (B)   33%
   (C)   51%
   (D)   73%
   (E)   95%

10. The combination of a certain lock is comprised of 5 alpha-numeric characters. The alphabetic characters can be any of the letters A through H of the English alphabet and the numeric characters can be any number 0 through 9. The first character of the combination is a letter, the last two characters are numbers, and the letters and numbers can be used more than once. If a computer can code one possible combination per second, how many hours will it take to code every possible combination?

(A)   72
(B)   80
(C)   104
(D)   4,320
(E) 259,200
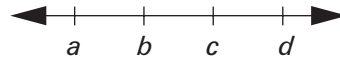
11. a, b, c, and d are numbers on the number line shown. If the distance between each variable is n, then what is the value of $a + d$?

(1) $a + 2n = 6$
(2) $b = 2$

(A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
(B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
(C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
(D) EACH statement ALONE is sufficient.
(E) Statements (1) and (2) TOGETHER are not sufficient.
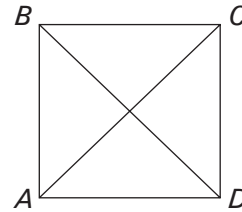
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Geometry

1. What is the area of circle X ?

   (1) The longest chord in circle X has a length of 6.
   (2) The point (2, 3) is on circle X.

   (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D) EACH statement ALONE is sufficient.
   (E) Statements (1) and (2) TOGETHER are not sufficient.
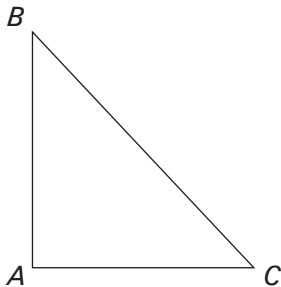
2. What is the area of triangle ABC ?

   (1) $AB = 12$
   (2) $AC = 5$

   (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D) EACH statement ALONE is sufficient.
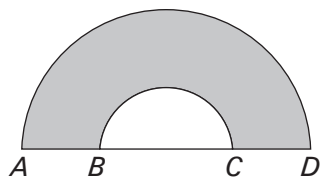   (E) Statements (1) and (2) TOGETHER are not sufficient.
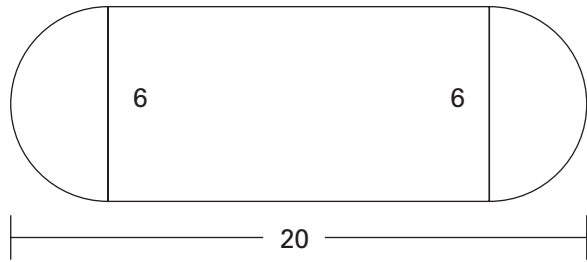
3. A playground consists of a rectangle and two semicircles as shown in the figure above. What is the perimeter of the playground?

   (A) $28 + 6\pi$
   (B) $28 + 12\pi$
   (C) $48 + 6\pi$
   (D) $48 + 12\pi$
   (E) $84 + 9\pi$

4. In the figure above, the length of the side of square $ABCD$ is 2. What is the ratio of the sum of the lengths of lines AC and BD to the perimeter of $ABCD$?

   (A) $\sqrt{2}:1$
   (B) $1:\sqrt{2}$
   (C) $\sqrt{2}:2$
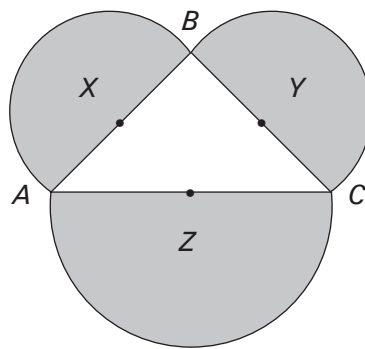   (D) $2:\sqrt{2}$
   (E) $1:2$

5. The figure above consists of two semicircles that share the same center. AD is the diameter of the larger semicircle and BC is the diameter of the smaller semicircle. If $AB = 8$ and $AC = 12$. What is the area of the shaded region?

(A) 42π
(B) 48π
(C) 72π
(D) 96π
(E) 192π
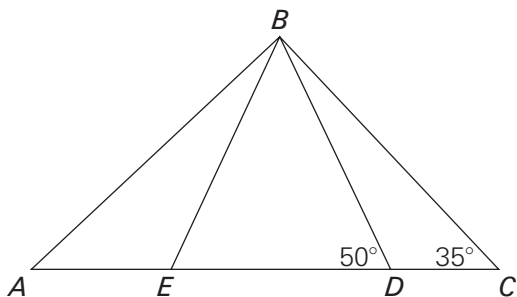
6. In the figure above $EB = BD$ and $AB = BC$. What is the degree measure of angle ABE ?

(A)   15
(B)   17.5
(C)   22.5
(D)   25
(E)   30

Note: Figure not drawn to scale.

7. In the figure above, triangle ABC is surrounded by the semicircles with centers X, Y, and Z. The areas of semicircles X, Y, and Z are 72π, $\dfrac{25\pi}{2}$, and $\dfrac{169\pi}{2}$ respectively. What is the area of triangle ABC ?

(A)   30
(B)   72
(C)   120
(D)   124
(E)   169
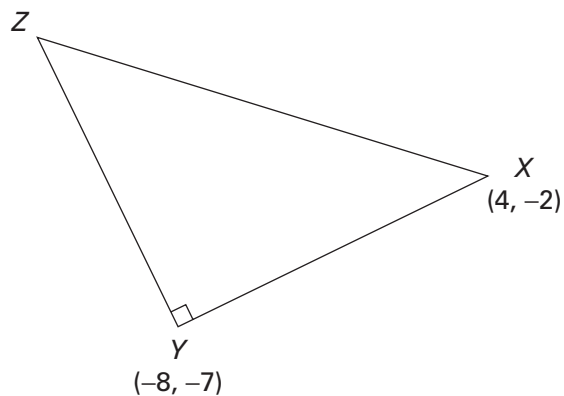
8. What is the perimeter of isosceles right triangle XYZ, shown above?

(A) $13 + 13\sqrt{2}$
(B)   36
(C)   39
(D) $26 + 13\sqrt{2}$
(E) $13 + 26\sqrt{2}$

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9. What is the area of a circle with center at (3, –2) ?

   (1)   The point $\left(\dfrac{6}{5}, \dfrac{8}{5}\right)$ is on the circle.

   (2)   The line $y = \dfrac{1}{2}x + 1$ is tangent to the circle.

   (A)   Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B)   Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C)   BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D)   EACH statement ALONE is sufficient.
   (E)   Statements (1) and (2) TOGETHER are not sufficient.

10. Is the perimeter of triangle *ABC* greater than 10 ?

   (1)   The coordinates of point *B* are (1, 2).
   (2)   The coordinates of point *C* are (–3, –1).

   (A)   Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B)   Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C)   BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D)   EACH statement ALONE is sufficient.
   (E)   Statements (1) and (2) TOGETHER are not sufficient.

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Algebra

1. If x is an integer, is $x^6 = 64$?

    (1) $x^{-5} = \dfrac{1}{32}$

    (2) x is prime

    (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
    (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
    (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
    (D) EACH statement ALONE is sufficient.
    (E) Statements (1) and (2) TOGETHER are not sufficient.

2. If x and y are integers greater than 1, is x prime?

    (1) The only factors of integer y are 1 and y
    (2) The least common multiple of x and y is xy

    (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
    (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
    (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
    (D) EACH statement ALONE is sufficient.
    (E) Statements (1) and (2) TOGETHER are not sufficient.

3. What is the value of $a + b + c$?

    (1) $4a - 3b + 5c = 65$
    (2) $-2a - 9b - c = 23$

    (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
    (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
    (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
    (D) EACH statement ALONE is sufficient.
    (E) Statements (1) and (2) TOGETHER are not sufficient.

4. What is the value of $\dfrac{g-1}{h+1}$?

    (1) $7g - 6h = 0$
    (2) $h = 42$

    (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
    (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
    (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
    (D) EACH statement ALONE is sufficient.
    (E) Statements (1) and (2) TOGETHER are not sufficient.

5. If x and y are integers such that $5 < |y| < 9$ and $4 < |x| < 10$, which of the following represents all possible values of xy ?

    (A) $-90 < xy < 20$
    (B) $-36 < xy < -20$ and $36 < xy < 90$
    (C) $-90 < xy < -20$ and $20 < xy < 90$
    (D) $-50 < xy < 20$ and $-20 < xy < 50$
    (E) $-36 < xy < -20$ and $20 < xy < 36$

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6. In 3 years, Calvin will be 3 times as old as Jill. In 6 years, Jill will be half as old as Tom. If Calvin is currently c years old, then, in terms of c, how old is Tom?

   (A) $\dfrac{2c}{3}$

   (B) $\dfrac{2c}{3} + 2$

   (C) $\dfrac{c+3}{3} + 6$

   (D) $\dfrac{3c+6}{2}$

   (E) $\dfrac{3c}{2} + 2$

7. If $6^{2x+2} = 36^{2x-2}$, then what is the value of x ?

   (A) $\dfrac{1}{2}$

   (B) 2

   (C) $\dfrac{3}{2}$

   (D) 3

   (E) 4

8. r, s, and t are negative consecutive odd digits, and $r < s < t$. All of the following could be the units digit of s^6 EXCEPT

   (A) 1
   (B) 3
   (C) 5
   (D) 7
   (E) 9

9. Is m a positive integer?

   (1) $-m^3 \le -1$
   (2) $-m^2 \ge -1$

   (A) Statement (1) ALONE is sufficient, but statement (2) alone is not sufficient.
   (B) Statement (2) ALONE is sufficient, but statement (1) alone is not sufficient.
   (C) BOTH statements TOGETHER are sufficient, but NEITHER statement ALONE is sufficient.
   (D) EACH statement ALONE is sufficient.
   (E) Statements (1) and (2) TOGETHER are not sufficient.

10. If $f(x) = 3x + w$ and $g(x) = 4x - w$, then what is the value of $g(f(5)) - f(g(5))$?

   (A) $x + 5w$
   (B) $2x - w$
   (C) $5w$
   (D) $-5w$
   (E) $2x + 5w$

Sentence Correction

1. Rebuilding and levee development <u>has permitted the seacoast town with increasing its tourist visitation over the past few months, and they are reallocating</u> the budget surplus as a result.

   (A) has permitted the seacoast town with increasing its tourist visitation over the past few months, and they are reallocating
   (B) has permitted the seacoast town to increase its tourist visitation over the past few months, and to forecast
   (C) have permitted the seacoast town to increase its tourist visitation over the past few months, and to reallocate
   (D) have permitted the seacoast town with increasing its tourist visitation over the past few months, and to reallocate
   (E) have permitted for the seacoast town to increase its tourist visitation over the past few months, as well as reallocating

2. Using a combination of algebra and ancient Greek to code her clandestine affairs with women, Anne Lister completed a voluminous diary, which also <u>detailed a range of topics from her travels, such as her scaling the mountains of the Pyrenees, and also the improvements made to her properties, notably</u> Shibden Hall in West Yorkshire, England.

   (A) detailed a range of topics from her travels, such as her scaling the mountains of the Pyrenees, and also the improvements made to her properties, notably
   (B) covering a range of topics, from her travels such as her scaling the mountains of the Pyrenees and the improvements made to her properties, notably
   (C) detailing a range of topics, her scaling the mountains of the Pyrenees during her travels, and the improvements made to her properties, notably
   (D) detailed a range of topics, from her travels, such as scaling the mountains of the Pyrenees, to the improvements made to her properties, notably
   (E) covered a range of topics, such as her travels such as her scaling the mountains of the Pyrenees plus the improvements made to her properties, notably

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3. Alan Turing's reputation as a founder of computer science is <u>now so well-known as to obscure the fact that he was never fully recognized in England</u>, his home country, during his lifetime.

   (A) now so well-known as to obscure the fact that he was never fully recognized in England
   (B) now so well known that it obscures the fact that he was never fully recognized in England
   (C) now so well-known as to obscure the fact that he was never fully recognized in England
   (D) well known enough now that it obscures the fact that he was never fully recognized in England
   (E) well known enough now so as to obscure the fact that he was never fully recognized in England

4. A wild American alligator grows to about 10 feet long, but one kept as a pet can suffer from the cramped housing, <u>which stunts the development of the alligator's jaw, exacerbates the premature loss of teeth, and prevents those teeth from growing back</u> at the proper angles.

   (A) which stunts the development of the alligator's jaw, exacerbates the premature loss of teeth, and prevents those teeth from growing back
   (B) which stunts the development of the alligator's jaw, exacerbates the premature loss of teeth, prevented from growing back
   (C) which stunts the development of the alligator's jaw, exacerbating the premature loss of teeth, only to prevent them from growing back
   (D) stunting the development of the alligator's jaw, exacerbating the premature loss of teeth, only to prevent them from growing back
   (E) stunting the development of the alligator's jaw, exacerbating the premature loss of teeth, and preventing them from growing back

5. With no other work did New Zealand writer Katherine Mansfield inspire such lasting admiration in international literary circles as <u>did her short-story collection *The Garden Party and Other Stories*</u>.

   (A) did her short-story collection *The Garden Party and Other Stories*
   (B) had her short-story collection *The Garden Party and Other Stories*
   (C) with her short-story collection *The Garden Party and Other Stories*
   (D) her short-story collection *The Garden Party and Other Stories* did
   (E) her short-story collection *The Garden Party and Other Stories*

6. During the last month, researchers <u>had narrowed down to two the possible origins that are being discussed in classrooms across the nation to explain the emergence of a new species of caterpillar</u>.

   (A) had narrowed down to two the possible origins that are being discussed in classrooms across the nation to explain the emergence of a new species of caterpillar
   (B) had narrowed down to two the possible origins to explain the emergence of a new species of caterpillar that classrooms are hypothesizing across the nation
   (C) have narrowed down to two the possible origins that classrooms are discussing the emergence of a new species of caterpillar across the nation
   (D) have narrowed down to two the possible origins to explain the emergence of a new species of caterpillar that are being discussed in classrooms across the nation
   (E) have narrowed it down to two possible origins to explain the emergence of a new species of caterpillar that are being discussed in classrooms across the nation

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7. <u>To assess the impact of an individual on the community is a conundrum, for there is a limit to the number of consequences of any single course of action that they can be cognizant of.</u>

   (A) To assess the impact of an individual on the community is a conundrum, for there is a limit to the number of consequences of any single course of action that they can be cognizant of.
   (B) Assessing the impact of an individual on the community is a conundrum, for one can be cognizant of only a limited number of consequences of any single course of action.
   (C) It is a conundrum to assess the impact of an individual on the community, for there is only a limited number of consequences of any single course of action, of which one can be cognizant.
   (D) Just as there are only a limited number of consequences of any single course of action that one can be cognizant of, assessing the impact of an individual on the community is a conundrum.
   (E) A conundrum is to assess the impact of an individual on the community, for the number of consequences of any single course of action is limited, of which one can be cognizant.

8. The NASA mathematician Mary Jackson, when offered an opportunity to train as an engineer, had to petition the city of Langley to get permission to attend courses at nearby segregated Hampton High School, <u>which only after a special court hearing, they allowed her to attend</u>.

   (A) which only after a special court hearing, they allowed her to attend
   (B) allowing her to attend after only a special court hearing
   (C) which she attended only after a special court hearing they allowed
   (D) allowing her only to attend after a special court hearing
   (E) which she was allowed to attend only after a special court hearing

9. The Parks and Recreation office recognizes that by stalling the precise allocation of renovation funds for three months, <u>that it has prevented the commencement of work due to the onset of winter, and thus has</u> use of the department's workforce for other projects until fair weather returns.

   (A) that it has prevented the commencement of work due to the onset of winter, and thus has
   (B) the onset of winter has prevented the commencement of work, and thus has
   (C) it has delayed the commencement of work until the onset of winter, and thus is having
   (D) the onset of winter has prevented the commencement of work, and thus it is having
   (E) it has delayed the commencement of work until the onset of winter, and thus has

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10. <u>While it causes more damage to wildlife than to urban development to leave more than 10 million acres vulnerable to wildfires, it is the residential and commercial damage that receives the most attention from the media and the most funds for relief and rebuilding.</u>

    (A) While it causes more damage to wildlife than to urban development to leave more than 10 million acres vulnerable to wildfires, it is the residential and commercial damage that receives the most attention from the media and the most funds for relief and rebuilding.
    (B) While leaving more than 10 million acres vulnerable to wildfires causes more damage to wildlife than to urban development, the residential and commercial damage from wildfires receives the most attention from the media and the most funds for relief and rebuilding.
    (C) Even though it causes more damage to wildlife than to urban development to leave more than 10 million acres vulnerable to wildfires, it is the residential and commercial damage that receives the most media attention and funds for relief and rebuilding.
    (D) The damage caused by leaving more than 10 million acres vulnerable to wildfires is more for wildlife than for urban development, but the residential and commercial damage receives the most media attention and funds for relief and rebuilding.
    (E) It causes more damage to wildlife than to urban development to leave more than 10 million acres vulnerable to wildfires, but the media attention and funds for relief and rebuilding are the most for residential and commercial damage.

11. Arguably one of the most influential figures in the Silver Age of Comics, <u>Jack Kirby's drawing style, which utilized foreshortening to convey depth and allowed characters to</u> "burst" out of panel frames.

    (A) Jack Kirby's drawing style, which utilized foreshortening to convey depth and allowed characters to
    (B) Jack Kirby's drawing style, utilizing foreshortening to convey depth and allowing characters
    (C) Jack Kirby developed a drawing style which utilized foreshortening to convey depth and allowed characters to
    (D) Jack Kirby developed a drawing style that utilized foreshortening to convey depth but also allowed characters
    (E) Jack Kirby developed a drawing style utilizing foreshortening conveying depth and allowing characters to

Reading Comprehension

<u>Questions 1–3</u> are based on the following passage:

Creative thinking, adaptability, and collaboration are part of human nature. Unfortunately, however, the hierarchical structures at workplaces
Line unwittingly discourage these traits. Paradoxically,
(5) the preeminent organizational strategy designed to maximize efficient productivity may actually be detrimental. The long-term success of a corporation requires flexibility and new ideas to respond to ever-evolving political, social, and
(10) economic conditions.

Becoming a "flat organization" will best ensure a company's survival. Such enterprises abolish middle management structures and instead assign most workers to the same level, with only
(15) a few superiors. In doing so, corporations must reconsider their view of employees: rather than workers reporting to a manager responsible for making decisions, non-hierarchical committees share in a decentralized decision-making process.
(20) Collaboration is encouraged and innovation is rewarded; new ideas can be implemented more quickly without requiring the traditional levels of ascension through middle management. Limiting specialization in job titles fosters flexibility as
(25) workers can take on a variety of roles depending on individual project needs, which leads to an increase in employee learning. Simply put, leaders in flat organizations have the responsibility to construct organizations in which members
(30) maximize their abilities and directly contribute to the company's success.

1. Which of the following could best serve as an example of how a company might become a flat organization, as such organizations are described in the passage?

    (A) Outsourcing middle management to a separate company
    (B) Abolishing job titles and rotating responsibility for leading meetings
    (C) Denoting specific guidelines for approval of new ideas
    (D) Hiring a specialist for each stage of a project's completion
    (E) Assigning each employee another employee to oversee

2. The primary purpose of the passage is to

    (A) compare various corporate organizational strategies
    (B) explain and endorse an alternative business structure
    (C) propose a traditional corporate approach
    (D) evaluate and then criticize a new method of conducting business
    (E) acknowledge the similarities between two management theories

3. Which of the following can be inferred from the passage about hierarchical workplaces?

    (A) They may result in a delayed approval process for new ideas.
    (B) They often contain more middle managers than upper managers.
    (C) They maximize efficiency by promoting specialization.
    (D) They are more beneficial for larger companies than for smaller companies.
    (E) They do not allow employees to have flexible roles.

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Questions 4–6 are based on the following passage:

Eighteenth-century economist Adam Smith introduced the "invisible hand" as a metaphor for the societal results of individuals' self-interested
Line actions. Subsequent theorists expanded Smith's
(5) idea to form the "general equilibrium theory," in which invisible market forces guided the interaction of supply and demand toward a natural balance as individuals act in their own interest and firms pursue the goal of maximizing profit.

(10)   Despite the ubiquity of this model in both popular and scholarly thinking, there is no evidence for its truth. Although academic economists have demonstrated that an optimal equilibrium of supply and demand exists, the guiding influence
(15) of Smith's invisible hand in moving markets toward such a balance has not been shown. The dubious belief that markets actively move toward an equilibrium has been used by proponents of deregulation, who insist that removing government
(20) interventions promotes economic strength, and the presumption of its accuracy has prevented some leaders and economists from identifying critical signs of impending crises. The general equilibrium theory presents an optimistic view
(25) of self-correction that has not been borne out by actual economic conditions—a defect that calls into question Smith's antecedent hypotheses.

4. The author of the passage implies which of the following regarding the originators of the general equilibrium theory?

(A) There is ample evidence to support the basis of the theory.
(B) They developed the theory sometime in the eighteenth century.
(C) Their theories were immediately popular among the general public.
(D) They were aware of Smith's beliefs about the relationship between individual actions and the economy.
(E) Some of them worked closely with Smith during the time in which he formulated his theory.

5. The author of the passage is primarily concerned with

(A) exploring the argument for economic regulation
(B) questioning the foundation of the general equilibrium theory
(C) defending Smith's beliefs with supporting evidence
(D) asserting that market forces naturally maintain balance
(E) comparing several economic theories

6. It can be inferred from the passage that defenders of the general equilibrium theory would most likely regard economic regulations as

(A) imperative
(B) catastrophic
(C) salutary
(D) insufficient
(E) unnecessary

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Questions 7–10 are based on the following passage:

A critical aspect of product advertising is the choice between positive and negative approaches. Positive advertisements tout the benefits of a

Line product to convince consumers that they want or
(5) need the item for sale. Negative advertisements, by contrast, involve attacks on competing companies or products to dissuade their audience from considering those options.

An advantage of positive advertising is its
(10) ability to evoke emotions such as happiness, nostalgia, and optimism in its audience, creating a psychological association between the brand and feelings of warmth. Despite this, some consumers may view such campaigns as insincere
(15) or predatory due to their reliance on manipulating emotions rather than presenting factual information. The resulting distrust can then lead to skepticism regarding appeals that are based more on logic, as consumers assume they are
(20) still being manipulated for the goal of producing positive feelings. By contrast, negative advertising can appear more truthful: the company is not painting a rosy sheen over its own products but rather warning consumers of a competitor's flaw.
(25) Consumers may thus more readily believe negative information compared to arguments made in favor of a brand or product, and the former often makes a stronger mental impression.

Psychological research explains why such
(30) advertising can be more memorable: negativity bias. People tend to give more attention to negative, rather than positive, events, and make more decisions based on negative information. Furthermore, negative advertising has other
(35) applications aside from attacking competitors: many firms have found success in advertising by highlighting a problem that the promoted product can solve or by suggesting that it could prevent the consumer from losing something—rather than
(40) positive advertising, which might focus on what the audience has to gain.

In spite of these benefits, negativity in advertising is not always more effective than the alternative. For instance, featuring a competitor
(45) in an advertisement can inadvertently provide a boost to the competing brand, even if the message

is ultimately defamatory. Furthermore, negative advertising poses a risk that the audience will be alienated from both the competitor and the
(50) company criticizing it. Consumers who choose a brand simply because the alternative is presented as flawed are not as loyal as those for whom merit guides the decision. A final concern is that consumers may view attacks on competitors as
(55) petty and untoward.

7. The primary purpose of the passage is to

   (A) argue the inferiority of one advertising approach to another
   (B) explore the advantages of different forms of advertising on different audiences
   (C) consider the benefits and risks of two marketing strategies
   (D) explain what makes a particular advertising strategy effective
   (E) illustrate the need for companies to advertise their products

8. All of the following are mentioned as potential risks in advertising EXCEPT

   (A) Consumers may lose interest in petty feuds between rival companies.
   (B) Consumers may reject both the advertiser and a named competitor.
   (C) Consumers may not believe claims made in advertising.
   (D) A company could lose its audience's trust.
   (E) A company could give attention to a competitor's products.

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9. Which of the following could best serve as an example of negative advertising as it is described in the passage?

    (A) A packaging company uses a bittersweet story about an animal shelter to provoke an emotional response.
    (B) A restaurant advertises that its fruits and vegetables do not contain pesticides.
    (C) A beauty company claims its competitor's product has long-term health implications.
    (D) An environmental group criticizes the airline industry for its lack of sustainability.
    (E) A construction firm provides data and customer reviews to attract new clients.

10. Which of the following best describes the function of the highlighted sentence in the context of the passage as a whole?

    (A) It explains why a particular strategy is demonstrably superior to the approach that was previously discussed.
    (B) It summarizes the main differences between the two strategies described in the passage and introduces a new perspective.
    (C) It refutes the argument made in the first paragraph and provides the foundation for an assertion made in the following paragraph.
    (D) It describes an alternative to a potential problem mentioned earlier in the paragraph and previews the topic of the following paragraph.
    (E) It suggests that a method mentioned earlier in the paragraph is less effective than most experts believe.

Critical Reasoning

1. **Physiotherapist:** Although the patient's health would improve with daily outdoor walks, I have advised against it in the health plan. Since she is overweight, an increase in walking exercise would stress the already overstressed knee joints and would therefore put the patient at increased risk of injury.

   The physiotherapist's argument depends on which of the following?

   (A) The patient would use her knees during daily walks more than she currently does in other activities, such as bicycling.
   (B) The amount of exercise the patient currently undertakes does not put her at risk of joint injury.
   (C) Any patient is apt to be healthier with some exercise than with none at all.
   (D) The patient will not attempt to take daily walks despite the recommendation of the physiotherapist.
   (E) The physiotherapist should have the patient's best well-being as the foremost concern.

2. Cancer is a disease that involves the uncontrolled division of abnormal cells in the body. It stands to reason that the more cells an organism has, the more likely that organism would get cancer. However, the incidence of cancer in mice is many times that of humans, even though humans have over 1,000 times as many cells as mice do. Furthermore, elephants have even more cells than humans do, but the incidence of cancer in elephants is much lower.

   The statements above, if true, provide the most support for which of the following conclusions?

   (A) The incidence of cancer in an organism is due in part to factors other than body size.
   (B) A higher incidence of cancer correlates to an increase in body size.
   (C) The number of cells in any organism's body is not a predictor of likelihood of cancer.
   (D) Within a species, the number of abnormal cells in an organism can contribute to the uncontrolled division of those cells.
   (E) Abnormal cell division is the key to understanding and curing cancer in humans.

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3. **Lawyer:** Although there is no eyewitness to the crime, it is evident that it must have been committed by Jones, Alyers, or Singh, all of whom were working in the electronics supply warehouse at the time the theft of the case of new tablets occurred. Electronic timestamps indicate that all three men were checking inventory at the time of the theft. Singh, the more senior employee with the higher pay grade, was supervising Jones and Alyers, who were processing the inventory. Singh has already testified that both Jones and Alyers were out of his sight numerous times throughout the shift. Therefore, Jones or Alyers had the most motive and opportunity to commit the theft.

The lawyer's argument assumes which of the following?

(A) All theft by employees of a company is done during the processing of inventory.
(B) Jones was out of Singh's sight more often than Alyers.
(C) Any testimony in court should be treated skeptically.
(D) The number of trucks with stolen items is growing.
(E) Tenure of employment and salary are directly related to the likelihood of committing theft.

4. **Social Media Officer:** Our biggest competitor allows many more advertisements per page view on its website than we currently allow on ours. Because revenue depends on page views, this means that we are not generating as much revenue for our content as we could. I propose that we increase the rotation of banner ads on the header of our homepage as well as include more thumbnail ads on the left margin of each subpage. Although I think this will generate more profits in the long run, be prepared for an initial loss, since _____.

Which of the following is the most logical completion of the passage?

(A) our biggest competitor has standing relationships with all the advertisers to whom we are likely to sell the new inventory
(B) the percent of ads devoted to our current advertisers will decrease, since the additional ads will be devoted to new advertisers
(C) creating the infrastructure to host more advertisements at different locations on our website requires a large up-front investment
(D) none of our current customers want to engage with more advertisements
(E) the rates we will charge for these new ads will be slightly lower to encourage new advertisers to utilize our site

5. **Store manager:** The majority of the profits in our hardware store during the last quarter depended on the sales of paint and household tools. Regrettably, the reliability of our deliveries has diminished due to nationwide strikes on the part of the truckers' union. Therefore, to keep our store profits at the same level, we will have to raise the prices of products in these categories until the nationwide truckers' strike is over.

Which of the following is an assumption on which the store manager's argument depends?

(A) It is only the actions of the truckers' union that caused the shortages of paint and household tools in the hardware store.

(B) Raising prices of paint and household tools until the end of the truckers' strike would not decrease patronage at the grocery store.

(C) Raising prices of paint and household tools is more important than diversifying the hardware store's inventory and offering a broader selection of products.

(D) Other stores have maintained their profits by raising the prices of their most popular goods to cope with the diminished supply due to the truckers' strike.

(E) If the prices of popular goods increase, there will be increased pressure nationwide to end the truckers' strike.

6. **Gardener:** Under normal weather conditions, any major brand of soil provides nutrients to your plants as well as Q-Earth does. However, when conditions are not ideal, Q-Earth's nutrient generation technology provides better support for your plants when natural nutrient formation is inhibited due to lack of sunlight, rain, or heat. So, if you want your garden to thrive under any condition, use Q-Earth.

Which of the following, if true, most strengthens the gardener's argument?

(A) Q-Earth provides about average support for plants that tend to grow quickly.

(B) Q-Earth is the preferred soil of interior gardeners—those who build gardens inside homes using plants that typically thrive outside.

(C) Q-Earth's share of the soil market has climbed steadily for the past 5 years.

(D) Q-Earth, like all branded soil, is more effective under normal weather conditions than conditions that are not ideal.

(E) Q-Earth is manufactured at only one location and distributed from there to all markets.

7. **Principal:** The average grade of honors students on the last test was 102 points. Most students in the school are honors students. Furthermore, the amount of extra credit per test earned by any student generally does not fluctuate from test to test. It is clear that most students in the school earn at least some extra credit.

   The principal's conclusion is most vulnerable to which of the following criticisms?

   (A) It takes for granted that classes with honors students are typical of the classes at the whole school with regard to the average amount of extra credit earned per test.
   (B) It takes for granted that if a certain average amount of extra credit is earned on a test by each student in the school, then approximately the same amount of extra credit must be earned each test by each honors student.
   (C) It confuses a claim from which the argument's conclusion about the test scores would necessarily follow with a claim that would follow from the argument's conclusion only with a high degree of probability.
   (D) It overlooks the possibility that even if, on average, a certain amount of extra credit is earned by some types of students, many students may earn no
   (E) It overlooks the possibility that even if most students in the class earn some extra credit each test, any one student may, on some tests, earn no extra credit.

8. The troubling discovery of cheating on the most common college entrance examination should not impact the reputation of the College Admissions Board. **The revelation confirms that the system works**, since the students themselves were the ones who reported their peers for unethical behavior.

   The bolded phrase plays which of the following roles in the argument?

   (A) It is a claim for which the argument gives evidence, and which is used to support the primary claim.
   (B) It is the argument's primary position, and another conclusion provides support for it.
   (C) It is an assumption that has no stated evidence in the argument.
   (D) It is the main conclusion of the argument.
   (E) It is a statement that contains both a premise and an assumption that support the conclusion.

9. **Chef:** I have noticed that savory recipes invented by culinary experts with over 20 years of experience in general yield better dishes that enjoy a much broader popularity than savory dishes based on recipes by chefs with less than 20 years of experience. Dishes derived from recipes by less experienced chefs are more prone to error and clashing flavors and, as a result, are not as popular. It seems that more experienced chefs are more precise and careful when designing their savory recipes than their counterparts, who may just be experimenting with trendy cuisines.

    Which of the following, if true, most seriously weakens the chef's argument?

    (A)   The quality of recipes for savory dishes is generally much better than the quality of recipes for sweet dishes, such as cakes and sweetbreads.
    (B)   Savory recipes created by less experienced chefs are generally easier for the domestic cook to follow than savory recipes created by more experienced chefs.
    (C)   Chefs of all experience levels use the same range of spices when creating their savory recipes.
    (D)   The most popular recipes are first discovered by individuals in cooking magazines which often feature recipes by those with industry connections.
    (E)   In general, a culinary expert with over 20 years of experience is older than one with less than 20 years experience.

END OF DIAGNOSTIC TEST