19. (**C**) The doctor described symptoms for type X flu (fever and headache) and type Y flu (headache, but no fever). This does not mean that there are only two types of illnesses. The directions say, "Base your answer only on the information given." We **do not** know that type X and type Y flu are the only two types of illnesses because the information provided does not say so.

Option A is incorrect because the information given is not sufficient to conclude that Charlie must have type X flu. He could have another illness. B is wrong for similar reasons; Charlie's symptoms could indicate another illness. D can be ruled out because a headache may be a symptom of many illnesses, including, but not limited to, flu. E is wrong because a person with type Y flu never has a fever. Option C is correct because it states that Charlie **may** have type X flu, leaving open the possibility of another illness.

20. (**H**) The question asks which option **must** be true. Options F, J, and K **might** be true, but there is not enough information given to conclude that any of them **must** be true. We cannot conclude that deserts are the driest places on earth (Option F), since the question provides no definite information about this, or whether deserts always have at least some rainfall each year (Option J). Option K can be ruled out because the information provided for the Sawli and Gobi deserts is average yearly rainfall, which allows some variation from year to year. Option G can be ruled out because no information is given about the amount of rainfall received by most deserts. Only Option H **must** be true. The question says that the Sawli Desert, with a yearly rainfall of 5 inches, is the wettest desert in the world. From this information we can conclude that all deserts must receive less than 6 inches each year.

Reading

(Sherlock Holmes)

21. (**C**) This question asks you to determine the general theme of the passage. Options A and E are true statements, but they are details that do not describe the entire passage. Option B refers to one aspect of "the game" and does not encompass the whole passage. Option D was very appealing to many readers. It is a true statement, according to line 31, but the complexity of the game is not the main idea of the passage. The main idea is the game itself. The best answer is Option C, "Some Sherlock Holmes scholars enjoy pretending that Sherlock Holmes was a real person."

22. (**J**) The discovery of a new Sherlock Holmes story would be of great interest to readers, scholars, and game players, ruling out Options F and K. It would not likely reveal more about Conan Doyle (Option G). Only two of the 56 existing stories mention Watson's bullet wound, so it seems unlikely that a new story would settle the issue, which is Option H. Option J states that game players would integrate details from the new story into the game. Given the information about game players—their fervent interest and their desire to create consistency among the stories—it seems likely that they would wish to integrate the new story with the existing stories.

23. (**D**) This is a detail question, for which the answer is stated directly in the passage. According to lines 8-10, "the players assume that Holmes was a real person," which is the correct answer, Option D. Option A is ruled out because the players do not create the characters. Frequent travel around England (Option B) is not necessary for playing the game, and readers need not understand Conan Doyle's intentions (Option C) in order to play. Option E refers to an extreme example of an individual game player who attempted to identify every place mentioned in the stories (lines 42-45). Most game players do not do this, and a person need not do so in order to play the game.

24. (**G**) This is another detail question. An example of an inconsistency appears in the second paragraph. Watson was wounded in the shoulder or the leg, or both. The correct answer is Option G. Option F has no basis in the passage. Option H is mentioned, but the inconsistency refers to the handwriting, not to the story itself. Options J and K are about fictitious locations and events; they do not provide examples of inconsistencies.

25. (**A**) To answer this question correctly, you must understand the rules of the game: Holmes and Watson were real people; the settings, characters, and plots are factual; any apparent discrepancies can and must be explained; Watson wrote the stories; Conan Doyle merely published Watson's manuscripts. Now evaluate each option for its consistency with the rules. Option A is not consistent with the game; game players assume that Watson wrote the stories, and it doesn't matter to them whether Conan Doyle or his wife claimed authorship. Options B, C, D, and E are part of the game as described in the passage. Option E was especially strong for some testtakers, but it is ruled out by lines 34 and 40-41.

26. (**K**) Some rules of the game are listed in the explanation to question 25. Evaluate each option for consistency with the rules. Option F is of little interest to game players, who believe that Watson, not Conan Doyle, wrote the stories. Game players assume that the stories and plots are factual and would not question Holmes's solutions, ruling out Option G. Options H and J would not interest game players because they shed no light on the workings of the game. Option K, "figuring out where Watson lived," is consistent with game players' fascination with fleshing out the lives and activities of Holmes and the other characters.

(Bedouins)

27. (**E**) While Option A might seem attractive, it does not specifically describe what the passage is about. "Rhythms," or recurrence of related elements, are referred

to only in the first paragraph. No such recurring life elements appear again. Option B describes only one detail of the passage, as does Option D. Option C is not discussed at all. Option E is the best answer, since the passage describes Bedouin tribes in modern-day Saudi Arabia.

28. (**G**) The tribes' yearly migration begins in autumn (line 9), so Options F and J are incorrect. Options H and K are not related to the yearly migration. Since autumn follows summer (lines 13-16), Option G is correct.

29. (**A**) Modernizations (or new ways), as discussed in the last paragraph, are adopted only to "deal with the hardships of desert life" (lines 43-44). Option A restates that idea. Religious requirements for change are not mentioned, so Option B may be eliminated. Option C is incorrect since the length of the migration is controlled by the seasons. Option D is incorrect because pick-up trucks, used as an example of modernization, sometimes replace camels, the traditional method of transport. Option E contradicts the statement in lines 46-47.

30. (**J**) Options F, G, H, and K describe long-standing traits or traditions characteristic of the Bedouin's frugal and self-sufficient culture. However, in order to own pick-up trucks, the Bedouin would need money, which suggests that they have indeed shared some of Saudi Arabia's wealth.

31. (**E**) Options A through D each play an important role in the Bedouin's centuries-old lifestyle as described in the passage. The oil industry is recent, and though it has allowed the Bedouin to purchase pick-up trucks, it has had the least influence on their lifestyle.

32. (**J**) The story of the Bedouin elder (lines 32-38) supports the statement in the previous sentence (lines 30-32), which says that the Bedouin are extremely skilled in tracking. The correct answer, Option J, restates this sentence. Option H may seem correct since it mentions Bedouin elders. It can be ruled out, however, because the story refers to the relationship between the Bedouins and the police, not between the Bedouins and their elders. The remaining options mention other Bedouin characteristics, but they are not relevant to the story of the Bedouin elder.

(Carnivorous Plants)

33. (**A**) You are asked to identify the general topic of the passage. Option C refers to only part of the passage. Options B and D are not mentioned at all. Option E, while true, is too general and is not the focus of the passage. Option A is best because the passage describes how carnivorous plants trap their prey to obtain nitrogen compounds.

34. (**K**) This question asks for a conclusion based on the factual information in the passage. Option F is incorrect, based on lines 12-16, which says that the plants also eat mice or frogs. The passage says nothing about the plants' life span compared to other green plants, ruling out Option G. Option H is false; the first paragraph says that the plants can obtain nitrogen from decomposing organic matter. While the passage mentions Venus flytraps in North and South Carolina, it does not limit the habitats of carnivorous plants to the southern United States, thus ruling out Option J. Option K is correct, based on the first and second paragraphs, which discuss plants that live in wet, marshy areas, including carnivorous plants.

35. (**A**) The word "fast" has more than one meaning, so it is necessary to look at its usage in the passage to determine its meaning. The sentence reads: "Once an insect alights on a leaf, the nectar acts as flypaper, holding the insect fast …" It is apparent from the context of the sentence that fast means "securely" or "firmly," so Option A is correct.

36. (**G**) The passage says that carnivorous plants use sticky liquid (sundew and butterwort), suction (bladderwort), hinged leaves (Venus flytrap), or a pool of water (pitcher plant), which rules out options F, H, J, and K. The passage states that carnivorous plants do **not** have a mouth or teeth (line 20). Thus Option G is correct.

37. (**C**) The answer is stated in lines 17-18: "Because they can digest living animals, these plants are called 'carnivorous' plants." Option C restates this definition.

38. (**K**) The last paragraph describes how the bladderwort captures its prey. The plant's bladders have trapdoors that open only inward (lines 64-65). When the trapdoor opens, water rushes in, the prey is sucked inside, and the trapdoor closes (lines 67-71). Option K accurately summarizes why the bladderwort's victim is unable to escape. Notice that the other options are not about the bladderwort, but describe the strategies of other carnivorous plants. If you did not read the question carefully, you might have chosen an option that sounded plausible, but did not relate to the bladderwort.

(Sea Otters)

39. (**A**) Again you are to choose the option that best describes the general topic of this passage. Options B and C are important and interesting details, but they are too specific. Option E is too broad; sea otters and kelp forests are only part of the Pacific Coast ecology. The origin of kelp forests is not mentioned, so Option D can be eliminated. Option A best describes the passage. The sea otter's role in kelp forests is alluded to in the first and third paragraphs and described more fully in the fourth paragraph.

40. (**H**) Lines 24-26 list the few reasons that sea otters visit land. Option H best reflects one of the reasons, "to escape severe wind and waves" (lines 24-25). Options F, G, J, and K might seem reasonable, but they are not accurate, according to the passage.

41. (**B**) This question requires the reader to draw a logical conclusion based on the facts given. Option A is incorrect, since it refers to a human activity (commercial fishing). Option C describes a situation caused by sea urchins, not sea otters. Option D is not reasonable, since killer whales prey on sea otters, not vice versa. The nesting areas of bald eagles referred to in Option E are clearly beyond reach of any action of sea otters. However, Option B could occur if the number of sea otters increased and they consumed a greater number of shellfish.

42. (**H**) This question asks the reader to recognize a cause-and-effect relationship not explicitly stated in the passage. Option F is untrue because of lines 11-12. Option G may be true, but nothing in the passage suggests that such legal action was taken because of a decline in other forms of coastal marine life. The same is true for Option J. Option K is true, as many people **do** find sea otters cute and want to protect them. However, it is **not** the correct answer because there is absolutely no support for this in the passage. **You must keep this in mind. You may know that something is true from your knowledge or experience. However, unless it is supported by the information in the passage, it will not be the correct answer.** The sentence beginning on line 12 suggests that Option H is correct. Further, the statement that sea otters are thriving since the ban reinforces that inference.

43. (**E**) At first you may think you need to know about parasites, koala bears, or acid rain in order to answer this question. However, you are asked to identify a parallel situation—one that closely resembles the relationship between otters and sea urchins. The passage states that when otters were not there to eat the sea urchins, the sea urchin population grew and devastated the kelp forest. Now look at the relationships presented in the options. In Option A, removal of the parasites causes the death of the mammal, not growth. Option B is incorrect because it introduces the idea of pesticides, for which there is no counterpart in the passage. Option C does not describe the changes, favorable or unfavorable, caused by acid rain, so it may be eliminated. Option D would be parallel only if otters had disappeared because there were not enough sea urchins to eat. Option E describes a parallel situation: When the wolves disappeared, one of their food sources (deer) increased dramatically, which is precisely what happened to sea urchins when the otter population fell.

44. (**K**) Check each option against the information in the passage and rule out the options that **do** represent a threat to sea otters. Options F and G can be ruled out since water pollution and shoreline development are threats to kelp forests (lines 42–43), whose devastation represents a threat to sea otters. Option H is incorrect since fur hunters once reduced the sea otters' numbers to low levels (lines 11–17). Option J is wrong because sharks are enemies of sea otters (line 28). Harbor seals, mentioned in lines 47–48, represent no threat to sea otters, so Option K is correct.

(Montessori)

45. (**C**) Option B is too broad, while Options A, D, and E refer to details. Option C is best; the second and third paragraphs describe Maria Montessori, an important educator, and paragraphs 1 and 4-7 discuss Montessori's ideas about children and education.

46. (**G**) This is a detail question, for which the correct answer is stated directly in the passage. Lines 35-37 support Option G as the correct answer.

47. (**D**) This is another detail question. The correct answer, "young children in a poor neighborhood," is found in lines 61-63. Option A might look appealing, but it refers to a school founded in 1900, not 1907. Options B and C are not mentioned in the passage. While schools teaching the Montessori method to teachers do exist (Option E), they were founded well after 1907.

48. (**J**) Information about Montessori's childhood appears in the second paragraph: her parents' attitudes, her education at a technical school, and her reaction to teaching methods that emphasized formality and memorization. Options F and G are not supported by the passage. Option H is ruled out because Montessori trained as an engineer, then as a doctor, before she became a teacher. The passage suggests that the teaching methods used at the engineering school influenced Maria's ideas about education (lines 18-22), but does not suggest that her interest in the subject area of engineering influenced her career as an educator (Option K). Option J is the best answer. It links Montessori's early dissatisfaction with the teaching at the technical school to her subsequent career in childhood education.

49. (**A**) After listing objects found in many preschool classrooms, the passage continues, "All of these familiar objects reflect the deep influence of Maria Montessori and her theory of education" (lines 6-8). Option A best summarizes this statement. None of the other options relate to those objects.

50. (**H**) The only information about Maria's mother is found in the second paragraph: she encouraged her daughter to pursue broader schooling than most girls received, and she supported Maria's enrollment in a boys' technical school. Both statements relate to educational opportunities for girls, which is Option C. The other options can be ruled out because only Maria attended the technical school (Option F) and Maria's mother opposed, not supported, Maria's father's wishes (Option G). The passage says nothing about how Maria's mother viewed children's personality development (Option J) or strict classrooms (Option K).

51. (**A**) Remember that 20% is equivalent to .20, and 5% to .05. First solve for N:
$N = (.05)1000 = 50$
Now you can solve for M:
$M = (.20)N = (.20)(50) = 10$

52. (**F**) $\overline{XY}$ is 9 units long. One-third of 9 is 3. Since R is less than S, it is between X and S. Three units to the right of X is 2, so R will fall at 2.

53. (**D**) To obtain the decimal form of a fraction, divide the numerator by the denominator. The result is 0.3125.

54. (**H**) $7^2 < 51 < 8^2$.
So $7^2 < n^2 < 8^2$,
and $7 < n < 8$.

55. (**A**) Note that the mean is not the average of the four numbers 20, 21, 25, 27. One must take the frequencies of these numbers into account.
The correct mean is:

$$\frac{5 \cdot 20 + 3 \cdot 21 + 2 \cdot 25 + 2 \cdot 27}{5 + 3 + 2 + 2} = \frac{100 + 63 + 50 + 54}{12} = 22.25$$

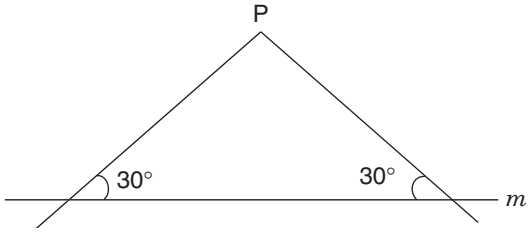
56. (**G**) Count back from 40. 39 is not a prime number because it is 3×13. 38 is not a prime because it is even. 37 is a prime.

To see that 37 is a prime, test whether it is divisible by whole numbers up to 7. There is no need to test for factors above 7 because if one factor of 37 is greater than 7, the other must be smaller than 7. Start with 2. 37 is not even, so it is not divisible by 2, and hence not by 4 or 6. The sum of the digits of 37 (3 + 7 = 10) is not divisible by 3, so 37 is not divisible by 3. 37 does not end in 5 or 0, so it is not divisible by 5. It is not divisible by 7 because $7 \times 5 = 35$ and $7 \times 6 = 42$. Thus 37 is prime.

57. (**E**) By the Distributive Rule,
$2x(3y+1) = 2x \cdot 3y + 2x \cdot 1 = 6xy + 2x$

58. (**H**) $\frac{27}{4} = 6\frac{3}{4}$; the **least** integer greater than $6\frac{3}{4}$ is 7.

59. (**C**) One can draw exactly two lines from P to m satisfying the required condition:



60. (**G**) At 2:00 p.m., seven hours had passed since the initial temperature reading of $^-12°$. The temperature rose 3° each hour for a total rise of 21°. $(^-12)° + 21° = 9°$.

61. (**B**) From the graph, we see that the amount received from selling 10 tickets is \$250, 20 tickets is \$500, 30 tickets is \$750, etc. This shows that the amount received is directly proportional to the number of tickets sold. Therefore, the price of one ticket is \$25.

62. (**G**) Let x be the nonzero integer. Then:
$(^-1)x = x^2$
We know that x is not zero. So we can divide both sides of the equation by x. This gives us:
$^-1 = x$.

63. (**B**) From the figure, it is clear that the area of square HCEF is 64 sq cm. The diagonals intersect at the center of the square, and since $\overline{DG}$ passes through this center, D is the midpoint of $\overline{CE}$. Therefore, DE = 4 cm and the area of GDEF is 32 sq cm. The area of the unshaded part of GDEF is $\frac{1}{4}$ of the whole rectangle, so its area is 8 sq cm. The area of the shaded region is 32 sq cm − 8 sq cm = 24 sq cm.

64. (**K**) Move the constant $^-6$ to the left side of the inequality, resulting in the inequality $10 + 6 < x$, which is $16 < x$, or $x > 16$.

65. (**C**) First remove the parentheses, then combine like terms. Remember to change the signs for each term in the second parentheses, because of the minus sign in front:
$(13 + 2x) - (4 - x) = 13 + 2x - 4 + x$
$= (13 - 4) + (2x + x)$
$= 9 + 3x$

66. (**F**) 90% of 9 = $.9 \times 9 = 8.1$.
9% of 90 = $.09 \times 90 = 8.1$.
So the difference is 0.

67. (**D**) To find x and y, factor 27,783 into the product of powers of prime factors, which are known to be 3 and 7. First, keep dividing 27,783 by 3 until the quotient is not divisible by 3. $27{,}783 = 3 \cdot 9{,}261$. 9,261 is divisible by 3 because the sum of its digits is 18, a number divisible by 3. Divide 9,261 by 3 and obtain $27{,}783 = 3 \cdot 3 \cdot 3{,}087$. Continue this way and we obtain $27{,}783 = 3 \cdot 3 \cdot 3 \cdot 1{,}029 = 3 \cdot 3 \cdot 3 \cdot 3 \cdot 343$. 343 is not divisible by 3; the sum of its digits is 10. You should recognize that $343 = 7^3$. If you do not, divide by 7 to obtain $7 \cdot 49 = 7 \cdot 7 \cdot 7$. Hence $27{,}783 = 3^4 \cdot 7^3$, i.e., $x = 4$ and $y = 3$. Therefore, $xy = 12$.

68. (**G**) The slower train leaves point A at the same time the faster train leaves point B. When the trains meet, regardless of their speeds, the sum of their distances traveled since leaving points A and B will be 300 miles. First figure out how many hours (h) will elapse before the trains meet. Set up the equation:

$$\begin{aligned} 30h + 70h &= 300 \\ 100h &= 300 \\ h &= 3 \end{aligned}$$

The trains will meet 3 hours after leaving points A and B. You can calculate their distance from point B by multiplying the speed of the train that left point B (70 miles per hour) by 3 hours to obtain 210 miles.

69. (**D**) There are 10 such rectangles. Nine are congruent to BCEN: MDFO, NEGH, ABNK, LMOJ, KNHI, ACDL, LDEK, KEFJ, and JFGI. ACGI is similar to BCEN, but it is not congruent to it. ACGI is similar to BCEN because its angles are equal to those of BCEN (all right angles), and each side of ACGI is twice as long as the corresponding side of BCEN.

70. (**G**) The sum of the two numbers is $9 \times 2 = 18$. One number is 5, so the other is 13. Therefore, their product is 65.

71. (**C**) You may assume that the fish caught were a random sample and represent the total number of fish in the pond. Of the 50 fish caught, 15, or 30 percent, were male. Therefore, 30 percent of 10,000, or 3,000, is the best estimate of the number of male fish.

72. (**H**) The area of a rectangle is length times width. The width (w) is 5 feet and the area is 70 sq ft. Let l represent length:

$$\begin{aligned} 5l &= 70 \\ l &= 14 \end{aligned}$$

Now calculate the perimeter (p) of the rug:

$p = 2w + 2l = 2 \cdot 5 + 2 \cdot 14 = 10 + 28 = 38$

73. (**E**) There are 4 ways to paint the inside of the box. After using one color for the inside, only 3 colors are left to paint the outside. Thus, there are altogether $4 \cdot 3 = 12$ ways to paint the box.

74. (**H**) Substitute 3 for x:

$$\hat{3} = \frac{1}{3} \qquad\qquad 3 \cdot \hat{3} = 3 \cdot \frac{1}{3} = 1$$

75. (**A**) Substitute $x = 5.5$ and $y = 4.5$ into the expression.

$$\begin{aligned} (x + y)(y - x) &= (5.5 + 4.5)(4.5 - 5.5) \\ &= 10(^{-}1) \\ &= {}^{-}10 \end{aligned}$$

76. (**G**) If Lindsey is now x years old and Xiu Dan is 2 years older, he is now $x + 2$. Therefore, 3 years ago his age was $x + 2 - 3$, or $x - 1$.

77. (**E**) Though the label is wrapped around a cylindrical soup can, it is a rectangle. The width is the height of the can, 4 inches. The length is the circumference C of the base of the can. The length can be calculated from the information given. With radius r, the circumference C is:

$C = 2\pi r$

$C = 2\pi\left(1\frac{1}{2}\right)$

$C = 3\pi$ in.

Now you can calculate the area of the label, with length L and width W:

Area $= L \times W$

$= 3\pi \times 4$ in. $= 12\pi$ sq in.

78. (**J**) The prime factors for R and S are given in the problem. Their least common multiple is the product of these factors, each raised to the highest power with which it appears. Thus, the least common multiple for R and S is

$3 \cdot 3 \cdot 5 \cdot 7 \cdot 7 \cdot 11$.

79. (**B**) It is given that 1 in. is equivalent to 100 ft.

Squaring both sides, $(1 \text{ in.})^2$ is equivalent to $(100 \text{ ft})^2$, or 1 sq in. = 10,000 sq ft. Therefore, 1 sq ft is equivalent to $\frac{1}{10{,}000}$ sq in., which is 0.0001 sq in.

80. (**G**) First, find out how much money remains after removing 7 dimes, 7 nickels, and 7 pennies.
$\$1.22 - \$0.70 - \$0.35 - \$0.07 = \$0.10$

Two coins remain after 21 have been removed. The only two coins that can make up 10 cents are two nickels.

81. (**C**) Knowing that x, y, and z are consecutive multiples of 5, we can express the three numbers in terms of x: x, $x + 5$, and $x + 10$. Or we can express them in terms of y: $y - 5, y, y + 5$; or in terms of z: $z - 10, z - 5, z$. The problem asks for the sum of x and y in terms of z. Use the values representing x and y in the last set of expressions to obtain $(z - 10) + (z - 5) = 2z - 15$.

82. (**H**) Suppose the largest possible square has sides that are n inches long. Since there is no waste, n must be a factor of both 12 and 54. It has to be the largest number. So it must be the greatest common factor of 12 and 54, which is 6. (If you do not know how to find the greatest common factor, consult a textbook.)

83. (**B**) To solve this problem, you must know the formula for the volume V of a pyramid with base area b and height h. The volume and the height are given in the problem and can be inserted into the formula.

$$V = \frac{1}{3}\,bh$$

$$48 = \frac{1}{3}\,b\,(4)$$

$$144 = 4b$$

$$36 = b$$

The base is a square, so its area is the square of a side.

$\sqrt{36} = 6$ = length of one side

84. (**H**) The number halfway between two numbers is their average. Therefore, the number halfway between $\frac{4}{5}$ and 0.9 is

$$\frac{\frac{4}{5} + 0.9}{2} = \frac{\frac{4}{5} + \frac{9}{10}}{2} = \frac{\frac{8}{10} + \frac{9}{10}}{2} = \frac{\frac{17}{10}}{2} = \frac{17}{20}$$

85. (**A**) This problem asks you to express two inequalities and the relationship between them. The first inequality can be stated $s \geq \frac{t}{2}$. The second inequality is $t > 0$. Both inequalities contain the variable t. Note that if $t > 0$, then $\frac{t}{2}$ must also be greater than 0. Thus the two inequalities may be combined as $s \geq \frac{t}{2} > 0$.

86. (**J**) Substitute the values into the expression.

$$\frac{x^y}{y^x} = \frac{2^3}{3^2} = \frac{8}{9}$$

87. (**C**) To find the median, put the numbers in order from least to greatest: 95, 106, 106, 106, 113, 117, 117, 127, 142. The middle number (the fifth one) is 113. (Notice that the mode is 106, which is Option B.)

88. (**G**) If Pei-Lin earned three times as much as Jaclyn, then Jaclyn earned \$80. If Latoya earned twice as much as Jaclyn, then Latoya earned \$160.

89. (**B**) Notice that $\overline{MP}$ is the base of $\triangle MNP$, the altitude of which is given to be 8 cm. Therefore, if we know the area of $\triangle MNP$, we can calculate its base by the formula for finding the area of a triangle. (You should know that the area of a triangle is $\frac{1}{2}$ base $\times$ altitude.)

The area of $\triangle MNP$ is exactly half of that of rectangle MNPQ, because the diagonal $\overline{MP}$ divides the rectangle into two equal halves. The area of MNPQ is given to be 112 sq cm. Therefore, the area of $\triangle MNP$ is 56 sq cm and we have:

$$\frac{1}{2}\,\text{MP} \times 8\text{ cm} = 56\text{ sq cm}$$

$$4\text{ MP cm} = 56\text{ sq cm}$$

$$\text{MP} = 14\text{ cm}$$

90. (**G**) First find how many compartments will be filled by dividing 387 by 14. The answer is 27 full compartments with 9 people left to ride in the last compartment. (Note that the total number of people the shuttle will hold is extraneous information.)

91. (**D**) Suppose R is at the number x. We know that x is between $^-2$ and 5.

$$\begin{aligned} \text{PR} &= x - (^-2) = x + 2 \\ \text{RQ} &= 5 - x \end{aligned}$$

We also know that PR = 6RQ. So:

$$\begin{aligned} x + 2 &= 6(5 - x) \\ x + 2 &= 30 - 6x \\ x + 6x &= 30 - 2 \\ 7x &= 28 \\ x &= 4 \end{aligned}$$

92. (**J**) Tamika now makes \$1,500 a year more than Joe. However, Joe will make \$300 more than Tamika in raises each year. Divide the difference in salaries, \$1,500, by the difference in the raises, \$300, to arrive at the point of equality: $\frac{1{,}500}{300} = 5$ years.

93. (**A**) Let the quotient be q when n is divided by 5.

$$\begin{aligned} n &= 5q + 2 \\ n + 4 &= 5q + 2 + 4 \\ &= 5q + 6 \\ &= 5q + 5 + 1 \\ &= 5(q + 1) + 1 \end{aligned}$$

From this we know that the remainder must be 1 when $n + 4$ is divided by 5.

94. (**H**) The sum of the marbles is 24, 5 of which are black. After Ingrid removes 4 marbles, 20 marbles remain, 4 of which are black. Ingrid's probability of choosing a black marble next out of the remaining 20 marbles is $\frac{4}{20} = \frac{1}{5}$.

95. (**A**) $\frac{n-6}{6-n} = -\frac{n-6}{n-6} > 0$

If $n \neq 6$, then $n - 6 \neq 0$, and we can cancel $n - 6$ from the numerator and denominator of $-\frac{n-6}{n-6}$ to obtain $^{-}1$, which is less than 0.

Therefore, no number can satisfy this inequality. (We can cancel only non-zero factors in fractions. That is why we must assume that $n \neq 6$.)

96. (**H**) For any number n in the list, the next number is $2n - 14$. The list starts with number 13, so let $n = 13$. The second number is $(2)(13) - 14$, or 12. The third number is $(2)(12) - 14 = 10$. The fourth number is $(2)(10) - 14 = 6$.

97. (**A**) If one diagonal of the square lies on the y-axis, then two opposite corners are also on the y-axis. A third corner is given to be at the coordinates (3, 7); its opposite corner must be equally distant from the y-axis at coordinates $(^{-}3, 7)$.

98. (**H**) $\frac{2}{3}$ of a wall can be painted with 1 gallon of paint.

With $\frac{3}{5}$ gallons, one can then paint $\frac{3}{5}$ of the amount that could be painted with 1 gallon, i.e., $\frac{3}{5} \cdot \frac{2}{3} = \frac{2}{5}$ of the wall.

99. (**E**) Let the number of laps that Ruby swam be x.

Then Katie swam $\frac{3}{4}x$ laps.

Since Katie swam $3\frac{1}{2}$ laps, we have:

$$\frac{3}{4}x = 3\frac{1}{2}$$

$$x = \frac{3\frac{1}{2}}{\frac{3}{4}} = \frac{7}{2} \cdot \frac{4}{3} = \frac{14}{3} = 4\frac{2}{3}$$

100. (**J**) The total of the 10 scores was 65 (number of scores times the average). If one score was dropped, 9 scores would remain. If the average of these 9 scores was 6.0, their total was 54. The dropped score is the difference between 54 and 65, or 11.

Answer Key for Sample Form B

Paragraph 1: Q R T U S
Paragraph 2: T U Q S R
Paragraph 3: T Q S R U
Paragraph 4: T S U R Q
Paragraph 5: S R U T Q

11. E	21. C	31. E	41. B	51. A	61. B	71. C	81. C	91. D
12. H	22. J	32. J	42. H	52. F	62. G	72. H	82. H	92. J
13. D	23. D	33. A	43. E	53. D	63. B	73. E	83. B	93. A
14. F	24. G	34. K	44. K	54. H	64. K	74. H	84. H	94. H
15. D	25. A	35. A	45. C	55. A	65. C	75. A	85. A	95. A
16. G	26. K	36. G	46. G	56. G	66. F	76. G	86. J	96. H
17. E	27. E	37. C	47. D	57. E	67. D	77. E	87. C	97. A
18. K	28. G	38. K	48. J	58. H	68. G	78. J	88. G	98. H
19. C	29. A	39. A	49. A	59. C	69. D	79. B	89. B	99. E
20. H	30. J	40. H	50. H	60. G	70. G	80. G	90. G	100. J