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Section Two : Quantitative Test

Test Prep GMAT-Section-2-Quantitative

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Topic Break Down

Topic	No. of Questions
Topic 1, Problem-Solving Questions	429
Topic 2, Data-Sufficiency Questions	288
Total	737

QUESTION NO: 1

A seven-digit phone number is divisible by 3. After adding the two digits of the area code the number is not divisible by 3, which of the following cannot be the area code?

A. 06.

B. 02.

C. 07.

D. 04.

E. 05.

ANSWER: A

Explanation:

The correct answer is **06.** A number's divisibility by 3 is determined by its remainder when divided by 3. The original seven-digit phone number has remainder 0, since it is divisible by 3. For the resulting number to no longer be divisible by 3 after the area-code value is added, the added value must have a remainder of 1 or 2 when divided by 3. Adding a multiple of 3 would preserve remainder 0 and therefore preserve divisibility by 3.

Interpreting 06 as the two-digit numerical value 6, it is divisible by 3 because 6 ÷ 3 = 2. Thus, adding 06 to a phone number already divisible by 3 produces another number divisible by 3, directly contradicting the condition that the result is not divisible by 3. Therefore, 06 cannot be the area code. This uses the standard rule that sums of multiples of 3 remain multiples of 3, a consequence of modular arithmetic. See Khan Academy's divisibility-rules review and the modular arithmetic overview.

QUESTION NO: 2

Two adjacent angles of a parallelogram are in the ratio of 2:3. What is their average size?

A. 30.

B. 40.

C. 45.

D. 90.

E. 180.

ANSWER: D

Explanation:

The correct answer is **90.** In every parallelogram, consecutive (adjacent) interior angles are supplementary, meaning that their measures add to 180 degrees. This follows from the fact that opposite sides of a parallelogram are parallel: a side crossing the two parallel sides acts as a transversal, creating same-side interior angles whose sum is 180 degrees.

The stated ratio can be used to determine the individual angle measures: let the adjacent angles be 2x and 3x. Since they are supplementary, 2x + 3x = 180, so 5x = 180 and x = 36. The angles are therefore 72 degrees and 108 degrees. Their average is (72 + 108) / 2 = 180 / 2 = 90 degrees. More generally, because any two adjacent angles of a parallelogram total 180 degrees, their average must always be 90 degrees, regardless of their particular ratio. This uses the standard supplementary-angle property of consecutive angles formed by parallel lines; see Math is Fun: Parallelograms and Encyclopaedia Britannica: Parallelogram.

QUESTION NO: 3

A carousel spins at a rate of ½ a round per second. If a point on its circumference is located 0.5 meters from the center of rotation, how many times approximately will this point reach its starting point in two minutes?

A. 25.

B. 30.

C. 60.

D. 120.

E. 180.

ANSWER: C

Explanation:

The correct answer is **60.** The carousel completes one-half of a full rotation each second. A point returns to its starting position once for every complete rotation, so the carousel needs 2 seconds to make one full round: 1 ÷ ½ = 2 seconds per rotation. Two minutes equals 120 seconds. Dividing the total time by the time for one complete rotation gives 120 ÷ 2 = 60 returns to the starting point. Equivalently, multiplying the rotational rate by the duration gives ½ rotation per second × 120 seconds = 60 complete rotations. The stated 0.5-meter distance from the center does not affect how often the point returns to its starting location; every point fixed on a rigidly rotating carousel has the same rotational frequency and completes one return per full revolution. This is a rate-and-time calculation using the relationship number of rotations = rotational rate × elapsed time. For background on converting minutes to seconds, see NIST's SI units of time reference. For a definition of a revolution as a complete turn, see Encyclopaedia Britannica's discussion of revolution.

QUESTION NO: 4

Ashley paid 5 dollars for 1 notebook and 1 pencil. If both prices were integers, how many pencils did Ashley buy if she paid 93 dollars for the pencils and for 15 notebooks?

A. 6.

B. 16.

C. 18.

D. 21.

E. 26.

F. Cannot be determined from the information given.

ANSWER: F

Explanation:

Cannot be determined from the information given is correct because the two integer prices are not specified uniquely. Let the price of one notebook be n dollars and the price of one pencil be p dollars. The first condition gives $n + p = 5$. Since prices are positive integers, the possible price pairs include notebook/pencil prices of 2/3, 3/2, and 4/1. Applying the total-cost condition, $15n + xp = 93$, where x is the number of pencils, produces a whole-number pencil count for each of these price pairs: 21 pencils when prices are 2 and 3, 24 pencils when prices are 3 and 2, and 33 pencils when prices are 4 and 1. Thus, more than one pencil quantity satisfies every stated condition. A unique answer would require an additional constraint, such as the price of one item or a restriction on the number of pencils. This is an application of solving a system of linear equations while checking the integer solutions; see Khan Academy's systems of equations overview and Math Is Fun's guide to linear systems.

QUESTION NO: 5

How many of the girls in a group of 200 children have an average score of 80 in their final exams?

(1) 45% of the children have an average score of 80 in their final exams.

(2) 50% of the children in the group are girls.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: E

Explanation:

Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem. Statement (1) establishes that 45% of 200 children, or 90 children, have an average final-exam score of 80. Statement (2) establishes that 50% of the group, or 100 children, are girls. However, the requested quantity is the overlap between these two groups: children who are both girls and have an average score of 80. Neither statement supplies information connecting gender with exam-score results. For example, the 90 children with an average score of 80 could include different possible numbers of girls while preserving both given facts. Thus, even after using both statements, the number of girls who have an average score of 80 is not uniquely determined. This is a data-sufficiency question: the goal is not to calculate every available total, but to determine whether the information fixes one definite answer to the precise question asked. GMAT quantitative questions assess problem-solving and data-sufficiency reasoning, including identifying whether the facts provided are enough to determine a unique result. See the official GMAT exam overview and GMAT preparation resources.

QUESTION NO: 6

Is a>b?

(1) a2 > b2

(2) a+d > b+d

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: B

Explanation:

The correct answer is “Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.” Statement (2) gives the inequality $a + d > b + d$. Because the identical quantity d is added to both sides, subtracting d from each side preserves the inequality and yields $a > b$ directly. Thus, the statement always produces a definitive “yes” answer to the question, regardless of the value of d. This is exactly the standard algebraic property of inequalities: adding or subtracting the same real number on both sides does not change their order. In a Data Sufficiency problem, a statement is sufficient when it permits one conclusive answer to the question; it does not need to determine the numerical values of every variable. Here, the relationship requested by the question follows immediately from the given relationship, so no additional

information is needed. GMAT Data Sufficiency questions test whether the information provided is enough to answer the stated question, rather than requiring a traditional calculation; see the GMAT overview at GMAT Exam: About the Exam. For the underlying inequality rule, see OpenStax: Solve Linear Inequalities.

QUESTION NO: 7

If X and Y are consecutive numbers (Y>X), which of the following statements could be false?

1. The multiplication XY is an even number.

2. (Y/X) > 1.

3. (X + Y) is always an odd number.

A. 1 only.

B. 2 only.

C. 1 and 2 only.

D. 1 and 3 only.

E. 1, 2 and 3.

ANSWER: B

Explanation:

The correct answer is **"2 only."** For consecutive integers with Y greater than X, write Y as X + 1. The claim that Y/X is greater than 1 is not guaranteed when the consecutive integers are negative. For example, if X = −3 and Y = −2, then Y/X = (−2)/(−3) = 2/3, which is less than 1. Thus, this statement could be false.

The other two numerical properties are fixed for consecutive integers. Their product can be written as X(X + 1); because one of any two consecutive integers is even, the product is even. Their sum is X + (X + 1) = 2X + 1, which is odd. These parity rules hold whether the consecutive integers are positive or negative. The quotient comparison is different because dividing by a negative value reverses the usual order behavior, which is why a negative consecutive pair supplies a valid counterexample. For further review of integer properties and parity, see Khan Academy's negative-number review and the parity definition and properties.

QUESTION NO: 8

What is the number of different ways to choose a chairman, two deputies and two assistants for the class committee out of 7 students up for election?

A. 25

B. 210

C. 630

D. 840

E. 2520

ANSWER: C

Explanation:

The correct answer is **630**. First choose the chairman. Since any of the 7 students can hold that distinct role, there are 7 possible selections. After a chairman has been selected, 6 students remain eligible for the two deputy positions. Because the two deputies have the same title, their order does not matter, so there are \(\binom{6}{2}=15\) ways to select them. Four

students remain after the chairman and deputies are chosen. The two assistants likewise share the same role, so there are $\binom{4}{2}=6$ ways to select them. The choices occur in sequence and are independent once the prior roles have been filled, so the multiplication principle applies: $7\times 15\times 6=630$. Equivalently, the count can be written as $7\binom{6}{2}\binom{4}{2}$. This treats chairman, deputy, and assistant as distinct categories of office while correctly treating the members within each two-person category as unordered. For a review of combinations and the distinction between ordered and unordered selections, see OpenStax, Combinations and Math is Fun, Combinations and Permutations.

QUESTION NO: 9

John has $1,600 at the beginning of his trip, after spending money, he still has exactly $800 less than he spent on the trip. How much money does John still have?

A. $200

B. $400

C. $600

D. $800

E. $1,200

ANSWER: B

Explanation:

The correct answer is **$400**. Let the amount John spent be *s*. The statement that he has “exactly $800 less than he spent” means the amount remaining is *s − 800*. Because John began with $1,600, the amount spent plus the amount remaining must equal $1,600: *s + (s − 800) = 1,600*. Combining like terms gives *2s − 800 = 1,600*, so *2s = 2,400* and *s = 1,200*. His remaining money is therefore *1,200 − 800 = 400*, or equivalently *1,600 − 1,200 = 400*. A quick check confirms the relationship: John spent $1,200, and $400 is exactly $800 less than $1,200. This setup uses a straightforward linear equation in which the whole amount is partitioned into the amount spent and the amount left. For additional practice with translating word relationships into algebraic equations, see Khan Academy’s linear-equations resources and the official GMAT exam overview.

QUESTION NO: 10

If Y < X and XM < YM, what must be true?

A. M < X.

B. M < Y.

C. X < 0.

D. M < 0.

E. Y < 0.

ANSWER: D

Explanation:

From Y < X, the difference X − Y is positive. The condition XM < YM can be rearranged by bringing the terms involving M together: XM − YM < 0, so M(X − Y) < 0. Because X − Y is known to be positive, the product can be negative only when M is negative. Therefore, **M < 0.** Equivalently, multiplying the original inequality Y < X by M produces YM on the left and XM on the right. Since the resulting relationship is XM < YM—its order is reversed—M must be negative. Multiplication by a negative quantity reverses an inequality, whereas multiplication by a positive quantity preserves its direction and multiplication by zero would make both products equal. This conclusion does not require knowing whether X or Y itself is positive or negative; it follows solely from their ordering and the reversed ordering after multiplication by M. For a review of

the rule that multiplying or dividing an inequality by a negative number reverses its direction, see OpenStax Elementary Algebra, Solving Inequalities and Khan Academy: inequalities with multiplication and division.

QUESTION NO: 11

If X/Y = 3X and Y = 4-X, what can be the value of 2X?

A. Seven and two thirds.

B. Three and one third.

C. Seven and one third.

D. Two and one third.

E. Three and two thirds.

ANSWER: C

Explanation:

The value **Seven and one third.** can be obtained by finding a nonzero value of *X* that satisfies both equations. Begin with *X/Y = 3X*. For the nonzero solution, divide both sides by *X*, which gives *1/Y = 3*, so *Y = 1/3*. Substitute this value into *Y = 4 − X*: *1/3 = 4 − X*. Therefore, *X = 4 − 1/3 = 11/3*. The requested quantity is then *2X = 2(11/3) = 22/3*, which is the mixed number *7 1/3*, or seven and one third. This establishes that the stated value can occur while meeting both conditions. The calculation uses standard properties of equivalent equations and substitution: first isolate a variable using the first relationship, then insert that result into the second relationship. For a review of solving equations by substitution, see Khan Academy's systems-of-equations guidance. For fraction and mixed-number notation, see Math Is Fun's fraction reference.

QUESTION NO: 12

A frustrated greengrocer is trying to cell cucumbers at a price of $1.5 per Kg. Unfortunately he has no success. The greengrocer gives a discount of 18% on the original price but than the cucumbers are sold too fast so he raises the price again by 10%. At that final price, how many cucumbers can you buy for $4.5 assuming that there are 12 cucumbers per Kg and that only a whole number of Kgs are sold?

A. 25

B. 34

C. 40

D. 46

E. 48

F. 36

ANSWER: F

Explanation:

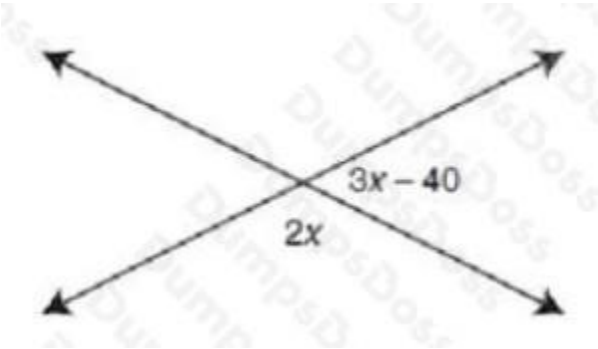
The correct result is **36**. Start with the original price of $1.50 per kilogram. An 18% discount means the price becomes 82% of its original value: $1.50 × 0.82 = $1.23 per kilogram. The subsequent 10% increase is applied to that discounted price, producing a final price of $1.23 × 1.10 = $1.353 per kilogram.

With $4.50 available, the number of kilograms that can be purchased is $4.50 ÷ $1.353, which is approximately 3.33 kilograms. Because the problem specifies that only whole kilograms are sold, the purchaser can buy only 3 whole kilograms; 4 kilograms would cost $5.412, exceeding $4.50. Since each kilogram contains 12 cucumbers, 3 kilograms contains 3 × 12 = 36 cucumbers. This uses the standard principle that a percentage decrease is calculated by multiplying by 1 minus the

decimal percentage, while a percentage increase is calculated by multiplying by 1 plus the decimal percentage. See Khan Academy's percentage word-problem guidance and Math is Fun's percentage-change explanation.

QUESTION NO: 13

How many degrees is the smaller angle?



A. 44

B. 88

C. 92

D. 132

E. 180

ANSWER: B

Explanation:

The correct answer is **88**. The diagram gives two adjacent angles formed by intersecting straight lines, with measures *2x* and *3x − 40*. Adjacent angles that form a straight line are supplementary, meaning that their measures total 180 degrees. This is the straight-angle relationship used to determine the unknown value: 2x + (3x − 40) = 180. Combining the variable terms gives 5x − 40 = 180. Adding 40 to each side produces 5x = 220, and dividing by 5 gives x = 44.

The two angle measures can now be evaluated. The angle represented by 2x is 2(44), or 88 degrees. The other adjacent angle is 3(44) − 40, which equals 92 degrees. Since the question asks for the smaller of the two angles, the required measure is 88 degrees. This approach relies on the stated algebraic angle expressions and the supplementary-angle rule, rather than estimating from a diagram that may not be drawn to scale. For a review of supplementary angles and straight angles, see Math Is Fun: Supplementary Angles and Khan Academy: Angles between two lines.

QUESTION NO: 14

How many bananas did Jerry the monkey eat today?

(1) Today, Jerry ate 30% more than his regular average.

(2) Yesterday, Jerry ate 32 bananas, which is 15% less than his regular average.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient. The key is that statement (2) converts a known observed quantity into Jerry's regular average. If 32 bananas is 15% less than the regular average, then 32 represents 85% of that average. Thus, the regular average is determined uniquely as 32 ÷ 0.85, or 640/17 bananas. Statement (1) then specifies that today's quantity is 30% more than that now-known average. Therefore, today's amount is 130% of 640/17: (1.30)(640/17) = 832/17 bananas. Because the two statements produce one definite numerical value for today's quantity, they are sufficient together. This is a Data Sufficiency task: the goal is to establish whether the information determines a unique answer, rather than requiring a whole-number result or judging whether the situation is realistic. GMAT Data Sufficiency questions assess whether the provided facts are enough to answer the stated question; see the GMAT Exam overview and the GMAT preparation resources.

QUESTION NO: 15

What is the value of P?

(1) P is even.

(2) P is a square of a prime number.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient. When both facts are applied, write P as the square of a prime: $P = p^2$, where p is prime. For P to be even, its square must be divisible by 2. That can occur only when the prime p itself is even. The sole even prime is 2, so $p = 2$ and $P = 2^2 = 4$. Thus, the two statements together determine one and only one value for P.

This is a Data Sufficiency task: the goal is not merely to calculate a possible value, but to establish whether the supplied information forces a unique answer. Here, the defining property of prime numbers—specifically, that 2 is the only even prime—makes the combined information decisive. GMAT Data Sufficiency questions are evaluated by whether the statements provide enough information to answer the question definitively, as described in the GMAT exam overview. For a general reference on prime numbers and the fact that 2 is uniquely even, see Encyclopaedia Britannica's prime-number entry.

QUESTION NO: 16

Is A an odd integer?

(1) AB + AC is an even integer.

(2) B = 15 – C.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

“Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.” is correct. Rewrite the first statement by factoring: AB + AC = A(B + C). Thus, the product of A and the sum B + C is even. The second statement gives B = 15 − C, so adding C to both sides yields B + C = 15. Since 15 is odd, the combined information establishes that A multiplied by an odd integer is even. For integer values, a product with an odd factor can be even only when the other factor, A, is even. Therefore, A is definitively not an odd integer, which answers the yes-or-no question conclusively. The first statement alone does not fix the parity of B + C, and the second statement alone provides no information about A; together, however, they establish A’s parity. This reflects the core Data Sufficiency method: determine whether the available information permits a definite answer, rather than calculating unnecessary values. See the GMAT’s official exam overview at mba.com and its preparation resources at GMAT preparation.

QUESTION NO: 17

In a blue jar there are red, white and green balls. The probability of drawing a red ball is 1/5. The probability of drawing a red ball, returning it, and then drawing a white ball is 1/10. What is the probability of drawing a white ball?

A. 1/5.

B. ½.

C. 1/3.

D. 3/10.

E. ¼.

ANSWER: B

Explanation:

The correct answer is **½.** Because the red ball is returned to the jar before the second draw, the composition of the jar is unchanged. Therefore, the probability of drawing a white ball on the second draw is the same as the probability of drawing a white ball from the original jar. The two draws are independent events: the outcome of the first draw does not affect the probabilities for the next draw.

For independent events, the probability that both occur equals the product of their individual probabilities. Let the probability of drawing a white ball be *w*. The stated probability of first drawing red and then, after replacement, drawing white is 1/10. Thus, (1/5) × *w* = 1/10. Dividing both sides by 1/5 gives *w* = (1/10) ÷ (1/5) = 1/2. Hence the probability of drawing a white ball is ½. This uses the multiplication rule for independent events, as described by Khan Academy and OpenStax.

QUESTION NO: 18

Is there a point of intersection between the circle (X2 + Y2 = 4) and the Line (Y = aX + b) ?

(1) a = b2.

(2) The line intersects the X-axis at (40, 0).

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: A

Explanation:

“Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.” is correct. The circle has center at the origin and radius 2, since its equation is $x^2 + y^2 = 4$. A line intersects a circle whenever the perpendicular distance from the circle’s center to the line is no greater than the radius.

Under the first statement, $a = b^2$, so the line can be written as $y = b^2x + b$, or $b^2x - y + b = 0$. The distance from the origin to this line is $|b|/\sqrt{(b^4 + 1)}$. Let $t = b^2$, where $t \geq 0$. The square of this distance is $t/(t^2 + 1)$. Because $t^2 + 1 - 2t = (t - 1)^2 \geq 0$, this value is at most 1/2. Thus the distance is at most $1/\sqrt{2}$, which is less than 2. Therefore, every line satisfying the first statement intersects the circle, giving a definite “yes.” This makes the first statement sufficient on its own. For background on point-to-line distance, see Wolfram MathWorld: Point-Line Distance—2-Dimensional, and for GMAT data-sufficiency conventions, see GMAT Exam Format.

QUESTION NO: 19

John traveled 80% of the way from Yellow-town to Green-fields by train at an average speed of 80 miles per hour. The rest of the way John traveled by car at an average speed of v miles per hour. If the average speed for the entire trip was 60 miles per hour, what is v in miles per hour?

A. 30

B. 40

C. 50

D. 55

E. 70

ANSWER: A

Explanation:

30 is correct. Average speed is calculated as total distance divided by total elapsed time, not by taking a simple average of the two segment speeds. Let the total trip distance be 100 miles. The train covers 80% of that distance, or 80 miles, at 80 miles per hour, so the train portion takes 80/80 = 1 hour.

The entire 100-mile trip has an average speed of 60 miles per hour. Therefore, the total trip time must be 100/60 = 5/3 hours. The car portion consequently takes 5/3 − 1 = 2/3 hour. Since the remaining 20 miles are traveled by car, its speed is distance divided by time: 20 ÷ (2/3) = 30 miles per hour.

This approach applies the standard rate relationship, distance = rate × time, separately to each part and then combines the times to obtain the trip-wide average. For a definition of average speed as total distance divided by total time, see OpenStax Physics: Time, Velocity, and Speed. For additional rate-problem methods, see Khan Academy: Introduction to rates.

QUESTION NO: 20

In a rectangular coordinate system, what is the area of a rhombus whose vertices have the coordinates (0, 3.5), (8, 0), (0, -3.5), (-8, 0)?

A. 56

B. 88

C. 112

D. 116

E. 120

ANSWER: A

Explanation:

The correct answer is **56**. The listed vertices form a rhombus centered at the origin. Its diagonals lie directly on the coordinate axes: the vertical diagonal runs from (0, 3.5) to (0, -3.5), so its length is 3.5 − (−3.5) = 7. The horizontal diagonal runs from (8, 0) to (−8, 0), so its length is 8 − (−8) = 16.

A rhombus's area can be found using one-half the product of its diagonals: area = $(d_1 \times d_2)/2$. Substituting the diagonal lengths gives (16 × 7)/2 = 112/2 = 56 square units. This formula applies because the diagonals of a rhombus intersect at right angles; here, that is also evident from the fact that one diagonal is horizontal and the other is vertical. Thus, the coordinate placement allows the diagonal lengths to be read directly from the graph without needing to calculate side lengths. See Math Is Fun: Rhombus and Wikipedia: Rhombus for the diagonal-area relationship.

QUESTION NO: 21

A grocer bought 24Kg of coffee beans at price X. After a while one third of the stock got spoiled so he sold the rest for 200$ per Kilo and made a total profit of twice the cost. What must be price X?

A. 66 2/3$.

B. 50 1/3$.

C. 44 4/9$.

D. 33 1/3$.

E. 24 1/2$.

ANSWER: C

Explanation:

The correct price is **44 4/9$.** The grocer initially bought 24 kg of coffee. Since one third spoiled, the amount remaining for sale was two thirds of 24 kg, or 16 kg. Selling 16 kg at $200 per kilogram produced total revenue of $3,200.

"A total profit of twice the cost" means that profit equals two times the original purchase cost. Because profit is revenue minus cost, the relationship is:

revenue − cost = 2 × cost.

Thus, revenue equals three times the cost. With revenue of $3,200, the original total cost was $3,200 ÷ 3 = $1,066 2/3. This amount covered the purchase of all 24 kg, including the coffee that later spoiled. Therefore, the price per kilogram was (3,200 ÷ 3) ÷ 24 = 3,200 ÷ 72 = 400 ÷ 9 = 44 4/9 dollars per kg. This uses the standard profit relationship: profit is the amount by which revenue exceeds cost, and percent or multiple-profit questions can be represented directly with algebraic equations. See Khan Academy's linear-equations material and OpenStax's guide to solving linear equations.

QUESTION NO: 22

X years in the future, Zach will be Y years old. Z years in the future, Zach will be how old?

A. Z + X + Y

B. Z + X – Y

C. X – Y – Z

D. Y – X + Z

E. 2Z + X – y

ANSWER: D

Explanation:

The correct expression is **Y – X + Z**. Let Zach's current age be represented by an unknown value. The statement that he will be Y years old in X years means that his current age plus X equals Y. Therefore, his current age is Y minus X. To find his age Z years from now, add Z to that current-age expression: (Y − X) + Z, which simplifies to Y − X + Z.

For example, if Zach will be 30 years old in 5 years, he is currently 25. If the question asks for his age in 8 years, he will be 25 + 8 = 33. Substituting the variables into the expression gives 30 − 5 + 8 = 33, confirming the relationship. This approach is a standard translation of an age word problem into algebraic expressions: first work backward from the future age to determine the present age, then move forward by the requested number of years. For further guidance on forming and solving algebraic equations, see Khan Academy's linear equations resources and OpenStax Elementary Algebra.

QUESTION NO: 23

At 12:10 o'clock Bill leaves point A towards point B at a speed of 30 Km/h.

At 13:40 o'clock Richi leaves from the same point towards point B also, but at a speed of 60 Km/h. At what time will Richi passes over Bill?

A. 14:40.

B. 15:10.

C. 16:10.

D. 15:40.

E. 15:30.

ANSWER: B

Explanation:

15:10. is correct. By 13:40, Bill has been traveling for 1 hour 30 minutes, which is 1.5 hours. Using distance = rate × time, Bill's head start is 30 km/h × 1.5 h = 45 km. Once Richi begins, both travelers continue in the same direction, so the relevant rate for closing the gap is their relative speed: 60 km/h − 30 km/h = 30 km/h. Richi therefore needs 45 km ÷ 30 km/h = 1.5 hours, or 90 minutes, to reach Bill. Adding 90 minutes to Richi's 13:40 departure time gives 15:10. At that instant, Bill has traveled for three hours at 30 km/h, totaling 90 km; Richi has traveled for 1.5 hours at 60 km/h, also totaling 90 km. This confirms that they meet at the same location at 15:10. This approach follows the standard distance–rate–time relationship and the principle that, for objects moving in the same direction, the catch-up rate is the difference between their speeds. See Math Is Fun: Distance, Speed and Time and Khan Academy: Rate problems.

QUESTION NO: 24

"Tires R' us" have 4 times more tires for sale than any regular tire shop. If "Tires R' Us" Sells 122 tires, they will have only three times more tires than the rest.

How many more tires do "Tires R' us" have than the regular tire shop?

A. 488.

B. 388.

C. 366.

D. 299.

E. 188.

ANSWER: C

Explanation:

The correct answer is **366.** Let the regular tire shop's original inventory be *y*. Interpreting the problem's comparative wording in the intended GMAT-style ratio sense, Tires R' Us initially has four times the regular shop's inventory, so its inventory is *4y*. After Tires R' Us sells 122 tires, it has three times the regular shop's inventory remaining. This produces the equation *4y − 122 = 3y*. Subtracting *3y* from both sides gives *y = 122*. Therefore, the regular shop has 122 tires and Tires R' Us initially has *4 × 122 = 488* tires. The question asks for how many *more* tires Tires R' Us has than the regular shop, which is the difference: *488 − 122 = 366*. This uses the standard approach for translating a word problem into a system or equation: define the unknown quantity, express the stated multiplicative relationship, and then use the change in inventory to solve it. See Khan Academy's linear-equation resources and GMAT exam information from mba.com.

QUESTION NO: 25

There are 200 cats in Cat-City. Out of the 200, 70 are street cats and the rest are domestic cats. 110 cats are gray, 30 out of the gray cats are domestic ones. How many domestic cats are there which are not gray in Cat-City?

A. 90.

B. 80.

C. 50.

D. 40.

E. 25.

F. 100.

ANSWER: F

Explanation:

The correct result is **100**. First, subtract the 70 street cats from the total population of 200 cats: this gives 130 domestic cats. The question then states that 110 cats are gray and, crucially, that 30 of those gray cats are domestic. Therefore, the number of cats belonging to both the domestic group and the gray group is 30.

To find domestic cats that are *not* gray, partition the 130 domestic cats into gray domestic cats and non-gray domestic cats. Since 30 domestic cats are gray, subtract 30 from the total domestic count: 130 − 30 = 100. Thus, 100 cats are domestic and not gray. This uses the standard set-counting principle that a category total can be separated into mutually exclusive subgroups—in this case, gray and non-gray domestic cats. For additional practice with two-category counting and set relationships, see Khan Academy's counting resources and GMAT quantitative exam information.

QUESTION NO: 26

A train traveled for three hours. In the first hour the train traveled 86 miles, which was 25% farther than it traveled in the first hour. In the third hour the train traveled at a speed of 120 miles per hour for 20 minutes. What is the total distance that the train traveled?

A. 190.6.

B. 194.8.

C. 198.2.

D. 204.5.

E. 212.8.

ANSWER: B

Explanation:

The intended interpretation is that the 86 miles traveled in the first hour was 25% greater than the distance traveled in the second hour. Let the second-hour distance be *x* miles. Since 86 is 125% of that distance, the relationship is 1.25x = 86. Dividing gives x = 68.8 miles. This applies the percent-increase rule: a quantity that is 25% farther than a base quantity equals 1.25 times the base quantity. See Khan Academy's review of percent increase.

During the stated 20 minutes in the third hour, the train travels at 120 miles per hour. Convert 20 minutes to hours: 20/60 = 1/3 hour. Distance equals rate multiplied by time, so the third-hour distance is 120 × 1/3 = 40 miles. This is the standard rate–time–distance relationship, summarized by Math is Fun's speed, distance, and time guide. Adding the three distances gives 86 + 68.8 + 40 = 194.8 miles. Therefore, *194.8.* is the correct total distance.

QUESTION NO: 27

Is 12x + 2 = 10 + 3x?

(1) 5x is smaller than or equal to 12

(2) 2x is greater than or equal to 4

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: B

Explanation:

The correct answer is "Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not." First, simplify the question's equation: subtracting *3x* and 2 from both sides gives *9x = 8*, so the question asks whether *x = 8/9*. Statement (2) states that *2x ≥ 4*, which simplifies to *x ≥ 2*. Since every value satisfying this condition is at least 2, *x* cannot equal *8/9*. Thus, statement (2) always gives a definite answer to the question: no, the equation is not true. That certainty makes the statement sufficient in a GMAT data-sufficiency setting, where a statement need only determine a unique yes-or-no answer rather than solve for a unique numerical value. The algebraic transformation used here follows standard equality properties: applying the same operation to both sides preserves an equation's truth value. See Khan Academy's overview of linear equations and the official GMAT Exam overview.

QUESTION NO: 28

Points A, B, and C are located in the same plane. What is the distance between point A and point C?

(1) The distance between A and B is 100 cm.

(2) The distance between A and B is twice the distance between B and C.

A. Statement (1), BY ITSELF, will suffice to solve the problem, but NOT statement (2) by itself.

B. Statement (2), BY ITSELF, will suffice to solve the problem, but NOT statement (1) by itself.

C. The problem can be solved using statement (1) and statement (2) TOGETHER, but not ONLY statement (1) or statement (2).
Not enough information is given in either statement.

D. The problem can be solved using EITHER statement (1) only or statement (2) only.

E. The problem CANNOT be solved using statement (1) and statement (2) TOGETHER.

ANSWER: E

Explanation:

The problem CANNOT be solved using statement (1) and statement (2) TOGETHER. Together, the statements establish that the distance from A to B is 100 cm and that the distance from B to C is 50 cm. They do not, however, establish the angle formed by the segments from B to A and from B to C, nor do they say that all three points lie on one line in a specified order. Consequently, the distance from A to C is not fixed. For example, if B lies between A and C on a straight line, A to C is 150 cm. If C lies between A and B, A to C is 50 cm. If the points form a nondegenerate triangle, A to C can take values strictly between 50 cm and 150 cm, depending on the angle at B. This follows from the triangle inequality: a side length is constrained by the sum and difference of the other two side lengths, but is not uniquely determined by those lengths alone. Thus, even after both statements are used, more geometric information is required to determine one distance. This is the key Data Sufficiency standard: the information must yield a single definite answer, not merely a range of possible answers. See Khan Academy's triangle inequality overview and GMAT exam information from mba.com.

QUESTION NO: 29

Which of the following has the smallest numerical value?

A. $2^3 \times 2^2$

B. 2^6

C. $2^5 \times 2^1$

D. $(2^2)^3$

E. $2^3 \times 3^3$

ANSWER: A

Explanation:

$2^3 \times 2^2$ has the smallest numerical value. When multiplying powers that have the same base, add their exponents: $2^3 \times 2^2 = 2^{3+2} = 2^5 = 32$. This application of exponent rules makes it possible to compare the quantities efficiently without performing unnecessary repeated multiplication. The question tests recognition that exponents represent repeated factors and that the product rule converts a product of like bases into one power. Since this expression evaluates to 32, it is the minimum value among the listed quantities. For a review of the product-of-powers rule and related exponent properties, see Khan Academy's exponent-properties review. GMAT quantitative questions commonly reward recognizing such structural simplifications before calculating; see the quantitative-skills overview from GMAC.

QUESTION NO: 30

If A, B and C are integers. Is AB a factor of C?

(1) A is a factor of B.

(2) B is a factor of C.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: E

Explanation:

Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem. Together, the statements establish a divisibility chain: because A is a factor of B, B can be written as A times an integer; because B is a factor of C, C can be written as B times another integer. However, this does not determine whether the product AB divides C. For example, let A = 1, B = 2, and C = 4. Both statements hold, and AB = 2 is a factor of C. In contrast, let A = 4, B = 8, and C = 16. Both statements still hold, but AB = 32 is not a factor of C. Since the same combined information permits both a “yes” and a “no” answer, it is insufficient to answer the question definitively. This follows the GMAT Data Sufficiency requirement that the available information must lead to one definite answer, rather than merely provide examples or partial relationships. See the GMAT Exam format and structure and GMAT preparation resources.

QUESTION NO: 31

Jeremy bought 2Q steaks for W dollars. Jerome buys R steaks for a 50% discount, how much will the steaks cost him in cents?

A. 50RW/Q.

B. 50QR/W.

C. 25RQ/W.

D. 25RW/Q.

E. RW/(4Q).

ANSWER: D

Explanation:

Jeremy’s purchase establishes the undiscounted unit price. Since 2Q steaks cost W dollars, the price per steak is W/(2Q) dollars. Because the question asks for cents, convert dollars to cents by multiplying by 100: each steak’s regular price is 100[W/(2Q)] = 50W/Q cents.

A 50% discount means Jerome pays 50% of the regular price, or one-half of it. Therefore, his discounted price per steak is (1/2)(50W/Q) = 25W/Q cents. For R steaks, multiply the discounted per-steak price by R. This gives R(25W/Q) = 25RW/Q cents.

Thus, **25RW/Q.** correctly represents Jerome’s total cost in cents. This solution applies the standard quantitative approach of finding a unit rate, converting units before reporting the requested result, applying the percentage discount as a multiplier,

and then scaling the unit cost by the number of items purchased. For additional review of percent calculations and unit-rate reasoning, see Khan Academy's percentage review and Khan Academy's ratios and rates review.

QUESTION NO: 32

The number 12 bus is working from 6:00 in the morning to 10:00 P.M on weekdays only. On Saturdays and Sundays the bus goes to the garage 3 times a day for upgrading, each time for 3 hours. For what fraction part of the entire week is the bus on the road?

A. 5/12.

B. 4/7.

C. 7/9.

D. 6/11.

E. 7/12.

F. 55/84.

ANSWER: F

Explanation:

The correct fraction is **55/84**. From 6:00 A.M. to 10:00 P.M. is 16 hours, so during the five weekdays the bus is on the road for 5 × 16 = 80 hours. Each weekend day contains 24 hours. The bus is in the garage three times per day for three hours each time, for a total of 3 × 3 = 9 garage hours per weekend day. It is therefore on the road for 24 − 9 = 15 hours on each of Saturday and Sunday, or 30 weekend hours altogether. The total weekly road time is consequently 80 + 30 = 110 hours. A full week has 7 × 24 = 168 hours, so the required fraction is 110/168. Dividing both numerator and denominator by 2 reduces this to 55/84. This uses the standard relationship that elapsed time is found by subtracting non-operating time from the total available time, and that a fraction should be reduced by a common factor when possible. See OpenStax's guidance on simplifying fractions and NIST's reference for the hour as a time unit.

QUESTION NO: 33

What percent of 20 is Y?

(1) 50 percent of Y is 5.

(2) Y percent of 200 is 20.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: D

Explanation:

Either statement BY ITSELF is sufficient to answer the question. The requested value is the percentage represented by Y out of 20, which can be written as (Y/20) × 100. Therefore, it is enough to determine one unique value for Y.

From “50 percent of Y is 5,” the equation is 0.50Y = 5. Solving gives Y = 10. Substituting that value into the question gives (10/20) × 100 = 50 percent, so this statement alone produces a definite answer.

From “Y percent of 200 is 20,” translate the wording into the equation (Y/100) × 200 = 20. This simplifies to 2Y = 20, so Y = 10. The requested percentage is again (10/20) × 100 = 50 percent. Thus, each statement independently fixes Y and answers the question uniquely, which is the defining condition for selecting the choice that says either statement is sufficient. GMAT data-sufficiency questions assess whether the supplied information is enough to determine a single answer, rather than requiring both statements whenever both contain usable information. See the GMAT exam format overview and GMAT preparation resources.

QUESTION NO: 34

If X + Y = 17, is X < 0?

(1) X < 17.

(2) Y < 17.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: B

Explanation:

“Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.” is correct. The question asks whether X is negative, so the relevant standard is whether the available information produces one definite yes-or-no answer. Using the given equation, $X + Y = 17$, rearrange to obtain $X = 17 - Y$. Statement (2) says that $Y < 17$. Subtracting a number smaller than 17 from 17 produces a positive result, so $X > 0$. Therefore, the answer to “is X < 0?” is definitively no. A definite no is just as sufficient as a definite yes in a data-sufficiency problem; the task is to determine whether the information resolves the question, not to make the answer yes. This conclusion follows for every possible value of Y satisfying the statement, including negative values and decimals, because the strict inequality is preserved when calculating $17 - Y$. GMAT Data Sufficiency questions assess whether statements provide enough information to answer a question uniquely, as described by the GMAT Exam format overview and the official GMAT preparation resources.

QUESTION NO: 36

Michael, Steve and Tyler shared a box of cookies. Michael ate 1/8 of the cookies, Steve ate one half and Tyler ate 150 more cookies than Michael. If no cookies remain in the box, how many cookies were in the box?

A. 1200.

B. 600.

C. 800.

D. 400.

E. 550.

ANSWER: B

Explanation:

600. is correct. Let the total number of cookies be *x*. Michael ate one eighth of the total, or *x/8*. Steve ate one half of the total, or *x/2*. Tyler ate 150 more cookies than Michael, so Tyler ate *x/8 + 150*. Because the box was empty after they ate, these three amounts must add to the original total: *x/8 + x/2 + (x/8 + 150) = x*. Combining the fractional parts gives *3x/4 + 150 = x*. Subtracting *3x/4* from both sides leaves *150 = x/4*, and multiplying by 4 gives *x = 600*. A quick check confirms the result: Michael ate 75 cookies, Steve ate 300 cookies, and Tyler ate 225 cookies. Their total is 75 + 300 + 225 = 600, so no cookies remain. This is a standard linear-equation setup: represent the unknown total with a variable, translate each statement into an expression, and use the fact that all shares equal the whole. For a review of forming and solving linear equations, see OpenStax Elementary Algebra and Khan Academy's linear equations overview.

QUESTION NO: 37

What kind of flowers does a florist have more of, lilacs or roses?

(1) The number of roses he has is less than 6 times the number of lilacs that he has.

(2) One fifth of the number of Lilacs is less than the number of roses that he has.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: E

Explanation:

Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

is correct because the two inequalities provide only a range for the number of roses relative to the number of lilacs; they do not establish which count is greater. Statement (1) says that the roses count is below six times the lilacs count. Statement (2) says that the roses count is above one-fifth of the lilacs count. Together, the relationship is: one-fifth of the lilacs count < roses count < six times the lilacs count. This interval includes values both below and above the lilacs count. For example, if there are 5 lilacs and 2 roses, both statements hold, yet there are more lilacs. If there are 5 lilacs and 10 roses, both statements also hold, yet there are more roses. Since valid cases produce different answers to the question, the information is insufficient. This follows the GMAT Data Sufficiency standard: the task is to determine whether the information yields one definite answer, rather than to calculate a particular value. See the GMAT exam overview from GMAC and GMAT preparation guidance.

QUESTION NO: 38

What is 0.05 * 0.05 in terms of percents?

A. 25%

B. 2.5%

C. 0.25%

D. 0.025%

E. .0.025%

ANSWER: C

Explanation:

The correct result is **0.25%**. First, interpret each factor as a decimal: 0.05 represents five hundredths. Multiplying five hundredths by five hundredths gives twenty-five ten-thousandths: 0.05 × 0.05 = 0.0025. This can also be checked by writing each decimal as a fraction: 0.05 = 5/100, so their product is 25/10,000, which simplifies to 1/400 and has decimal form 0.0025.

To express a decimal as a percent, multiply it by 100, since “percent” means “per hundred.” Thus, 0.0025 × 100 = 0.25, and the percentage form is 0.25%. The result is therefore less than one percent because multiplying two numbers that are each much smaller than one produces an even smaller decimal. This conversion process is consistent with standard percentage notation: a percent value corresponds to a fraction with denominator 100. For further review of converting among fractions, decimals, and percents, see Khan Academy’s percentage lesson and Math is Fun’s percentage guide.

QUESTION NO: 39

V is the volume of a cylinder; the radius of the cylinder is 3.4. The height of the cylinder is 550% more than the radius. Which of the following is true?

A. 100 < V < 300

B. 300 < V < 500

C. 500 < V < 700

D. 700 < V < 900

E. 900 < V < 1100

ANSWER: D

Explanation:

700 < V < 900 is correct. “550% more than the radius” means the height equals the original radius plus 550% of that radius. Thus, the height is 650% of 3.4, or 6.5 × 3.4 = 22.1. The volume of a cylinder is calculated with the formula $V = \pi r^2 h$. Substituting the radius and height gives $V = \pi(3.4)^2(22.1)$. Since $3.4^2 = 11.56$, the volume is $\pi \times 11.56 \times 22.1$, which is approximately 802.7 cubic units. This value is greater than 700 and less than 900, so that interval must contain V. The key quantitative-reading step is correctly translating “550% more than” into a multiplier of 6.5, rather than treating 550% as the entire height. The cylinder-volume formula uses the circular base area, πr^2, multiplied by the cylinder’s perpendicular height. See Khan Academy’s cylinder-volume overview and Wolfram MathWorld’s cylinder reference.

QUESTION NO: 40

If 0.45x = 101.25, then x =

A. 180

B. 225

C. 328

D. 444

E. 448

ANSWER: B

Explanation:

The correct value is **225**. Solve the equation by isolating *x*: divide both sides of 0.45x = 101.25 by 0.45. Thus, x = 101.25 ÷ 0.45. To make the decimal division easier, multiply both the dividend and divisor by 100, which preserves their quotient: 101.25 ÷ 0.45 = 10,125 ÷ 45. Since 45 × 225 = 10,125, the quotient is 225. A quick substitution confirms the result: 0.45 × 225 = 101.25, so the value satisfies the original equation exactly. This uses the fundamental equality principle for linear equations: applying the same nonzero division operation to both sides keeps the equation balanced. For additional review of solving one-variable linear equations, see Khan Academy's linear-equations resources and the OpenStax explanation of solving linear equations.

QUESTION NO: 41

X, Y, Z, and W are integers. The expression X-Y-Z is even and the Expression Y-Z-W is odd. If X is even what must be true?

A. Y-Z must be odd.

B. W must be even.

C. W must be odd.

D. W must be even.

E. Z must be odd

ANSWER: C

Explanation:

W must be odd. Since X is even and X − Y − Z is even, subtracting Y and Z together must preserve evenness. Therefore, Y + Z is even. Two integers have an even sum precisely when they have the same parity, so Y and Z are either both even or both odd. In either case, their difference, Y − Z, is even.

The other given expression is Y − Z − W, and it is odd. Having established that Y − Z is even, the expression has the form even − W. Subtracting an odd integer from an even integer produces an odd result, so W must be odd. This conclusion does not depend on the individual values of Y and Z; it follows solely from the parity relationships imposed by the two expressions. This is a standard use of parity rules: adding or subtracting two integers of the same parity gives an even result, while combining one even and one odd integer gives an odd result. For further review of even and odd number properties, see Khan Academy's parity overview and GMAT Quantitative Reasoning information.

QUESTION NO: 42

Zigfield bought his car using M% of his bank savings. He also bought a house that costs 4 times the price of the car. What is the price of the house?

(1) M = 12.

(2) The price of the car and the house was $140,000.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: B

Explanation:

“Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.” is correct. The question asks for a specific dollar price for the house. Statement (2) supplies the combined price of the car and house: $140,000. The stem states that the house costs four times as much as the car. Let the car price be *x*. The house price is therefore *4x*, and the total is *x + 4x = 5x*. Since *5x = 140,000*, the car costs $28,000 and the house costs *4 × $28,000 = $112,000*. Thus, statement (2) alone determines one unique house price, which is exactly what is required for data sufficiency. The value of M and the amount of Zigfield’s savings are unnecessary once the total purchase price and the four-to-one house-to-car relationship are known. This approach uses the standard part-to-whole ratio principle: the total is divided into five equal parts, with four of those parts representing the house. For related algebraic methods, see Khan Academy’s linear equations resources and OpenStax’s guide to solving linear equations.

QUESTION NO: 43

How much time will it take two different fire extinguishers to shut down a level 3 fire?

(1) The first fire extinguisher can shut down a level 3 fire in 45 seconds.

(2) The second fire extinguisher can shut down a level 3 fire in one minute and 20 seconds.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient. The problem asks for the time required when both extinguishers work together. Statement (1) gives only the first extinguisher’s individual completion time, 45 seconds, and statement (2) gives only the second extinguisher’s individual completion time, 80 seconds. Neither individual time determines their combined rate.

Using both statements, express each extinguisher’s rate as fires extinguished per second: the first has a rate of 1/45 and the second has a rate of 1/80. Their simultaneous rate is therefore 1/45 + 1/80 = 125/3600 = 5/144 fire per second. The required combined time is the reciprocal: 144/5 seconds, or 28.8 seconds. Thus, the two statements provide a unique numerical answer. This applies the standard work-rate principle that, for agents working concurrently on the same task, individual rates are added before taking the reciprocal to find total time. GMAT quantitative questions assess this type of algebraic and rate-based reasoning; see the GMAT exam structure and the official GMAT overview.

QUESTION NO: 44

If 1/X = 2.5, then what is the value of 1/(X – 2/3)?

A. 2.25.

B. –3.5.

C. –3.75.

D. 1.75.

E. 3.75.

ANSWER: C

Explanation:

The correct answer is **–3.75.** Start by converting the given decimal to a fraction: 2.5 = 5/2. Since 1/X = 5/2, take the reciprocal of both sides to obtain X = 2/5. Substitute this value into the requested expression: 1/(X – 2/3) = 1/(2/5 – 2/3). To subtract the fractions, use a common denominator of 15: 2/5 = 6/15 and 2/3 = 10/15. Therefore, the denominator is 6/15 – 10/15 = –4/15. Taking the reciprocal gives 1/(–4/15) = –15/4, which equals –3.75. This calculation relies on the reciprocal relationship: if a nonzero quantity has reciprocal 5/2, the quantity itself is 2/5. For review of fraction operations and common denominators, see Khan Academy's fraction addition and subtraction lesson. For decimal-to-fraction conversion concepts, see Purplemath's decimals and fractions guide.

QUESTION NO: 45

Ruth's age is two-thirds of Chris's age. How old is Chris?

(1) Two years ago Ruth was half the age Chris is today.

(2) Four and a half years from now Ruth will be seven eights of Chris's age.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: D

Explanation:

Either statement BY ITSELF is sufficient to answer the question. Let Ruth's current age be R and Chris's current age be C. The stem supplies the fixed relationship R = (2/3)C. Statement (1) says that Ruth's age two years ago was half of Chris's current age, so R − 2 = C/2. Substituting R = (2/3)C produces (2/3)C − 2 = C/2, which has one unique value for C: 12. Thus, statement (1) alone determines Chris's age.

Statement (2) also creates an equation that, together with the stem's relationship, determines a single value of C. Reading "Chris's age" as Chris's current age, the statement is R + 4.5 = (7/8)C. Substitution gives (2/3)C + 4.5 = (7/8)C, yielding one unique value for Chris's age. Therefore, no combination of statements is needed: each statement independently provides enough information to answer the question. This follows the GMAT Data Sufficiency approach of testing whether each statement produces a unique answer, rather than requiring the same numerical result from independently sufficient statements. See the GMAT exam format overview and GMAT preparation resources.

QUESTION NO: 46

In a chocolate store, all chocolates are either vanilla or cocoa flavored only.

10% of the chocolates are cocoa flavored, 90% of the rest are squashed.

What percentage of the chocolates are both vanilla flavored and not squashed?

A. 1%

B. 5%

C. 9%

D. 10%

E. 2%

ANSWER: C

Explanation:

The correct answer is **9%**. A convenient way to calculate a percentage-of-a-percentage problem is to assume there are 100 chocolates in total. Since 10% are cocoa flavored, 10 of the 100 chocolates are cocoa. Because every chocolate is either vanilla or cocoa, the remaining 90 chocolates are vanilla flavored.

The statement that 90% of "the rest" are squashed applies to those 90 vanilla chocolates. Thus, the number of squashed vanilla chocolates is 90% of 90, or 81. The vanilla chocolates that are not squashed are the remainder: 90 minus 81, which equals 9 chocolates. Out of the original total of 100 chocolates, this is 9%, so **9%** is the required percentage.

This uses the standard principle that a percentage can be modeled as a fraction of 100 and that successive percentage statements must be applied to the specified group, rather than automatically to the original total. See Math Is Fun: Percentages and Khan Academy: Percentages.

QUESTION NO: 47

In a jar there are balls in different colors: blue, red, green and yellow.

The probability of drawing a blue ball is 1/8.

The probability of drawing a red ball is 1/5.

The probability of drawing a green ball is 1/10.

If a jar cannot contain more than 50 balls, how many yellow balls are in the Jar?

A. 23.

B. 20.

C. 24.

D. 17.

E. 25.

ANSWER: A

Explanation:

23. is correct. Let the total number of balls be *N*. Since the probability of drawing a blue ball is 1/8, the number of blue balls is N/8, so N must be divisible by 8. Similarly, the red-ball probability requires N to be divisible by 5, and the green-ball probability requires N to be divisible by 10. Therefore, N must be a common multiple of 8, 5, and 10. Their least common multiple is 40. Because the jar contains no more than 50 balls, 40 is the only possible positive total consistent with all three stated probabilities.

With 40 total balls, there are 40/8 = 5 blue balls, 40/5 = 8 red balls, and 40/10 = 4 green balls. These known colors account for 5 + 8 + 4 = 17 balls. As blue, red, green, and yellow are the only listed colors, all remaining balls must be yellow: 40 − 17 = 23. This approach uses the probability relationship favorable outcomes divided by total outcomes; see Khan Academy's probability overview and Math is Fun's least-common-multiple explanation.

QUESTION NO: 48

Did the value of the house grow this year?

(1) If the neighborhood becomes more crowded the value of the house drops.

(2) This year the neighborhood has gotten less crowded yet a new railway was built nearby.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: E

Explanation:

“Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

” is correct because the information does not establish a definite outcome for the house’s value. The first statement gives only a one-way conditional relationship: if the neighborhood becomes more crowded, then the house value drops. It does not state that a less crowded neighborhood causes the value to rise. Thus, learning that the neighborhood became less crowded does not permit a valid conclusion that the house value grew; it could have risen, remained unchanged, or fallen for other reasons. The new railway likewise has no stated effect on house value. Depending on relevant but unstated facts, such as noise, accessibility, distance, local demand, or zoning, a railway could be associated with different effects on property value. Since neither the reversed condition nor the railway’s impact is provided, the combined statements cannot answer the yes-or-no question with certainty. This follows the Data Sufficiency requirement that the given facts must yield one conclusive answer, rather than a plausible inference. See the GMAT quantitative-section overview at GMAT Quantitative Reasoning and the GMAT’s guidance on question types at GMAT Exam Sections.

QUESTION NO: 49

If X is divisible by 4, is Y odd?

(1) Y = x + 3.

(2) X = 4.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: A

Explanation:

“Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.” is correct. The condition in the question establishes that X is divisible by 4. Every integer divisible by 4 is even. Statement (1) gives the direct relationship Y = X + 3 (with the lowercase x understood as the same variable used in the question). Because 3 is odd, adding 3 to an even integer always produces an odd integer. Thus, statement (1), together with the given condition, permits a definite “yes” answer to whether Y is odd.

This is a Data Sufficiency determination: the task is not to calculate a particular value of Y, but to decide whether the available information always produces one unambiguous answer to the yes/no question. Since the parity conclusion follows for every possible X divisible by 4, statement (1) is sufficient. Statement (2) fixes X at 4 but supplies no relationship or value for Y, so it cannot determine Y's parity independently. GMAT Data Sufficiency questions assess whether information is enough to answer a question conclusively, as described in the GMAT exam format overview and the official GMAT preparation resources.

QUESTION NO: 50

Each of the 850 local villagers in Lucia owns either a Golden Retriever or a Bernard. How many people own both?

(1) The number of villagers who own a Golden Retriever only is 300.

(2) The number of villagers who own a Bernard only is 280.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

"Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient." is correct. The wording establishes that every one of the 850 villagers owns at least one of the two dog breeds. Therefore, the full group can be partitioned into three mutually exclusive categories: villagers who own only a Golden Retriever, villagers who own only a Bernard, and villagers who own both breeds. Statement (1) supplies the size of the first category, 300, but does not determine the other two categories. Statement (2) similarly supplies the size of the second category, 280, but alone does not determine the overlap. When combined, however, the two "only" groups account for 580 villagers. The remaining villagers must be in the "both" category, so the number owning both is 850 − 300 − 280 = 270. This produces one definite answer, which is the standard for sufficiency in GMAT-style Data Sufficiency questions. The calculation relies on a complete, nonoverlapping partition of the stated population and not on any unstated assumptions. See the GMAT's overview of Quantitative Reasoning and its Data Insights content information.

QUESTION NO: 51

If (A+B) = 4, (B+C) = 9 and (C+D) = 3, what is the value of (A+D)?

A. 16.

B. 2.

C. 7.

D. -2.

E. 8.

ANSWER: D

Explanation:

The correct value is **-2**. The most direct method is to combine the three given equations so that the middle variables cancel. Start by adding the equation whose sum is 4 to the equation whose sum is 3. This produces a combined total containing each of the four variables once. The equation whose sum is 9 contains exactly the two middle variables, so subtracting it removes those middle terms from the combined expression. What remains is the requested sum of the outer variables.

Numerically, this calculation is 4 + 3 − 9, which equals −2. This approach is efficient because it avoids solving for any individual variable. Instead, it uses the structure of the sums: terms that appear once with a positive sign and once with a negative sign cancel, leaving only the target expression. This is a standard linear-equation manipulation strategy and is particularly useful on quantitative tests when the question asks for a combination of variables rather than for the values of the variables individually. For further practice with combining linear equations, see Khan Academy's linear equations material and the GMAT exam overview.

QUESTION NO: 52

Between what two numbers is the measure of the third side of the triangle?

(1) The sum of the two known sides is 10.

(2) The difference between the two known sides is 6.

A. Statement (1), BY ITSELF, will suffice to solve the problem, but NOT statement (2) by itself.

B. Statement (2), BY ITSELF, will suffice to solve the problem, but NOT statement (1) by itself.

C. The problem can be solved using statement (1) and statement (2) TOGETHER, but not ONLY statement (1) or statement (2).

D. The problem can be solved using EITHER statement (1) only or statement (2) only.

E. The problem CANNOT be solved using statement (1) and statement (2) TOGETHER.

ANSWER: C

Explanation:

The problem can be solved using statement (1) and statement (2) TOGETHER, but not ONLY statement (1) or statement (2). For any triangle with two known side lengths and an unknown third side, the triangle inequality establishes the possible interval for the unknown side: it must be greater than the positive difference of the known sides and less than their sum. In symbols, if the known sides are x and y and the third side is z, then $|x - y| < z < x + y$. Statement (1) supplies the upper boundary, 10, but does not supply the lower boundary. Statement (2) supplies the lower boundary, 6, but does not supply the upper boundary. Taken together, the statements determine the complete requested range: the third side must be strictly between 6 and 10. The endpoints themselves are excluded because equality would produce a degenerate figure rather than a triangle. This application of the triangle inequality is the standard way to determine the allowable length of a third side when the sum and difference of the other two side lengths are known. See Khan Academy's triangle inequality overview and the triangle inequality definition.

QUESTION NO: 53

What is the value of (XY)?

(1) X = 2/(9Q).

(2) Y = 4.5Q.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

“Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.” is correct. Statement (1) expresses X in terms of Q, while statement (2) expresses Y in terms of Q. Since the question asks for the product XY, the two expressions can be multiplied when both statements are used: XY = [2/(9Q)] × (4.5Q). The Q terms cancel, and 4.5 × 2 = 9, leaving XY = 9/9 = 1. Thus, the product has one fixed value regardless of the particular permitted nonzero value of Q. The denominator in the expression for X also establishes that Q cannot be zero, so cancellation is valid. Neither statement alone gives a fixed numerical value for XY because each supplies only one variable’s relationship to Q; together, however, they determine the requested product uniquely. This follows the Data Sufficiency standard: determine whether the information establishes one definite answer, rather than solving for every individual variable. See the GMAT’s official GMAT exam overview and its official preparation resources.

QUESTION NO: 54

A confectioner decides to sell all of his pastry due to the coming holiday. His pastry goods are equally divided among a group of 28 regular customers.

If only 49 customers come to the bakery, each one will receive 6 less pastry goods. How much pastry does the confectioner needs to sell?

A. 392.

B. 412.

C. 432.

D. 502.

E. 522.

ANSWER: A

Explanation:

392. is correct. Let the total number of pastry goods be p. When 28 regular customers receive equal shares, each customer receives p divided by 28. If 49 customers arrive, each share is p divided by 49. The problem states that the share with 49 customers is 6 fewer goods than the share with 28 customers, so the relationship is $p/28 - p/49 = 6$. Using a common denominator, $1/28 - 1/49 = (49 - 28)/(28 \times 49) = 21/1372 = 3/196$. Therefore, $p \times 3/196 = 6$, which gives $p = 6 \times 196/3 = 392$. A direct check confirms the result: 392 divided among 28 customers gives 14 goods per customer, while 392 divided among 49 customers gives 8 goods per customer. The difference between those equal shares is 14 − 8 = 6, exactly as required. This is a standard equal-sharing algebra setup: express both per-person quantities as divisions of the same total, then use the stated difference. For related foundational guidance on solving linear equations, see Khan Academy’s linear-equations resources and OpenStax’s strategy for linear equations.

QUESTION NO: 55

990 people went to the GMAT exam; how many boys didn’t pass the test?

(1) 321 girls didn’t pass the test, which is the number of boys that did.

(2) One fifth of the people that went to the GMAT exam were boys who eventually didn’t pass the test.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: B

Explanation:

“Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.” is correct. The question asks for a specific count: the number of boys who did not pass. Statement (2) directly identifies that group as one fifth of all 990 people who took the exam. Therefore, the requested number is uniquely determined by calculating **990 × 1/5 = 198**. Since statement (2) alone produces one definite numerical answer, it is sufficient under Data Sufficiency rules.

Data Sufficiency does not require using every fact in the prompt or solving for every category of test taker; it requires only enough information to answer the precise question asked. Here, the total number of examinees and the stated fraction belonging to the target group completely determine the result. This follows the standard GMAT Data Sufficiency approach of testing each statement independently and deciding whether it yields a unique answer. See the Graduate Management Admission Council’s GMAT exam overview and the official GMAT preparation resources for information on the Quantitative section and its problem-solving methodology.

QUESTION NO: 56

Jennifer bought two apartments in order to rent them to other people with $300,000. The monthly return on the first apartment is 1.5% of its value and on the second apartment the return is 2% of its value. If the total returns of the entire year were $61,200, how much did Jennifer spent on the second apartment?

A. $100,000

B. $120,000

C. $150,000

D. $180,000

E. $210,000

ANSWER: B

Explanation:

$120,000 is correct. Let the amount spent on the second apartment be *x*. Since Jennifer invested a total of $300,000, the amount spent on the first apartment is $300,000 minus *x*. The stated percentages are monthly returns, so they must be converted to annual rates before using the yearly total. The first apartment earns 1.5% per month, or 18% per year; the second earns 2% per month, or 24% per year.

The annual-return equation is therefore 0.18(300,000 − x) + 0.24x = 61,200. Expanding gives 54,000 − 0.18x + 0.24x = 61,200, which simplifies to 54,000 + 0.06x = 61,200. Subtracting 54,000 yields 0.06x = 7,200, so x = 120,000. A direct check confirms that 24% of $120,000 is $28,800 and 18% of the remaining $180,000 is $32,400; together, these annual returns total $61,200. This is a standard linear-equation setup, consistent with the quantitative reasoning skills tested on the GMAT; see GMAT Exam Overview and Khan Academy: One-variable linear equations.

QUESTION NO: 57

In the past few years, the import of cars to Italy increased significantly. In the years 1994 to 2001 the number of imported cars increased by 12% each year. How many cars were imported to Italy in the year 2000?

(1) In 1997, 12,500 cars were imported to Italy.

(2) During the years 1997 to 1999, 42,180 cars total were shipped to Italy.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: D

Explanation:

Either statement BY ITSELF is sufficient to answer the question. The annual increase is fixed at 12%, so each year's number of imported cars is the preceding year's number multiplied by 1.12. The first statement supplies the exact number for 1997. Applying the known annual growth factor three times produces one uniquely determined value for 2000: $12{,}500 \times 1.12^3$. Thus, no additional information is needed.

The second statement also fixes a unique value. Let the number imported in 1997 be x. Since the yearly increase is 12%, the numbers for 1998 and 1999 are $1.12x$ and 1.12^2x, respectively. Their stated total gives the equation $x + 1.12x + 1.12^2x = 42{,}180$. This equation has one solution for x, because its coefficient is a known positive number. Once the 1997 figure is determined, the 2000 figure follows by multiplying it by 1.12^3. This is an application of repeated-percent-change, or compound-growth, reasoning; see OpenStax's explanation of exponential functions and GMAC's Quantitative Reasoning overview.

QUESTION NO: 58

Liz drove from point A to point B at 40 Km/h. On her way back she drove at 50 Km/h and therefore her way back lasted one hour less. What is the distance (in Km) between A and B?

A. 150.

B. 200.

C. 600.

D. 450.

E. 500.

ANSWER: B

Explanation:

The correct answer is **200**. Let the one-way distance be d kilometers. Since time equals distance divided by speed, the outward journey takes $d/40$ hours and the return journey takes $d/50$ hours. The problem states that the return trip lasted one hour less, so the difference between these travel times is 1: $d/40 - d/50 = 1$. Using a common denominator of 200 gives $5d/200 - 4d/200 = 1$, which simplifies to $d/200 = 1$. Therefore, $d = 200$ kilometers. This result can be checked directly: traveling 200 km at 40 km/h takes 5 hours, while traveling 200 km at 50 km/h takes 4 hours. The return trip is exactly one hour shorter, as required. This approach relies on the standard constant-speed relationship distance = rate × time; see Khan Academy's introduction to rate problems and OpenStax's uniform-motion applications.

QUESTION NO: 59

In the Kan film festival, 50 movies were presented. 3/5 of the movies are action movies and 4/5 is science fiction movies. How many of the movies were science fiction action movies?

A. 10.

B. 15.

C. 20.

D. 30.

E. 35.

ANSWER: C

Explanation:

The correct answer is **20.** Of the 50 presented movies, the number classified as action is \(\frac{3}{5}\times50=30\), and the number classified as science fiction is \(\frac{4}{5}\times50=40\). When these category counts are added, they total 70 classifications. Since there are only 50 movies in the festival, 20 classifications must be counted twice: once as an action movie and once as a science-fiction movie. Therefore, 20 movies are science fiction action movies.

This uses the inclusion-exclusion relationship \(\lvert A\cap S\rvert=\lvert A\rvert+\lvert S\rvert-\lvert A\cup S\rvert\). Under the question's intended assumption that the 50 festival movies are accounted for by the action and science-fiction classifications, the union contains 50 movies. Thus, \(30+40-50=20\). This is the standard method for finding the overlap of two sets when their individual totals and total population are given. For a reference on inclusion-exclusion and set intersections, see Inclusion–exclusion principle and Khan Academy's inclusion-exclusion lesson.

QUESTION NO: 60

If 3x + 1 = 81, then x – 1 =

A. 2

B. 3

C. 4

D. 9

E. 27

F. 77/3

ANSWER: F

Explanation:

Using standard algebraic notation, *3x* means 3 multiplied by *x*, not 3 raised to the power *x*. Start by isolating the term containing *x*: subtract 1 from both sides of 3x + 1 = 81 to obtain 3x = 80. Next, divide both sides by 3, giving x = 80/3. The question asks for x − 1, so substitute this value: 80/3 − 1 = 80/3 − 3/3 = 77/3. Therefore, the correct result is 77/3. This calculation follows the standard order-preserving properties of equality: the same operation may be performed on each side of an equation, and fractions can be subtracted by expressing whole numbers with a common denominator. For a review of solving linear equations by isolating a variable, see Khan Academy's linear-equations resources. The conventional interpretation of juxtaposition such as 3x as multiplication is also reflected in OpenStax's algebra notation guidance.

QUESTION NO: 61

A 48 gallon solution of salt and water is 10% salt. How many gallons of water must be added to the solution in order to decrease the salt to 8% of the volume?

A. 8

B. 12

C. 13

D. 14

E. 16

ANSWER: B

Explanation:

12 is correct because adding pure water changes the total volume of the solution but does not change the amount of salt present. Initially, the salt amount is 10% of 48 gallons: 0.10 × 48 = 4.8 gallons of salt. If x represents the gallons of water added, the final volume is 48 + x gallons, while the salt remains 4.8 gallons. The required final concentration is 8%, so salt must equal 8% of the final volume: 4.8 = 0.08(48 + x). Dividing both sides by 0.08 gives 48 + x = 60. Therefore, x = 12. Adding 12 gallons of water produces a total volume of 60 gallons, and 4.8/60 = 0.08, or 8%, which verifies the required concentration. This is a standard mixture-percent setup: keep the quantity of the unchanged component fixed and express the target percentage as a fraction of the new total. For related guidance on solving linear equations, see Khan Academy's one-variable linear equations lessons and OpenStax's linear-equation strategy.

QUESTION NO: 62

What is the value of (A + 3B/7)?

(1) 5600A + 2400B = 12,000.

(2) 50B - 50 + 250A = 9700 – 4200A – 1900B.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: A

Explanation:

"Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not." is correct because the equation in statement (1) is an exact multiple of the expression being requested. Divide every term of 5600A + 2400B = 12,000 by 5600. This gives A + (2400/5600)B = 12,000/5600. Reducing the fractions yields A + (3/7)B = 15/7. Therefore, statement (1) directly fixes the requested value at 15/7, regardless of the individual values of A and B. A data-sufficiency statement is sufficient when it determines one definite answer to the question; it does not need to determine every variable separately. This is a standard and especially efficient approach for linear data-sufficiency questions: compare the given equation with the target expression and check whether a constant multiple converts one into the other. The official GMAT exam structure includes quantitative reasoning questions that test algebraic reasoning and problem solving, as described by GMAC's GMAT Exam overview. For a general review of simplifying equivalent linear equations by multiplying or dividing both sides by the same nonzero constant, see Khan Academy's linear-equations resources.

QUESTION NO: 63

How long exactly did it take Claudia to drive from the beach house to her green house?

(1) Claudia drove at a constant speed of 55 miles per hour.

(2) The approximate distance between the beach house and the green house is 200 miles.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: E

Explanation:

“Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

” is correct because the question asks for an *exact* travel time. With a constant speed of 55 miles per hour, the relevant relationship is time = distance ÷ speed. Thus, an exact time requires an exact distance. The distance statement gives only an approximate distance of 200 miles, which can support an estimate—about 200 ÷ 55 hours—but not one unique, exact value. The actual distance could be somewhat greater or smaller than 200 miles while still reasonably being described as approximately 200 miles, and each such possible distance produces a different travel time at 55 miles per hour. Therefore, even when both statements are used, the information does not determine the requested exact duration. This follows the Data Sufficiency principle that the information must yield a single determinate answer to the precise question asked, rather than merely a useful approximation. See the GMAT’s overview of Data Sufficiency reasoning at GMAT Quantitative Reasoning and the general rate relationship at Khan Academy’s rate-problem guide.

QUESTION NO: 64

If X is a positive integer and (405) 4 is a multiple of 3X, what is the largest possible value of X?

A. 5.

B. 12.

C. 16.

D. 20

E. 26.

ANSWER: C

Explanation:

The correct value is **16.** The expression is interpreted using exponents: 405 raised to the fourth power is divisible by 3 raised to the power of X. To find the greatest possible exponent of 3, first express 405 in prime-factor form. Since $405 = 81 \times 5$ and $81 = 3^4$, we have $405 = 3^4 \times 5$. Raising this entire product to the fourth power gives $(3^4 \times 5)^4 = 3^{16} \times 5^4$. Thus, 405^4 contains exactly sixteen factors of 3. It is therefore divisible by 3^{16}, making 16 the largest positive integer that can serve as the exponent. This uses the exponent rule $(a^m)^n = a^{mn}$, together with prime factorization to determine how many factors of a particular prime occur in a number. These are standard quantitative-reasoning tools for GMAT-style problem solving; see the GMAT Exam overview and Khan Academy’s prime factorization review.

QUESTION NO: 65

How many keys are found on an average keyboard?

(1) There are 20 number keys on an average keyboard.

(2) 20% of the keys on the keyboard are number keys.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient. Let the total number of keys be *T*. The first statement establishes that the number-key count is 20, but it does not state what fraction or percentage of all keys those 20 keys represent. The second statement establishes only a proportion: number keys account for 20% of the total number of keys. When the two facts are combined, they describe the same number-key group: 20 is 20% of *T*. Thus, 0.20T = 20, so T = 20 / 0.20 = 100. This produces one definite total number of keys and therefore fully answers the question. This is a standard data-sufficiency approach: translate the information into an equation, then determine whether the available statements yield a unique value for the requested quantity. GMAT quantitative questions assess reasoning with arithmetic relationships such as percentages and equations; see the GMAT Exam overview and the GMAT preparation resources.

QUESTION NO: 66

Eddy gave Q% of the money he earned last year to his first wife Sandra, W% of the money he earned last year went to his second wife Tawana. How much money did Eddy earn this year?

(1) Q = 20, W = 2Q.

(2) All the money Eddy earned last year went to his two wives.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: E

Explanation:

Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

is correct because the question asks for Eddy's earnings *this year*, while every fact supplied concerns his earnings *last year*. Statement (1) establishes that the percentage given to Sandra was 20% and that the percentage associated with Tawana was 40%. Statement (2) says that all of last year's earnings went to the two wives. Together, those facts describe how Eddy distributed last year's earnings, but they do not state a dollar amount for last year and, more importantly, do not give any relationship between last year's earnings and this year's earnings. Eddy's current-year earnings could therefore be any

amount while all stated conditions remain true. In Data Sufficiency, a statement set is sufficient only when it yields one definite answer to the precise question asked; information about a different time period cannot establish the requested current-year amount without an explicit connection. GMAT's official preparation materials describe Data Sufficiency as determining whether the provided information is enough to answer the question, rather than calculating from unrelated facts. See the GMAT Exam overview and official GMAT exam preparation resources.

QUESTION NO: 67

A car travels a distance of 160 miles in 2 hours and 40 minutes, what is the speed of the car in miles per hour?

A. 54

B. 60

C. 84

D. 116

E. 120

ANSWER: B

Explanation:

The correct answer is **60**. Average speed is found by dividing total distance by total time, provided that the time is expressed in compatible units. The trip time is 2 hours and 40 minutes. Since 40 minutes is 40/60 of an hour, or 2/3 hour, the total travel time is 2 2/3 hours, which is equivalent to 8/3 hours. Dividing 160 miles by 8/3 hours gives 160 × 3/8 = 60 miles per hour. Another equivalent approach is to convert the full travel time to minutes: 2 hours 40 minutes equals 160 minutes. The car therefore travels 160 miles in 160 minutes, or 1 mile per minute. Multiplying by 60 minutes per hour gives 60 miles per hour. This calculation uses the standard rate relationship: rate = distance ÷ time. For an overview of calculating speed, distance, and time, see Math Is Fun: Speed, Distance, Time. The conversion of minutes to hours follows the conventional relationship of 60 minutes in one hour, as summarized by NIST's information on time units.

QUESTION NO: 68

Which of the following statements is equivalent to (8 + 2X < 18 – 6X < 23 + 2X)?

A. 4/5 < X < 2.5.

B. 4/5 < X < 8/5.

C. -5/8 < X < 5/4.

D. 2.5 < X < 3.5.

E. 5 < 8X < 12.

ANSWER: C

Explanation:

The equivalent statement is **-5/8 < X < 5/4.** A compound inequality of the form *left expression* < *middle expression* < *right expression* requires both comparisons to hold simultaneously. First, solve 8 + 2X < 18 − 6X. Adding 6X to both sides and subtracting 8 gives 8X < 10, so X < 5/4. Next, solve 18 − 6X < 23 + 2X. Subtracting 23 and then adding 6X gives −5 < 8X, which is equivalent to X > −5/8. The values of X that satisfy the original chain must meet both results at once: they are greater than −5/8 and less than 5/4. Thus, the interval is −5/8 < X < 5/4. This approach follows the standard rule for solving compound inequalities: preserve both parts of the chain, solve each inequality, and take their shared solution set. For further review of compound inequalities and interval notation, see Khan Academy's compound inequalities review and the official GMAT exam overview.

QUESTION NO: 69

A jar of 264 marbles is divided equally among a group of marble-players. If 2 people join the group, each one would receive 1 marble less. How many people are there in the group today?

A. 20.

B. 21.

C. 22.

D. 23.

E. 24.

ANSWER: C

Explanation:

The correct answer is **22.** Let the current number of people be n. Initially, each person receives 264 divided by n marbles. After two people join, the group has $n + 2$ people, and each person receives 264 divided by $(n + 2)$ marbles. The problem states that this new amount is exactly one marble less than the original amount, so the relationship is $264/n - 264/(n + 2) = 1$. Combining the fractions gives $528/[n(n + 2)] = 1$, so $n(n + 2) = 528$. This produces the quadratic equation $n^2 + 2n - 528 = 0$, whose positive solution is 22. A quick check confirms the result: 264 ÷ 22 = 12 marbles per person. With two additional people, there are 24 people, and 264 ÷ 24 = 11 marbles per person. The distribution therefore decreases by exactly one marble per person, satisfying every condition. This use of a variable equation is a standard method for translating a word problem into an algebraic relationship; see OpenStax's equation-solving strategy and Khan Academy's quadratic-equation resources.

QUESTION NO: 70

In a bulb factory there are different kinds of bulbs, what is the probability that a bulb chosen randomly is a halogen?

(1) There are three times as many halogens than any other bulb in the factory.

(2) The ratio between the halogen to all the other bulbs is 2 to 7.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: B

Explanation:

"Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not." is correct. The requested probability is the number of halogen bulbs divided by the total number of bulbs. The ratio of halogen bulbs to all other bulbs is given as 2 to 7. Thus, for every 2 halogen bulbs, there are 7 non-halogen bulbs, producing a total of 9 equally counted parts. Therefore, the probability of selecting a halogen bulb is 2/(2 + 7), or 2/9. No actual bulb count is needed because a ratio determines the relevant fraction of the whole. This is sufficient in a data-sufficiency question: the exact numerical probability can be uniquely determined from statement (2) alone. The calculation follows the standard probability rule that an event's probability equals favorable outcomes divided by total possible outcomes. For a review of probability as a ratio of favorable outcomes to total outcomes, see Khan Academy's probability overview. GMAT quantitative questions assess this type of mathematical reasoning and problem solving, as described by GMAC's GMAT format and structure information.

QUESTION NO: 71

A cube has three of its faces painted half red, half white. The other three faces are completely painted white. What is the ratio between the total red painted and the total white painted areas of the cube?

A. 1:6

B. 3:6

C. 1:2

D. 1:4.5

E. 1:3

ANSWER: E

Explanation:

The ratio **1:3** is correct. Let the area of one face of the cube be 1 square unit. Each of the three partly painted faces contains one-half square unit of red, so the total red-painted area is 3 × 1/2 = 3/2 square units. Those same three faces each also contain one-half square unit of white, giving 3/2 square units of white area. In addition, the other three faces are entirely white, contributing 3 more square units. Therefore, the total white-painted area is 3/2 + 3 = 9/2 square units. The red-to-white ratio is consequently (3/2):(9/2). Dividing both parts by 3/2 reduces the ratio to 1:3. This result uses the fact that all faces of a cube are congruent squares, so taking one face as a unit of area preserves the ratio. For background on cube geometry and its six congruent square faces, see Encyclopaedia Britannica: cube. For a general review of simplifying ratios by dividing both terms by a common factor, see Khan Academy: ratios.

QUESTION NO: 72

Elizabeth is interested in dividing the rooms in the house among the family. Unfortunately, they do not divide equally. It turns out that in order for the rooms to be dividable, Elizabeth has to build two more rooms and kick out one of the family members. Which of the following can describe the number of the initial rooms in the house and the initial number of family members (in the order Rooms, family)?

A. 20; 8.

B. 30; 9.
(30 +2)/(8) = 4.

C. 15; 6.

D. 10; 5.

E. 22; 10.

ANSWER: B

Explanation:

The correct choice is **30; 9.** Initially, 30 rooms cannot be divided equally among 9 family members, because 30 ÷ 9 is not a whole number. This satisfies the condition that the original number of rooms does not divide evenly among the original family.

After Elizabeth builds two rooms, there are 32 rooms. After one family member leaves, there are 8 family members. The revised allocation is 32 ÷ 8 = 4, so every remaining family member can receive exactly 4 rooms with none left over. Thus, this pair meets both required conditions: the initial allocation is unequal, while the allocation becomes equal after adding two rooms and subtracting one person.

This is a divisibility question: the relevant test is whether the adjusted number of rooms, represented by rooms + 2, is a multiple of the adjusted family size, represented by family − 1. For background on divisibility and determining whether a quotient is an integer, see Khan Academy's factors and multiples review and the GMAT Exam overview.

QUESTION NO: 73

What is the sum of the two smallest integers in a set of different positive integers?

(1) There are 4 integers in the set.

(2) The average of the integers in the set is 3.

A. Statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not.

B. Statement (2) BY ITSELF is sufficient to answer the question, but statement (1) by itself is not.

C. Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.

D. Either statement BY ITSELF is sufficient to answer the question.

E. Statements (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem.

ANSWER: C

Explanation:

“Statements (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient.” is correct. Together, the statements establish that there are four distinct positive integers with an average of 3. Therefore, their total must be 4 × 3 = 12. To determine the smallest possible values, begin with the smallest distinct positive integers: 1, 2, 3, and 4, which total 10. Since the required total is 12, the remaining 2 must be added while preserving four distinct positive integers. The possible sets are 1, 2, 3, 6 and 1, 2, 4, 5. In each valid set, the two smallest integers are 1 and 2, whose sum is 3. Thus, the requested value is uniquely determined when both statements are used together. This follows the GMAT Data Sufficiency objective: determine whether the supplied information produces one definite answer, rather than solving from information that is incomplete on its own. See the GMAT’s overview of the Quantitative Reasoning section at GMAT Exam Structure and its preparation resources at GMAT Exam Preparation.