GMAT Quant Practise Question Paper 9 with Solutions

Time Allowed : 2 hours 15 minutes	Maximum Marks : 100

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The GMAT exam is 2 hours and 15 minutes long (with one optional 10-minute break) and consists of 64 questions in total.
2. The GMAT exam is comprised of three sections:
3. Quantitative Reasoning: 21 questions, 45 minutes
4. Verbal Reasoning: 23 questions, 45 minutes
5. Data Insights: 20 questions, 45 minutes
6. You can answer the three sections in any order. As you move through a section, you can bookmark questions that you would like to review later.
7. When you have answered all questions in a section, you will proceed to the Question Review & Edit screen for that section.
8. If there is no time remaining in the section, you will NOT proceed to the Question Review & Edit screen and you will automatically be moved to your optional break screen or the next section (if you have already taken your optional break).
9. Each Question Review & Edit screen includes a numbered list of the questions in that section and indicates the questions you bookmarked.
10. Clicking a question number will take you to that specific question. You can review as many questions as you would like and can edit up to three (3) answers.

DATA SUFFICIENCY

1. At a bakery, all donuts are priced equally and all bagels are priced equally. What is the total price of 5 donuts and 3 bagels at the bakery?
(1) At the bakery, the total price of 10 donuts and 6 bagels is \$12.90.
(2) At the bakery, the price of a donut is \$0.15 less than the price of a bagel.

(A) If statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;
(B) If statement (2) ALONE is sufficient, but statement (1) alone is not sufficient to answer the question asked;
(C) If BOTH statements (1) and (2) TOGETHER are sufficient to answer the question asked, but NEITHER statement ALONE is sufficient;

(D) If EACH statement ALONE is sufficient to answer the question asked;
(E) If statements (1) and (2) TOGETHER are NOT sufficient to answer the question asked, and additional data specific to the problem are needed.

Correct Answer: (A) If statement (1) ALONE is sufficient, but statement (2) alone is not sufficient to answer the question asked;

Solution:

Step 1: Understanding the Concept:
This is a data sufficiency question. We need to determine if the information provided in the statements, either individually or combined, is sufficient to find a unique numerical answer to the question.

Step 2: Key Formula or Approach:
Let d be the price of a single donut and b be the price of a single bagel.
The question asks for the value of the expression: $5d + 3b$.

Step 3: Detailed Explanation:
Analyze Statement (1) ALONE:
Statement (1) says that the total price of 10 donuts and 6 bagels is \$12.90.
We can write this as an equation:

$$10d + 6b = 12.90$$

Notice that the expression $10d + 6b$ is exactly twice the expression we want to find, which is $5d + 3b$.
We can factor out a 2 from the left side of the equation:

$$2(5d + 3b) = 12.90$$

Now, we can solve for $5d + 3b$ by dividing both sides by 2:

$$5d + 3b = \frac{12.90}{2}$$
$$5d + 3b = 6.45$$

Since we found a unique numerical value for the expression, statement (1) ALONE is sufficient to answer the question.

Analyze Statement (2) ALONE:
Statement (2) says that the price of a donut is \$0.15 less than the price of a bagel.
We can write this as an equation:

$$d = b - 0.15$$

This equation gives us a relationship between d and b, but it does not give us enough information to find the specific value of $5d + 3b$. We can substitute this into the expression:

$$5(b - 0.15) + 3b = 5b - 0.75 + 3b = 8b - 0.75$$

Since the value of b is unknown, we cannot find a unique value for the expression. For example, if a bagel costs \$1.00, the total is \$7.25. If a bagel costs \$1.50, the total is \$11.25.
Therefore, statement (2) ALONE is not sufficient.

Step 4: Final Answer:
Since statement (1) alone is sufficient and statement (2) alone is not sufficient, the correct option is (A).

> **Quick Tip**
>
> In Data Sufficiency problems, always check if the expression in the statement is a multiple or a fraction of the expression you are asked to find. This can often lead to a quick solution without needing to solve for the individual variables.

PROBLEM SOLVING – ARITHMETIC

2. If 893 x 78 = p, which of the following is equal to 893 × 79?

(A) p + 1
(B) p + 78
(C) p + 79
(D) p + 893
(E) p + 894

Correct Answer: (D) p + 893

Solution:

Step 1: Understanding the Concept:
This problem tests the understanding of the distributive property of multiplication over addition. We need to express a new product in terms of a given product.

Step 2: Key Formula or Approach:
The distributive property states that for any numbers a, b, and c:

$$a \times (b + c) = (a \times b) + (a \times c)$$

Step 3: Detailed Explanation:
We are given the equation:

$$893 \times 78 = p$$

We need to find the value of 893×79 in terms of p.
The key is to recognize the relationship between 79 and 78. We can write 79 as $78 + 1$.
Now, substitute this into the expression we want to evaluate:

$$893 \times 79 = 893 \times (78 + 1)$$

Using the distributive property, we can expand the right side of the equation:

$$893 \times (78 + 1) = (893 \times 78) + (893 \times 1)$$

We are given that $893 \times 78 = p$, and we know that $893 \times 1 = 893$.
Substituting these values back into the equation:

$$(893 \times 78) + (893 \times 1) = p + 893$$

Therefore, $893 \times 79 = p + 893$.

Step 4: Final Answer:
The expression equal to 893×79 is $p + 893$.

> **Quick Tip**
>
> When a question asks you to relate two similar products, such as $a \times b$ and $a \times (b + 1)$, always think of the distributive property. This allows you to break down the problem into the known part and a simpler calculation.

PROBLEM SOLVING – GEOMETRY, CIRCLES

3. If 893 x 78 = p, which of the following is equal to 893 × 79?

(A) p + 1
(B) p + 78
(C) p + 79
(D) p + 893
(E) p + 894

Correct Answer: (D) p + 893

Solution:

Step 1: Understanding the Concept:
This problem tests the understanding of the distributive property of multiplication over addition. We are asked to express a new product in terms of a given product, p. Although the heading mentions Geometry, the problem is algebraic in nature.

Step 2: Key Formula or Approach:
The distributive property is key here: $a \times (b + c) = (a \times b) + (a \times c)$.

Step 3: Detailed Explanation:
We start with the given information:

$$893 \times 78 = p$$

Our goal is to find an expression for 893×79 using p.
We can express 79 as the sum of 78 and 1: $79 = 78 + 1$.
Let's substitute this into the expression we want to solve:

$$893 \times 79 = 893 \times (78 + 1)$$

Now, we apply the distributive property to expand the expression:

$$893 \times (78 + 1) = (893 \times 78) + (893 \times 1)$$

From the problem statement, we know that 893×78 is equal to p. Also, 893×1 is simply 893.
By substituting these values, we get:

$$p + 893$$

Thus, 893×79 is equivalent to $p + 893$.

Step 4: Final Answer:
The correct expression is $p + 893$.

Quick Tip

Don't be confused by category labels like "Geometry" if the problem content is clearly algebraic. Focus on the mathematical relationships presented in the question itself. Recognize that increasing one factor in a multiplication by 1 increases the total product by the other factor.

Problem solving: Algebra, Plug-in numbers, Quant

4. If 1 <x <y <z, which of the following has the greatest value?

(A) z(x + 1)
(B) z(y + 1)
(C) x(y + z)
(D) y(x + z)
(E) z(x + y)

Correct Answer: (E) z(x + y)

Solution:

Step 1: Understanding the Concept:
The problem asks to compare the values of five different algebraic expressions, given an inequality that defines the relationship between the variables x, y, and z.

Step 2: Key Formula or Approach:
There are two common methods to solve this: 1. **Plugging in numbers:** Choose simple values for x, y, and z that satisfy the condition $1 < x < y < z$ and calculate each option. 2. **Algebraic comparison:** Use the given inequalities to compare the expressions systematically.

Step 3: Detailed Explanation:
Method 1: Plugging in numbers
Let's choose simple integer values that fit the inequality $1 < x < y < z$. For example, let $x = 2$, $y = 3$, and $z = 4$.
Now, we evaluate each option:
(A) $z(x + 1) = 4(2 + 1) = 4 \times 3 = 12$
(B) $z(y + 1) = 4(3 + 1) = 4 \times 4 = 16$
(C) $x(y + z) = 2(3 + 4) = 2 \times 7 = 14$
(D) $y(x + z) = 3(2 + 4) = 3 \times 6 = 18$
(E) $z(x + y) = 4(2 + 3) = 4 \times 5 = 20$
Based on these values, option (E) has the greatest value (20).

Method 2: Algebraic Comparison
Let's compare the expressions. We are given $1 < x < y < z$. All variables are positive.
Compare (D) and (E):
(D) is $y(x + z) = yx + yz$
(E) is $z(x + y) = zx + zy$
Since $yz = zy$, we just need to compare yx and zx. As $y < z$ and $x > 0$, it follows that $yx < zx$. Therefore, $y(x + z) < z(x + y)$, meaning (E) ¿ (D).

Compare (B) and (E):
(B) is $z(y + 1)$
(E) is $z(x + y)$
Since z is a positive common factor, we compare $(y + 1)$ with $(x + y)$. Subtracting y from both, we compare 1 with x. The problem states $1 < x$, so $1 < x$. This implies $(y + 1) < (y + x)$. Therefore, $z(y + 1) < z(x + y)$, meaning (E) ¿ (B).

Through these comparisons, we can establish that $z(x+y)$ is the largest expression. It multiplies the largest number (z) by the sum of the other two numbers ($x+y$), which are both larger than 1.

Step 4: Final Answer:
Both methods show that the expression with the greatest value is $z(x + y)$.

Quick Tip

For questions involving inequalities and finding the greatest or least value, plugging in simple, valid numbers is often the quickest and most intuitive method. Choose numbers that are easy to calculate with, like small integers, while respecting the given conditions.

Problem solving: Quant, Quantitative, Estimation

5. Over the past 7 weeks, the Smith family had weekly grocery bills of \$74, \$69, \$64, \$79, \$64, \$84, and \$77. What was the Smiths' average (arithmetic mean) weekly grocery bill over the 7-week period?

(A) \$64
(B) \$70
(C) \$73
(D) \$74
(E) \$85

Correct Answer: (C) \$73

Solution:

Step 1: Understanding the Concept:
The question asks for the arithmetic mean, or average, of a given set of numbers. The arithmetic mean is a measure of central tendency.

Step 2: Key Formula or Approach:
The formula to calculate the arithmetic mean is:

$$\text{Average (Mean)} = \frac{\text{Sum of all the values}}{\text{Number of values}}$$

Step 3: Detailed Explanation:
The data set of weekly grocery bills consists of 7 values: \$74, \$69, \$64, \$79, \$64, \$84, and \$77.
First, find the sum of all the values:

$$\text{Sum} = 74 + 69 + 64 + 79 + 64 + 84 + 77$$

To make the addition easier, we can group the numbers:

$$(74 + 77) + (69 + 79) + (64 + 64) + 84$$
$$151 + 148 + 128 + 84$$
$$299 + 128 + 84$$
$$427 + 84$$
$$\text{Sum} = 511$$

Second, count the number of values:
There are 7 weekly bills, so the number of values is 7.
Finally, calculate the mean:

$$\text{Average} = \frac{\text{Sum}}{\text{Number of values}} = \frac{511}{7}$$

To perform the division:

$$511 \div 7 = 73$$

So, the average weekly grocery bill is $73.

Step 4: Final Answer:
The Smiths' average weekly grocery bill over the 7-week period was $73.

Quick Tip

To calculate the average of a set of numbers more quickly, you can use the "assumed mean" method. Guess a mean (e.g., $70, as it's near the middle). Then, find the sum of the differences from this assumed mean: '(4) + (-1) + (-6) + (9) + (-6) + (14) + (7) = 21'. Divide this sum of differences by the number of values: '21 / 7 = 3'. Add this result to your assumed mean: '70 + 3 = 73'.
