GRE 2024 Quant Practice Test 5

[0.2cm]

Time Allowed :	Maximum Score :	Sections :
About 3 hrs 45 mins	340 (Verbal+Quant) + 6 (AWA)	3 Main + 1 Unscored

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The GRE General Test has a duration of about 3 hours 45 minutes, divided into six sections (including one unscored/experimental section).
2. The test consists of the following sections:
   - **Analytical Writing Assessment (AWA)** – 2 tasks, 30 minutes each.
   - **Verbal Reasoning** – 2 sections, 20 questions each, 30 minutes per section.
   - **Quantitative Reasoning** – 2 sections, 20 questions each, 35 minutes per section.
   - **Unscored/Research Section** – May appear anytime (not counted in score).
3. Scoring Pattern:
   - Verbal Reasoning: 130–170 (in 1-point increments).
   - Quantitative Reasoning: 130–170 (in 1-point increments).
   - Analytical Writing: 0–6 (in half-point increments).
4. No negative marking is applied in the GRE. Test-takers are advised to attempt all questions.
5. Only an on-screen calculator is allowed for Quantitative Reasoning. No physical calculators, mobile devices, or electronic gadgets are permitted.
6. Breaks: A 10-minute break is provided after the third section; one-minute breaks between other sections.

QUANT PRACTICE PAPER

1. Quantity A: $|10| - |16|$
Quantity B: $|1 - 5| - |3 - 6|$

(A) The two quantities are equal.
(B) Quantity A is greater.
(C) Quantity B is greater.
(D) The relationship cannot be determined from the information given.

Correct Answer: (C) Quantity B is greater.

Solution:
Step 1: Simplify the absolute values. For Quantity A:

$$|10| - |16| = 10 - 16 = -6.$$

For Quantity B:

$$|1 - 5| - |3 - 6| = |-4| - |-3| = 4 - 3 = 1.$$

Step 2: Compare the two quantities.
Clearly, $-6 < 1$, so Quantity B is greater.

Quick Tip

When comparing absolute values, make sure to simplify them before making comparisons.

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2. Quantity A: -7
Quantity B: $x + y - z$
$0 < x < y < z < 10$
x, y, and z are integers.

(A) Quantity A is greater.
(B) The relationship cannot be determined from the information given.
(C) The two quantities are equal.
(D) Quantity B is greater.

Correct Answer: (B) The relationship cannot be determined from the information given.

Solution:
Step 1: Analyze the variables.
We are given the relationship $0 < x < y < z < 10$, where x, y, z are integers. However, we do not have enough information to determine the exact values of x, y, and z.

Step 2: Conclusion.
Since we do not know the specific values of x, y, and z, we cannot determine the relationship between the two quantities.

Quick Tip

When working with variables, ensure you have enough information to definitively compare the quantities.

3. Quantity A: 7 - 4 - (-3) - 8
Quantity B: 8 - (-8) - 1 + 2.

Which of the following is true?

(A) The two quantities are equal in size.
(B) The relationship between the quantities cannot be determined.
(C) Quantity A is larger.
(D) Quantity B is larger.

Correct Answer: (A) The two quantities are equal in size.

Solution:
Step 1: Simplify both expressions.
For Quantity A:

$$7 - 4 - (-3) - 8 = 7 - 4 + 3 - 8 = -2.$$

For Quantity B:

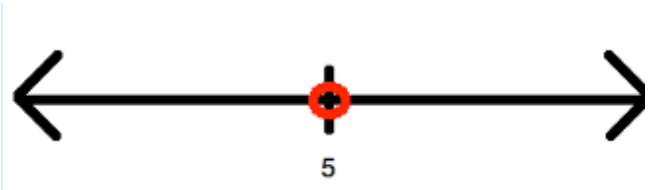
$$8 - (-8) - 1 + 2 = 8 + 8 - 1 + 2 = 17.$$

Step 2: Conclusion.
The two quantities are equal, so the correct answer is (A).

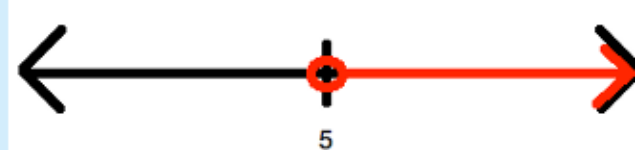
> Quick Tip
>
> Be careful with signs when simplifying expressions with negative numbers.

4. Which of the following is a graph for the values of x defined by the inequality $2x + 6 > 16$?

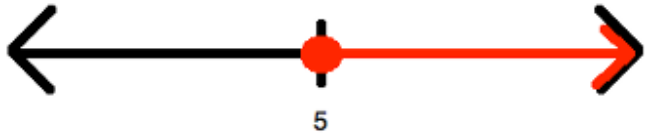
(A)



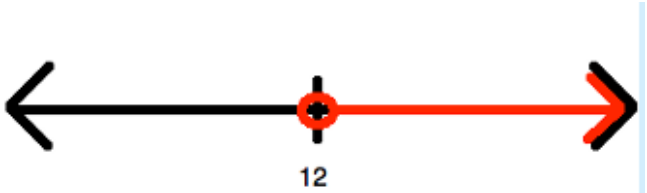
(B)



(C)



(D)



(E)

Correct Answer: (A)

Solution:
Step 1: Solve the inequality. Starting with the inequality:

$$2x + 6 > 16,$$

we subtract 6 from both sides:

$$2x > 10,$$

then divide both sides by 2:

$$x > 5.$$

Step 2: Determine the graph representation. Since the inequality is strict ($>$), we use an open circle at $x = 5$ and an arrow to the right, indicating all values greater than 5.

Quick Tip

For inequalities involving $>$ or $<$, use an open circle at the boundary and an arrow indicating the direction of the solution.

5. The product of two consecutive positive integers is 272. What is the larger of the integers?

(A) 15
(B) 19
(C) 17
(D) 18
(E) 16

Correct Answer: (C) 17

Solution:
Step 1: Define the integers. Let the two consecutive integers be n and $n+1$. Their product is given by:

$$n(n+1) = 272.$$

Step 2: Solve the equation. Expanding the equation:

$$n^2 + n = 272.$$

Rearranging it into a quadratic equation:

$$n^2 + n - 272 = 0.$$

Step 3: Solve using the quadratic formula.
The quadratic formula is:

$$n = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a},$$

where $a = 1$, $b = 1$, and $c = -272$. Substituting the values:

$$n = \frac{-1 \pm \sqrt{1^2 - 4(1)(-272)}}{2(1)} = \frac{-1 \pm \sqrt{1 + 1088}}{2} = \frac{-1 \pm \sqrt{1089}}{2}.$$

Since $\sqrt{1089} = 33$, we get:

$$n = \frac{-1 + 33}{2} = 16.$$

Thus, the larger integer is 17.

Quick Tip

To solve problems involving consecutive integers, set up an equation and use the quadratic formula if necessary.

6. What is the sum of the 40th and the 70th elements of the series defined as:

$$s_n = s_{n-1} - 5, \quad s_1 = 281$$

(A) 22
(B) 55
(C) 45
(D) 17
(E) 100

Correct Answer: (A) 22

Solution:

The general formula for the recurrence relation is:

$$s_n = s_1 - 5(n-1)$$

Step 1: Find s_{40}:

$$s_{40} = 281 - 5(40-1) = 281 - 5 \times 39 = 281 - 195 = 86$$

Step 2: Find s_{70}:

$$s_{70} = 281 - 5(70-1) = 281 - 5 \times 69 = 281 - 345 = -64$$

Step 3: Add s_{40} and s_{70}:

$$s_{40} + s_{70} = 86 + (-64) = 22$$

Final Answer:

$$\boxed{22}$$

Quick Tip

For a recurrence relation like $s_n = s_{n-1} - 5$, you can express it in terms of the general formula $s_n = s_1 - 5(n-1)$ to calculate the nth term.

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7. By what percentage did the total book sales of the three stores increase from 2005 to 2010?

	Books sold in 2000 (thousands)	Books sold in 2005 (thousands)	Books sold in 2010 (thousands)
Store A	6	8	11
Store B	8	12	13
Store C	9	10	12

(A) 33.3%
(B) 12%
(C) 20%
(D) 15%
(E) 25%

Correct Answer: (C) 20%

Solution:

Step 1: Total book sales in 2005.

The sales in 2005 were:

Store A: 8 (thousands)
Store B: 12 (thousands)
Store C: 10 (thousands)

$$\text{Total sales in 2005} = 8 + 12 + 10 = 30 \text{ (thousands)}$$

Step 2: Total book sales in 2010.

The sales in 2010 were:

Store A: 11 (thousands)
Store B: 13 (thousands)
Store C: 12 (thousands)

$$\text{Total sales in 2010} = 11 + 13 + 12 = 36 \text{ (thousands)}$$

Step 3: Calculate the percentage increase.

$$\text{Percentage increase} = \frac{36 - 30}{30} \times 100 = \frac{6}{30} \times 100 = 20\%$$

Final Answer:

$$\boxed{20\%}$$

Quick Tip

To calculate percentage increase, use the formula:

$$\text{Percentage increase} = \frac{\text{New value} - \text{Old value}}{\text{Old value}} \times 100$$

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8. Which of the following is true?

$$\text{Quantity A: } x, \text{ where } x \text{ is } 65\% \text{ of } 408.$$

$$\text{Quantity B: } y, \text{ where } y \text{ is } 40\% \text{ of } 663.$$

(A) Quantity A is greater.
(B) A comparison cannot be determined from the given information.
(C) The two quantities are equal.
(D) Quantity B is greater.

Correct Answer: (A) Quantity A is greater.

Solution:

Step 1: Calculate Quantity A.

$$x = 65\% \text{ of } 408 = 0.65 \times 408 = 265.2$$

Step 2: Calculate Quantity B.

$$y = 40\% \text{ of } 663 = 0.40 \times 663 = 265.2$$

Step 3: Comparison.
Since both quantities are equal, the correct answer is:

Final Answer:

$$\boxed{\text{The two quantities are equal.}}$$

Quick Tip

When comparing percentages, always calculate the exact values and compare them to make a valid judgment.

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9. A chamber of commerce board has seven total members, drawn from a pool of twenty candidates. There are two stages in the board's election process. First,

a president, secretary, and treasurer are chosen. After that, four members are chosen to be "at large" without any specific title or district. How many possible boards could be chosen?

(A) 5,426,400
(B) 16,279,200
(C) 390,700,800
(D) 10,465,200
(E) 2,713,200

Correct Answer: (B) 16,279,200

Solution:

Step 1: Number of ways to choose the president, secretary, and treasurer.
We are selecting 3 people from 20 candidates:

$$\text{Ways to choose president, secretary, and treasurer} = \binom{20}{3} = 20 \times 19 \times 18 = 6840$$

Step 2: Number of ways to choose the remaining 4 members.
After selecting the first 3, there are 17 candidates left, and we need to select 4 more members:

$$\text{Ways to choose 4 members} = \binom{17}{4} = \frac{17 \times 16 \times 15 \times 14}{4 \times 3 \times 2 \times 1} = 2380$$

Step 3: Total number of possible boards.
Multiplying the two results:

$$\text{Total ways} = 6840 \times 2380 = 16,279,200$$

Final Answer:

$$\boxed{16,279,200}$$

Quick Tip

When selecting people for multiple roles, calculate the number of ways to select each group and multiply the results.

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10. Box A has 10 green balls and 8 black balls. Box B has 9 green balls and 5 black balls.
What is the probability if one ball is drawn from each box that both balls are green?

(A) $\frac{19}{252}$
(B) $\frac{5}{9}$
(C) $\frac{10}{49}$
(D) $\frac{5}{14}$
(E) $\frac{9}{14}$

Correct Answer: (C) $\frac{10}{49}$

Solution:

The probability of drawing a green ball from Box A is:

$$P(\text{green from A}) = \frac{10}{10+8} = \frac{10}{18} = \frac{5}{9}$$

The probability of drawing a green ball from Box B is:

$$P(\text{green from B}) = \frac{9}{9+5} = \frac{9}{14}$$

Now, since the two events are independent, the probability of both events happening is the product of their individual probabilities:

$$P(\text{both green}) = P(\text{green from A}) \times P(\text{green from B}) = \frac{5}{9} \times \frac{9}{14} = \frac{10}{49}$$

Final Answer:

$$\boxed{\frac{10}{49}}$$

Quick Tip

To find the probability of independent events happening together, multiply their individual probabilities.
