

GRE Quantitative Comparison Questions and Answers

1. Practice Question Strategy: Approximation

Quantity A: The area of a circle with radius 8

Quantity B: 200

Options:

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

Answer and Explanation:

To find the area of a circle, use the formula πr^2 . For a circle with radius 8:

$$\text{Area} = \pi \times 8^2 = 64\pi$$

To simplify, approximate π as 3.14:

$$64 \times 3.14 = 200.96$$

So, the area of the circle is approximately 200.96, which is greater than 200. Hence, Quantity A is greater than Quantity B.

Correct Answer: A. Quantity A is greater.

Tip: Approximate calculations can simplify comparisons without exact computations.

2. Practice Question Strategy: Approximation

Quantity A: The area of a square with a side length of 7

Quantity B: 50

Answer Choices:

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

Solution:

To solve this, you need to approximate the area of the square.

The area of a square is given by **side length**²

For Quantity A:

$$7^2 = 49$$

Here, Quantity B is 50.

You can see that 49 is close to 50, but slightly less. With this simple approximation, it's clear that Quantity B is slightly greater than Quantity A.

Thus, the correct answer is: **B. Quantity B is greater.**

3. Practice Question Strategy: Plugging in Numbers

Quantity A: $2x^2 + 5x$ when $x=2$

Quantity B: $3x^2 + x$ when $x=2$

Options:

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

Answer and Explanation:

Substitute $x = 2$ into both expressions:

For Quantity A:

$$2(2^2) + 5(2) = 2 \times 4 + 10 = 8 + 10 = 18$$

For Quantity B:

$$3(2^2) + 2 = 3 \times 4 + 2 = 12 + 2 = 14$$

Quantity A evaluates to 18 and Quantity B evaluates to 14. Thus, Quantity A is greater.

Correct Answer: A. Quantity A is greater.

Tip: Substituting specific values can make it easier to compare algebraic expressions.

4. Practice Question Strategy: Plugging in Numbers

Let a and b be positive integers.

Quantity A: $3a + 2b$

Quantity B: $4a + b$

Answer Choices:

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

Solution:

Since a and b are positive integers, you can choose any positive integer values for them to test the quantities. Let's use $a = 2$ and $b = 3$:

For Quantity A:

$$3a + 2b = 3(2) + 2(3) = 6 + 6 = 12.$$

For Quantity B:

$$4a + b = 4(2) + 3 = 8 + 3 = 11.$$

So, in this case, Quantity A is 12 and Quantity B is 11. Therefore, Quantity A is greater.

To verify consistency, you can try different positive integer values for a and b . For example, using $a = 1$ and $b = 2$:

For Quantity A: $3(1) + 2(2) = 3 + 4 = 7.$

For Quantity B: $4(1) + 2 = 4 + 2 = 6.$

Again, Quantity A is greater than Quantity B.

5. Practice Question Strategy: Matching Operations

Quantity A: $3x + 4$

Quantity B: $2x + 6$

Options:

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

Answer and Explanation:

To compare these, subtract $2x$ from both quantities:

For Quantity A:

$$3x + 4 - 2x = x + 4$$

For Quantity B:

$$2x + 6 - 2x = 6$$

Thus, Quantity A simplifies to $x + 4$, and Quantity B simplifies to 6. The relationship depends on x :

- If $x > 2$, $x + 4 > 6$, so Quantity A is greater.
- If $x < 2$, $x + 4 < 6$, so Quantity B is greater.

Correct Answer: D. The relationship cannot be determined from the information given.

Tip: Use consistent operations on both sides to simplify comparisons.

6. Practice Question Strategy: Matching Operations

Given that x is a positive integer

Quantity A: $3x+5$

Quantity B: $2x+10$

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

Solution:

First, observe that both quantities contain the term x . To simplify the comparison, subtract $2x$ from both quantities:

Quantity A:

$$3x + 5 - 2x = x + 5$$

Quantity B:

$$2x + 10 - 2x = 10$$

Now, compare the simplified quantities:

Quantity A: $x+5$

Quantity B: 10

Since x is a positive integer, $x+5$ will always be greater than 10 when x is 6 or more.

However, for values of x less than 5, the relationship might change.

Therefore, the correct answer here would be **D. The relationship cannot be determined from the information given.**

7. Practice Question Strategy: Looking for Equality

Quantity A: $4x + 5$

Quantity B: $2x + 15$

Options:

A. Quantity A is greater.

B. Quantity B is greater.

C. The two quantities are equal.

D. The relationship cannot be determined from the information given.

Answer and Explanation:

To determine if the quantities are equal, set them equal to each other:

$$4x + 5 = 2x + 15$$

Subtract $2x$ from both sides:

$$2x + 5 = 15$$

Subtract 5 from both sides:

$$2x = 10$$

Divide by 2: $x=5$

So, if $x = 5$, the quantities are equal. For other values of x , the relationship changes.

Correct Answer: C. The two quantities are equal.

Tip: Equate expressions to check for equality directly.

8. Practice Question Strategy: Looking for Equality

x and y are positive integers

Quantity A: $3x^2 + 2y - 5$

Quantity B: $x^2 + 5y + 2$

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

Solution:

First, let's try equating the two quantities by substituting specific values for x and y:

1. Let $x = 1$ and $y = 1$:

Quantity A:

$$3(1)^2 + 2(1) - 5 = 3 + 2 - 5 = 0$$

Quantity B:

$$(1)^2 + 5(1) + 2 = 1 + 5 + 2 = 8$$

Since Quantity A is not equal to Quantity B, we cannot conclude the relationship based on this alone. Now, let's try another set of values to check if this holds true for all positive integer values of x and y.

2. Let $x = 2$ and $y = 2$:

Quantity A:

$$3(2)^2 + 2(2) - 5 = 12 + 4 - 5 = 11$$

Quantity B:

$$(2)^2 + 5(2) + 2 = 4 + 10 + 2 = 16$$

Since Quantity A is still not equal to Quantity B, we continue to check further values to ensure that the inequality persists.

3. Let $x=0$ and $y=0$:

Quantity A:

$$3(0)^2 + 2(0) - 5 = -5$$

Quantity B:

$$(0)^2 + 5(0) + 2 = 2$$

Again, Quantity A is not equal to Quantity B.

Based on these checks, it is clear that the quantities are not equal for different values of x and y . Therefore, we can conclude that **the relationship cannot be determined from the information given.**

Thus, the correct answer is D.

9. Practice Question Strategy: Number Sense

Quantity A: $(3x-4)/2$, when $x > 6$

Quantity B: 1

Options:

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

Answer and Explanation:

Since $x > 6$, $3x - 4$ is greater than $3 \times 6 - 4 = 14$. Thus:

$$(3x - 4) / 2 > 14/2 = 7$$

Since $7 > 1$, Quantity A is greater than Quantity B.

Correct Answer: A. Quantity A is greater.

Tip: Use your understanding of numbers to make quick comparisons.

10. Practice Question Strategy: Number Sense

Given $y > 3$

Quantity A: $(6y+2) / 4$

Quantity B: 3

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

Solution:

If you look at the question here, you can see that since $y > 3$, $6y > 18$. Let's break it down:

Considering Quantity A:

$$(6y+2) / 4$$

Since $y > 3$, we know $6y > 18$. Adding 2 gives $6y + 2 > 20$. So,

$$(6y+2) / 4 > 20 / 4 = 5.$$

Thus, Quantity A is always greater than 5.

Considering Quantity B:

Quantity B is simply 3.

Since $(6y+2) / 4$ is greater than 5 for all $y > 3$, and 5 is greater than 3, it's clear that **Quantity A is always greater than Quantity B.**

Therefore, the answer is A.

11. Practice Question Strategy: Simplification

Quantity A: $(4y-2) / 2$

Quantity B: $2y - 1$

Options:

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

Answer and Explanation:

Simplify Quantity A:

$$(4y - 2) / 2 = 2y - 1$$

Quantity B: $2y - 1$

Thus, Quantity A is identical to Quantity B.

Correct Answer: C. The two quantities are equal.

Tip: Simplify expressions to see if they are equal.

12. Practice Question Strategy: Simplification

Quantity A: $(2x^2 + 6x + 4) / (x+2)$

Quantity B: $x+4$

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

Solution:

To simplify Quantity A, perform polynomial division:

Simplify Quantity A:

Divide $2x^2 + 6x + 4$ by $x+2$:

$$\begin{aligned}(2x^2 + 6x + 4) / (x+2) &= 2(x^2 + 3x + 2) / (x+2) \\ &= 2(x + 1)(x + 2) / (x+2) \\ &= 2(x + 1) \\ &= 2x + 2\end{aligned}$$

So, Quantity A simplifies to $2x + 2$.

Compare with Quantity B:

Quantity B is $x + 4$.

Subtract Quantity B from Quantity A:

$$(2x + 2) - (x + 4) = (x - 2)$$

The result $x - 2$ tells us that:

- If $x > 2$, Quantity A is greater.
- If $x < 2$, Quantity B is greater.
- If $x = 2$, both quantities are equal.

So, the answer depends on the value of x . Therefore, **the correct answer is D.**

13. Practice Question Strategy: Elimination

Quantity A: $x^2 + 3x + 2$

Quantity B: $x^2 + 5x + 4$

Options:

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

Answer and Explanation:

Subtract x^2 from both quantities:

For Quantity A:

$$x^2 + 3x + 2 - x^2 = 3x + 2$$

For Quantity B:

$$x^2 + 5x + 4 - x^2 = 5x + 4$$

Compare $3x + 2$ to $5x + 4$:

$$5x + 4 - 3x - 2 = 2x + 2$$

Since $2x+2$ is positive for $x > 0$, Quantity B is greater.

Correct Answer: B. Quantity B is greater.

Tip: Eliminate common terms to simplify the comparison.

14. Practice Question Strategy: Elimination

a and b are positive integers.

Quantity A: $a^2 + b^2$

Quantity B: $2ab$

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

Solution:

To apply elimination, consider different scenarios or values for a and b :

1. If $a = 1$ and $b = 2$:

Quantity A: $1^2 + 2^2 = 1 + 4 = 5$

Quantity B: $2 \cdot 1 \cdot 2 = 4$

Here, Quantity A (5) is greater than Quantity B (4).

2. If $a = 2$ and $b = 2$:

Quantity A: $2^2 + 2^2 = 4 + 4 = 8$

Quantity B: $2 \cdot 2 \cdot 2 = 8$

Here, Quantity A (8) is equal to Quantity B (8).

3. If $a = 3$ and $b = 1$:

Quantity A: $3^2 + 1^2 = 9 + 1 = 10$

Quantity B: $2 \cdot 3 \cdot 1 = 6$

Here, Quantity A (10) is greater than Quantity B (6).

In all cases tested, Quantity A can be greater, equal to, or less than Quantity B depending on the values of a and b . Therefore, you can eliminate options A and B, and **the correct answer is D**.

15. Practice Question Strategy: Cross-Multiplication

Quantity A: $2x / (x + 1)$

Quantity B: $3/2$

Options:

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

Answer and Explanation:

Cross-multiply to compare:

$$2x \times 2 = 3 \times (x+1)$$

$$4x = 3x + 3$$

Subtract $3x$:

$$x = 3$$

For $x > 3$, $2x / (x + 1)$ will be greater than $3/2$

Correct Answer: D The relationship cannot be determined from the information given.

Tip: Cross-multiplication helps compare fractions without direct division.

16. Practice Question Strategy: Cross-Multiplication

Quantity A: $(3x + 5) / (2x - 3)$

Quantity B: $(2x + 7) / (x + 1)$

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

Solution:

To compare these fractions, cross-multiply:

Cross-Multiply:

$$(3x + 5) / (2x - 3) \text{ vs } (2x + 7) / (x + 1)$$

Cross-multiplying gives:

$$(3x + 5)(x + 1) \text{ vs } (2x + 7)(2x - 3)$$

Expand both products:

For Quantity A:

$$(3x + 5)(x + 1) = 3x^2 + 3x + 5x + 5 = 3x^2 + 8x + 5$$

For Quantity B:

$$(2x + 7)(2x - 3) = 4x^2 - 6x + 14x - 21 = 4x^2 + 8x - 21$$

Subtract the left side from the right side:

$$(3x^2 + 8x + 5) - (4x^2 + 8x - 21) = -x^2 + 26$$

The result $-x^2 + 26$ tells us that:

- If x is small, the result might be positive or negative, affecting which quantity is greater.
- Generally, if x is large, $-x^2$ will dominate, making Quantity B larger.

Therefore, the relationship depends on x , so **the correct answer is D**.

17. Practice Question Strategy: Working with Inequalities

Quantity A: $x+3$ when $x < 2$

Quantity B: 5

Options:

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

Answer and Explanation:

If $x < 2$, then $x + 3 < 2 + 3 = 5$.

Thus, Quantity A is less than Quantity B.

Correct Answer: B. Quantity B is greater.

Tip: Use inequalities to determine if one quantity is consistently greater or lesser.

18. Practice Question Strategy: Absolute Values

Quantity A: $|x-2|$

Quantity B: $|2-x|$

Options:

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

Answer and Explanation:

Since $|x - 2| = |2 - x|$ for any value of x , both quantities are always equal. This is because the absolute value of a number is always non-negative and measures the distance from zero, **making $|a - b|$ equal to $|b - a|$.**

Thus, the correct answer is that the two quantities are equal.

Correct Answer: C. The two quantities are equal.

Tip: When dealing with absolute values, remember that $|a - b|$ is always equal to $|b - a|$. This can simplify comparisons and help you quickly determine the relationship between quantities.