

GRE Quantitative Reasoning

Sample Paper 02

- A) **Subject:** Quantitative Reasoning
- B) **Total Questions:** 27 Questions (Section I: 12 — Section II: 15)
- C) **Time Allowed:** 47 Minutes
- **Section 1:** 12 Questions — 21 Minutes
 - **Section 2:** 15 Questions — 26 Minutes
- D) **Marking Scheme:**
- **Correct Answer:** +1 Point
 - **Incorrect/Unattempted:** 0 Points (No Negative Marking)

SECTION I: QUANTITATIVE REASONING

Q1. Evaluate the absolute values:

Quantity A

$$-12 - (-19)$$

Quantity B

$$-2 - 8 - (-5 - 9)$$

- 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.

Q2. x, y , and z are integers such that $5 < x < y < z < 15$.

Quantity A

$$x + y - z$$

Quantity B

$$-2$$

- 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.

Q3. The arithmetic mean of p, q, r , and s is 22.

Quantity A

The sum of p, q, r , and s

Quantity B

88

- 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.

Q4. Simplify the radical expressions:

Quantity A

$\sqrt{80} - \sqrt{45}$

Quantity B

$\sqrt{5}$

- 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.

Q5. The product of two consecutive positive integers is 420. What is the smaller of the two integers?

- A. 18
- B. 19
- C. 20
- D. 21
- E. 22

Q6. A sequence is defined by $a_n = a_{n-1} + 7$, with $a_1 = 12$. What is the value of a_{20} ?

- A. 133
- B. 145
- C. 152
- D. 160
- E. 165

Q7. Which of the following describes the graph for the inequality $3x - 9 > 21$?

- A. A solid circle at 10 with an arrow pointing right
- B. An open circle at 10 with an arrow pointing left
- C. An open circle at 10 with an arrow pointing right
- D. A solid circle at 4 with an arrow pointing right
- E. An open circle at 4 with an arrow pointing left

Q8. Simplify the algebraic expression: $\frac{4x^5 \times 3y^2 + 8x^5 y^2}{2x^3 y}$

- A. $10x^2y$
- B. $6x^2y + 4x^2y$
- C. $10x^2$
- D. $20x^2y^2$
- E. $10x^2y^2$

Q9. Box X contains 6 blue marbles and 4 red marbles. Box Y contains 5 blue marbles and 5 red marbles. If one marble is drawn from each box, what is the probability that both marbles are blue?

- A. $1/2$
- B. $3/10$
- C. $3/20$
- D. $1/4$
- E. $2/5$

Q10. A triangle has sides of length 8 and 15. Which of the following could be the length of the third side?

- A. 5
- B. 7
- C. 18
- D. 23
- E. 25

Q11. The average of four numbers is 15. If a fifth number is added, the new average becomes 18. What is the value of the fifth number?

Q12. Simplify and enter as a decimal: $\frac{3}{5} + \frac{1}{4} + 0.12$

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SECTION II: QUANTITATIVE REASONING

Q1. The function $f(x) = x^2$ is shifted 4 units to the right and 2 units down.

Quantity A

The y-intercept of the new function

Quantity B

14

- 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.

Q2. m is the smallest composite number greater than 5, and n is the smallest prime number greater than 10.

Quantity A

$m \times n$

Quantity B

66

- 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.

Q3. Compare the exponents:

Quantity A

$(1/3)^{-2}$

Quantity B

3^2

- 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.

Q4. A circle has a circumference of 10π .

Quantity A

The area of the circle

Quantity B

25π

- 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.

Q5. A line is parallel to the x-axis and passes through the point $(-4, 7)$. What is its equation and its y-intercept?

- A. $y = 7, (0, 7)$
- B. $x = -4, (-4, 0)$
- C. $y = -4, (0, -4)$
- D. $x = 7, (7, 0)$
- E. $y = 7, (7, 0)$

Q6. A mixture of 20 liters is 40% alcohol. How many liters of pure alcohol must be added to make the mixture 50% alcohol?

- A. 2
- B. 4
- C. 5
- D. 8
- E. 10

Q7. A committee of 5 members is to be chosen from a pool of 12 candidates. If 2 specific members (a Chair and a Secretary) are chosen first, and then the remaining 3 are chosen "at-large," how many different committees are possible?

- A. 15,840
- B. 13,200
- C. 11,880
- D. 1,320
- E. 7,920

Q8. A savings account starts with \$5,000 and earns 4% interest compounded annually. What is the interest earned in the second year only?

- A. 200.00
- B. 208.00
- C. 408.00
- D. 212.00

E. 216.00

Q9. Reduce the fraction: $\frac{2a^2b+4ab^2}{2ab}$

A. $a + 2b$

B. $2a + b$

C. $ab(a + 2b)$

D. $a + b$

E. $4ab$

Data Interpretation: Store Sales (2020-2022)

Store	2020 Sales (\$)	2021 Sales (\$)	2022 Sales (\$)
North	40,000	48,000	60,000
South	30,000	33,000	36,000
East	50,000	55,000	55,000

Q10. By what percentage did the total sales of all three stores increase from 2020 to 2021?

A. 10%

B. 11.5%

C. 13.3%

D. 15%

E. 20%

Q11. In 2022, North Store sales accounted for approximately what fraction of total sales?

A. $\frac{1}{3}$

B. $\frac{2}{5}$

C. $\frac{1}{2}$

D. $\frac{4}{11}$

E. $\frac{5}{12}$

Q12. What was the average annual sales (in dollars) for the South Store over the three-year period?

Q13. Solve for x : If $2x + 3y = 18$ and $y - x = 1$, what is the value of x ?

Q14. In a survey of 80 people, 45 enjoy tea, 35 enjoy coffee, and 15 enjoy both. How many people enjoy neither?

Q15. A cylinder has a radius of 3 and a height of 5. A cone has the same radius and height. What is the difference between the volume of the cylinder and the volume of the cone?

- A. 15π
- B. 30π
- C. 45π
- D. 10π
- E. 20π

Solutions - Section I

- (B) Quantity A: $|12| - |19| = 12 - 19 = -7$. Quantity B: $|-6| - |-4| = 6 - 4 = 2$. $2 > -7$.
- (B) Minimum $x + y - z$ using integers: $6 + 7 - 14 = -1$. Maximum: $11 + 12 - 13 = 10$. In all valid cases for $x < y < z$, the result is > -2 .
- (C) Sum = Mean $\times$ count = $22 \times 4 = 88$.
- (C) $\sqrt{80} - \sqrt{45} = 4\sqrt{5} - 3\sqrt{5} = \sqrt{5}$.
- (C) $20 \times 21 = 420$. Smaller is 20.
- (B) $a_{20} = a_1 + (19 \times 7) = 12 + 133 = 145$.
- (C) $3x > 30 \Rightarrow x > 10$. Open circle (not equal) pointing right.
- (A) $\frac{12x^5y^2 + 8x^5y^2}{2x^3y} = \frac{20x^5y^2}{2x^3y} = 10x^2y$.
- (B) $(6/10) \times (5/10) = 30/100 = 3/10$.
- (C) $15 - 8 < x < 15 + 8 \Rightarrow 7 < x < 23$. Only 18 fits.
- 30 Old sum = 60. New sum = $18 \times 5 = 90$. $90 - 60 = 30$.
- 0.97 $0.6 + 0.25 + 0.12 = 0.97$.

Solutions - Section II

- (A) New function: $y = (x - 4)^2 - 2$. Y-intercept ($x = 0$): $(-4)^2 - 2 = 16 - 2 = 14$. A and B are equal. Wait, $14 = 14$ is (C). *Correction: Choice C.*
- (C) $m = 6$ (Smallest composite > 5). $n = 11$ (Smallest prime > 10). $6 \times 11 = 66$.
- (C) $(1/3)^{-2} = 3^2 = 9$.
- (C) $2\pi r = 10\pi \Rightarrow r = 5$. Area = $\pi(5^2) = 25\pi$.
- (A) Horizontal lines are $y = k$. $y = 7$ passes through $(0, 7)$.
- (B) Alcohol current = 8L. $\frac{8+x}{20+x} = 0.5 \Rightarrow 8 + x = 10 + 0.5x \Rightarrow 0.5x = 2 \Rightarrow x = 4$.
- (D) Chair/Sec: $12 \times 11 = 132$. Remaining 3 from 10: $\binom{10}{3} = \frac{10 \cdot 9 \cdot 8}{3 \cdot 2 \cdot 1} = 120$. Total = 132×120 (wait, Q rephrased: $12 \cdot 11 \cdot \binom{10}{3} = 15840$). *Correction: Choice A.*
- (B) Year 1 end: $5000 \times 1.04 = 5200$. Year 2 interest: $5200 \times 0.04 = 208$.
- (A) $\frac{2ab(a+2b)}{2ab} = a + 2b$.
- (C) Total 2020: 120k. Total 2021: 136k. Increase = $16/120 = 13.3\%$.
- (D) 2022 Total: $60 + 36 + 55 = 151$. North = $60/151 \approx 0.397$ (approx $4/11$).

12. **33,000** $(30k + 33k + 36k)/3 = 33k$.
13. **3** $y = x + 1 \Rightarrow 2x + 3(x + 1) = 18 \Rightarrow 5x + 3 = 18 \Rightarrow 5x = 15 \Rightarrow x = 3$.
14. **15** Total union = $45 + 35 - 15 = 65$. Neither = $80 - 65 = 15$.
15. **(B)** $V_{cyl} = \pi r^2 h = 45\pi$. $V_{cone} = \frac{1}{3}\pi r^2 h = 15\pi$. Diff = 30π .

