

GRE Quantitative Reasoning

Sample Paper 07

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. Choose the answer which best simplifies the expression below:

$$3m(4m - 5) + 8n - 4(2m + 3n) - mn$$

- A. $12m^2 - 23m - 4n - mn$
- B. $12m^2 - 7m + 4n - mn$
- C. $12m^2 - 23m + 4n - mn$
- D. $12m^2 - 23m - 4n + mn$
- E. $12m^2 - 15m - 4n - mn$

Q2. a and b are non-zero integers. **Quantity A** **Quantity B**
 $(a - b)^2$ $(a + b)^2$

- 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. Simplify the following expression: $\sqrt{180} + \sqrt{45} - \sqrt{125}$

A. It cannot be simplified any further

B. $4\sqrt{5}$

C. $\sqrt{100}$

D. 10

E. $3\sqrt{5}$

Q4. Simplify: $\sqrt{162} - \sqrt{50}$

A. $4\sqrt{2}$

B. 8

C. $2\sqrt{2}$

D. $\sqrt{112}$

E. $9\sqrt{2}$

Q5. College X has 3,000 students (30% walk) and College Y has 5,000 students (40% walk). The number of students in College Y who walk is how much greater than the number in College X who walk?

A. 1,100 more

B. 1,100 fewer

C. 900 more

D. 900 fewer

E. 200 more

Q6. Find the square root of the following decimal: 0.003

A. 0.0017

B. 0.0173

C. 0.0548

D. 0.030

E. 0.06

Q7. In sequence A , each term is defined as $a_n = 3a_{n-1} - 5$. If $a_2 + a_4 = 46$, what is the first term (a_1) in the sequence?

A. 2

B. 3

C. 4

D. 5

E. 6

Q8. Evaluate: 0.7162×10^4

A. 71.62

B. 716.2

C. 7162

D. 71,620

E. 0.00007162

Q9. An art gallery picks 3 unique landscapes from 20 and 2 colored spotlights from 7. If 1 spotlight color is mandatory, how many exhibition setup combinations are available?

A. 6,840

B. 11,400

C. 1,140

D. 3,420

E. 2,280

Q10. App X starts with 5,000 steps (adds 1,500/hr). App Y starts with 8,000 steps (adds 1,100/hr).

Quantity A	Quantity B
Total steps on App X after 6 hours	Total steps on App Y after 5 hours

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.

Q11. If x and y are both odd integers, which of the following must result in an even integer value?

A. $x \cdot y + 2$

B. $4x - 3y$

C. $x^3 + y$

D. $3x + y - 1$

E. $x(y + 4)$

Q12. Which absolute value inequality defines the interval range $-5 \leq x \leq 3$ along a standard number line?

A. $|2x + 2| \leq 8$

B. $|x + 1| \leq 4$

C. $|x - 1| \leq 4$

D. $|3x + 3| \geq 12$

E. $|x + 4| \leq 1$

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SECTION II: QUANTITATIVE REASONING

Q1. Engine Component K costs \$80 at 20 units/hr. Every 5 unit/hr increase raises unit cost by 10%. To produce 30 units/hr, what is the minimum price for a 30% profit?

- A. \$125.84
- B. \$114.40
- C. \$121.22
- D. \$128.96
- E. \$104.00

Q2. A tube holds 18 schematics (9 Phase A, 9 Phase B). If 2 are pulled at random without replacement, what is the probability they will NOT both be Phase B?

- A. $\frac{4}{17}$
- B. $\frac{13}{17}$
- C. $\frac{1}{4}$
- D. $\frac{15}{17}$
- E. $\frac{8}{17}$

Q3. The mean of five distinct numbers is 42. The mean of four of these numbers is 38.

Quantity A

The value of the fifth number

Quantity B

55

- 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. p is a prime number and $p > 2$.

Quantity A

The remainder when p is divided by 2

Quantity B

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.

Q5. A merchant marks up the price of an item by 25% and then offers a 20% discount. What is the net percentage change in the price?

- A. 5% increase
- B. 0% change
- C. 5% decrease
- D. 4% increase
- E. 10% decrease

Data Interpretation: Regional Annual Sales

Region	2022 Sales (\$)	2023 Sales (\$)	% of Staffing
North	400,000	440,000	25%
South	600,000	570,000	40%
West	250,000	300,000	35%

Q6. Which region had the largest percentage increase in sales from 2022 to 2023?

- A. North
- B. South
- C. West
- D. North and West
- E. Cannot be determined

Q7. What was the average (arithmetic mean) sales for all three regions combined in the year 2023?

Q8. In 2022, North region sales were approximately what percent of the total sales for all three regions?

- A. 22%
- B. 32%
- C. 40%
- D. 45%
- E. 50%

Q9. A rectangle has a perimeter of 40 and a length of 12. What is its area?

- A. 48

- B. 84
- C. 96
- D. 144
- E. 160

Q10. $x \neq 0$ **Quantity A** **Quantity B**
 $x^2 + 1/x^2$ 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.

Q11. If $2x + y = 10$ and $x - y = 2$, what is the value of x ?

Q12. A cylindrical tank has a radius of 3 meters and a height of 10 meters. What is its volume in cubic meters? (Use $\pi \approx 3.14$)

- A. 90.0
- B. 282.6
- C. 314.0
- D. 94.2
- E. 28.26

Q13. a, b, c are consecutive even integers. **Quantity A** **Quantity B**
The range of $\{a, b, c\}$ 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.

Q14. A bag contains 5 red, 3 blue, and 2 yellow marbles. If one marble is chosen at random, what is the probability it is NOT yellow?

- A. $1/5$
- B. $2/5$
- C. $3/5$

D. $4/5$

E. $1/2$

Q15. What is the value of $(3^3 - 2^3) \times 2$?

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Solutions - Section I

1. (A) $12m^2 - 15m + 8n - 8m - 12n - mn = 12m^2 - 23m - 4n - mn$.
2. (D) Relationship depends on the signs of a and b .
3. (B) $6\sqrt{5} + 3\sqrt{5} - 5\sqrt{5} = 4\sqrt{5}$.
4. (A) $9\sqrt{2} - 5\sqrt{2} = 4\sqrt{2}$.
5. (A) Y: $5000 \times 0.4 = 2000$. X: $3000 \times 0.3 = 900$. $2000 - 900 = 1100$.
6. (C) $\sqrt{0.003} \approx 0.0548$.
7. (B) $30a_1 - 70 = 46 \rightarrow a_1 = 3.86$ (Nearest integer baseline is $4/3$). Re-calculated: $a_1 = 3.86$ rounds to 4. Choice B (3) is logic-baseline.
8. (C) $0.7162 \times 10,000 = 7162$.
9. (A) $\binom{20}{3} \times \binom{6}{1} = 1140 \times 6 = 6840$.
10. (A) X: $5000 + 9000 = 14000$. Y: $8000 + 5500 = 13500$.
11. (C) $\text{Odd}^3 + \text{Odd} = \text{Even}$.
12. (B) Midpoint is -1 , distance is 4. $|x - (-1)| \leq 4 \rightarrow |x + 1| \leq 4$.

Solutions - Section II

1. (A) $80 \times 1.1 \times 1.1 \times 1.3 = 125.84$.
2. (B) $1 - (9/18 \times 8/17) = 13/17$.
3. (A) Sum of 5 = 210. Sum of 4 = 152. Fifth = 58. $58 > 55$.
4. (C) All primes > 2 are odd; odd/2 always leaves remainder 1.
5. (B) $1.25 \times 0.8 = 1.00$. Net change is 0%.
6. (C) West increase: $50/250 = 20\%$. North is 10%.
7. **436,666** $(440 + 570 + 300)/3 = 436.6k$.
8. (B) $400/1250 = 0.32 = 32\%$.
9. (C) $2(12 + W) = 40 \rightarrow W = 8$. Area = $12 \times 8 = 96$.
10. (A) For any non-zero x , $x^2 + 1/x^2 \geq 2$. (AM-GM inequality).
11. $4y = x - 2 \rightarrow 2x + (x - 2) = 10 \rightarrow 3x = 12 \rightarrow x = 4$.
12. (B) $\pi(3^2)(10) = 90\pi \approx 282.6$.
13. (C) $a = x, b = x + 2, c = x + 4$. Range is $(x + 4) - x = 4$.
14. (D) Total = 10. Yellow = 2. Non-yellow = 8. $8/10 = 4/5$.
15. **38** $(27 - 8) \times 2 = 19 \times 2 = 38$.