

GRE Quantitative Reasoning

Sample Paper 05

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:

$$4x(3x - 2) + 7y - 3(4x + 2y) - xy$$

- A. $12x^2 - 20x + y - xy$
- B. $12x^2 - 8x + y - xy$
- C. $12x^2 - 20x - y - xy$
- D. $12x^2 - 20x + y + xy$
- E. $12x^2 - 12x + 7y - xy$

Q2. m and n are non-zero integers.

Quantity A

$$(m - n)^2$$

Quantity B

$$(m + n)^2$$

- 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: $\sqrt{112} + \sqrt{63} - \sqrt{28}$

- A. It cannot be simplified any further
- B. $5\sqrt{7}$
- C. $\sqrt{147}$
- D. $9\sqrt{7}$
- E. $3\sqrt{7}$

Q4. Simplify: $\sqrt{242} - \sqrt{18}$

- A. $8\sqrt{2}$
- B. 12
- C. $4\sqrt{2}$
- D. $\sqrt{224}$
- E. $11\sqrt{2}$

Q5. Division A (2,500 people) and Division B (4,000 people) allocate Tablets to 16% and 12% of employees, respectively. The number of people in Division B who were allocated a Tablet is how much greater or less than the number of people in Division A?

- A. 80 more
- B. 80 fewer
- C. 40 more
- D. 40 fewer
- E. 20 fewer

Q6. Find the square root of the following decimal: 0.007

- A. 0.0026
- B. 0.026
- C. 0.0837
- D. 0.049
- E. 0.07

Q7. In sequence S , each term after the first is defined as $s_n = 2s_{n-1} - 4$. If $s_2 + s_4 = 52$, what is the first term (s_1)?

- A. 16
- B. 5
- C. 10
- D. 8.4
- E. 12

Q8. Evaluate: 0.9318×10^2

- A. 9.318
- B. 93.18
- C. 931.8
- D. 9318
- E. 0.009318

Q9. Elena picks 3 unique flavors from 25 hot sauces and 2 unique ribbons from 8 choices. If 1 specific ribbon color is already fixed, how many unique combinations are possible?

- A. 16,100
- B. 32,200
- C. 2,300
- D. 4,600
- E. 11,500

Q10. Tank P starts with 80 gallons (leaks 2 gal/week). Tank Q starts with 75 gallons (leaks 1.5 gal/week).

Quantity A

Remaining water in Tank P after 6 weeks

Quantity B

Remaining water in Tank Q after 4 weeks

- 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 a and b are both odd integers, which of the following must be an even integer?

- A. $a \cdot b$

B. $3a - 2b$

C. $a^2 + b$

D. $2a + b$

E. $a(b + 2)$

Q12. Which absolute value inequality is represented by the interval $-4 \leq x \leq 6$?

A. $|2x - 2| \leq 10$

B. $|x - 2| \leq 4$

C. $|x + 1| \leq 5$

D. $|3x - 6| \geq 15$

E. $|x - 5| \leq 1$



SECTION II: QUANTITATIVE REASONING

Q1. Product Y costs \$50 to make at 40 units/hr. Increasing production by 10 units/hr raises unit cost by 10%. To increase output to 60 units/hr, for how much must each be sold for a 20% profit?

- A. \$72.60
- B. \$66.00
- C. \$70.50
- D. \$73.20
- E. \$60.50

Q2. In a bag of 14 marbles, 7 are red and 7 are green. If 2 are picked without replacement, what is the probability they will NOT both be green?

- A. $\frac{3}{13}$
- B. $\frac{10}{13}$
- C. $\frac{1}{4}$
- D. $\frac{11}{14}$
- E. $\frac{1}{2}$

Q3. The mean of four numbers is 30. The mean of three of these numbers is 24.

Quantity A

The value of the fourth number

Quantity B

45

- 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 radius of r and a square has a side length of $r\sqrt{\pi}$.

Quantity A

The area of the circle

Quantity B

The area of the square

- 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. If $2x + 3y = 13$ and $x - y = -1$, then $x^2 + y^2 =$

- A. 5
- B. 13
- C. 17
- D. 25
- E. 34

Q6. A merchant marks up an item by 40% and then offers a 20% discount on the marked price. What is the net percentage profit?

- A. 10%
- B. 12%
- C. 15%
- D. 18%
- E. 20%

Data Interpretation: Project Budgeting

Department	Q1 Expenditure (\$)	Q2 Expenditure (\$)
Engineering	50,000	55,000
Marketing	30,000	42,000
Research	20,000	18,000

Q7. Which department saw the highest percentage increase in expenditure from Q1 to Q2?

- A. Engineering
- B. Marketing
- C. Research
- D. Engineering and Marketing
- E. None of the above

Q8. What was the average expenditure across all three departments in Q2?

Q9. Marketing's Q1 expenditure was what percent of the total Q1 expenditure for all three departments?

- A. 20%
- B. 30%
- C. 40%
- D. 50%
- E. 60%

Q10. A line passes through (2, 5) and (6, 13). What is the y-intercept of this line?

- A. 1
- B. 0
- C. 2
- D. -3
- E. 5

Q11. $x > 0$

Quantity A

$$x^{1/2}$$

Quantity B

$$x^{1/3}$$

- 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.

Q12. Working alone at their constant rates, Pipe A can fill a tank in 6 hours and Pipe B can fill it in 12 hours. How long will it take to fill the tank if both pipes are open?

- A. 2 hours
- B. 3 hours
- C. 4 hours
- D. 5 hours
- E. 8 hours

Q13. Solve for k : $\frac{(k+3)(k-3)}{k} = k - \frac{9}{k}$. What is the value of k if $k \neq 0$?

Q14. In a group of 60 students, 35 take Math, 20 take Physics, and 10 take both. How many take neither?

- A. 5
- B. 10
- C. 15
- D. 20
- E. 25

Q15. x, y, z are consecutive integers.

Quantity A

The range of $\{x, y, z\}$

Quantity B

The standard deviation of $\{x, y, z\}$

- 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.

Solutions - Section I

1. (A) $12x^2 - 8x + 7y - 12x - 6y - xy = 12x^2 - 20x + y - xy$.
2. (D) If m, n share same sign, B is greater. If opposite signs, A is greater.
3. (B) $4\sqrt{7} + 3\sqrt{7} - 2\sqrt{7} = 5\sqrt{7}$.
4. (A) $11\sqrt{2} - 3\sqrt{2} = 8\sqrt{2}$.
5. (A) B: $4000 \times 0.12 = 480$. A: $2500 \times 0.16 = 400$. $480 - 400 = 80$ more.
6. (C) $\sqrt{0.007} \approx 0.0837$.
7. (D) $10s_1 - 32 = 52 \rightarrow 10s_1 = 84 \rightarrow s_1 = 8.4$.
8. (B) 93.18.
9. (A) $\binom{25}{3} \times \binom{7}{1} = 2300 \times 7 = 16,100$.
10. (B) P: $80 - 12 = 68$. Q: $75 - 6 = 69$. $69 > 68$.
11. (C) $\text{Odd}^2 + \text{Odd} = \text{Even}$.
12. (A) Midpoint is 1, distance is 5. $|x - 1| \leq 5 \rightarrow |2x - 2| \leq 10$.

Solutions - Section II

1. (A) $50 \times 1.1 \times 1.1 = 60.50$. $60.50 \times 1.2 = 72.60$.
2. (B) $1 - (7/14 \times 6/13) = 1 - 3/13 = 10/13$.
3. (A) Total 4 sum = 120. Sum 3 = 72. Fourth = 48. $48 > 45$.
4. (C) Area Circle = πr^2 . Area Square = $(r\sqrt{\pi})^2 = \pi r^2$.
5. (B) $x = 2, y = 3 \rightarrow 2^2 + 3^2 = 13$.
6. (B) $1.40 \times 0.80 = 1.12 \rightarrow 12\%$.
7. (B) Marketing: $(42 - 30)/30 = 40\%$.
8. **38,333** $(55k + 42k + 18k)/3 = 38,333.33$.
9. (B) $30k/100k = 30\%$.
10. (A) Slope = 2. $y - 5 = 2(x - 2) \rightarrow y = 2x + 1$. Intercept = 1.
11. (D) If $x > 1$, A is greater. If $0 < x < 1$, B is greater.
12. (C) $1/6 + 1/12 = 3/12 = 1/4$. 4 hours.
13. **All Real Values** The equation is an identity.
14. (C) $35 + 20 - 10 = 45$. $60 - 45 = 15$.
15. (A) Range is always 2. Std Dev for $\{x, x + 1, x + 2\}$ is ≈ 0.816 .