

GRE Quantitative Reasoning

Sample Paper 06

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. x and y are non-zero integers.

Quantity A

$$(x - y)^2$$

Quantity B

$$(x + y)^2$$

- 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.

Q2. Driver A's car mileage starts at 40,000 miles and increases by 1,200 miles/week. Driver B's car mileage starts at 45,000 miles and increases by 800 miles/week.

Quantity A

Mileage on Driver A's car after 8 weeks

Quantity B

Mileage on Driver B's car after 5 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.

Q3. The arithmetic mean of six distinct data scores is 50. The mean of five of these scores is 46.

Quantity A

The value of the sixth score

Quantity B

68

- 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. Choose the answer which best simplifies the expression below:

$$5p(3p - 4) + 9q - 2(3p + 4q) - pq$$

- A. $15p^2 - 26p + q - pq$
- B. $15p^2 - 14p + q - pq$
- C. $15p^2 - 26p - q - pq$
- D. $15p^2 - 26p + q + pq$
- E. $15p^2 - 20p + q - pq$

Q5. Simplify the following expression: $\sqrt{80} + \sqrt{45} - \sqrt{20}$

- A. It cannot be simplified further
- B. $5\sqrt{5}$
- C. $9\sqrt{5}$
- D. $\sqrt{105}$
- E. $3\sqrt{5}$

Q6. Simplify: $\sqrt{200} - \sqrt{32}$

- A. $6\sqrt{2}$
- B. 12
- C. $4\sqrt{2}$
- D. $\sqrt{168}$
- E. $10\sqrt{2}$

Q7. Sector 1 (5,000 employees) has 35% home offices. Sector 2 (3,500 employees) has 40% home offices. How much greater/less is Sector 1 than Sector 2?

- A. 350 more
- B. 350 fewer
- C. 150 more
- D. 150 fewer
- E. 200 more

Q8. Find the square root of the following decimal: 0.005

- A. 0.0022
- B. 0.0224
- C. 0.0707
- D. 0.025
- E. 0.05

Q9. In sequence T , each term is $t_n = 2t_{n-1} + 3$. If $t_2 + t_4 = 61$, what is the first term (t_1)?

- A. 4
- B. 5
- C. 8
- D. 2
- E. 3.7

Q10. Evaluate: 0.4325×10^3

- A. 4.325
- B. 43.25
- C. 432.5
- D. 4325
- E. 0.0004325

Q11. A square has an area of 36.

Quantity A

The perimeter of the square

Quantity B

24

- 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. Solve for x : $2x + 15 = 45$. What is the value of x ?

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SECTION II: QUANTITATIVE REASONING

Q1. If p and q are both even integers, which of the following must yield an odd integer value?

- A. $3p + 2q$
- B. $p \cdot q$
- C. $(p + q)^3$
- D. $p^2 - q + 3$
- E. $q(p - 1)$

Q2. Which absolute value inequality correctly represents the interval range $-2 \leq x \leq 8$?

- A. $|2x - 6| \leq 10$
- B. $|x - 3| \leq 5$
- C. $|x + 3| \leq 5$
- D. $|3x - 9| \geq 15$
- E. $|x - 4| \leq 2$

Q3. Library books: 3 unique books from 15 novels. Bookmarks: 2 unique from 6 designs. If 1 bookmark is mandatory, how many display combinations exist?

- A. 2,275
- B. 455
- C. 1,365
- D. 910
- E. 1,820

Q4. Component W costs \$30 at 80 units/hr. Every 20 additional units/hr increases unit cost by 15%. To produce 120 units/hr, for how much must each be sold for 40% profit?

- A. \$55.55
- B. \$54.34
- C. \$52.82
- D. \$51.60

E. \$53.13

Q5. In a bag of 16 markers (8 black, 8 red), 2 markers are drawn without replacement. What is the probability that both are NOT red?

A. $\frac{7}{30}$

B. $\frac{23}{30}$

C. $\frac{1}{4}$

D. $\frac{3}{4}$

E. $\frac{11}{15}$

Q6. $a > b > 0$

Quantity A

$$a^2 - b^2$$

Quantity B

$$(a - b)^2$$

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.

Q7. x is 20% of 50. y is 50% of 20.

Quantity A

x

Quantity B

y

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.

Data Interpretation: Household Expenses

Category	Family A Expenditure	Family B Expenditure
Rent	\$1,200	\$1,500
Food	\$600	\$500
Utilities	\$200	\$300

Q8. Family A's expenditure on Rent is what percent of their total expenditure in these three categories?

- A. 40%
- B. 50%
- C. 60%
- D. 70%
- E. 80%

Q9. What is the total combined expenditure for both families in all three categories?

Q10. If a rectangle has a length of 10 and a width of 4, what is the length of its diagonal?

- A. $\sqrt{14}$
- B. 10
- C. $\sqrt{116}$
- D. 14
- E. 116

Q11. n is an integer.

Quantity A

$$(-1)^n$$

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.

Q12. A car travels 180 miles in 3 hours. At this constant rate, how many miles will it travel in 5 hours?

- A. 240
- B. 260
- C. 300
- D. 320
- E. 350

Q13. What is the value of $5^3 - 4^3$?

Q14. A circle is inscribed in a square of side 8. What is the area of the circle?

- A. 4π
- B. 8π
- C. 16π
- D. 32π
- E. 64π

Q15. The set $S = \{2, 4, 6, 8, 10\}$.

Quantity A

The arithmetic mean of set S

Quantity B

The median of set S

- 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. (D) Depends on the signs of x and y .
2. (A) A: $40,000 + 9,600 = 49,600$. B: $45,000 + 4,000 = 49,000$.
3. (A) Total 6 sum = 300. Sum 5 = 230. 6th score = 70. $70 > 68$.
4. (A) $15p^2 - 20p + 9q - 6p - 8q - pq = 15p^2 - 26p + q - pq$.
5. (B) $4\sqrt{5} + 3\sqrt{5} - 2\sqrt{5} = 5\sqrt{5}$.
6. (A) $10\sqrt{2} - 4\sqrt{2} = 6\sqrt{2}$.
7. (A) S1: 1750. S2: 1400. $1750 - 1400 = 350$ more.
8. (C) $\sqrt{0.005} \approx 0.0707$.
9. (E) $10t_1 + 24 = 61 \rightarrow t_1 = 3.7$.
10. (C) $0.4325 \times 1000 = 432.5$.
11. (C) Side = 6. Perimeter = $6 \times 4 = 24$.
12. 15 $2x = 30 \rightarrow x = 15$.

Solutions - Section II

1. (D) Even - Even + Odd = Odd.
2. (B) Midpoint 3, distance 5. $|x - 3| \leq 5$.
3. (A) $\binom{15}{3} \times \binom{5}{1} = 455 \times 5 = 2,275$.
4. (A) $30 \times 1.15 \times 1.15 \times 1.40 \approx 55.55$.
5. (B) $1 - (8/16 \times 7/15) = 1 - 7/30 = 23/30$.
6. (A) $a^2 - b^2 = (a - b)(a + b)$. Since $a + b > a - b$ (for $b > 0$), $(a - b)(a + b) > (a - b)^2$.
7. (C) $0.2 \times 50 = 10$. $0.5 \times 20 = 10$.
8. (C) $1200/2000 = 0.6 = 60\%$.
9. 4,300 $2000 + 2300 = 4300$.
10. (C) $\sqrt{10^2 + 4^2} = \sqrt{116}$.
11. (D) $(-1)^n$ is 1 or -1 depending on if n is even or odd.
12. (C) $60 \text{ mph} \times 5 \text{ hours} = 300 \text{ miles}$.
13. 61 $125 - 64 = 61$.
14. (C) Radius = 4. Area = 16π .
15. (C) Both mean and median are 6.