# GRE Quantitative Reasoning

## Sample Paper 03

**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)

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## SECTION I: QUANTITATIVE REASONING

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**Q1.** Evaluate the expression:

| **Quantity A** | **Quantity B** |
|---|---|
| —15— - —21— | —2 - 6— - —4 - 7— |

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.** $x$ and $y$ are non-zero integers.

| **Quantity A** | **Quantity B** |
|---|---|
| $(x+y)^2$ | $(x-y)^2$ |

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.

**Q3.** A circle has a circumference of $12\pi$.

| **Quantity A** | **Quantity B** |
|---|---|
| The radius of the circle | 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.

**Q4.** $a, b$, and $c$ are integers such that $10 < a < b < c < 20$.

| **Quantity A** | **Quantity B** |
|---|---|
| $a + b - c$ | 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.** Simplify the following expression: $3x^{12} - y - 45 + x$

A. $3x^{12} - y - 44$

B. $3x^{12} - 45x$

C. $3x^{12} + x - y - 45$

D. $-42x^{12} - y$

E. $x(3x^{11} + 1) - y - 45$

**Q6.** The product of two consecutive positive integers is 342. What is the larger of the two integers?

A. 17

B. 18

C. 19

D. 20

E. 21

**Q7.** Simplify: $\sqrt{180} + \sqrt{80} - \sqrt{45}$

A. $7\sqrt{5}$

B. $10\sqrt{5}$

C. $5\sqrt{5}$

D. $12\sqrt{5}$

E. $9\sqrt{5}$

**Q8.** For which value of $x$ is the function $f(x) = \frac{15x+2}{2x-10}$ undefined?

A. 0

B. 2

C. 5

D. 10

E. 15

**Q9.** In a triangle, the lengths of two sides are 7 and 15. Which of the following can NOT be the length of the third side?

A. 9

B. 12

C. 15

D. 21

E. 23

**Q10.** If $3^x = 81$ and $5^y = 125$, what is the value of $x \times y$?

**Q11.** A sequence is defined by $s_n = 2s_{n-1} + 3$, with $s_1 = 4$. What is the value of $s_3$?

**Q12.** Which inequality is represented by a number line with an open circle at -3 and an arrow pointing to the left?

A. $x > -3$

B. $x \geq -3$

C. $x < -3$

D. $x \leq -3$

E. $|x| < 3$

## SECTION II: QUANTITATIVE REASONING

**Q1.** $x < 0 < y$

| **Quantity A** | **Quantity B** |
|---|---|
| $x^3y^2$ | $x^2y^3$ |

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.

**Q2.** $k$ is a prime number and $k > 3$.

| **Quantity A** | **Quantity B** |
|---|---|
| The remainder when $k$ is divided by 2 | 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.

**Q3.** Line $L$ has the equation $y = 3x + 4$. Line $M$ is perpendicular to $L$.

| **Quantity A** | **Quantity B** |
|---|---|
| The slope of Line $M$ | $-1/3$ |

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.

**Q4.** Mohammed is creating a 3-scoop ice cream sundae. There are 25 unique flavors. If each scoop must be a different flavor, how many flavor combinations are possible?

A. 2,300

B. 13,800

C. 15,625

D. 2,025

E. 75

**Q5.** A puppy weighs 5 pounds and grows 1.5 lbs per month. A kitten weighs 3 pounds and grows 2 lbs per month. After how many months will they weigh the same?

A. 2

B. 3

C. 4

D. 5

E. 6

Data Interpretation: Car Ownership in Cities

| City | Total Residents | % owning Sedans | % owning SUVs |
|---|---|---|---|
| City A | 4,000 | 30% | 20% |
| City B | 6,000 | 25% | 15% |

**Q6.** How many more residents in City B own Sedans than in City A?

A. 100

B. 200

C. 300

D. 400

E. 500

**Q7.** What is the total number of SUV owners across both City A and City B?

**Q8.** If a resident is chosen at random from City A, what is the probability they do NOT own a Sedan?

A. 0.30

B. 0.50

C. 0.70

D. 0.80

E. 0.45

**Q9.** A rectangle's width is 3/4 its length. If the perimeter is 70, what is the area?

A. 150

B. 300

C. 400

D. 1200

E. 250

**Q10.** If $m$ and $n$ are both odd integers, which of the following MUST be even?

A. $m + n$

B. $mn$

C. $m + 2n$

D. $2m + n$

E. $m^n$

**Q11.** Solve for $x$: $4^{x-2} = 64$

**Q12.** Find the volume of a sphere with diameter 6. (Use $\pi$)

A. $12\pi$

B. $18\pi$

C. $36\pi$

D. $72\pi$

E. $288\pi$

**Q13.** A bag contains 8 white and 12 black balls. If 2 balls are picked at random without replacement, what is the probability that both are white?

A. 14/95

B. 15/100

C. 7/45

D. 2/5

E. 1/3

**Q14.** The average of 5 numbers is 40. If one number is removed, the average of the remaining 4 numbers is 35. What was the number removed?

A. 50

B. 55

C. 60

D. 65

E. 70

**Q15.** Factorize $49x^2 - 64y^2$ into the form $(ax + by)(ax - by)$. What is the value of $a + b$?

## Solutions - Section I

1. **(B)** Quantity A: $15 - 21 = -6$. Quantity B: $4 - 3 = 1$. $1 > -6$.
2. **(D)** If $x = 1, y = 1$, A=4, B=0 (A¿B). If $x = 1, y = -2$, A=1, B=9 (B¿A).
3. **(A)** $2\pi r = 12\pi \Rightarrow r = 6$. $6 > 5$.
4. **(A)** Min value: $11 + 12 - 19 = 4$. Wait, Max value: $17 + 18 - 19 = 16$. Because $a + b > c$ for $b < c$, $a + b - c$ is always at least $11 + 12 - 13 = 10$. $10 > 5$.
5. **(C)** Just re-ordering terms.
6. **(C)** $18 \times 19 = 342$. Larger is 19.
7. **(A)** $6\sqrt{5} + 4\sqrt{5} - 3\sqrt{5} = 7\sqrt{5}$.
8. **(C)** $2x - 10 = 0 \Rightarrow x = 5$.
9. **(E)** $15 - 7 < x < 15 + 7 \Rightarrow 8 < x < 22$. 23 is outside range.
10. **12** $x = 4, y = 3.4 \times 3 = 12$.
11. **25** $s_2 = 2(4) + 3 = 11. s_3 = 2(11) + 3 = 25$.
12. **(C)** Open circle = <, pointing left = values smaller than -3.

## Solutions - Section II

1. **(B)** $x^3$ is negative, $y^2$ positive $\Rightarrow$ A is negative. $x^2, y^3$ are positive $\Rightarrow$ B is positive.
2. **(C)** All primes $> 3$ are odd. Odd/2 always leaves remainder 1.
3. **(C)** Perpendicular slopes are negative reciprocals. $-1/3$.
4. **(A)** Combination $C(25, 3) = \frac{25 \times 24 \times 23}{3 \times 2 \times 1} = 2300$.
5. **(C)** $5 + 1.5x = 3 + 2x \Rightarrow 2 = 0.5x \Rightarrow x = 4$.
6. **(C)** City B: $0.25 \times 6000 = 1500$. City A: $0.30 \times 4000 = 1200$. $1500 - 1200 = 300$.
7. **1700** $(0.20 \times 4000) + (0.15 \times 6000) = 800 + 900 = 1700$.
8. **(C)** $1 - 0.30 = 0.70$.
9. **(B)** $2(L + 0.75L) = 70 \Rightarrow 3.5L = 70 \Rightarrow L = 20, W = 15$. Area $= 20 \times 15 = 300$.
10. **(A)** Odd + Odd = Even.
11. **5** $4^{x-2} = 4^3 \Rightarrow x - 2 = 3 \Rightarrow x = 5$.
12. **(C)** $r = 3. V = \frac{4}{3}\pi(3^3) = 36\pi$.
13. **(A)** $\frac{8}{20} \times \frac{7}{19} = \frac{2}{5} \times \frac{7}{19} = \frac{14}{95}$.
14. **(C)** Total 5 numbers = 200. Total 4 numbers = 140. $200 - 140 = 60$.
15. **15** $(7x + 8y)(7x - 8y)$. $a = 7, b = 8. 7 + 8 = 15$.