

Domain 2 of 3

Overview

The GRE Quantitative Reasoning section measures your ability to understand, interpret, and analyze quantitative information and solve problems using mathematical concepts. Each section contains 27 questions in 47 minutes.

Content areas include Arithmetic (25%), Algebra (25%), Geometry (25%), and Data Analysis (25%). The math tested is at the high school level — the challenge is applying it under time pressure.

Arithmetic

- Number properties: integers, primes, factors, multiples, divisibility rules
- Fractions, decimals, percentages, and ratios — conversions and operations
- Exponents and roots: laws of exponents, simplifying radicals, fractional exponents
- Absolute value, number lines, and ordering of numbers
- Percent change: $(\text{new} - \text{old}) / \text{old} \times 100$
- Interest: simple ($I = Prt$) and compound ($A = P(1 + r/n)^{nt}$)

■ **Exam Tip:** For Quantitative Comparison questions, try substituting numbers (0, 1, -1, fractions) to test whether the relationship is always true. If it changes, the answer is "The relationship cannot be determined."

Algebra

- Linear equations and inequalities: solving, graphing, systems of equations
- Quadratic equations: factoring, quadratic formula, discriminant
- Functions: domain, range, composition, inverse functions
- Sequences: arithmetic ($a_n = a_1 + (n-1)d$) and geometric ($a_n = a_1 \times r^{(n-1)}$)
- Word problems: translating English to algebra, setting up equations
- Inequalities: flipping the sign when multiplying/dividing by negatives

Geometry

- Lines and angles: supplementary, complementary, vertical angles, parallel lines
- Triangles: Pythagorean theorem, special triangles (30-60-90, 45-45-90), similar triangles
- Circles: area (πr^2), circumference ($2\pi r$), arc length, sector area
- Polygons: area formulas for rectangles, parallelograms, trapezoids
- Coordinate geometry: slope, distance formula, midpoint formula, equation of a line
- 3D shapes: volume and surface area of cubes, cylinders, spheres, cones

■ **Exam Tip:** The GRE provides an on-screen calculator. Use it for arithmetic but don't rely on it for every step — it slows you down. Practice mental math for simple calculations.

Data Analysis

- Descriptive statistics: mean, median, mode, range, standard deviation, percentiles
- Probability: basic rules, independent events, conditional probability, Bayes' theorem
- Counting methods: permutations (nPr), combinations (nCr), multiplication principle
- Data interpretation: bar graphs, line graphs, pie charts, scatterplots, tables
- Normal distribution: 68-95-99.7 rule, z-scores, percentile interpretation