

Arithmetic Reasoning Checklist

- ___ Properties of numbers (e.g., natural, integer, rational, and irrational)
- ___ Operations with positive and negative numbers, zero, and one
- ___ Long division, including with decimals and remainders
- ___ Fractions: add, subtract, multiply, divide, reduce, improper fractions, mixed numbers, finding reciprocals, and converting fractions to decimals
- ___ Decimals
- ___ Scientific notation
- ___ Ratios, rates, and proportions
- ___ Calculate tax, tips, discounts, double discounts, and original price
- ___ Percentages
- ___ Statistics: Average/mean, median, mode, and range
- ___ The Fundamental Counting Principle
- ___ Basic probability
- ___ Sequences: Arithmetic sequences
- ___ Word problems: Distance, rate and time; combined work; ratios and proportions; percent; simple interest ($I = prt$); mixture word problems involving value; and percent increase or decrease

Math Knowledge Checklist

- ___ Perfect squares and square roots
- ___ Order of operations (PEMDAS)
- ___ The distributive property
- ___ Factorials
- ___ Prime numbers and divisibility rules
- ___ Like terms and adding, subtracting, and multiplying polynomials

- _____ Factoring techniques: the quadratic formula, factoring quadratic equations with a leading coefficient of 1, factoring by grouping, factoring perfect squares, and using the FOIL method to expand answer choices rather than factoring
- _____ Solving linear equations
- _____ Solving literal equations
- _____ Solving systems of equations
- _____ Solving absolute value equations
- _____ The laws of exponents and radicals
- _____ Converting from Celsius to Fahrenheit and from Fahrenheit to Celsius (no need to memorize the formulas)
- _____ Calculating compound interest (no need to memorize the formula)
- _____ Inequalities and plotting them on number lines
- _____ Types of angles (i.e., right, acute, obtuse, vertical) and special angle pairs (i.e., complementary and supplementary)
- _____ Parallel lines and transversals
- _____ Triangles: The Pythagorean Theorem, the Triangle Sum Theorem, finding the area of a triangle
- _____ Area and perimeter of common quadrilaterals (e.g., squares, rectangles, and parallelograms)
- _____ Area and circumference of circles
- _____ Similar figures
- _____ Surface area and volume of common solids (e.g., cubes, rectangular prisms, etc.)
- _____ Finding the sum of the interior angles of a n-sided polygon: $S = 180(n - 2)$
- _____ Coordinate Geometry: Calculating slope; writing equations of lines; identifying equations of lines; equations of vertical, horizontal, perpendicular, and parallel lines; the distance formula; and the midpoint formula