Number Sense Problem Sequences

Grades 2-3 Problem Sequence

Problems 1 - 20:
Addition / subtraction (1 and 2 digits)
Money conversion
Reading a clock
Unit conversion
Basic geometry
Place value
Rounding
Recognizing relative size of numbers
Basic multiplication (single digits)

Problems 21 - 40:
Addition / subtraction (3 and 4 digits)
Multiplication / division Facts
Sequences
Repeated addition—multiplication property
Unit conversions
Applications of multiplication / division
Representations of fractions

Problems 41 - 60:
Multiplication tricks (×11, ×25, ×50)
Simplifying fractions
Perimeter and area of squares, rectangles, and triangles
Word problems
Addition / subtraction of decimals
Other multiplication tricks

Problems 61 - 80:
Multiplication / division of decimals
Addition / subtraction of fraction with common denominator series
Roman Numeral to/from Arabic Numeral conversions
Place value and rounding with decimals (tenths, hundredths, etc.)
Other multiplication tricks
Order of operations
Squaring numbers
Difference of two squares
Percentages
Prime numbers and prime divisors
Redistribution of factors

> **Remember!**
> Problem types can appear later in the test than listed, and when they do, you should expect them to be harder.
>
> For example, on the Grade 4-5 test, a GCD problem can first appear between #21 and #40, but it could also appear at problems #41 and beyond (and the farther down the test, the harder the problem).

Grades 4-5 Problem Sequence

Problems 1 - 20:
Operations (+, −, ×, ÷) with whole numbers
Recognizing place value
Rounding numbers
Multiplication short-cuts
Remainder type problems
Even and odd number type problems
Expanded notation
Sums of whole numbers (series)
Roman numerals/Arabic numerals

Problems 21 - 40:
Addition/subtraction of fractions with common denominators
Operations (+, −, ×, ÷) with decimal fractions
Comparing decimal fractions and common fractions
Conversion problems (fractions / percents / decimals)
Order of operations
Multiplication short-cuts
Ratio/Proportion
Consumer type problems
Prime number problems
Greatest common divisor (GCD)
Least common multiple (LCM)
Conversion problem (length / weight / volume)

Problems 41 - 60:
Operations (+, −, ×, ÷) with fractions and mixed numbers
Substitution problems
Perimeter and area of squares, rectangles, triangle, circles
Powers and roots of numbers
Solving simple equations
Sequences and series
Sets
Word problems
Volume of cubes and rectangular boxes
Right triangle problems
Multiplication short-cuts
Base systems
Percent problems

Problems 61 - 80:
Operations (+, −, ×, ÷) with integers
Inverses
Basic geometry facts
More area problems
Squaring two-digit numbers
Multiplication short-cuts
Powers of numbers
Consumer type problems
Inequalities
Probability
Area problems with parallelograms, rhombi, and trapezoids
Coordinate geometry on the number line

Grades 6-8 Problem Sequence

Problems 1 - 20:
Operations (+, −, ×, ÷) with whole numbers, fractions, and decimals
Order of operations
Distributive property
Comparison of fractions and decimals
Multiplication short-cuts
Squaring numbers
Roman numerals/Arabic numerals
Mean, median and mode
Sums of whole numbers

Problems 21 - 40:
Operations (+, −, ×, ÷) with mixed numbers and integers
Multiplication short-cuts
Percent problems
Conversion problems (English/metric, length, area, volume, time)
Consumer type problems
Substitution problems
Solving simple equations
Square roots and cube roots
Greatest common divisor (GCD)
Least common multiple (LCM)
Number theory
Prime numbers
Divisors
Perimeter and area of squares, rectangles, and circles
Ratio and proportion
Inverses and reciprocals

Problems 41 - 60:
Sets
Word problems
Pythagorean theorem
Sequences
Volume and Surface area of rectangular solids and cubes
Base systems
Area of parallelograms, rhombi, and trapezoids
Solving inequalities
Basic geometry facts
Remainder problems
Multiplication short-cuts

Problems 61 - 80:
Repeating decimals
Number theory
Powers of numbers
Volume of circular cylinders, pyramids, cones, and spheres
Sequences and series
Multiplication short-cuts
Factorial
Coordinate geometry
Probability
More percent problems
More remainder problems