

Critical Concepts and Fluencies of the Level College and Career Readiness Standards

Color Key

Black – Number

Red – Algebra

Blue – Geometry

Green – Statistics and Probability

LEVEL A

Critical Concepts of the Level

Developing understanding of whole number place value for tens and ones

Developing understanding of addition and subtraction, and the properties of these operations

Describing and reasoning about shapes and their attributes

Developing understanding of linear measurement

Fluencies of the Level

Adding and subtracting within 10

Supporting Concepts of the Level

Analyzing, comparing, creating and composing geometric shapes

Classifying and counting objects in different categories

LEVEL B

Critical Concepts of the Level

Extending understanding of base-10 notations

Adding and subtracting to 1,000; fluency and application to 100

Understanding multiplication and division of whole numbers

Understanding division as the inverse of multiplication; single-digit divisors

Developing understanding of fractions, especially unit fractions

Using standard units of measure for length, time, liquid volume and mass

Developing understanding of area and its relationship to addition and multiplication

Analyzing and partitioning two-dimensional shapes

Fluencies of the Level

Adding and subtracting within 1,000 (from memory within 100)

Multiplying and dividing within 100

Supporting Concepts of the Level

Working with equal groups of objects (foundations for multiplication)

Working with time and money

Reasoning about shapes and their attributes

Representing and interpreting data

LEVEL C

Critical Concepts of the Level

Extending the number system to positive rational numbers
Extending place value understanding for decimals to thousandths
Attaining fluency with operations, using multi-digit whole numbers and decimals
Understanding fraction equivalence and comparison
Developing fluency with sums and differences of fractions
Connecting ratio and rate to whole number multiplication and division
Writing, evaluating and interpreting expressions and equations
Developing understanding of the coordinate planes
Classifying geometric two-dimensional figures based on properties
Developing understanding of and solving problems involving volume and surface area
Developing understanding of statistical variability

Fluencies of the Level

Adding/subtracting whole numbers within 1,000,000
Performing multi-digit multiplication (from memory within 100)

Supporting Concepts of the Level

Working with factors and multiples
Converting among units within a measurement system
Representing and interpreting data

LEVEL D

Critical Concepts of the Level

Extending number sense and fluency with operations to all rational numbers
Understanding ratio and rate and using them to solve problems
Applying proportional relationships
Working with expressions and linear equations
Solving linear equations and systems of linear equations
Developing the concept of functions
Graphing functions in the coordinate plane and analyzing the graphs
Solving problems involving scale drawings
Solving problems involving two- and three-dimensional figures: area, surface area and volume
Analyzing two- and three-dimensional shapes using side length and angle measurements, similarity and congruence
Applying the Pythagorean theorem
Understanding patterns of association for bivariate data and describing them with a linear equation, when appropriate
Summarizing and interpreting data and data distributions
Understanding and applying probability concepts
Drawing inferences about populations based on random samples (probability distributions)

Fluencies of the Level

Performing multi-digit division and decimal operations
Solving linear equations of the form, $px + q = r$ and $p(x + q) = r$
Solving simple 2×2 systems by inspection

Supporting Concepts of the Level

Using random sampling to draw inferences about a data population
Investigating chance processes and developing and using probability models
Investigating patterns of association in bivariate data

LEVEL E***Critical Concepts of the Level***

Extending understanding of number systems to the set of real numbers
Writing equivalent expressions involving radicals and rational exponents
Reasoning quantitatively; using appropriate units and levels of precision
Defining, evaluating, comparing and modeling with linear, quadratic and exponential functions and equations
Building, interpreting and analyzing functions using different representations
Reasoning with and solving linear, quadratic and exponential equations and linear inequalities
Interpreting and using the structure of expressions to solve problems
Operating with algebraic expressions, including polynomials and rational expressions
Applying similarity and congruence concepts to geometric figures, including triangles
Using geometric models and volume formulas to solve measurement problems
Summarizing, representing and interpreting one- and two-variable data, including using frequency tables

Fluencies of the Level

Performing rational number operations
Adding, subtracting and multiplying with polynomials
Transforming expressions, using algebraic calculations (grouping, factoring, etc.)
Solving linear equations

Supporting Concepts of the Level

Understanding and applying inverse functions, including logarithmic functions
Defining trigonometric ratios on the unit circle
Modeling with trigonometric functions and their graphs
Understanding and applying conic sections