# Kansas College & Career Ready Standards
# 7th Grade Math

## THE NUMBER SYSTEM

**Part 1: Apply and extend previous understandings of operations with fractions to add and subtract rational numbers.**

- ✓ Relate sums of rational numbers to movements or situations.
- ✓ Relate subtraction of rational numbers to adding the opposite.
- ✓ Find distance between rational numbers on a number line.
- ✓ Add and subtract integers.
- ✓ Add and subtract rational numbers.

**Part 2: Apply and extent previous understanding of operations with fractions to multiply and divide rational numbers.**

- ✓ Apply multiplication properties to rational numbers.
- ✓ Interpret products of rational numbers in real situations.
- ✓ Interpret quotients of rational numbers in real situations.
- ✓ Multiply and divide integers.
- ✓ Multiply and divide rational numbers.
- ✓ Write rational numbers as decimals.
- ✓ Compute with rational numbers to solve problems.
- ✓ Solve multi-step problems with rational numbers.

## GEOMETRY

**Part 1: Draw, construct and describe geometrical figures and describe the relationships between them.**

- ✓ Compute lengths and area from a scale drawing.
- ✓ Reproduce scale drawing using a different scale.
- ✓ Draw triangles given measures of sides or angles.
- ✓ Draw geometric shapes with given conditions.
- ✓ Describe two-dimensional figures that result from slicing solids.

**Part 2: Solve real-life and mathematical problems involving angle measure, area, surface area and volume.**

- ✓ Recognize relationships between parts of a circle.
- ✓ Apply formulas for circumference and area of circles.
- ✓ Solve equations to find supplementary, complementary, vertical and adjacent angles.
- ✓ Solve problems involving area and surface area.
- ✓ Solve problems involving volume of rectangular prisms.

## Mathematical Practices

Make sense of problems and persevere in solving them.
Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others.
Model with mathematics.
Use appropriate tools strategically.
Attend to precision.
Look for and make use of structure.
Look for and express regularity in repeated reasoning.

## EXPRESSIONS AND EQUATIONS

**Part 1: Use properties of operations to generate equivalent expressions.**

- ✓ Add and subtract linear expressions with rational coefficients.
- ✓ Expand or factor linear expressions.
- ✓ Interpret related expressions in real situations.

**Part 2: Solve real-life and mathematical problems using numerical and algebraic expressions and equations.**

- ✓ Use operations with whole numbers to solve multi-step problems.
- ✓ Use fractions to solve multi-step problems.
- ✓ Use decimals to solve multi-step problems.
- ✓ Assess reasonableness of answers by using estimation.
- ✓ Solve linear equations of the form $px + q = r$ and $p(x + q) = r$.
- ✓ Write linear equations to solve word problems.
- ✓ Relate algebraic solutions to arithmetic solutions.
- ✓ Write and solve linear inequalities for situations.
- ✓ Graph and interpret solutions to inequalities.

## STATISTICS AND PROBABILITY

**Part 1: Use random sampling to draw inferences about a population.**

- ✓ Identify representative sampling methods.
- ✓ Use a sample to draw inferences about a population.
- ✓ Compare predictions from various samples.

**Part 2: Draw informal comparative inferences about two populations.**

- ✓ Visually compare the centers and spreads of distributions on dot plots.
- ✓ Use measures of center and variability to make inferences.

**Part 3: Investigate change processes and develop, use and evaluate probability models.**

- ✓ Compare probabilities and relate to likelihoods of events.
- ✓ Use relative frequency of outcomes to approximate probability.
- ✓ Calculate simple probabilities based on equally-likely outcomes.
- ✓ Make predictions based on relative frequency and compare results to predictions.
- ✓ Calculate probabilities of compound events.
- ✓ Create an organized list, table or tree diagram for a compound event.
- ✓ Design and use simulations of compound events.

## RATIOS & PROPORTIONAL RELATIONSHIPS

**Part 1: Analyze proportional relationships and use them to solve real-world and mathematical problems.**

- ✓ Calculate unit rates associated with ratios of fractions.
- ✓ Decide if two ratios form a proportion.
- ✓ Find the missing value in a proportion.
- ✓ Identify unit rates from equations or verbal descriptions.
- ✓ Write equations for proportional relationships.
- ✓ Interpret points on graphs of proportions.

**Part 2: Solve multi-step percent problems.**

- ✓ Use percent to solve simple interest and tax problems.
- ✓ Use percent to solve markup and markdown problems.
- ✓ Use percent to solve problems about tips, commissions and fees.
- ✓ Solve problems about percent of increase or decrease.
- ✓ Calculate percent error.