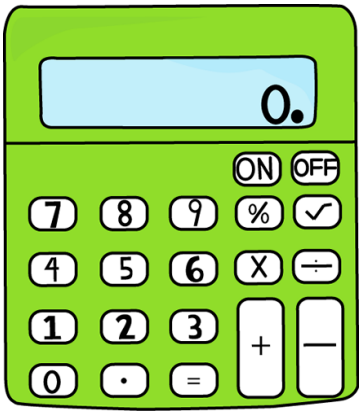
Ratios & Proportional Relationships



7th Grade—"I Can Do Math"

I can analyze proportional relationships and use them to solve real-world problems.

7. RP.1 □ I can calculate the unit rate for real life situations by breaking down the ratio (fractions) and by dividing to solve the problem to find the relationship between two units.
7. RP. 2 □ I can recognize and represent a proportion as a statement of equality between two ratios.
7. RP. 2.a □ I can analyze two ratios to determine if they are proportional to one another with a variety of strategies (e.g. using tables, graphs, or pictures).
7. RP. 2 .b □ I can define the constant of proportionality as a unit rate.
7. RP. 2 .b □ I can analyze tables, graphs, equations, diagrams, and verbal descriptions to identify unit rate.
7. RP. 2 .c □ I can represent proportional relationships by writing equations.
7. RP. 2 .d □ I can explain what the points on a graph of a proportional relationship mean in terms of a specific situation and recognize what (0,0) and (1,r) on a graph represents, where r is the unit rate.
7. RP. 3 □ I can apply proportional reasoning to solve multistep ratio and percent problems (e.g. simple interest, tax, markups, gratuities, commissions, fees, percent increase and decrease or percent errors).

The Number System

7th Grade—"I Can Do Math"

I can apply what I have learned about operations with fractions.

7. NS. 1 □ I can apply what I have learned about addition and subtraction to add and subtract rational number.

7. NS. 1 □ I can show addition and subtraction on a horizontal or vertical number line diagram.

7. NS. 1. a □ I can describe situations where opposite quantities combine to make 0 (e.g. a hydrogen atom has 0 charge because its two constituents are oppositely charged).

7. NS. 1. b □ I can represent and explain how a number and its opposite have a sum of 0 and are additive inverses.

7. NS. 1. b □ I can demonstrate and explain how when adding two numbers p + q : _____. (If q is positive, the sum of p and q will be q spaces to the right of p on a number line. If q is negative, the sum of p and q will be q spaces to the left of p on a number line).

7. NS. 1. b □ I can explain and justify why the sum of p + q is located a distance of q in the positive or negative direction from p on a number line.

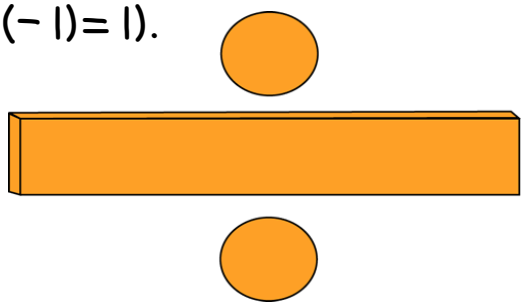
7. NS. 1. c □ I can represent how the distance between two rational numbers on a number line is the absolute value of their difference and apply this to real-world situations.

7. NS. 1. c □ I can identify subtraction of rational numbers as adding the additive inverse property to subtract rational number (p–q = p = 9–q).

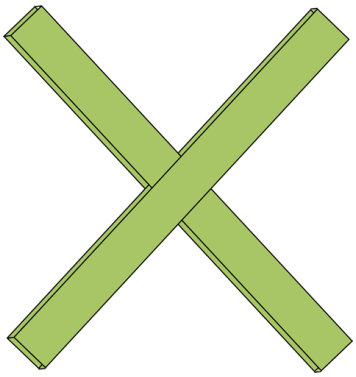
7. NS. 1. d □ I can use properties of operations as strategies to add and subtract rationdl numbers.

7. NS. 2. □ I can apply what I have learned about multiplication and division of fractions to multiply and divide rational numbers.

7. NS. 2. a □ I can recognize and describe the rules when multiplying signed numbers and apply the order of operations, particularly the distributive property, to multiply rational numbers (e.g.: 9– 1)(– 1)= 1).



The Number System (cont.)



7th Grade—"I Can Do Math"

7. NS. 2 .a □ I can use the products of rational numbers to describe real-world situations.

7. NS. 2 .b □ I can explain why integers can be divided except when the divisor is 0 and describe why the quotient is always a rational number.

7. NS. 2 .b □ I can understand and describe the rules when dividing signed numbers and integers and recognize that $-(p/q) = 9-p)/q=p/q=p/(-q)$.

7. NS. 2 .b □ I can use the quotient of rational numbers to describe real-world situations.

7. NS. 2 .c □ I can identify how properties of operations can be used to multiply and divide rational numbers (e.g. distributive property, multiplicative inverse property, multiplicative identity, commutative property for multiplication, and associative property for multiplication.)

7. NS. 2 .d □ I can change a rational number to a decimal using long division and explain how the decimal form of a rational number stops in zeroes or repeats.

7. NS. 3 □ I can add, subtract, multiply, and divide rational numbers.

7. NS. 3 □ I can solve real-world problems by adding, subtracting, multiplying, and dividing rational numbers, including complex fractions.

Expressions & Equations

7th Grade—"I Can Do Math"

I can use properties of operations to create equivalent expressions.

7. EE. 1 □ I can apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients.

7. EE. 1 □ I can combine like terms to factor and expand linear expressions with rational coefficients using distributive property.

7. EE. 2 □ I can use properties of operations to write equivalent expressions.

7. EE. 2 □ I can rewrite an expression in a different form if needed.

I can use numerical and algebraic expression and equations to solve real-life problems.

7. EE. 3 □ I can apply properties of operations to calculate numbers in any form and convert between numerical forms when necessary.

7. EE. 3 □ I can solve multi-step, real-world, and mathematical problems using positive and negative rational numbers in any form (whole numbers, fractions, and decimals).

7. EE. 3 □ I can determine if an answer makes sense using mental computation and estimation strategies.

7. EE. 4 □ I can use variables to represent numbers in real-world or mathematical problems and make reasonable simple equations and inequalities to solve problems.

7. EE. 4. a □ I can identify and fluently solve equations in the form $px + q = r$ and $p(x + q) = r$.

7. EE. 4. a □ I can compare an arithmetic solution to an algebraic solution.

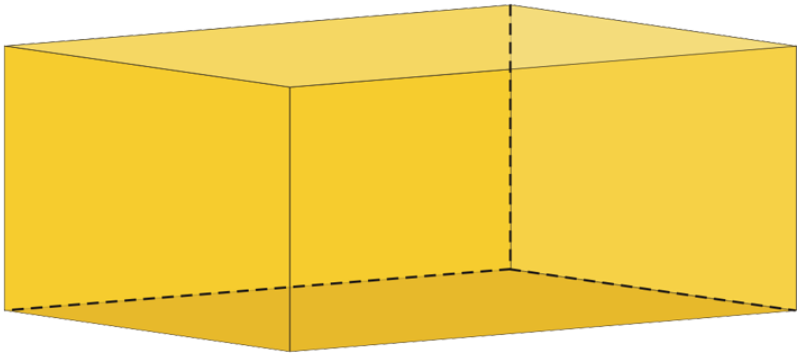
7. EE. 4. b □ I can write and solve word problems leading to inequalities in the form $px + q > r$ or $px + q < r$.

7. EE. 4. b □ I can graph and explain the solution of an inequality.

Geometry

7th Grade—"I Can Do Math"

I can construct and describe geometrical shapes and describe the relationship between them.



7.G. 1 □ I can solve problems with scale drawings of geometric figures.
7.G. 1 □ I can use actual lengths and areas of a scale drawing and use them to create a different sized scale drawing.
7.G. 2 □ I can draw geometric shapes with given conditions either freehand, with a ruler and protractor, or with technology.
7.G. 2 □ I can recognize and draw a triangle when given three measurements: the side lengths, three angle measurements, or a combination of side lengths and angle measurements.
7.G. 3 □ I can draw and describe geometrical figures including right rectangular prisms and right rectangular pyramids.

I can use angle measurement, area, surface area, and volume to solve real-life problems.

7.G. 4 □ I can state the formulas for the area and circumference of a circle and use them to solve problems.
7.G. 4 □ I can explain the relationship between the circumference and the area of a circle.
7.G. 5 □ I can use properties of supplementary, complementary, vertical, and adjacent angles in multi-step problems to write and solve simple equations for an unknown angle in a figure.
7.G. 6 □ I can solve problems involving area, volume, and surface area of two and three dimensional figures.

Statistics & Probability

7th Grade—"I Can Do Math"

I can use random sampling to draw inferences about a population.

7.SP. 1 □ I can understand that inferences about a population can be made by examining a sample.
7.SP. 1 □ I can understand why generalizations made about a population from a sample are only valid if the sample represents that population.
7.SP. 2 □ I can use data from a random sampling to draw conclusions about a population.
7.SP. 2 □ I can generate multiple samples to gauge predictions.

I can draw informal comparative inferences about two populations.

7.SP. 3 □ I can find similarities and differences in two different data sets (including mean, median, etc).
7.SP. 4 □ I can compare and draw conclusions from two populations based off of their means.

I can investigate, develop, use, and evaluate probability models.

7.SP. 5 □ I can recognize and explain that the probability of a chance event is a number between 0 and 1 that expresses how likely an event is to occur.
7.SP. 6 □ I can collect data to approximate probability.
7.SP. 6 □ I can use probability to predict the number of times an event will occur.

Statistics & Probability (cont.)

7th Grade—"I Can Do Math"

7.SP. 7 □ I can investigate, develop, and use probabilities to help me solve problems.

7.SP. 7 □ I can compare probabilities to observed frequencies.

7.SP. 7. a □ I can develop a uniform probability model and use it to determine the probability of an event occurring.

7.SP. 7. b □ I can develop a probability model by observing frequencies in data developed from a chance process.

7.SP. 8 □ I can find probabilities of multiple events using organized lists, tables, tree diagrams, and simulation.

7.SP. 8. a □ I can use the sample space to compare the number of favorable outcomes and determine the probability of the compound event.

7.SP. 8. b □ I can explain the outcomes in the sample space that make up an events.

7.SP. 8. c □ I can design and use simulation to predict the probability of a compound event.