

**MA7.1 Students will use variables and algebraic expressions and perform operations with integers.**

MA7.1.1 Express a mathematical relationship using a variable expression.

MA7.1.2 Apply order of operations to simplify numeric expressions involving integers, fractions and decimals

MA7.1.3 Write and evaluate algebraic expressions

MA7.1.4 Read, write and interpret integers and absolute value

MA7.1.5 Solve problems and number sentences involving addition of integers

MA7.1.6 Solve problems and number sentences involving subtraction of integers

MA7.1.7 Find number patterns involving real world problems

MA7.1.8 Solve problems and number sentences involving multiplication and division of integers

MA7.1.9 Graph points and identify coordinates of points on a coordinate plane

**MA7.2 Students will solve one-step linear equations and linear equalities with the variable on one side of the equation only.**

MA7.2.1 Identify and apply various properties of the real number system including commutative, associative, distributive, identity and zero properties.

MA7.2.2 Simplify algebraic expressions

MA7.2.3 Represent and analyze problems with linear equations and inequalities

MA7.2.4 Solve linear equations of the form  $x + a = b$ ;  $x - a = b$ ;  $a - x = b$

MA7.2.5 Solve linear equations of the form  $ax = b$ ;  $\frac{x}{a} = b$

MA7.2.6 Identify, interpret and graph inequalities on a number line.

MA7.2.7 Solve one-step inequalities involving addition and subtraction

MA7.2.8 Solve one-step inequalities involving multiplication and division

**MA7.3 Students will solve one-step linear equations involving decimals.**

MA7.3.1 Select and use estimation methods and determine the reasonableness of the results

MA7.3.2 Analyze and apply measures of central tendency in problem-solving situations

MA7.3.3 Solve problems of perimeter, circumference and area by substituting quantities into appropriate formulas

MA7.3.4 Solve one-step equations involving decimals

MA7.3.5 Solve problems involving conversions within the metric system

**MA7.4 Students will simplify expressions with exponents.**

MA7.4.1 Use divisibility tests to find factors of numbers.

MA7.4.2 Apply order of operations to simplify numeric expressions involving exponents

MA7.4.3 Use prime factorizations to find a greatest common factor

MA7.4.4 Simplify integer and algebraic fractions

MA7.4.5 Identify and graph rational numbers

MA7.4.6 Simplify multiplication expressions involving exponents

MA7.4.7 Simplify division expressions involving exponents

MA7.4.8 Use scientific notations to represent numbers and solve problems

**MA7.5 Students will perform operations with fractions including solving equations and finding powers of products and quotients.**

MA7.5.1 Compare and order rational numbers

MA7.5.2 Convert between fractions, mixed numbers and decimals.

MA7.5.3 Add and subtract algebraic fractions

MA7.5.4 Multiply and divide algebraic fractions

MA7.5.5 Convert within the customary system

MA7.5.6 Solve addition and subtraction equations involving fractions

MA7.5.7 Solve multiplication and division equations involving fractions

MA7.5.8 Simplify an algebraic expression using the Product of Powers Property, the Power of Powers Property and the Quotient of Powers Property

**MA7.6 Students will solve proportions generated by various problem solving situations.**

MA7.6.1 Define and write ratios, rates and unit rates

MA7.6.2 Use proportional reasoning and the Means-Extremes Property to write and solve problems

MA7.6.3 Use proportions to solve problems involving scale drawings, maps and similar figures

MA7.6.4 Convert between fractions, decimals and percents.

MA7.6.5 Solve a percent problem by writing and solving a proportion

MA7.6.6 Solve a percent problem by writing and solving an equation

MA7.6.7 Find the percent of change

MA7.6.8 Solve problems involving mark-ups and discounts

**MA7.7 Students will solve multi-step linear equations and inequalities.**

MA7.7.1 Solve two step linear equations of the form  $ax + b = c$

MA7.7.2 Solve multi-step equations using the commutative, associative and distributive properties

MA7.7.3 Solve multi-step equations involving fractions and decimals

MA7.7.4 Represent and analyze problems with linear equations

MA7.7.5 Solve equations with variables on both sides

MA7.7.6 Solve and graph two-step inequalities

MA 7.7.7 Solve a formula for a given variable

MA 7.7.8 Find both simple and compound interest

**MA7.8 Students will graph a linear equation using a table and slope-intercept form and solve a system of linear equations.**

MA7.8.1 Identify relations and functions

MA7.8.2 Graph linear equations using a table of values

MA7.8.3 Graph linear equations of the form  $y = mx + b$  using slope-intercept form with and without a calculator

MA7.8.4 Write a function rule from a word relationship, table or graph

MA7.8.5 Draw, interpret and make predictions from data in a scatterplot

MA7.8.6 Apply the graphing method with /without a graphing calculator to solve a system of linear equations

MA7.8.7 Graph linear inequalities

**MA7.9 Students will classify and construct geometric figures and use geometric properties to solve problems.**

MA7.9.1 Recognize and name basic geometric figures

MA7.9.2 Identify and analyze relationships of angles formed by intersecting lines

MA7.9.3 Classify polygons

MA7.9.4 Make a circle graph for a given set of data

MA7.9.5 Identify and represent a translation of a geometric figure on a coordinate plane

MA7.9.6 Identify and represent a reflection of a geometric figure on a coordinate plane

MA 7.9.7 Identify and represent a rotation of a geometric figure on a coordinate plane

**MA7.10 Students will calculate surface area and volume of solid figures.**

MA7.10.1 Find the area of parallelograms, triangles and trapezoids

MA7.10.2 Find the area of circles

MA7.10.3 Identify common solids from both diagrams and nets

MA7.10.4 Calculate the surface area of prisms and cylinders

MA7.10.5 Calculate the surface area of pyramids, cones and spheres

MA7.10.6 Calculate the volume of prisms and cylinders

MA7.10.7 Calculate the volume of pyramids, cones and spheres

**MA7.11 Students will apply the properties of radicals to simplify algebraic expressions.**

MA7.11.1 Calculate square roots and cubic roots of positive rational numbers with a calculator and define the real number system

MA7.11.2 Apply the Pythagorean Theorem to find the leg or hypotenuse of a right triangle

MA7.11.3 Write and solve a proportion using legs of a similar right triangles

MA7.11.4 Apply the rules of standard radical form to simplify an algebraic radical expression

**MA7.12 Students will use graphs to represent data and find probability.**

MA7.12.1 Read interpret and make predictions from frequency tables, line plots and histograms

MA7.12.2 Create and analyze data in box-and-whisker plots

MA7.12.3 Construct and analyze stem-and-leaf plots

MA7.12.4 Use a tree diagram and the Counting Principle to count choices

MA7.12.5 Find the probability of dependent and independent events