



8-Integers

Standards

7.NS.2a,b,c,d, 7.NS.1e

Resources

Textbook:

Competencies

- A successful student can apply number sense and mathematical operations within number systems to solve problems.

I can

- **I can** apply mathematical operations to positive and negative integers.

Vocab

Content: rational, irrational, repeating decimal, terminating decimal, estimate, approximate

Academic: calculate, solve, estimate, determine, simplify



8-Order of Operations

Standards

7.NS.3

Resources

Textbook:

Competencies

- Students can follow the correct procedures in simplifying expressions with whole numbers, integers, and rational numbers.

I can

- **I can** follow the correct procedures in simplifying expressions with whole numbers, integers, and rational numbers.

Vocab

Content: irrational numbers, rational numbers, truncate, square root, number line, radical

Academic: calculate, solve, estimate, determine, simplify



8-Real Numbers

Standards

8.NS.2, 8.EE.1, 8.EE.2, 8.EE.3

Resources

Textbook:

Competencies

- A successful student can apply number sense and mathematical operations within number systems to solve problems.

I can

- **I can** classify any number as rational or irrational.
- **I can** show that every number can be written as a decimal that extends beyond the decimal point.
- **I can** convert a repeating decimal into a fraction (rational number) and place it on a number line
- **I can** determine between which two consecutive whole numbers a square root will fall (i.e. $\sqrt{7}$ falls between 2 and 3).

Vocab

Content: perfect square, perfect cube, square root, cube root, base, power, exponent, rational numbers, irrational numbers, radical, variable, equation

Academic: evaluate, solve, determine, simplify, Estimate, Approximate



8-Exponents & Scientific Notation

Standards

8.NS.2, 8.EE.1, 8.EE.2, 8.EE.3

Resources

Textbook:

Competencies

- A successful student can apply number sense and mathematical operations within number systems to solve problems.

I can

- **I can** recall perfect squares and their roots. (1-10)
- **I can** recall perfect cubes and their roots (1-10).
- **I can** locate and plot the approximate square root on a number line.
- **I can** write a very large or very small number in scientific notation with a rational number between 1-10 times 10 to the power of an integer
- **I can** expand and reduce numbers from standard form to scientific notation.
- **I can** add, subtract, multiply, & divide with scientific notation.
- **I can** find the approximate square root of a non-perfect square.

Vocab

Content: scientific notation, standard form, integer, exponent, base, power, power of ten, sum, difference, product, quotient, simplify

Academic: evaluate, solve, determine, simplify, Estimate, Approximate



8-Proportional Relationships

Standards

8.EE.4, 8.EE.5, 8.EE.6, 8.EE.7, 8.F.1, 8.F.2, 8.F.3, 8.F.4,
8.F.5

Resources

Textbook:

Competencies

- A successful student can understand and analyze proportional relationships and use them to make sense of and solve problems.

I can

- **I can** describe how a proportional relationship has a constant of proportionality in tables, graphs and equations.
- **I can** identify proportionality when given a graph, data table, or equation.
- **I can** calculate the constant of proportionality when given a data table, a graph, and an equation
- **I can** graph data derived from data tables or linear proportional equations.
- **I can** predict when given the constant of proportionality, a proportional graph, or equation.

Vocab

Content: rate of change, slope, origin, coordinate plane, proportional relationship, unit rate

Academic: evaluate, solve, determine, simplify, draw, explain, prove



8-Nonproportional Relationships

Standards

8.EE.4, 8.EE.5, 8.EE.6, 8.EE.7, 8.F.1, 8.F.2, 8.F.3, 8.F.4,
8.F.5

Resources

Textbook:

Competencies

- A successful student can understand and analyze proportional relationships and use them to make sense of and solve problems.

I can

- **I can** find slope of a graph with rise/over or two points and slope formula
- **I can** compute slope from data tables by picking two points and using slope formula
- **I can** identify slope from a linear equation in slope-intercept form
- **I can** create linear equations when given a data table, equation or slope and y-intercept.
- **I can** compare equations and determine proportionality
- **I can** identify if graphs are proportional or not
- **I can** predict outcomes in real-world scenarios when given a graph with a constant rate of change

Vocab

Content: slope (m), y-intercept (b), origin, coordinate plane, linear, proportional, slope-intercept form ($y = mx + b$), rise/run

Academic: evaluate, solve, determine, simplify, draw, explain, prove



8-Writing Linear Equations

Standards

8.EE.4, 8.EE.5, 8.EE.6, 8.EE.7, 8.F.1, 8.F.2, 8.F.3, 8.F.4,
8.F.5

Resources

Textbook:

Competencies

- A successful student can understand and analyze proportional relationships and use them to make sense of and solve problems.

I can

- **I can** determine the slope and y-intercept of a line from the real world scenario.
- **I can** use context clues to generate the equation $y = mx$ or $y = mx + b$ of a line represented in a variety of ways.

Vocab

Content: proportional relationship, linear equation, constant of proportionality, rate of change

Academic: evaluate, solve, determine, simplify, draw, explain, prove



8-Functions

Standards

8.EE.4, 8.EE.5, 8.EE.6, 8.EE.7, 8.F.1, 8.F.2, 8.F.3, 8.F.4,
8.F.5

Resources

Textbook:

Competencies

- A successful student can understand and analyze proportional relationships and use them to make sense of and solve problems.

I can

- **I can** infer that the rate of change of a linear function is also the slope.
- **I can** compare slope and y-intercept of two functions represented in different way.
- **I can** analyze a graph to determine if a function is or is not linear in or out of $y=mx+b$ form
- **I can** construct a function of a linear relationship given in written form or an equation.
- **I can** match the graph of a function to a given situation.
- **I can** interpret the relationship between x and y values by analyzing a graph.
- **I can** make observations to describe a situation depicted by a functional relationship as seen on a graph or table.
- **I can** construct a graph given a written or verbal description of its features.

Vocab

Content: linear equations, variable, coefficient, constant, inequality, distributive property, like terms, function, input, output, ordered pair, relation, mapping diagram, domain, range, x-axis, y-axis, slope, y-intercept, x-intercept, linear, nonlinear, rate of change, slope intercept form, initial value, linear function, increasing, decreasing, qualitative

Academic: evaluate, solve, determine, simplify, draw, explain, prove



8-Solving Linear Equations

Standards

8.EE.4, 8.EE.5, 8.EE.6, 8.EE.7

Resources

Textbook:

Competencies

- A successful student can create, interpret, use and analyze patterns of algebraic structures to make sense of problems. A successful student can use functions to interpret and analyze a variety of contexts.

I can

- **I can** identify and combine like terms in a linear equation.
- **I can** accurately multiply a term by a set of grouped terms (distributive property).
- **I can** accurately use inverse operations to find the value of the variable in multiple step equations.
- **I can** solve equations where the variable is found on both sides of the equation.
- **I can** give examples of linear equations with one solution, infinitely many solutions, and no solutions.
- **I can** express that linear equations with one solution can be simplified to the form of $x=a$, infinitely many solutions $a=a$, and no solutions $a=b$.

Vocab

Content: linear equations, variable, coefficient, constant, inequality, distributive property, like terms, function, input, output, ordered pair, relation, mapping diagram, domain, range, x-axis, y-axis, slope, y-intercept, x-intercept, linear, nonlinear, rate of change, slope intercept form, initial value, linear function, increasing, decreasing, qualitative

Academic: evaluate, solve, determine, simplify, draw, explain, prove



8-Solving Systems of Equations

Standards

8.EE.4, 8.EE.5, 8.EE.6, 8.EE.7

Resources

Textbook:

Competencies

- A successful student can create, interpret, use and analyze patterns of algebraic structures to make sense of problems. A successful student can use functions to interpret and analyze a variety of contexts.

I can

- **I can** create equivalent equations by combining like terms, distributive property, and inverse operations.
- **I can** find the solution to two linear equations by utilizing graphing, substitution, and elimination methods.
- **I can** define the solution of a system of equations as an ordered pair that satisfies all equations in the system simultaneously.
- **I can** determine the best process in order to find the solution for both equations.
- **I can** determine the solution to real world situations that utilize the same two variables.
- **I can** create an appropriate system of equations when given a real-world situation
- **I can** solve systems of equations created from a real-world situation using various methods

Vocab

Content: linear equations, variable, coefficient, constant, inequality, distributive property, like terms, function, input, output, ordered pair, relation, mapping diagram, domain, range, x-axis, y-axis, slope, y-intercept, x-intercept, linear, nonlinear, rate of change, slope intercept form, initial value, linear function, increasing, decreasing, qualitative

Academic: evaluate, solve, determine, simplify, draw, explain, prove



8-Angle Relationships in Parallel Lines & Triangles

Standards

8.G.2, 8.G.6, 8.G.7, 8.G.8, 8.G.9

Resources

Textbook:

Competencies

- A successful student can prove, understand and model geometric concepts using appropriate tools and theorems to solve problems and apply logical reasoning.

I can

- **I can** recognize angles as geometric shapes formed where two rays share a common endpoint.
- **I can** reason that an angle has a measure of n degrees, where n is the number of one-degree angles it turns through.
- **I can** use a protractor to measure angles & construct an angle of specified measure using a protractor.
- **I can** recognize angles can be split into parts, and the sum of those parts is the whole angle measure.
- **I can** solve addition and subtraction problems to find unknown angle measures on a diagram.
- **I can** identify & define supplementary, complementary, vertical, and adjacent angles.
- **I can** compute the measure of an unknown angle in a figure by solving a multi-step problem based on the angle relationships.
- **I can** name angle relationships formed when parallel lines are cut by a transversal (alternate interior, alternate exterior, corresponding, vertical, adjacent, etc.)
- **I can** define similar triangles.
- **I can** prove that the sum of interior angles of a triangle equals 180.
- **I can** prove that the exterior angle of a triangle is equal to the sum of the two remote interior angles.
- **I can** use the Angle-Angle Criterion to prove similarity among triangles.
- **I can** calculate the angle measures formed when parallel lines are cut by a transversal.
- **I can** identify measures of angles or sides.
- **I can** distinguish between a unique triangle or no triangle by knowing the sum of the interior angles of a triangle is 180 degrees.
- **I can** draw geometric shapes when given measures of angles or side (freehand or with a ruler and protractor).

Vocab

Content: Angle Relationship, Supplementary, Complementary, congruent, Corresponding Angles, Alternate Interior Angles, Alternate Exterior Angles, Same Side Interior Angles, Same Side Exterior Angles, Vertical Angles, Transversal, Parallel Lines, Triangle, Angle-Angle Similarity, Triangle Sum Theorem, Remote Interior Angles, Exterior Angles, Volume, Right Prism, Cylinder, Cone, Sphere, Arc, Sector, Pyramid, Pythagorean Theorem, Right Angle, Leg, Hypotenuse, Square, Square Root, Area, Perimeter, Lateral Face, Vertice, Line Segment, Ray, Protractor, Compass, Base, height

Academic: recognize, classify, interpret, identify, construct, define



8-Pythagorean Theorem

Standards

8.G.2, 8.G.6, 8.G.7, 8.G.8, 8.G.9

Resources

Textbook:

Competencies

- A successful student can prove, understand and model geometric concepts using appropriate tools and theorems to solve problems and apply logical reasoning.

I can

- **I can** define key vocabulary (Pythagorean Theorem, converse, leg, hypotenuse, right triangle, base, height, proof).
- **I can** explain a proof of the Pythagorean Theorem using visual models and algebraic reasoning.
- **I can** define the Pythagorean Theorem
- **I can** apply the Pythagorean Theorem to find an unknown side (either leg or hypotenuse) in a right triangle.
- **I can** solve for an unknown side (either leg or hypotenuse) in a right triangle in a real-world problem.
- **I can** draw a right triangle in a three dimensional figure and apply the Pythagorean Theorem to calculate a missing side.
- **I can** connect any two points on a coordinate grid to an intentional third point so that the three points form a right triangle.
- **I can** use the Pythagorean Theorem and a right triangle constructed on a coordinate grid to find the distance between two given points.

Vocab

Content: Angle Relationship, Supplementary, Complementary, congruent, Corresponding Angles, Alternate Interior Angles, Alternate Exterior Angles, Same Side Interior Angles, Same Side Exterior Angles, Vertical Angles, Transversal, Parallel Lines, Triangle, Angle-Angle Similarity, Triangle Sum Theorem, Remote Interior Angles, Exterior Angles, Volume, Right Prism, Cylinder, Cone, Sphere, Arc, Sector, Pyramid, Pythagorean Theorem, Right Angle, Leg, Hypotenuse, Square, Square Root, Area, Perimeter, Lateral Face, Vertice, Line Segment, Ray, Protractor, Compass, Base, height

Academic: recognize, classify, interpret, identify, construct, define



8-Volume, Arc Length, & Sector Area

Standards

8.G.2, 8.G.6, 8.G.7, 8.G.8, 8.G.9

Resources

Textbook:

Competencies

- A successful student can prove, understand and model geometric concepts using appropriate tools and theorems to solve problems and apply logical reasoning.

I can

- **I can** identify the correct formula to use for arc length, areas of sectors, surface areas and volumes of pyramids, cones, and spheres.
- **I can** solve problems using the formulas for arc length, areas of sectors, surface areas and volumes of pyramids, cones, and spheres.
- **I can** identify the correct formula to use for a real-world problem involving arc length, areas of sectors, surface areas and volumes of pyramids, cones, and spheres.
- **I can** solve real-world problems using the formulas for arc length, areas of sectors, surface areas and volumes of pyramids, cones, and spheres.
- **I can** identify three dimensional geometric shapes (cones, pyramids).
- **I can** recognize the values required to compute the formulas for volume and surface area of pyramids and cones (i.e. B is the area of the base).
- **I can** explain the similarities and differences between the volume formulas for pyramids and cones.
- **I can** explain the similarities and difference between the surface area formulas of pyramids and cones.

Vocab

Content: Angle Relationship, Supplementary, Complementary, congruent, Corresponding Angles, Alternate Interior Angles, Alternate Exterior Angles, Same Side Interior Angles, Same Side Exterior Angles, Vertical Angles, Transversal, Parallel Lines, Triangle, Angle-Angle Similarity, Triangle Sum Theorem, Remote Interior Angles, Exterior Angles, Volume, Right Prism, Cylinder, Cone, Sphere, Arc, Sector, Pyramid, Pythagorean Theorem, Right Angle, Leg, Hypotenuse, Square, Square Root, Area, Perimeter, Lateral Face, Vertice, Line Segment, Ray, Protractor, Compass, Base, height

Academic: recognize, classify, interpret, identify, construct, define



8-Scatter Plots

Standards

8.SP.1, 8.SP.2, 8.SP.3.

Resources

Textbook:

Competencies

- A successful student can use a variety of data analysis and statistics strategies to analyze, develop and evaluate inferences based on data.

I can

- **I can** determine the equation of the trend line that approximates the linear relationship between the plotted points of two sets of data.
- **I can** interpret the meaning of the slope and y-intercept of a linear equation based on the given data.
- **I can** solve problems using a linear equation

Vocab

Content: Scatter Plot, Graphs, Outlier, Cluster, Line of Best Fit, Correlation, Linear Relationship, y-intercept,

Academic: Evaluate, Analyze, Determine, Interpret



8-Polynomials

Standards

A.PR.1, A.PR.6

Resources

Textbook:

Competencies

- A successful student can solve, analyze and apply linear, quadratic, exponential functions using different representations to explain situations using math as the authority.

I can

- **I can** identify and classify polynomials according to terms and degree.
- **I can** simplify polynomials by combining like terms.
- **I can** rewrite polynomials in standard form according to decreasing degree.
- **I can** add and subtract polynomials.
- **I can** multiply by monomials.
- **I can** multiply by binomials using the FOIL method

Vocab

Content: Term, Coefficient, Variable, Exponent, Degree, Polynomial, Monomial, Binomial, Trinomial, Constant, Linear, Quadratic, Cubic, Quartic, Standard Form, Factor, FOIL

Academic: determine, write, simplify, evaluate, define, compare, classify, identify, compare, recall



8-Inequalities

Standards

A.REI.2, A.REI.4, A.REI.5a, A.REI.10

Resources

Textbook:

Competencies

- A successful student can solve, analyze and apply linear, quadratic, exponential functions using different representations to explain situations using math as the authority.

I can

- **I can** graph simple inequalities on a number line.
- **I can** define inequalities as a range of solutions rather than a singular solution
- **I can** solve 1- and 2-step inequalities and graph their solutions.
- **I can** solve multistep inequalities using methods of combining like terms, distributive property, and inverse operations.
- **I can** solve and graph compound inequalities.

Vocab

Content: less than, greater than, less than or equal to, greater than or equal to, inequality, number line, compound inequality, solution, all real numbers, no solution, graph

Academic: determine, write, simplify, evaluate, define, compare, classify, identify, compare, recall



8-Functions

Standards

F.IF.1, F.IF.2, F.IF.3, F.IF.4

Resources

Textbook:

Competencies

- A successful student can solve, analyze and apply linear, quadratic, exponential functions using different representations to explain situations using math as the authority.

I can

- **I can** recall the three ways to identify functions.
- **I can** recall the three ways to identify functions.
- **I can** identify domain and range
- **I can** explain the difference between a relationship and a function.
- **I can** fluently translate a function from function notation to standard form.
- **I can** identify whether a function is linear or nonlinear.
- **I can** explain the vertical translation of the parent function by changing the value of b .

Vocab

Content: graph, linear, nonlinear, number set, function, relationship, domain, range, translate, parent function, transformation, vertical, increase, decrease, shift, mapping diagram, table, order pairs, positive, negative, slope, y-intercept,

Academic: determine, write, simplify, evaluate, define, compare, classify, identify, compare, recall