



7-Adding & Subtracting Integers

Standards

7.NS.1, 7.NS.3, 7.EE.3

Resources

Textbook:

Competencies

- Student can apply number sense and mathematical operations within number systems to solve problems.
- Student can extend understanding of the real number system to integers and absolute values.
- Student can add and subtract rational numbers expressed as integers in context.
- Student can fluently (effectively, accurately, and flexibly) add and subtract rational numbers expressed as decimals in context.
- Student can evaluate multi-step expressions to solve mathematical problems.

I can

- **I can** model addition of integers with the same sign on a vertical and horizontal number line.
- **I can** add integers with the same sign.
- **I can** model addition/subtraction of integers with different signs on a vertical and horizontal number line.
- **I can** add integers with the different signs.
- **I can** explain how opposite integers have a sum of zero.
- **I can** model subtracting integers on a vertical and horizontal number line.
- **I can** rewrite a subtraction expression to an equivalent addition expression using additive inverse.
- **I can** add/subtract integers.
- **I can** solve multi-step real-world problems involving addition and subtraction of integers.

Vocab

Content: combine, rational number, irrational number, real numbers, integer, absolute value, horizontal, vertical, integer, sum, same sign, opposite, integer, different sign, inverse property of addition, additive inverse, sea level, commutative property, associative property, loss, gain, ascend

Academic: model, represent, label, conduct, calculate, apply, design



7- Multiply & Divide Integers

Standards

7.NS.2, 7.NS.3, 7.EE.3

Resources

Textbook: McGraw Hill:

Competencies

- Student can apply number sense and mathematical operations within number systems to solve problems.
- Student can extend understanding of the real number system to integers and absolute values.
- Student can multiply and divide rational numbers expressed as integers in context.

I can

- **I can** multiply integers.
- **I can** divide integers.
- **I can** use order of operations to solve multi-step integer expressions
- **I can** solve multi-step real-world problems involving integers.

Vocab

Content: product, opposite, integer, absolute value, quotient, undefined, seal level, horizontal, vertical, difference, same, sign, inverse property of addition, additive inverse commutative property, loss, gain, ascend, descend, decrease, increase

Academic: model, conduct, determine, calculate, solve, estimate, apply



7- Rational Numbers

Standards

7.NS.1, 7.NS.2, 7.NS.3, 7.EE.3

Resources

Textbook:

Competencies

- Student can add, subtract, multiply, and divide rational numbers expressed as integers in context.
- Student can solve problems involving division of fractions and interpret the meaning of the quotient as related to the context of the problem.
- Student can fluently (effectively, accurately, and flexibly) divide whole numbers in context.
- Student can fluently (effectively, accurately, and flexibly) add, subtract, multiply and divide rational numbers expressed as decimals in context.
- Student can solve real world problems with positive and negative rational numbers in any form using tools strategically.
- Student can evaluate multi-step expressions to solve mathematical problems.

I can

- **I can** change rational numbers (fraction) to the decimal form by using long division.
- **I can** change a decimal to a fraction.
- **I can** add negative and positive fractions & decimals.
- **I can** add negative and positive fractions to negative and positive decimals.
- **I can** explain how opposite rational numbers have a sum of zero.
- **I can** model addition of rational numbers on a number line.
- **I can** rewrite a rational subtraction expression to an equivalent addition expression using additive inverse property.
- **I can** add/subtract decimals and fractions.
- **I can** find the distance between two rational numbers.
- **I can** multiply & divide negative and positive fractions, including mixed numbers, and decimals.
- **I can** rewrite a complex fraction as an equivalent multiplication expression.
- **I can** solve real-world problems with rational numbers in any form.
- **I can** use estimation strategies to check for reasonableness

Vocab

Content: rational number, ratio, terminating, repeating, improper fraction, mixed number, simplest form, convert to equivalent forms, combine, common denominator, place value, difference, inverse, additive inverse, product, quotient, complex fraction, reciprocal, multiplicative inverse, estimation, sum

Academic: estimate, compare, compute, reason, solve



7- Rates & Proportionality

Standards

7.RP.1, 7.RP.2

Resources

Textbook:

Competencies

- Student can compute a unit rate associated with ratios of fractions with like or different units.
- Student can recognize and represent proportional relationships between quantities.
- Student can decide whether two quantities are in a proportional relationship by graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

I can

- **I can** write a rate as a fraction with labels.
- **I can** convert a rate to a unit rate.
- **I can** determine if a table represents a proportional relationship between two quantities
- **I can** calculate a constant rate of change from a proportional table.
- **I can** create a proportional table with a known constant rate of change.
- **I can** recognize a constant rate of change as an equation in the form $k = y/x$
- **I can** write an equation in the form of $y = kx$ to represent the relationship between two quantities.
- **I can** recognize a proportional vs non proportional graph.
- **I can** identify a point on a proportional graph and describe the relationship between the two quantities
- **I can** identify the point $(1, k)$ as the constant rate of change in a proportional graph
- **I can** calculate the constant rate of change from any point on a proportional graph

Vocab

Content: rate, unit rate, quantity, constant rate of change, constant of proportionality, proportional quantity, proportional, non-proportional, x-axis, y-axis, ordered pair, origin

Academic: construct, compare, identify, organize, graph, analyze, interpret



7-Proportions & Percents

Standards

7.RP.3, 7.EE.2

Resources

Textbook:

Competencies

- Student can use proportional relationships to solve multistep ratio and percent problems.
- Student can understand that rewriting an expression in different forms in a problems context can shed light on the problem and how the quantities in it are related.

I can

- **I can** calculate the percent increase or decrease between two quantities.
- **I can** calculate a new amount given the original and the percent increase or percent decrease
- **I can** write an expression to represent a percent increase or percent decrease
- **I can** write an expression to represent a new amount given a percent increase or percent decrease
- **I can** solve word problems using proportional relationships and percents.

Vocab

Content: percent, ratio, proportion, percent change, mark up, mark down, profit, increase, decrease, retail price, sale price, discount, tax, tip, commission, interest

Academic: compute, create, apply



7-Expressions & Equations

Standards

7.EE.1, 7.EE.4

Resources

Textbook:

Competencies

- Student can apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- Student can use variables to represent quantities in a real-world or mathematical problem, and construct simple equations to solve problems by reasoning about the quantities.
- Student can solve word problems leading to equations of the form $px+q=r$ and $p(x+q)=r$. Student can compare an algebraic solution to an arithmetic solution.

I can

- **I can** write algebraic expressions from real-world problems
- **I can** use commutative and associative properties to combine like terms and simplify algebraic expressions
- **I can** use distributive property to rewrite the an algebraic expression.
- **I can** factor expressions to write and algebraic expression as a product of two terms.
- **I can** solve one step equations with rational numbers using inverse operations
- **I can** write a one-step equation from a real world situations
- **I can** write a two step equation from word problems.
- **I can** solve a two-step equation using inverse operations.
- **I can** solve a real world problem by writing an equation to represent the situation and using inverse operations to find the solution.

Vocab

Content: constant, coefficient, factorial, distribute, expression, equation, variable, term, constant term, variable term, algebraic expression, additive inverse, multiplicative inverse, rational number, substitution property, reciprocal, variable, constant rate

Academic: simplify, evaluate, solve, evaluate, construct, organize, represent



7-Inequalities

Standards

7.EE.4

Resources

Textbook:

Competencies

- Student can use variables to represent quantities in a real-world or mathematical problem, and construct simple inequalities to solve.
- Student can use inequalities of the form $px+q>r$ or $px+q <r$, where p and q and r are specific rational numbers. Student can Graph the solution set and interpret it in the context of the problem.

I can

- **I can** write a one-step and two-step inequality from real-world problems
- **I can** solve one-step and two-step with rational numbers inequalities using inverse operations.
- **I can** graph the solution to an inequality.

Vocab

Content: constant, coefficient, expression, equation, inequality, constant rate, variable, terms, additive inverse, multiplicative inverse, substitution, solution set

Academic: represent, organize, construct



7-Modeling Geometric Figures

Standards

7.G.1, 7.G.3, 7.G.5

Resources

Textbook:

Competencies

- Student can solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing, and reproducing a scale drawing at a different scale.
- Student can describe the two-dimensional figures that result from slicing three-dimensional figures.
- Student can use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.

I can

- **I can** use proportional relationships to calculate a scale of a drawing and an actual object.
- **I can** identify corresponding sides of similar shapes
- **I can** set up and solve proportions to find unknown lengths for a problem using scale.
- **I can** reproduce a scale drawing using a different scale.
- **I can** describe the 2-dimensional shape that occurs when I slice a 3-dimensional figures.
- **I can** identify supplementary, complementary, vertical, and adjacent angles.
- **I can** solve for a missing angle measurement using an expression or equation.

Vocab

Content: area, length, corresponding side, proportion, rotate, edge, diagonal, horizontal, vertical, plane, 2-dimensional, 3-dimensional

Academic: connect, infer, apply



7-Circumference, Area, & Volume

Standards

7.G.4, 7.G.6

Resources

Textbook:

Competencies

- Student can solve real-world and mathematical problems involving circumference and area of circles.
- Student can solve real world and mathematical problems involving area of 2-D Polygons.
- Student can solve real world and mathematical problems involving surface area of three dimensional objects composed of cubes, and right prisms.

I can

- **I can** identify radius and diameter of a circle
- **I can** calculate the radius of a circle given its diameter.
- **I can** calculate the diameter of a circle given its radius.
- **I can** use a formula to calculate the circumference of a circle when given its radius or diameter.
- **I can** use the formula/equation for circumference to solve problems with circles.
- **I can** calculate the area of a circle using a formula and when given a radius or diameter.
- **I can** find the radius or diameter if given an area of a circle.
- **I can** use the area formula for circles to solve real-world problems.
- **I can** use formulas to find the area of squares, rectangles, triangles, circles, trapezoids.
- **I can** calculate the area of composite figures.
- **I can** identify the base of a right prism and calculate its area and perimeter.
- **I can** identify the height of a right prism
- **I can** calculate the surface area of a right prism using the formula $SA=2B+ph$
- **I can** calculate the volume of a right prism using the formula $V=Bh$

Vocab

Content: circumference, radius, diameter, formula, equation, Pi, area, composite figure, polygon, square, rectangle, triangle, trapezoid, circle, semi-circle, base, height, perimeter, surface, nets

Academic: apply, solve



7-Random Samples & Populations

Standards

7.SP.1, 7.SP.2, 7.RP.3

Resources

Textbook:

Competencies

- Student can use random sampling to draw inferences about a population
- Student can use data from a random sample to draw inferences about a population with an unknown characteristic of interest.

I can

- **I can** understand that samples CAN represent a population if it is random and has a large enough sample size.
- **I can** recognize bias in sampling.
- **I can** set up proportions to predict or make an inference about a population based on data from a sample.
- **I can** use dot plots to make inferences about a population
- **I can** use box plots to make inference about a population

Vocab

Content: sample, random, bias, representative, proportion, dot plot, box plot, lower quartile, upper quartile, median, range, inner quartile

Academic: infer, construct



7-Analyzing & Comparing Data

Standards

7.SP.3, 7.SP.4

Resources

Textbook:

Competencies

- Student can apply concepts of statistical measures of center and variability to summarize and describe one-variable data distribution.

I can

- **I can** compare dot plots for mean, median, mode, and range.
- **I can** use dot plots to analyze a data set with respect to its center and spread.
- **I can** visually compare two dot plots and infer information based on shape, measures of center, spread, distribution, and outliers.
- **I can** calculate the inner Quartile Range (IQR) and the range of the data set from a box plot
- **I can** find the least value, greatest value, median value, lower quartile value, and upper quartile value on a box plot
- **I can** compare box plots for range, IQR, and medians.
- **I can** make inferences about variability comparing two box plots.

Vocab

Content: mean, median, mode, range, spread, distribution, measures of center, outliers, skewed, clusters, variability, interquartile range, quartile, lower quartile, upper quartile

Academic: compare, analyze, identify



7-Experimental Probability

Standards

7.SP.5, 7.SP.6, 7.SP.8

Resources

Textbook:

Competencies

- Students understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood.
- Student can approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency.
- Student can find the probabilities of compound events using tables and simulations.

I can

- **I can** write probability of a chance event as fraction and represent the fraction as a decimal number between 0 and 1 to determine the likelihood of the event occurring.
- **I can** find the probability of a complement event and understand the sum of the probabilities of an event and its complement equals 1.
- **I can** calculate the experimental probability for a given experiment by writing the fraction as a ratio of the number of times the event occurs to the total number of trials in the experiment.
- **I can** use the experimental probability to make predictions of an event occurring.
- **I can** make an organized list, table, or tree diagram to represent sample space of the compound event outcomes
- **I can** find the probability of a compound event using an organized list, table, or tree diagram.
- **I can** make a prediction using a simulation or model of an experiment to find the experimental probability of compound events.
- **I can** make a quantitative prediction using proportions based on the probability from data collected

Vocab

Content: trial, outcome, event, probability, relative frequency, percent, complement event, sample space, simple event, experimental probability, frequency, compound event, simulation, quantitative prediction, proportions

Academic: construct, relate, infer



7-Theoretical Probability

Standards

7.SP.6, 7.SP.7, 7.SP.8

Resources

Textbook:

Competencies

- Student can develop a uniform probability model by assigning equal probability to all outcomes and use the model to determine probabilities of events.
- Student can find the probability of compound events using organized lists, tables, tree diagrams and simulation.
- Student can approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency given the probability.

I can

- **I can** write a ratio to express the theoretical probability of a simple event occurring.
- **I can** make organized lists, tables, and tree diagrams to find the compound probabilities of theoretical events.
- **I can** make a probability prediction based on lists, tables, and tree diagrams.

Vocab

Content: theoretical probability, sample space

Academic: construct, relate, organize, represent, interpret, infer