



**BUILT for**  
Pennsylvania

2017–2018 School Year  
**Assessment Anchors and  
Eligible Content Correlation**  
2014 Pennsylvania Core Standards

# Table of Contents



Percent Correlation .....	3
Grade 3.....	5
Grade 4 .....	12
Grade 5.....	21
Grade 6 .....	27
Grade 7.....	35
Grade 8 .....	41
Algebra I.....	48
Geometry .....	77

## Percent Correlation to Pennsylvania Academic Standards for Mathematics

### Grade 3

**Standards not addressed:**

CC.2.4.3.A.3	Solve problems and make change involving money using a combination of coins and bills.
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### Grade 4

**Standards not addressed:**

CC.2.2.4.A.4	Generate and analyze patterns using one rule.
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CC.2.4.4.A.2	Translate information from one type of data display to another.
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CC.2.4.4.A.4	Represent and interpret data involving fractions using information provided in a line plot.
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### Grade 5

**Standards not addressed:**

CC.2.2.5.A.4	Operations and Algebraic Thinking. Analyze patterns and relationships using two rules.
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CC.2.4.5.A.2	Measurement and Data. Represent and interpret data using appropriate scale.
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### Grade 6

### Grade 7

**Standards not addressed:**

CC.2.3.7.A.2	Visualize and represent geometric figures and describe the relationships between them.
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### Grade 8

**Percent Correlation to Pennsylvania Academic Standards Assessed on Algebra I Keystone Exam**

**Algebra I**

**Standards not addressed:**

CC.2.2.HS.D.5	Use polynomial identities to solve problems.
CC.2.2.HS.D.6	Extend the knowledge of rational functions to rewrite in equivalent forms.
CC.2.4.HS.B.5	Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.
CC.2.4.HS.B.4	Recognize and evaluate random processes underlying statistical experiments.
CC.2.4.HS.B.7	Apply the rules of probability to compute probabilities of compound events in a uniform probability model.

**Percent Correlation to Pennsylvania Academic Standards Assessed on Geometry Keystone Exam**

**Geometry**

**Standards not addressed:**

CC.2.3.HS.A.2	Apply rigid transformations to determine and explain congruence.
CC.2.2.HS.C.9	Prove the Pythagorean identity and use it to calculate trigonometric ratios.

<b>Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M03.A-T Numbers and Operations in Base Ten</b>					
M03.A-T.1 Use place-value understanding and properties of operations to perform multi-digit arithmetic	M03.A-T.1.1 Apply place-value strategies to solve problems.	M03.A-T.1.1.1 Round two- and three-digit whole numbers to the nearest ten or hundred, respectively. M03.A-T.1.1.2 Add two- and three-digit whole numbers (limit sums from 100 through 1,000) and/or subtract two- and three-digit numbers from three-digit whole numbers. M03.A-T.1.1.3 Multiply one-digit whole numbers by two-digit multiples of 10 (from 10 through 90). M03.A-T.1.1.4 Order a set of whole numbers from least to greatest or greatest to least (up through 9,999, and limit sets to no more than four numbers).	CC.2.1.3.B.1 Apply place-value understanding and properties of operations to perform multi-digit arithmetic	Number and Operations in Base 10	Multiplying by Multiples of Ten Reasoning about Place Value and Rounding Rounding to the Nearest Ten and Hundred Reasoning About Addition and Subtraction Within 1,000
<b>Reporting Category: M03.A-F Numbers and Operations—Fractions</b>					
M03.A-F.1 Develop an understanding of fractions as numbers.	M03.A-F.1.1 Develop and apply number theory concepts to compare quantities and magnitudes of fractions and whole numbers.	M03.A-F.1.1.1 Demonstrate that when a whole or set is partitioned into $y$ equal parts, the fraction $1/y$ represents 1 part of the whole and/or the fraction $x/y$ represents $x$ equal parts of the whole (limit denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; and no simplification necessary). M03.A-F.1.1.2 Represent fractions on a number line (limit denominators to 2, 3, 4, 6, and 8; limit numerators to whole numbers less than the denominator; and no simplification necessary).	CC.2.1.3.C.1 Explore and develop an understanding of fractions as numbers.	Number and Operations - Fractions	Understanding Fractions - Equal Areas Unit Fractions on the Number Line Fractions on the Number Line Modeling Equivalent Fractions with Number Lines

Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
		<p>M03.A-F.1.1.3 Recognize and generate simple equivalent fractions (limit the denominators to 1, 2, 3, 4, 6, and 8 and limit numerators to whole numbers less than the denominator). Example 1: <math>1/2 = 2/4</math> Example 2: <math>4/6 = 2/3</math></p> <p>M03.A-F.1.1.4 Express whole numbers as fractions, and/or generate fractions that are equivalent to whole numbers (limit denominators to 1, 2, 3, 4, 6, and 8). Example 1: Express 3 in the form <math>3 = 3/1</math>. Example 2: Recognize that <math>6/1 = 6</math>.</p> <p>M03.A-F.1.1.5 Compare two fractions with the same denominator (limit denominators to 1, 2, 3, 4, 6, and 8), using the symbols <math>&gt;</math>, <math>=</math>, or <math>&lt;</math>, and/or justify the conclusions.</p>			Visual Models of Equivalent Fractions Whole Numbers as Fractions Whole Numbers as Fractions on the Number Line Comparing Fractions with the Same Numerator or Denominator Recognizing Valid Fraction Comparisons I
<b>Reporting Category: M03.B-O Operations and Algebraic Thinking</b>					
M03.B-O.1 Represent and solve problems involving multiplication and division	M03.B-O.1.1 Understand various meanings of multiplication and division.	<p>M03.B-O.1.1.1 Interpret and/or describe products of whole numbers (up to and including <math>10 \times 10</math>). Example 1: Interpret 35 as the total number of objects in 5 groups, each containing 7 objects. Example 2: Describe a context in which a total number of objects can be expressed as <math>5 \times 7</math>.</p> <p>M03.B-O.1.1.2 Interpret and/or describe whole-number quotients of whole numbers (limit dividends through 50 and limit divisors and quotients through 10). Example 1: Interpret <math>48 \div 8</math> as the number of objects in each share when 48 objects are partitioned equally into 8 shares, or as a number of shares when 48 objects are partitioned into equal shares of 8 objects each. Example 2: Describe a context in which a number of shares or a number of groups can be expressed as <math>48 \div 8</math>.</p>	CC.2.2.3.A.1 Represent and solve problems involving multiplication and division.	Operations and Algebraic Thinking	Concept of Multiplication - Grouping Concept of Multiplication - Word Problems Concept of Multiplication - Arrays Concept of Division Solving Multiplication and Division Equations Division as an Unknown-Factor Problem Multiplication and Division Word Problems - Visual Models

Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M03.B-O.1 Represent and solve problems involving multiplication and division	M03.B-O.1.2 Solve mathematical and realworld problems using multiplication and division, including determining the missing number in a multiplication and/or division equation.	M03.B-O.1.2.1 Use multiplication (up to and including $10 \times 10$ ) and/or division (limit dividends through 50 and limit divisors and quotients through 10) to solve word problems in situations involving equal groups, arrays, and/or measurement quantities.  M03.B-O.1.2.2 Determine the unknown whole number in a multiplication (up to and including $10 \times 10$ ) or division (limit dividends through 50 and limit divisors and quotients through 10) equation relating three whole numbers. Example: Determine the unknown number that makes an equation true.			Multiplication and Division Word Problems - Equations  Multiplication and Division Word Problems - Solutions
M03.B-O.2 Understand properties of multiplication and the relationship between multiplication and division.	M03.B-O.2.1 Use properties to simplify and solve multiplication problems.	M03.B-O.2.1.1 Apply the commutative property of multiplication (not identification or definition of the property).  M03.B-O.2.1.2 Apply the associative property of multiplication (not identification or definition of the property).	CC.2.2.3.A.2 Understand properties of multiplication and the relationship between multiplication and division	Operations and Algebraic Thinking	Properties of Addition and Multiplication  Relationship Between Multiplication and Division  Multiplication and Division Fact Families  Solving Multiplication and Division Equations  Division as an Unknown-Factor Problem  Using Visual Models to Understand the Distributive Property
M03.B-O.2 Understand properties of multiplication and the relationship between multiplication and division.	M03.B-O.2.2 Relate division to a missing number multiplication equation.	M03.B-O.2.2.1 Interpret and/or model division as a multiplication equation with an unknown factor. Example: Find $32 \div 8$ by solving $8 \times ? = 32$			

Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
Standard not associated to an assessment anchor			CC.2.2.3.A.3 Demonstrate multiplication and division fluency.	Operations and Algebraic Thinking	Multiplication and Division Fact Families
M03.B-O.3 Solve problems involving the four operations, and identify and explain patterns in arithmetic.	M03.B-O.3.1 Use operations, patterns, and estimation strategies to solve problems (may include word problems).	<p>M03.B-O.3.1.1 Solve two-step word problems using the four operations (expressions are not explicitly stated). Limit to problems with whole numbers and having whole-number answers.</p> <p>M03.B-O.3.1.2 Represent two-step word problems using equations with a symbol standing for the unknown quantity. Limit to problems with whole numbers and having whole-number answers.</p> <p>M03.B-O.3.1.3 Assess the reasonableness of answers. Limit problems posed with whole numbers and having whole-number answers.</p> <p>M03.B-O.3.1.4 Solve two-step equations using order of operations (equation is explicitly stated with no grouping symbols).</p> <p>M03.B-O.3.1.5 Identify arithmetic patterns (including patterns in the addition table or multiplication table) and/or explain them using properties of operations.            Example 1: Observe that 4 times a number is always even.            Example 2: Explain why 6 times a number can be decomposed into three equal addends.</p> <p>M03.B-O.3.1.6 Create or match a story to a given combination of symbols (+, −, ×, ÷, , and =) and numbers.</p> <p>M03.B-O.3.1.7 Identify the missing symbol (+, −, ×, ÷, , and =) that makes a number sentence true."</p>	CC.2.2.3.A.4 Solve problems involving the four operations and identify and explain patterns in arithmetic.	Operations and Algebraic Thinking	Estimating Sums and Differences - Application Solving Two-Step Word Problems Modeling and Solving Two-Step Word Problems Additive and Multiplicative Patterns



Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M03.C-G Geometry</b>					
M03.C-G.1 Reason with shapes and their attributes	M03.C-G.1.1 Analyze characteristics of polygons.	M03.C-G.1.1.1 Explain that shapes in different categories may share attributes and that the shared attributes can define a larger category. Example 1: A rhombus and a rectangle are both quadrilaterals since they both have exactly four sides. Example 2: A triangle and a pentagon are both polygons since they are both multi-sided plane figures.  M03.C-G.1.1.2 Recognize rhombi, rectangles, and squares as examples of quadrilaterals and/or draw examples of quadrilaterals that do not belong to any of these subcategories.  M03.C-G.1.1.3 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. Example 1: Partition a shape into 4 parts with equal areas. Example 2: Describe the area of each of 8 equal parts as $\frac{1}{8}$ of the area of the shape.	CC.2.3.3.A.1 Identify, compare, and classify shapes and their attributes.	Geometry	Classifying Quadrilaterals I
			CC.2.3.3.A.2 Use the understanding of fractions to partition shapes into parts with equal areas and express the area of each part as a unit fraction of the whole	Number and Operations - Fractions	Understanding Fractions - Notation
<b>Reporting Category: M03.D-M Measurement and Data</b>					
M03.D-M.1 Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.	M03.D-M.1.1 Determine or calculate time and elapsed time.	M03.D-M.1.1.1 Tell, show, and/or write time (analog) to the nearest minute.  M03.D-M.1.1.2 Calculate elapsed time to the minute in a given situation (total elapsed time limited to 60 minutes or less).	CC.2.4.3.A.2 Tell and write time to the nearest minute and solve problems by calculating time intervals.	Measurement and Data	Adding and Subtracting Time

Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M03.D-M.1 Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.	M03.D-M.1.2 Use the attributes of liquid volume, mass, and length of objects.	M03.D-M.1.2.1 Measure and estimate liquid volumes and masses of objects using standard units (cups [c], pints [pt], quarts [qt], gallons [gal], ounces [oz.], and pounds [lb]) and metric units (liters [l], grams [g], and kilograms [kg]). M03.D-M.1.2.2 Add, subtract, multiply, and divide to solve onestep word problems involving masses or liquid volumes that are given in the same units. M03.D-M.1.2.3 Use a ruler to measure lengths to the nearest quarter inch or centimeter.	CC.2.4.3.A.1 Solve problems involving measurement and estimation of temperature, liquid volume, mass or length	Measurement and Data	Capacity or Weight
M03.D-M.1 Solve problems involving measurement and estimation of intervals of time, money, liquid volumes, masses, and lengths of objects.	M03.D-M.1.3 Count, compare, and make change using a collection of coins and one-dollar bills.	M03.D-M.1.3.1 Compare total values of combinations of coins (penny, nickel, dime, and quarter) and/or dollar bills less than \$5.00. M03.D-M.1.3.2 Make change for an amount up to \$5.00 with no more than \$2.00 change given (penny, nickel, dime, quarter, and dollar). M03.D-M.1.3.3 Round amounts of money to the nearest dollar."	CC.2.4.3.A.3 Solve problems and make change involving money using a combination of coins and bills.	Standard not addressed	Standard not addressed
M03.D-M.2 Represent and interpret data.	M03.D-M.2.1 Organize, display, and answer questions based on data.	M03.D-M.2.1.1 Complete a scaled pictograph and a scaled bar graph to represent a data set with several categories (scales limited to 1, 2, 5, and 10). M03.D-M.2.1.2 Solve one- and two-step problems using information to interpret data presented in scaled pictographs and scaled bar graphs (scales limited to 1, 2, 5, and 10). Example 1: (One-step) "Which category is the largest?" Example 2: (Two-step) "How many more are in category A than in category B?"	CC.2.4.3.A.4 Represent and interpret data using tally charts, tables, pictographs, line plots, and bar graphs.	Measurement and Data	Introduction to Data Displays

Grade 3 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
		<p>M03.D-M.2.1.3 Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Display the data by making a line plot, where the horizontal scale is marked in appropriate units—whole numbers, halves, or quarters.</p> <p>M03.D-M.2.1.4 Translate information from one type of display to another. Limit to pictographs, tally charts, bar graphs, and tables. Example: Convert a tally chart to a bar graph.</p>			
M03.D-M.3 Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	M03.D-M.3.1 Find the areas of plane figures	<p>M03.D-M.3.1.1 Measure areas by counting unit squares (square cm, square m, square in., square ft, and non-standard square units).</p> <p>M03.D-M.3.1.2 Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</p>	CC.2.4.3.A.5 Determine the area of a rectangle and apply the concept to multiplication and to addition.	<p>Measurement and Data</p> <p>Operations and Algebraic Thinking</p>	<p>Unit Squares Concept of Area Area of Rectangles</p> <p>Using Visual Models to Understand the Distributive Property</p>
M03.D-M.4 Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	M03.D-M.4.1 Find and use the perimeters of plane figures.	M03.D-M.4.1.1 Solve real-world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, exhibiting rectangles with the same perimeter and different areas, and exhibiting rectangles with the same area and different perimeters. Use the same units throughout the problem.	CC.2.4.3.A.6 Solve problems involving perimeters of polygons and distinguish between linear and area measures.	Measurement and Data	<p>Unit Squares Concept of Area Area of Rectangles Recognizing Area as Additive Area of Basic Composite Figures Perimeter</p>

Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M04.A-T Numbers and Operations in Base Ten</b>					
M04.A-T.1 Generalize place-value understanding for multi-digit whole numbers.	M04.A-T.1.1 Apply place-value and numeration concepts to compare, find equivalencies, and round.	M04.A-T.1.1.1 Demonstrate an understanding that in a multi-digit whole number (through 1,000,000), a digit in one place represents ten times what it represents in the place to its right. Example: Recognize that in the number 770, the 7 in the hundreds place is ten times the 7 in the tens place. M04.A-T.1.1.2 Read and write whole numbers in expanded, standard, and word form through 1,000,000. M04.A-T.1.1.3 Compare two multi-digit numbers through 1,000,000 based on meanings of the digits in each place, using $>$ , $=$ , and $<$ symbols. M04.A-T.1.1.4 Round multi-digit whole numbers (through 1,000,000) to any place."	CC.2.1.4.B.1 Apply place-value concepts to show an understanding of multidigit whole numbers.	Number and Operations in Base Ten	Place Value Concepts Using Place Value Concepts to Compare Whole Numbers Understanding Place Value Relationships Rounding Whole Numbers Using Rounding in Problem Solving
M04.A-T.2 Use place-value understanding and properties of operations to perform multi-digit arithmetic.	M04.A-T.2.1 Use operations to solve problems.	M04.A-T.2.1.1 Add and subtract multi-digit whole numbers (limit sums and subtrahends up to and including 1,000,000). M04.A-T.2.1.2 Multiply a whole number of up to four digits by a one-digit whole number and multiply 2 two-digit numbers. M04.A-T.2.1.3 Divide up to four-digit dividends by one-digit divisors with answers written as whole-number quotients and remainders. M04.A-T.2.1.4 Estimate the answer to addition, subtraction, and multiplication problems using whole numbers through six digits (for multiplication, no more than 2 digits $\times$ 1 digit, excluding powers of 10).	CC.2.1.4.B.2 Use place-value understanding and properties of operations to perform multi-digit arithmetic.	Number and Operations in Base Ten	Adding Whole Numbers Adding and Subtracting with the Standard Algorithm Multiplying 2-Digit Numbers by 2-Digit Numbers Multiplying Whole Numbers Dividing Whole Numbers - One-Digit Divisors

<b>Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M04.A-F Numbers and Operations—Fractions</b>					
M04.A-F.1 Extend understanding of fraction equivalence and ordering.	M04.A-F.1.1 Find equivalencies and compare fractions.	M04.A-F.1.1.1 Recognize and generate equivalent fractions. M04.A-F.1.1.2 Compare two fractions with different numerators and different denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100) using the symbols $>$ , $=$ , or $<$ and justify the conclusions.	CC.2.1.4.C.1 Extend the understanding of fractions to show equivalence and ordering.	Number and Operations - Fractions	Modeling Equivalent Fractions Generating Equivalent Fractions Reducing Fractions Comparing Fractions - Visual Models Comparing Fractions with Different Numerators and Different Denominators Recognizing Valid Fraction Comparisons II Decomposing Fractions and Mixed Numbers Writing Fractions as Mixed Numbers and Mixed Numbers as Fractions Understanding Fractions - Relationship Between Numerator and Denominator

**Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
M04.A-F.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	M04.A-F.2.1 Solve problems involving fractions and whole numbers (straight computation or word problems).	<p>M04.A-F.2.1.1 Add and subtract fractions with a common denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100; answers do not need to be simplified; and no improper fractions as the final answer).</p> <p>M04.A-F.2.1.2 Decompose a fraction or a mixed number into a sum of fractions with the same denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100), recording the decomposition by an equation. Justify decompositions (e.g., by using a visual fraction model). Example 1: <math>3/8 = 1/8 + 1/8 + 1/8</math> OR <math>3/8 = 1/8 + 2/8</math> Example 2: <math>2 \frac{1}{12} = 1 + 1 + 1/12 = 12/12 + 12/12 + 1/12</math></p> <p>M04.A-F.2.1.3 Add and subtract mixed numbers with a common denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100; no regrouping with subtraction; fractions do not need to be simplified; and no improper fractions as the final answers).</p> <p>M04.A-F.2.1.4 Solve word problems involving addition and subtraction of fractions referring to the same whole or set and having like denominators (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100).</p> <p>M04.A-F.2.1.5 Multiply a whole number by a unit fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100 and final answers do not need to be simplified or written as a mixed number). Example: <math>5 \times (1/4) = 5/4</math></p> <p>M04.A-F.2.1.6 Multiply a whole number by a non-unit fraction (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100 and final answers do not need to be simplified or written as a mixed number). Example: <math>3 \times (5/6) = 15/6</math></p>	CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	<p>Number and Operations in Base Ten</p> <p>Number and Operations - Fractions</p>	<p>Dividing Multiples of Ten</p> <p>Adding and Subtracting Fractions with Like Denominators</p> <p>Adding and Subtracting Fractions with Like Denominators in Real-World Situations</p> <p>Decomposing Fractions and Mixed Numbers</p> <p>Word Problems with Fractions and Mixed Numbers - Visual Models</p> <p>Word Problems with Fractions and Mixed Numbers - Estimation</p> <p>Adding and Subtracting Mixed Numbers with Like Denominators - Conceptual Strategies</p> <p>Adding and Subtracting Mixed Numbers with Like Denominators</p> <p>Multiplying Unit Fractions by Whole Numbers</p>



**Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M04.B-O Operations and Algebraic Thinking</b>					
M04.B-O.1 Use the four operations with whole numbers to solve problems.	M04.B-O.1.1 Use numbers and symbols to model the concepts of expressions and equations.	<p>M04.B-O.1.1.1 Interpret a multiplication equation as a comparison. Represent verbal statements of multiplicative comparisons as multiplication equations. Example 1: Interpret <math>35 = 5 \times 7</math> as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Example 2: Know that the statement 24 is 3 times as many as 8 can be represented by the equation <math>24 = 3 \times 8</math> or <math>24 = 8 \times 3</math>.</p> <p>M04.B-O.1.1.2 Multiply or divide to solve word problems involving multiplicative comparison, distinguishing multiplicative comparison from additive comparison. Example: Know that <math>3 \times 4</math> can be used to represent that Student A has 4 objects and Student B has 3 times as many objects not just 3 more objects.</p> <p>M04.B-O.1.1.3 Solve multi-step word problems posed with whole numbers using the four operations. Answers will be either whole numbers or have remainders that must be interpreted yielding a final answer that is a whole number. Represent these problems using equations with a symbol or letter standing for the unknown quantity.</p> <p>M04.B-O.1.1.4 Identify the missing symbol (+, −, ×, ÷, =, ) that makes a number sentence true (single-digit divisor only).</p>	CC.2.2.4.A.1 Represent and solve problems involving the four operations.	<p>Number and Operations in Base Ten</p> <p>Operations and Algebraic Thinking</p>	<p>Adding Whole Numbers</p> <p>Multiplying Whole Numbers</p> <p>Estimating Solutions to Multistep Word Problems</p> <p>Multiplication as a Comparison - Equations</p> <p>Multiplication as a Comparison - Word Problems</p> <p>Interpreting Remainders</p>



Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
M04.B-O.2 Gain familiarity with factors and multiples.	M04.B-O.2.1 Develop and apply number theory concepts to represent numbers in various ways.	M04.B-O.2.1.1 Find all factor pairs for a whole number in the interval 1 through 100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the interval 1 through 100 is a multiple of a given onedigit number. Determine whether a given whole number in the interval 1 through 100 is prime or composite.	CC.2.2.4.A.2 Develop and/or apply number theory concepts to find factors and multiples.	Operations and Algebraic Thinking	Factors Relating Factors and Multiples I Relating Factors and Multiples II Generating and Describing Number Patterns
M04.B-O.3 Generate and analyze patterns	M04.B-O.3.1 Recognize, describe, extend, create, and replicate a variety of patterns.	M04.B-O.3.1.1 Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. Example 1: Given the rule “add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms alternate between odd and even numbers. Example 2: Given the rule “increase the number of sides by 1” and starting with a triangle, observe that the tops of the shapes alternate between a side and a vertex. M04.B-O.3.1.2 Determine the missing elements in a function table (limit to +, −, or × and to whole numbers or money). M04.B-O.3.1.3 Determine the rule for a function given a table (limit to +, −, or × and to whole numbers).	CC.2.2.4.A.4 Generate and analyze patterns using one rule.	Standard not addressed	Standard not addressed

<b>Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M04.C-G Geometry</b>					
M04.C-G.1 Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	M04.C-G.1.1 List properties, classify, draw, and identify geometric figures in two dimensions.	M04.C-G.1.1.1 Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in twodimensional figures. M04.C-G.1.1.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. M04.C-G.1.1.3 Recognize a line of symmetry for a twodimensional figure as a line across the figure such that the figure can be folded along the line into mirroring parts. Identify line-symmetric figures and draw lines of symmetry (up to two lines of symmetry).	CC.2.3.4.A.1 Draw lines and angles and identify these in two-dimensional figures.	Geometry	Identifying and Classifying Lines, Rays, and Segments Classifying Triangles Classifying Quadrilaterals II
			C.2.3.4.A.2 Classify two dimensional figures by properties of their lines and angles.	Geometry	Classifying Triangles Classifying Quadrilaterals II
			CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.	Geometry	Symmetry
<b>Reporting Category: M04.D-M Measurement and Data</b>					
M04.D-M.1 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	M04.D-M.1.1 Solve problems involving length, weight (mass), liquid volume, time, area, and perimeter	M04.D-M.1.1.1 Know relative sizes of measurement units within one system of units including standard units (in., ft, yd, mi; oz., lb; and c, pt, qt, gal), metric units (cm, m, km; g, kg; and mL, L), and time (sec, min, hr, day, wk, mo, and yr). Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. A table of equivalencies will be provided. Example 1: Know that 1 kg is 1,000 times as heavy as 1 g. Example 2: Express the length of a 4-foot snake as 48 in.	CC.2.4.4.A.1 Solve problems involving measurement and conversions from a larger unit to a smaller unit.	Measurement and Data	Area and Perimeter of Rectangles Units of Measure - Customary Units of Measure - Metric

Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
		<p>M04.D-M.1.1.2 Use the four operations to solve word problems involving distances, intervals of time (such as elapsed time), liquid volumes, masses of objects; money, including problems involving simple fractions or decimals; and problems that require expressing measurements given in a larger unit in terms of a smaller unit.</p> <p>M04.D-M.1.1.3 Apply the area and perimeter formulas for rectangles in real-world and mathematical problems (may include finding a missing side length). Whole numbers only. The formulas will be provided.</p> <p>M04.D-M.1.1.4 Identify time (analog or digital) as the amount of minutes before or after the hour. Example 1: 2:50 is the same as 10 minutes before 3:00. Example 2: Quarter past six is the same as 6:15</p>			
M04.D-M.2 Represent and interpret data.	M04.D-M.2.1 Organize, display, and answer questions based on data.	<p>M04.D-M.2.1.1 Make a line plot to display a data set of measurements in fractions of a unit (e.g., intervals of <math>\frac{1}{2}</math>, <math>\frac{1}{4}</math>, or <math>\frac{1}{8}</math>).</p>	CC.2.4.4.A.2 Translate information from one type of data display to another.	Standard not addressed	Standard not addressed
		<p>M04.D-M.2.1.2 Solve problems involving addition and subtraction of fractions by using information presented in line plots (line plots must be labeled with common denominators, such as <math>\frac{1}{4}</math>, <math>\frac{2}{4}</math>, <math>\frac{3}{4}</math>).</p> <p>M04.D-M.2.1.3 Translate information from one type of display to another (table, chart, bar graph, or pictograph).</p>	CC.2.4.4.A.4 Represent and interpret data involving fractions using information provided in a line plot.	Standard not addressed	Standard not addressed

<b>Grade 4 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
M04.D-M.3 Geometric measurement: understand concepts of angle; measure and create angles.	M04.D-M.3.1 Use appropriate tools and units to sketch an angle and determine angle measurements.	M04.D-M.3.1.1 Measure angles in whole-number degrees using a protractor. With the aid of a protractor, sketch angles of specified measure.  M04.D-M.3.1.2 Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems. (Angles must be adjacent and non-overlapping.)	CC.2.4.4.A.6 Measure angles and use properties of adjacent angles to solve problems.	Measurement and Data	Identifying and Comparing Angles  Angles

**Grade 5 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M05.A-T Numbers and Operations in Base Ten</b>					
M05.A-T.1 Understand the place-value system.	M05.A-T.1.1 Demonstrate understanding of place-value of whole numbers and decimals, and compare quantities or magnitudes of numbers.	<p>M05.A-T.1.1.1 Demonstrate an understanding that in a multi-digit number, a digit in one place represents 1/10 of what it represents in the place to its left. Example: Recognize that in the number 770, the 7 in the tens place is 1/10 the 7 in the hundreds place.</p> <p>M05.A-T.1.1.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10 and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. Example 1: <math>4 \times 10^2 = 400</math> Example 2: <math>0.05 \div 10^3 = 0.00005</math></p> <p>M05.A-T.1.1.3 Read and write decimals to thousandths using base-ten numerals, word form, and expanded form. Example: <math>347.392 = 300 + 40 + 7 + 0.3 + 0.09 + 0.002 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (0.1) + 9 \times (0.01) + 2 \times (0.001)</math></p> <p>M05.A-T.1.1.4 Compare two decimals to thousandths based on meanings of the digits in each place using <math>&gt;</math>, <math>=</math>, and <math>&lt;</math> symbols.</p> <p>M05.A-T.1.1.5 Round decimals to any place (limit rounding to ones, tenths, hundredths, or thousandths place).</p>	CC.2.1.5.B.1 Apply place value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals.	Number and Operations in Base Ten	<p>Decimals to Thousandths</p> <p>Comparing Decimals to Thousandths</p> <p>Fraction and Decimal Equivalents</p> <p>Comparing Fractions and Decimals</p> <p>Rounding Decimals to the Nearest Tenth and Hundredth</p> <p>Reasoning About Rounding Decimals</p> <p>Multiplying by Powers of Ten</p> <p>Multiplying and Dividing by Powers of Ten</p> <p>Place Value Relationships Within Whole Numbers and Decimals</p>

Grade 5 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
M05.A-T.2 Perform operations with multi-digit whole numbers and with decimals to hundredths.	M05.A-T.2.1 Use whole numbers and decimals to compute accurately (straight computation or word problems).	M05.A-T.2.1.1 Multiply multi-digit whole numbers (not to exceed three-digit by three-digit). M05.A-T.2.1.2 Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors. M05.A-T.2.1.3 Add, subtract, multiply, and divide decimals to hundredths (no divisors with decimals).	CC.2.1.5.B.2 Extend an understand of operations with whole numbers to perform operations including decimals.	Number and Operations in Base Ten	Multiplying Whole Numbers - Standard Algorithm Dividing Whole Numbers - Two-Digit Divisors Adding and Subtracting Decimals Adding and Subtracting Decimals in Real-World Situations Multiplying Decimals to Hundredths Dividing Decimals to Hundredths Using Reasoning and Estimation to Calculate with Decimals Calculating with Decimals

Grade 5 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M05.A-F Numbers and Operations—Fractions</b>					
M05.A-F.1 Use equivalent fractions as a strategy to add and subtract fractions.	M05.A-F.1.1 Solve addition and subtraction problems involving fractions (straight computation or word problems).	M05.A-F.1.1.1 Add and subtract fractions (including mixed numbers) with unlike denominators. (May include multiple methods and representations.) Example: $2/3 + 5/4 = 8/12 + 15/12 = 23/12$	CC.2.1.5.C.1 Use the understanding of equivalency to add and subtract fractions.	Number and Operations - Fractions	Adding Fractions Adding Fractions - Estimation Strategies Subtracting Fractions Subtracting Fractions - Estimation Strategies Adding and Subtracting Fractions Adding and Subtracting Fractions - Multistep Word Problems
M05.A-F.2 Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	M05.A-F.2.1 Solve multiplication and division problems involving fractions and whole numbers (straight computation or word problems).	M05.A-F.2.1.1 Solve word problems involving division of whole numbers leading to answers in the form of fractions (including mixed numbers). M05.A-F.2.1.2 Multiply a fraction (including mixed numbers) by a fraction. M05.A-F.2.1.3 Demonstrate an understanding of multiplication as scaling (resizing). Example 1: Comparing the size of a product to the size of one factor on the basis of the size of the other factor without performing the indicated multiplication. Example 2: Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number.	CC.2.1.5.C.2. Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	Number and Operations - Fractions	Understanding Fractions as Division Understanding Products with Fractions Multiplying Fractions by Fractions Multiplying with Fractions and Mixed Numbers Multiplying Fractions by Whole Numbers to Solve Multistep Problems Dividing Unit Fractions by Whole Numbers Dividing Whole Numbers by Unit Fractions

Grade 5 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
		M05.A-F.2.1.4 Divide unit fractions by whole numbers and whole numbers by unit fractions.			
<b>Reporting Category: M05.B-O Operations and Algebraic Thinking</b>					
M05.B-O.1 Write and interpret numerical expressions.	M05.B-O.1.1 Analyze and complete calculations by applying the order of operations.	<p>M05.B-O.1.1.1 Use multiple grouping symbols (parentheses, brackets, or braces) in numerical expressions and evaluate expressions containing these symbols.</p> <p>M05.B-O.1.1.2 Write simple expressions that model calculations with numbers and interpret numerical expressions without evaluating them.</p> <p>Example 1: Express the calculation “add 8 and 7, then multiply by 2” as <math>2 \times (8 + 7)</math>.</p> <p>Example 2: Recognize that <math>3 \times (18,932 + 921)</math> is three times as large as <math>18,932 + 921</math> without having to calculate the indicated sum or product.</p>	CC.2.2.5.A.1 Interpret and evaluate numerical expressions using order of operations.	<p>Expressions and Equations</p> <p>Operations and Algebraic Thinking</p>	<p>Evaluating Simple Expressions</p> <p>Writing Simple Expressions</p> <p>Writing and Interpreting Simple Expressions</p>
M05.B-O.2 Analyze patterns and relationships.	M05.B-O.2.1 Create, extend, and analyze patterns.	<p>M05.B-O.2.1.1 Generate two numerical patterns using two given rules.</p> <p>Example: Given the rule “add 3” and the starting number 0 and given the rule “add 6” and the starting number 0, generate terms in the resulting sequences.</p> <p>M05.B-O.2.1.2 Identify apparent relationships between corresponding terms of two patterns with the same starting numbers that follow different rules.</p> <p>Example: Given two patterns in which the first pattern follows the rule “add 8” and the second pattern follows the rule “add 2,” observe that the terms in the first pattern are 4 times the size of the terms in the second pattern.</p>	CC.2.2.5.A.4 Analyze patterns and relationships using two rules.	Standard not addressed	Standard not addressed



Grade 5 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M05.C-G Geometry</b>					
M05.C-G.1 Graph points on the coordinate plane to solve real-world and mathematical problems.	M05.C-G.1.1 Identify parts of a coordinate grid and describe or interpret points given an ordered pair.	M05.C-G.1.1.1 Identify parts of the coordinate plane (x-axis, y-axis, and the origin) and the ordered pair (x-coordinate and y-coordinate). Limit the coordinate plane to quadrant I. M05.C-G.1.1.2 Represent real-world and mathematical problems by plotting points in quadrant I of the coordinate plane and interpret coordinate values of points in the context of the situation.	CC.2.3.5.A.1 Graph points in the first quadrant on the coordinate plane and interpret these points when solving real world and mathematical problems.	Geometry	Introduction to the Coordinate Plane Representing Real-World Quantities in the First Quadrant Introduction to Scatter Plots
M05.C-G.2 Classify two-dimensional figures into categories based on their properties.	M05.C-G.2.1 Use basic properties to classify two-dimensional figures.	M05.C-G.2.1.1 Classify two-dimensional figures in a hierarchy based on properties. Example 1: All polygons have at least three sides, and pentagons are polygons, so all pentagons have at least three sides. Example 2: A rectangle is a parallelogram, which is a quadrilateral, which is a polygon; so, a rectangle can be classified as a parallelogram, as a quadrilateral, and as a polygon.	CC.2.3.5.A.2 Classify two dimensional figures into categories based on an understanding of their properties.	Geometry	Classifying 2-Dimensional Figures
<b>Reporting Category: M05.D-M Measurement and Data</b>					
M05.D-M.1 Convert like measurement units within a given measurement system.	M05.D-M.1.1 Solve problems using simple conversions (may include multistep, real-world problems).	M05.D-M.1.1.1 Convert between different-sized measurement units within a given measurement system. A table of equivalencies will be provided. Example: Convert 5 cm to meters.	CC.2.4.5.A.1 Solve problems using conversions within a given measurement system.	Measurement and Data	Units of Measure - Customary Units of Measure - Metric

Grade 5 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M05.D-M.2 Represent and interpret data.	M05.D-M.2.1 Organize, display, and answer questions based on data.	M05.D-M.2.1.1 Solve problems involving computation of fractions by using information presented in line plots. M05.D-M.2.1.2 Display and interpret data shown in tallies, tables, charts, pictographs, bar graphs, and line graphs, and use a title, appropriate scale, and labels. A grid will be provided to display data on bar graphs or line graphs.	CC.2.4.5.A.2 Represent and interpret data using appropriate scale.	Standard not addressed	Standard not addressed
			CC.2.4.5.A.4 Solve problems involving computation of fractions using information provided in a line plot.	Measurement and Data	Line Plots
M05.D-M.3 Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	M05.D-M.3.1 Use, describe, and develop procedures to solve problems involving volume.	M05.D-M.3.1.1 Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths in the context of solving real-world and mathematical problems. Formulas will be provided. M05.D-M.3.1.2 Find volumes of solid figures composed of two non-overlapping right rectangular prisms.	CC.2.4.5.A.5 Apply concepts of volume to solve problems and relate volume to multiplication and addition.	Measurement and Data	Volume of Rectangular Prisms I Volume of Rectangular Prisms II

Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M06.A-N The Number System</b>					
M06.A-N.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	M06.A-N.1.1 Solve real-world and mathematical problems involving division of fractions.	M06.A-N.1.1.1 Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions. Example 1: Given a story context for $(2/3) \div (3/4)$ , explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$ . (In general, $(a/b) \div (c/d) = (a/b) \times (d/c) = ad/bc$ .) Example 2: How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi? Example 3: How many $2\ 1/4$ -foot pieces can be cut from a $15\ 1/2$ -foot board?	CC.2.1.6.E.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.	The Number System	Using the Relationship Between Multiplication and Division to Divide Fractions Dividing Fractions by Fractions Using Division of Fractions to Represent and Solve Problems Operations with Fractions - Mixed Practice
M06.A-N.2 Compute with multi-digit numbers and find common factors and multiples.	M06.A-N.2.1 Compute with multi-digit numbers using the four arithmetic operations with or without a calculator.	M06.A-N.2.1.1 Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.	CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.	Number and Operations in Base Ten	Dividing Whole Numbers - Standard Algorithm Adding and Subtracting Decimals Adding and Subtracting Decimals in Real-World Situations Using Reasoning and Estimation to Calculate with Decimals Calculating with Decimals

Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M06.A-N.2 Compute with multi-digit numbers and find common factors and multiples.	M06.A-N.2.2 Apply number theory concepts (specifically, factors and multiples).	<p>M06.A-N.2.2.1 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.</p> <p>M06.A-N.2.2.2 Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor. Example: Express <math>36 + 8</math> as <math>4(9 + 2)</math>.</p>	CC. 2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples.	The Number System	Greatest Common Factor Greatest Common Factor - Applications Least Common Multiple
M06.A-N.3 Apply and extend previous understandings of numbers to the system of rational numbers.	M06.A-N.3.1 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values and locations on the number line and coordinate plane.	<p>M06.A-N.3.1.1 Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge).</p> <p>M06.A-N.3.1.2 Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself (e.g., <math>-(-3) = 3</math>; 0 is its own opposite).</p> <p>M06.A-N.3.1.3 Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane.</p>	CC.2.1.6.E.4 Apply and extend previous understandings of numbers to the system of rational numbers.	Ratios and Proportional Relationships  The Number System	Reasoning with Percents  Integer Concepts Integer Concepts with a Number Line Integers in the Coordinate Plane I Integers in the Coordinate Plane II Comparing Rational Numbers I Comparing Rational Numbers II Rational Numbers in the Coordinate Plane I Rational Numbers in the Coordinate Plane II

Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M06.A-N.3 Apply and extend previous understandings of numbers to the system of rational numbers.	M06.A-N.3.2 Understand ordering and absolute value of rational numbers.	<p>M06.A-N.3.2.1 Write, interpret, and explain statements of order for rational numbers in real-world contexts.            Example: Write <math>-3^{\circ}\text{C} &gt; -7^{\circ}\text{C}</math> to express the fact that <math>-3^{\circ}\text{C}</math> is warmer than <math>-7^{\circ}\text{C}</math>.</p> <p>M06.A-N.3.2.2 Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation.            Example: For an account balance of <math>-30</math> dollars, write <math> -30  = 30</math> to describe the size of the debt in dollars, and recognize that an account balance less than <math>-30</math> dollars represents a debt greater than 30 dollars.</p> <p>M06.A-N.3.2.3 Solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.</p>			Absolute Value I Absolute Value II Distance on the Coordinate Plane II

**Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M06.A-R Ratios and Proportional Relationships</b>					
M06.A-R.1 Understand ratio concepts and use ratio reasoning to solve problems.	M06.A-R.1.1 Represent and/or solve realworld and mathematical problems using rates, ratios, and/or percents.	<p>M06.A-R.1.1.1 Use ratio language and notation (such as 3 to 4, 3:4, 3/4) to describe a ratio relationship between two quantities. Example 1: “The ratio of girls to boys in a math class is 2:3 because for every 2 girls there are 3 boys.” Example 2: “For every five votes candidate A received, candidate B received four votes.”</p> <p>M06.A-R.1.1.2 Find the unit rate <math>a/b</math> associated with a ratio <math>a:b</math> (with <math>b \neq 0</math>) and use rate language in the context of a ratio relationship. Example 1: “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is <math>3/4</math> cup of flour for each cup of sugar.” Example 2: “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”</p> <p>M06.A-R.1.1.3 Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios.</p> <p>M06.A-R.1.1.4 Solve unit rate problems including those involving unit pricing and constant speed. Example: If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</p> <p>M06.A-R.1.1.5 Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percentage.</p>	CC.2.1.6.D.1 Understand ratio concepts and use ratio reasoning to solve problems.	<p>Ratios and Proportional Relationships</p> <p>The Number System</p>	<p>Identifying Ratios Ratios</p> <p>Concept of Ratios and Rates</p> <p>Using Ratios to Solve Problems</p> <p>Identifying Unit Rates Solving Problems with Unit Rates</p> <p>Converting Units of Measure I</p> <p>Converting Units of Measure II</p> <p>Distance, Rate, and Time Percent Concepts</p> <p>Reasoning with Percents</p> <p>Calculations with Percent</p> <p>Rational Numbers in the Coordinate Plane II</p>

**Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M06.B-E Expressions and Equations</b>					
M06.B-E.1 Apply and extend previous understandings of arithmetic to numerical and algebraic expressions.	M06.B-E.1.1 Identify, write, and evaluate numerical and algebraic expressions.	<p>M06.B-E.1.1.1 Write and evaluate numerical expressions involving whole-number exponents.</p> <p>M06.B-E.1.1.2 Write algebraic expressions from verbal descriptions. Example: Express the description “five less than twice a number” as <math>2y - 5</math>.</p> <p>M06.B-E.1.1.3 Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity). Example: Describe the expression <math>2(8 + 7)</math> as a product of two factors.</p> <p>M06.B-E.1.1.4 Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems. Example: Evaluate the expression <math>b^2 - 5</math> when <math>b = 4</math>.</p> <p>M06.B-E.1.1.5 Apply the properties of operations to generate equivalent expressions.            Example 1: Apply the distributive property to the expression <math>3(2 + x)</math> to produce the equivalent expression <math>6 + 3x</math>.            Example 2: Apply the distributive property to the expression <math>24x + 18y</math> to produce the equivalent expression <math>6(4x + 3y)</math>.            Example 3: Apply properties of operations to <math>y + y + y</math> to produce the equivalent expression <math>3y</math>.</p>	CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions.	Expressions and Equations	Evaluating Expressions with Two Operations Evaluating Expressions with Real Numbers Understanding Exponents Evaluating Expressions and Equations with Exponents Identifying and Generating Equivalent Expressions Evaluating Expressions with the Distributive Property Using the Distributive Property to Represent Real-World Situations Introduction to the Language of Algebra Combining Like Terms

Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M06.B-E.2 Interpret and solve one-variable equations and inequalities.	M06.B-E.2.1 Create, solve, and interpret onevariable equations or inequalities in real-world and mathematical problems.	<p>M06.B-E.2.1.1 Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p> <p>M06.B-E.2.1.2 Write algebraic expressions to represent real-world or mathematical problems.</p> <p>M06.B-E.2.1.3 Solve real-world and mathematical problems by writing and solving equations of the form <math>x + p = q</math> and <math>px = q</math> for cases in which <math>p</math>, <math>q</math>, and <math>x</math> are all non-negative rational numbers.</p> <p>M06.B-E.2.1.4 Write an inequality of the form <math>x &gt; c</math> or <math>x &lt; c</math> to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines.</p>	CC.2.2.6.B.2 Understand the process of solving a one-variable equation or inequality and apply it to real-world and mathematical problems.	Expressions and Equations	<p>Reasoning About One-Step Equations</p> <p>Writing and Solving One-Step Equations</p> <p>Introduction to the Language of Algebra</p> <p>Introduction to Solving Word Problems with Algebra</p> <p>Concept of Inequalities I</p>
M06.B-E.3 Represent and analyze quantitative relationships between dependent and independent variables.	M06.B-E.3.1 Use variables to represent two quantities in a real-world problem that change in relationship to one another.	<p>M06.B-E.3.1.1 Write an equation to express the relationship between the dependent and independent variables. Example: In a problem involving motion at a constant speed of 65 units, write the equation <math>d = 65t</math> to represent the relationship between distance and time.</p> <p>M06.B-E.3.1.2 Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation.</p>	CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables.	Expressions and Equations	Independent and Dependent Quantities



**Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M06.C-G Geometry</b>					
M06.C-G.1 Solve real-world and mathematical problems involving area, surface area, and volume.	M06.C-G.1.1 Find area, surface area, and volume by applying formulas and using various strategies.	<p>M06.C-G.1.1.1 Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid). Formulas will be provided.</p> <p>M06.C-G.1.1.2 Determine the area of irregular or compound polygons. Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing.</p> <p>M06.C-G.1.1.3 Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.</p> <p>M06.C-G.1.1.4 Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). Formulas will be provided.</p> <p>M06.C-G.1.1.5 Represent three-dimensional figures using nets made of rectangles and triangles.</p> <p>M06.C-G.1.1.6 Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.</p>	CC.2.3.6.A.1 Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.	Geometry	<p>Distance on the Coordinate Plane I</p> <p>Area of Parallelograms</p> <p>Area of Triangles</p> <p>Area of Trapezoids and Composite Figures</p> <p>Surface Area and Volume of Rectangular Prisms</p> <p>Surface Area of Pyramids</p>

<b>Grade 6 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>Reporting Category: M06.D-S Statistics and Probability</b>					
M06.D-S.1 Demonstrate understanding of statistical variability by summarizing and describing distributions.	M06.D-S.1.1 Display, analyze, and summarize numerical data sets in relation to their context.	M06.D-S.1.1.1 Display numerical data in plots on a number line, including line plots, histograms, and box-and-whisker plots. M06.D-S.1.1.2 Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation). M06.D-S.1.1.3 Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered. M06.D-S.1.1.4 Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.	CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.	Statistics and Probability	Measures of Spread - Range Measures of Center - Median Measures of Center - Mean Understanding the Effects of Outliers on Mean and Median Deviation from the Mean Summarizing Data Data Analysis Bar Graphs and Histograms Circle Graphs Stem-and-Leaf Plots Quartiles Box Plots

Grade 7 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M07.A-N The Number System</b>					
M07.A-N.1 Apply and extend previous understandings of operations to add, subtract, multiply, and divide rational numbers.	M07.A-N.1.1 Solve real-world and mathematical problems involving the four operations with rational numbers.	M07.A-N.1.1.1 Apply properties of operations to add and subtract rational numbers, including real-world contexts. M07.A-N.1.1.2 Represent addition and subtraction on a horizontal or vertical number line. M07.A-N.1.1.3 Apply properties of operations to multiply and divide rational numbers, including real-world contexts; demonstrate that the decimal form of a rational number terminates or eventually repeats.	CC.2.1.7.E.1 Apply and extend previous understandings of operations with fractions to operations with rational numbers.	Number and Operations- Fractions  The Number System	Using Division to Write Fractions as Decimals Understanding and Multiplying with Negative Mixed Numbers  Adding and Subtracting Rational Numbers I Multiplying and Dividing Rational Numbers Writing and Interpreting Expressions with Rational Numbers Operations with Rational Numbers I
<b>Reporting Category: M07.A-R Ratios and Proportional Relationships</b>					
M07.A-R.1 Demonstrate an understanding of proportional relationships.	M07.A-R.1.1 Analyze, recognize, and represent proportional relationships and use them to solve real-world and mathematical problems.	M07.A-R.1.1.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units. Example: If a person walks $\frac{1}{2}$ mile in each $\frac{1}{4}$ hour, compute the unit rate as the complex fraction $\frac{1/2}{1/4}$ miles per hour, equivalently 2 miles per hour. M07.A-R.1.1.2 Determine whether two quantities are proportionally related (e.g., by testing for equivalent ratios in a table, graphing on a coordinate plane and observing whether the graph is a straight line through the origin).	CC.2.1.7.D.1 Analyze proportional relationships and use them to model and solve real-world and mathematical problems.	Ratios and Proportional Relationships	Proportion Concepts Proportional Relationships in Tables and Equations Interpreting Unit Rates on Graphs Interpreting Points on Graphs of Proportional Relationships

Grade 7 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
		<p>M07.A-R.1.1.3 Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.</p> <p>M07.A-R.1.1.4 Represent proportional relationships by equations. Example: If total cost <math>t</math> is proportional to the number <math>n</math> of items purchased at a constant price <math>p</math>, the relationship between the total cost and the number of items can be expressed as <math>t = pn</math>.</p> <p>M07.A-R.1.1.5 Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math>, where <math>r</math> is the unit rate.</p> <p>M07.A-R.1.1.6 Use proportional relationships to solve multi-step ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease.</p>			Using Proportions to Solve Problems Proportions in Scale Drawings Introduction to Similar Figures Using Similar Figures to Solve Problems Percent and Percent Change Percent and Percent Error Simple Interest
<b>Reporting Category: M07.B-E Expressions and Equations</b>					
M07.B-E.1 Represent expressions in equivalent forms.	M07.B-E.1.1 Use properties of operations to generate equivalent expressions.	<p>M07.B-E.1.1.1 Apply properties of operations to add, subtract, factor, and expand linear expressions with rational coefficients. Example 1: The expression <math>\frac{1}{2} \cdot (x + 6)</math> is equivalent to <math>\frac{1}{2} \cdot x + 3</math>. Example 2: The expression <math>5.3 - y + 4.2</math> is equivalent to <math>9.5 - y</math> (or <math>-y + 9.5</math>). Example 3: The expression <math>4w - 10</math> is equivalent to <math>2(2w - 5)</math>.</p>	CC.2.2.7.B.1 Apply properties of operations to generate equivalent expressions.	Expressions and Equations	Common Factors in Polynomials

Grade 7 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M07.B-E.2 Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.	M07.B-E.2.1 Solve multi-step real-world and mathematical problems posed with positive and negative rational numbers.	M07.B-E.2.1.1 Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate. Example: If a woman making \$25 an hour gets a 10% raise, she will make an additional $\frac{1}{10}$ of her salary an hour, or \$2.50, for a new salary of \$27.50 an hour (or $1.1 \times \$25 = \$27.50$ ).	CC.2.2.7.B.3 Model and solve realworld and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.	Expressions and Equations	Fraction, Decimal, and Percent Equivalents Solving and Modeling Two-Step Problems Solving Equations with the Distributive Property Solving Equations with the Distributive Property in Context
M07.B-E.2 Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.	M07.B-E.2.2 Use variables to represent quantities in a real-world or mathematical problem and construct simple equations and inequalities to solve problems.	M07.B-E.2.2.1 Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Example: The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? M07.B-E.2.2.2 Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$ , where $p$ , $q$ , and $r$ are specific rational numbers, and graph the solution set of the inequality. Example: A salesperson is paid \$50 per week plus \$3 per sale. This week she wants her pay to be at least \$100. Write an inequality for the number of sales the salesperson needs to make and describe the solutions.		The Number System	Solving Word Problems with Algebra Writing and Interpreting Expressions with Rational Numbers Operations with Rational Numbers II
M07.B-E.2 Solve real-world and mathematical problems using numerical and algebraic expressions, equations, and inequalities.	M07.B-E.2.3 Determine the reasonableness of the answer(s) in problemsolving situations.	M07.B-E.2.3.1 Determine the reasonableness of answer(s) or interpret the solution(s) in the context of the problem. Example: If you want to place a towel bar that is $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation.			

Grade 7 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M07.C-G Geometry</b>					
M07.C-G.1 Demonstrate an understanding of geometric figures and their properties.	M07.C-G.1.1 Describe and apply properties of geometric figures.	M07.C-G.1.1.1 Solve problems involving scale drawings of geometric figures, including finding length and area. M07.C-G.1.1.2 Identify or describe the properties of all types of triangles based on angle and side measures. M07.C-G.1.1.3 Use and apply the triangle inequality theorem. M07.C-G.1.1.4 Describe the two-dimensional figures that result from slicing three-dimensional figures. Example: Describe plane sections of right rectangular prisms and right rectangular pyramids.	CC.2.3.7.A.2 Visualize and represent geometric figures and describe the relationships between them.	Standard not addressed	Standard not addressed
M07.C-G.2 Solve real-world and mathematical problems involving angle measure, circumference, area, surface area, and volume.	M07.C-G.2.1 Identify, use, and describe properties of angles and their measures.	M07.C-G.2.1.1 Identify and use properties of supplementary, complementary, and adjacent angles in a multistep problem to write and solve simple equations for an unknown angle in a figure. M07.C-G.2.1.2 Identify and use properties of angles formed when two parallel lines are cut by a transversal (e.g., angles may include alternate interior, alternate exterior, vertical, corresponding).	CC.2.3.7.A.1 Solve real-world and mathematical problems involving angle measure, area, surface area, circumference, and volume.	Ratios and Proportional Relationships	Using Proportions to Solve Problems Proportions in Scale Drawings Introduction to Similar Figures Using Similar Figures to Solve Problems Similarity

<b>Grade 7 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
M07.C-G.2 Solve real-world and mathematical problems involving angle measure, circumference, area, surface area, and volume.	M07.C-G.2.2 Determine circumference, area, surface area, and volume.	M07.C-G.2.2.1 Find the area and circumference of a circle. Solve problems involving area and circumference of a circle(s). Formulas will be provided.  M07.C-G.2.2.2 Solve real-world and mathematical problems involving area, volume, and surface area of twoand three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. Formulas will be provided.		Geometry	Circumference Area of Circles Surface Area and Volume of Rectangular Prisms Surface Area of Cylinders Surface Area of Cones Surface Area of Composite Solids Angle Pairs Angles in a Polygon
<b>Reporting Category: M07.D-S Statistics and Probability</b>					
M07.D-S.1 Use random sampling to draw inferences about a population.	M07.D-S.1.1 Use random samples.	M07.D-S.1.1.1 Determine whether a sample is a random sample given a real-world situation.  M07.D-S.1.1.2 Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Example 1: Estimate the mean word length in a book by randomly sampling words from the book. Example 2: Predict the winner of a school election based on randomly sampled survey data.	CC.2.4.7.B.1 Draw inferences about populations based on random sampling concepts	Statistics and Probability	Sampling

Grade 7 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M07.D-S.2 Draw comparative inferences about populations.	M07.D-S.2.1 Use statistical measures to compare two numerical data distributions.	<p>M07.D-S.2.1.1 Compare two numerical data distributions using measures of center and variability.</p> <p>Example 1: The mean height of players on the basketball team is 10 cm greater than the mean height of players on the soccer team. This difference is equal to approximately twice the variability (mean absolute deviation) on either team. On a line plot, note the difference between the two distributions of heights.</p> <p>Example 2: Decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourthgrade science book.</p>	CC.2.4.7.B.2 Draw informal comparative inferences about two populations.	Statistics and Probability	Sampling Comparing Data Probability and Sample Spaces Simple Probability
M07.D-S.3 Investigate chance processes and develop, use, and evaluate probability models.	M07.D-S.3.1 Predict or determine the likelihood of outcomes.	M07.D-S.3.1.1 Predict or determine whether some outcomes are certain, more likely, less likely, equally likely, or impossible (i.e., a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event).	CC.2.4.7.B.3 Investigate chance processes and develop, use, and evaluate probability models.	Statistics and Probability	Probability and Sample Spaces Simple Probability Compound Probability Simulations of Simple and Compound Events Making Predictions
M07.D-S.3 Investigate chance processes and develop, use, and evaluate probability models.	M07.D-S.3.2 Use probability to predict outcomes.	<p>M07.D-S.3.2.1 Determine the probability of a chance event given relative frequency. Predict the approximate relative frequency given the probability.</p> <p>Example: When rolling a number cube 600 times, predict that a 3 or 6 would be rolled roughly 200 times but probably not exactly 200 times.</p> <p>M07.D-S.3.2.2 Find the probability of a simple event, including the probability of a simple event not occurring.</p> <p>Example: What is the probability of not rolling a 1 on a number cube?</p> <p>M07.D-S.3.2.3 Find probabilities of independent compound events using organized lists, tables, tree diagrams, and simulation.</p>			



Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M08.A-N The Number System</b>					
M08.A-N.1 Demonstrate an understanding of rational and irrational numbers.	M08.A-N.1.1 Apply concepts of rational and irrational numbers.	M08.A-N.1.1.1 Determine whether a number is rational or irrational. For rational numbers, show that the decimal expansion terminates or repeats (limit repeating decimals to thousandths).	CC.2.1.8.E.1 Distinguish between rational and irrational numbers using their properties.	The Number System	Classifying and Ordering Real Numbers Approximating Values of Irrational Numbers
		M08.A-N.1.1.2 Convert a terminating or repeating decimal to a rational number (limit repeating decimals to thousandths). M08.A-N.1.1.3 Estimate the value of irrational numbers without a calculator (limit whole number radicand to less than 144). Example: $\sqrt{5}$ is between 2 and 3 but closer to 2. M08.A-N.1.1.4 Use rational approximations of irrational numbers to compare and order irrational numbers. M08.A-N.1.1.5 Locate/identify rational and irrational numbers at their approximate locations on a number line.	CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers.	The Number System	Classifying and Ordering Real Numbers Approximating Values of Irrational Numbers
<b>Reporting Category: M08.B-E Expressions and Equations</b>					
M08.B-E.1 Demonstrate an understanding of expressions and equations with radicals and integer exponents.	M08.B-E.1.1 Represent and use expressions and equations to solve problems involving radicals and integer exponents.	M08.B-E.1.1.1 Apply one or more properties of integer exponents to generate equivalent numerical expressions without a calculator (with final answers expressed in exponential form with positive exponents). Properties will be provided. Example: $312 \times 3^{15} = 3^{33} = 1/(33)$ M08.B-E.1.1.2 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$ , where $p$ is a positive rational number. Evaluate square roots of perfect squares (up to and including 122) and cube roots of perfect cubes (up to and including 53) without a calculator. Example: If $x^2 = 25$ then $x = \pm\sqrt{25}$ .	CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.	Expressions and Equations	Understanding Properties of Integer Exponents Applying Properties of Integer Exponents Understanding Square and Cube Roots Interpreting Numbers Written in Scientific Notation Operations with Numbers in Scientific Notation

Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
		<p>08.B-E.1.1.3 Estimate very large or very small quantities by using numbers expressed in the form of a single digit times an integer power of 10 and express how many times larger or smaller one number is than another. Example: Estimate the population of the United States as <math>3 \times 10^8</math> and the population of the world as <math>7 \times 10^9</math> and determine that the world population is more than 20 times larger than the United States' population.</p> <p>M08.B-E.1.1.4 Perform operations with numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Express answers in scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology (e.g., interpret 4.7EE9 displayed on a calculator as <math>4.7 \times 10^9</math>).</p>			
M08.B-E.2 Understand the connections between proportional relationships, lines, and linear equations.	M08.B-E.2.1 Analyze and describe linear relationships between two variables, using slope.	<p>M08.B-E.2.1.1 Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. Example: Compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.</p> <p>M08.B-E.2.1.2 Use similar right triangles to show and explain why the slope <math>m</math> is the same between any two distinct points on a non-vertical line in the coordinate plane.</p> <p>M08.B-E.2.1.3 Derive the equation <math>y = mx</math> for a line through the origin and the equation <math>y = mx + b</math> for a line intercepting the vertical axis at <math>b</math>.</p>	CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations.	Expressions and Equations  Functions  Building Functions	Interpreting Slope Slope  Slope-Intercept Form Point-Slope Form  Direct Variation

**Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<b>Assessment Anchor</b>	<b>Descriptor</b>	<b>Eligible Content</b>	<b>PA Core Standard</b>	<b>Imagine Math Unit</b>	<b>Imagine Math Lesson</b>
M08.B-E.3 Analyze and solve linear equations and pairs of simultaneous linear equations.	M08.B-E.3.1 Write, solve, graph, and interpret linear equations in one or two variables, using various methods.	<p>M08.B-E.3.1.1 Write and identify linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms until an equivalent equation of the form <math>x = a</math>, <math>a = a</math>, or <math>a = b</math> results (where <math>a</math> and <math>b</math> are different numbers).</p> <p>M08.B-E.3.1.2 Solve linear equations that have rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.</p> <p>M08.B-E.3.1.3 Interpret solutions to a system of two linear equations in two variables as points of intersection of their graphs because points of intersection satisfy both equations simultaneously.</p> <p>M08.B-E.3.1.4 Solve systems of two linear equations in two variables algebraically and estimate solutions by graphing the equations. Solve simple cases by inspection. Example: <math>3x + 2y = 5</math> and <math>3x + 2y = 6</math> have no solution because <math>3x + 2y</math> cannot simultaneously be 5 and 6.</p> <p>M08.B-E.3.1.5 Solve real-world and mathematical problems leading to two linear equations in two variables. Example: Given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.</p>	CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.	<p>Expressions and Equations</p> <p>Functions</p>	<p>Solving Two-Step Equations</p> <p>Solving Equations with the Variable on Both Sides</p> <p>Analyzing Solution Sets to Linear Equations with the Variable on Both Sides</p> <p>Solving a System of Linear Equations Graphically</p> <p>Solving a System of Linear Equations Algebraically</p> <p>Solving a System of Linear Equations - Applications</p> <p>Slope-Intercept Form</p> <p>Point-Slope Form</p>

Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M08.B-F Functions</b>					
M08.B-F.1 Analyze and interpret functions.	M08.B-F.1.1 Define, evaluate, and compare functions displayed algebraically, graphically, or numerically in tables or by verbal descriptions.	<p>M08.B-F.1.1.1 Determine whether a relation is a function.</p> <p>M08.B-F.1.1.2 Compare properties of two functions, each represented in a different way (i.e., algebraically, graphically, numerically in tables, or by verbal descriptions). Example: Given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.</p> <p>M08.B-F.1.1.3 Interpret the equation <math>y = mx + b</math> as defining a linear function whose graph is a straight line; give examples of functions that are not linear.</p>	CC.2.2.8.C.1 Define, evaluate, and compare functions	Statistics and Probability	Comparing Linear and Nonlinear Data
M08.B-F.2 Use functions to model relationships between quantities.	M08.B-F.2.1 Represent or interpret functional relationships between quantities using tables, graphs, and descriptions.	<p>M08.B-F.2.1.1 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two <math>(x, y)</math> values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models and in terms of its graph or a table of values.</p> <p>M08.B-F.2.1.2 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch or determine a graph that exhibits the qualitative features of a function that has been described verbally.</p>	CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities	Expressions and Equations  Building Functions  Functions	Interpreting Slope  Direct Variation  Interpreting Graphs of Real-World Situations Introduction to Sketching Graphs of Real-World Situations

Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
<b>Reporting Category: M08.C-G Geometry</b>					
M08.C-G.1 Demonstrate an understanding of geometric transformations.	M08.C-G.1.1 Apply properties of geometric transformations to verify congruence or similarity.	<p>M08.C-G.1.1.1 Identify and apply properties of rotations, reflections, and translations. Example: Angle measures are preserved in rotations, reflections, and translations.</p> <p>M08.C-G.1.1.2 Given two congruent figures, describe a sequence of transformations that exhibits the congruence between them.</p> <p>M08.C-G.1.1.3 Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates.</p> <p>M08.C-G.1.1.4 Given two similar two-dimensional figures, describe a sequence of transformations that exhibits the similarity between them.</p>	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.	Geometry	Translations Reflections Rotations Composition of Transformations Dilations Dilations in the Coordinate Plane Congruence
M08.C-G.2 Understand and apply the Pythagorean theorem.	M08.C-G.2.1 Solve problems involving right triangles by applying the Pythagorean theorem.	<p>M08.C-G.2.1.1 Apply the converse of the Pythagorean theorem to show a triangle is a right triangle.</p> <p>M08.C-G.2.1.2 Apply the Pythagorean theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. (Figures provided for problems in three dimensions will be consistent with Eligible Content in grade 8 and below.)</p> <p>M08.C-G.2.1.3 Apply the Pythagorean theorem to find the distance between two points in a coordinate system."</p>	CC.2.3.8.A.3 Understand and apply the Pythagorean Theorem to solve problems. M08.	Geometry	Understanding the Pythagorean Theorem Pythagorean Theorem - Hypotenuse Pythagorean Theorem - Legs Pythagorean Theorem - Mixed Problems Pythagorean Theorem - Distance Formula

Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards					
Assessment Anchor	Descriptor	Eligible Content	PA Core Standard	Imagine Math Unit	Imagine Math Lesson
M08.C-G.3 Solve real-world and mathematical problems involving volume.	M08.C-G.3.1 Apply volume formulas of cones, cylinders, and spheres.	M08.C-G.3.1.1 Apply formulas for the volumes of cones, cylinders, and spheres to solve real-world and mathematical problems. Formulas will be provided.	CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones, and spheres to solve realworld and mathematical problems.	Geometry	Volume of Cylinders Volume of Pyramids and Cones Volume of Spheres Volume of Composite Solids
<b>Reporting Category: M08.D-S Statistics and Probability</b>					
M08.D-S.1 Investigate patterns of association in bivariate data.	M08.D-S.1.1 Analyze and interpret bivariate data displayed in multiple representations.	<p>M08.D-S.1.1.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative correlation, linear association, and nonlinear association.</p> <p>M08.D-S.1.1.2 For scatter plots that suggest a linear association, identify a line of best fit by judging the closeness of the data points to the line.</p> <p>M08.D-S.1.1.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept. Example: In a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.</p>	CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations.	Functions  Building Functions  Statistics and Probability	Slope-Intercept Form  Direct Variation  Comparing Linear and Nonlinear Data

<b>Grade 8 Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>					
<i>Assessment Anchor</i>	<i>Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
M08.D-S.1 Investigate patterns of association in bivariate data.	M08.D-S.1.2 Understand that patterns of association can be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table.	M08.D-S.1.2.1 Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible associations between the two variables. Example: Given data on whether students have a curfew on school nights and whether they have assigned chores at home, is there evidence that those who have a curfew also tend to have chores?	CC.2.4.8.B.2 Understand that patterns of association can be seen in bivariate data utilizing frequencies.	Statistics and Probability	Patterns of Association in Data



2017-2018 School Year



<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>MODULE 1—Operations and Linear Equations &amp; Inequalities</b>				
<b>ASSESSMENT ANCHOR A1.1.1 Operations with Real Numbers and Expressions</b>				
A1.1.1.1 Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, and exponents).	A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed.	CC.2.1.8.E.1 Distinguish between rational and irrational numbers using their properties.	The Real Number System	Classifying and Ordering Real Numbers Approximating Values of Irrational Numbers
		CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers.	The Real Number System	Classifying and Ordering Real Numbers Approximating Values of Irrational Numbers
		CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.	The Real Number System	Using Rational Exponents to Rewrite Expressions
		CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real-world or mathematical problem	The Real Number System	Products and Sums with Rational and Irrational Numbers
A1.1.1.2 Apply number theory concepts to show relationships between real numbers in problemsolving settings.	A1.1.1.2.1 Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.	CC.2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples.	The Number System	Greatest Common Factor Greatest Common Factor - Applications Least Common Multiple

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real-world or mathematical problems.	The Real Number System	Products and Sums with Rational and Irrational Numbers
A1.1.1.3 Use exponents, roots, and/or absolute values to solve problems	A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. Note: Exponents should be integers from $-10$ to $10$ .	CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.	The Real Number System	Using Rational Exponents to Rewrite Expressions
		CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real-world or mathematical problems.	The Real Number System	Products and Sums with Rational and Irrational Numbers
		CC.2.2.8.B.1 Apply concepts of radicals and integer exponents to generate equivalent expressions.	Expressions and Equations	Understanding Properties of Integer Exponents Applying Properties of Integer Exponents Understanding Square and Cube Roots Interpreting Numbers Written in Scientific Notation Operations with Numbers in Scientific Notation

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
A1.1.1.4 Use estimation strategies in problem-solving situations.	A1.1.1.4.1 Use estimation to solve problems.	CC.2.2.7.B.3 Model and solve real-world and mathematical problems by using and connecting numerical, algebraic, and/or graphical representations.	Expressions and Equations	Fraction, Decimal, and Percent Equivalents Solving and Modeling Two-Step Problems Solving Equations with the Distributive Property Solving Equations with the Distributive Property in Context Solving Word Problems with Algebra
		CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.	The Number System	Writing and Interpreting Expressions with Rational Numbers Operations with Rational Numbers II
			Reasoning with Equations and Inequalities	Solving Linear Equations in One Variable as a Reasoning Process

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
A1.1.1.5 Simplify expressions involving polynomials.	<p>A1.1.1.5.1 Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial.</p> <p>A1.1.1.5.2 Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials are limited to the form <math>ax^2 + bx + c</math> where <math>a</math> is equal to 1 after factoring out all monomial factors.</p> <p>A1.1.1.5.3 Simplify/reduce a rational algebraic expression.</p>	CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.	Seeing Structure in Expressions	<p>Interpreting the Structure of Linear and Exponential Expressions</p> <p>Interpreting the Structure of Quadratic Expressions and Expressions with Rational Exponents</p>
		CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.	<p>Arithmetic with Polynomials and Rational Expressions</p> <p>Interpreting Functions</p>	<p>Adding and Subtracting Polynomials</p> <p>Multiplying Polynomials</p> <p>Rewriting Quadratics to Reveal Their Structure</p>
		CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.	Arithmetic with Polynomials and Rational Expressions	<p>Adding and Subtracting Polynomials</p> <p>Multiplying Polynomials</p>
		CC.2.2.HS.D.5 Use polynomial identities to solve problems.	Standard not addressed	Standard not addressed
		CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.	Standard not addressed	Standard not addressed

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>MODULE 1—Operations and Linear Equations &amp; Inequalities</b>				
<b>ASSESSMENT ANCHOR A1.1.2 Linear Equations</b>				
A1.1.2.1 Write, solve, and/or graph linear equations using various methods.	A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations).	CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.	Interpreting Categorical and Quantitative Data	Data Displays on the Real Number Line
	A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process. Note: Linear equations only.			
	A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only.			
		CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.	Quantities	Using Units to Solve Problems
		CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Quantities	Using Units to Solve Problems



<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.	Building Functions	Writing Linear and Exponential Functions from a Context Composite Functions Writing Geometric Sequences Using an Explicit Formula Writing Geometric Sequences Recursively Writing Arithmetic Sequences Explicitly and Recursively Writing Quadratic Functions from a Context
			Linear, Quadratic, and Exponential Models	Writing Linear and Exponential Functions Based on Different Representations
			Interpreting Functions	Sequences as Functions
		CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	Creating Equations	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Writing Linear Inequalities in One Variable
			Building Functions	Writing Quadratic Functions From Their Graphs







<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	Creating Equations  Building Functions	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Writing Linear Inequalities in One Variable  Writing Quadratic Functions From Their Graphs
		CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.	Reasoning with Equations and Inequalities	Solving Linear Equations in One Variable as a Reasoning Process
		CC.2.2.HS.D.10 Represent, solve, and interpret equations/ inequalities and systems of equations/ inequalities algebraically and graphically.	Creating Equations	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Equations of Parallel and Perpendicular Lines Writing Linear Inequalities in One Variable Modeling Exponential Relationships with Equations, Inequalities, and Graphs

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
			Reasoning with Equations and Inequalities	Solving Linear Inequalities in One Variable Solving Systems of Linear Equations Solving Linear Equations Graphically Solving Exponential Equations Graphically Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations Solving a System of Linear and Quadratic Equations Solving Quadratic Equations Graphically
<b>MODULE 1—Operations and Linear Equations &amp; Inequalities</b>				
<b>ASSESSMENT ANCHOR A1.1.3 Linear Inequalities</b>				
A1.1.3.1 Write, solve, and/or graph linear inequalities using various methods.	A1.1.3.1.1 Write or solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities). A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line. A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear inequalities only.	CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Standard not addressed	Standard not addressed

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	Creating Equations  Building Functions	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Writing Linear Inequalities in One Variable  Writing Quadratic Functions From Their Graphs
		CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.	Reasoning with Equations and Inequalities	Solving Linear Equations in One Variable as a Reasoning Process
		CC.2.2.HS.D.10 Represent, solve, and interpret equations/ inequalities and systems of equations/ inequalities algebraically and graphically.	Creating Equations	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Equations of Parallel and Perpendicular Lines Writing Linear Inequalities in One Variable Modeling Exponential Relationships with Equations, Inequalities, and Graphs

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
			Reasoning with Equations and Inequalities	Solving Linear Inequalities in One Variable Solving Systems of Linear Equations Solving Linear Equations Graphically Solving Exponential Equations Graphically Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations Solving a System of Linear and Quadratic Equations Solving Quadratic Equations Graphically
A1.1.3.2 Write, solve, and/or graph systems of linear inequalities using various methods.	A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities. A1.1.3.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear inequalities.	CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	Quantities	Using Units to Solve Problems

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	Creating Equations  Building Functions	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Writing Linear Inequalities in One Variable  Writing Quadratic Functions From Their Graphs
		CC.2.2.HS.D.10 Represent, solve, and interpret equations/ inequalities and systems of equations/ inequalities algebraically and graphically.	Creating Equations	Writing and Solving Linear Equations in One Variable Writing and Graphing Linear Equations in Two or More Variables Equations of Parallel and Perpendicular Lines Writing Linear Inequalities in One Variable Modeling Exponential Relationships with Equations, Inequalities, and Graphs

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
			Reasoning with Equations and Inequalities	Solving Linear Inequalities in One Variable Solving Systems of Linear Equations Solving Linear Equations Graphically Solving Exponential Equations Graphically Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations Solving a System of Linear and Quadratic Equations Solving Quadratic Equations Graphically
<b>MODULE 2—Linear Functions and Data Organizations</b>				
<b>ASSESSMENT ANCHOR A1.2.1 Functions</b>				
A1.2.1.1 Analyze and/or use patterns or relations.	A1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically. A1.2.1.1.2 Determine whether a relation is a function, given a set of points or a graph. A1.2.1.1.3 Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table).	CC.2.2.8.C.1 Define, evaluate, and compare functions.	Statistics and Probability	Comparing Linear and Nonlinear Data

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.	Expressions and Equations Building Functions Functions	Interpreting Slope Direct Variation Interpreting Graphs of Real-World Situations Introduction to Sketching Graphs of Real-World Situations
		CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.	Interpreting Functions	Function Notation I Function Notation II Understanding the Domain of a Function
		CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.	Linear, Quadratic, and Exponential Models Interpreting Functions	Introduction to Nonlinear Models Distinguishing Between Linear and Exponential Relationships Interpreting Graphs of Linear and Exponential Functions in Context Sketching Graphs of Linear and Exponential Functions from a Context



<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
				Sketching Graphs of Linear Functions from Symbolic Representations Sketching Graphs of Exponential Functions from Symbolic Representations Comparing Functions Using Different Representations Sketching Graphs of Quadratic Functions in Context Sketching and Transforming Graphs of Quadratic Functions from Symbolic Representations Piecewise, Step, and Absolute Value Functions

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.	Building Functions	Writing Linear and Exponential Functions from a Context Composite Functions Writing Geometric Sequences Using an Explicit Formula Writing Geometric Sequences Recursively Writing Arithmetic Sequences Explicitly and Recursively Writing Quadratic Functions from a Context
			Linear, Quadratic, and Exponential Models	Writing Linear and Exponential Functions Based on Different Representations
			Interpreting Functions	Sequences as Functions
		CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.	Interpreting Categorical and Quantitative Data	Summarizing and Interpreting Categorical Data Fitting Functions to Data Correlation

**Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards**

<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
A1.2.1.2 Interpret and/or use linear functions and their equations, graphs, or tables.	A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a linear function. A1.2.1.2.2 Translate from one representation of a linear function to another (i.e., graph, table, and equation).	CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.	Interpreting Categorical and Quantitative Data	Data Displays on the Real Number Line
		CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.	Quantities	Using Units to Solve Problems
		CC.2.2.8.B.2 Understand the connections between proportional relationships, lines, and linear equations.	Expressions and Equations	Interpreting Slope Slope
			Functions	Slope-Intercept Form Point-Slope Form
		Building Functions	Direct Variation	
CC.2.2.8.C.1 Define, evaluate, and compare functions.	Statistics and Probability	Comparing Linear and Nonlinear Data		
CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.	Expressions and Equations	Interpreting Slope		
	Building Functions	Direct Variation		
	Functions	Interpreting Graphs of Real-World Situations Introduction to Sketching Graphs of Real-World Situations		

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.	Linear, Quadratic, and Exponential Models  Interpreting Functions	Introduction to Nonlinear Models Distinguishing Between Linear and Exponential Relationships Interpreting Graphs of Linear and Exponential Functions in Context Sketching Graphs of Linear and Exponential Functions from a Context Sketching Graphs of Linear Functions from Symbolic Representations Sketching Graphs of Exponential Functions from Symbolic Representations Comparing Functions Using Different Representations Sketching Graphs of Quadratic Functions in Context Sketching and Transforming Graphs of Quadratic Functions from Symbolic Representations Piecewise, Step, and Absolute Value Functions

Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.	Building Functions	Writing Linear and Exponential Functions from a Context Composite Functions Writing Geometric Sequences Using an Explicit Formula Writing Geometric Sequences Recursively Writing Arithmetic Sequences Explicitly and Recursively Writing Quadratic Functions from a Context
			Linear, Quadratic, and Exponential Models	Writing Linear and Exponential Functions Based on Different Representations
			Interpreting Functions	Sequences as Functions
		CC.2.2.HS.C.4 Interpret the effects transformations have on functions and find the inverses of functions.	Building Functions	Transformations of Graphs of Linear and Exponential Functions Writing Inverse Functions
			Interpreting Functions	Sketching and Transforming Graphs of Quadratic Functions from Symbolic Representations

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.6 Interpret functions in terms of the situations they model.	Interpreting Functions	Sketching Graphs of Linear and Exponential Functions from a Context Rate of Change for Linear and Exponential Functions Rewriting and Interpreting Exponential Functions in Terms of Context
		CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.	Interpreting Categorical and Quantitative Data	Summarizing and Interpreting Categorical Data Fitting Functions to Data Correlation
<b>MODULE 2—Linear Functions and Data Organizations</b>				
<b>ASSESSMENT ANCHOR A1.2.2 Coordinate Geometry</b>				
A1.2.2.1 Describe, compute, and/or use the rate of change (slope) of a line.	<p>A1.2.2.1.1 Identify, describe, and/or use constant rates of change. \</p> <p>A1.2.2.1.2 Apply the concept of linear rate of change (slope) to solve problems.</p> <p>A1.2.2.1.3 Write or identify a linear equation when given</p> <ul style="list-style-type: none"> <li>• the graph of the line,</li> <li>• two points on the line, or</li> <li>• the slope and a point on the line.</li> </ul> <p>Note: Linear equation may be in point-slope, standard, and/or slope-intercept form.</p> <p>A1.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph.</p>	CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.	<p>Expressions and Equations</p> <p>Building Functions</p> <p>Functions</p>	<p>Interpreting Slope</p> <p>Direct Variation</p> <p>Interpreting Graphs of Real-World Situations</p> <p>Introduction to Sketching Graphs of Real-World Situations</p>

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.	Interpreting Functions	Function Notation I Function Notation II Understanding the Domain of a Function
		CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.	Linear, Quadratic, and Exponential Models  Interpreting Functions	Introduction to Nonlinear Models Distinguishing Between Linear and Exponential Relationships Interpreting Graphs of Linear and Exponential Functions in Context Sketching Graphs of Linear and Exponential Functions from a Context Sketching Graphs of Linear Functions from Symbolic Representations Sketching Graphs of Exponential Functions from Symbolic Representations Comparing Functions Using Different Representations Sketching Graphs of Quadratic Functions in Context

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
				Sketching and Transforming Graphs of Quadratic Functions from Symbolic Representations Piecwise, Step, and Absolute Value Functions
		CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.	Building Functions	Writing Linear and Exponential Functions from a Context Composite Functions Writing Geometric Sequences Using an Explicit Formula Writing Geometric Sequences Recursively Writing Arithmetic Sequences Explicitly and Recursively Writing Quadratic Functions from a Context
			Linear, Quadratic, and Exponential Models	Writing Linear and Exponential Functions Based on Different Representations
			Interpreting Functions	Sequences as Functions



<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.5 Construct and compare linear, quadratic, and exponential models to solve problems.	Building Functions  Linear, Quadratic, and Exponential Models  Interpreting Functions  Creating Equations  Seeing Structure in Expressions  Reasoning with Equations and Inequalities	Writing Linear and Exponential Functions from a Context Writing Quadratic Functions from a Context  Writing Linear and Exponential Functions Based on Different Representations  Rewriting and Interpreting Exponential Functions in Terms of Context Rewriting Quadratics to Reveal Their Structure  Modeling Quadratic Relationships with Equations, Inequalities, and Graphs  Factoring Quadratic Expressions  Solving Quadratics - Completing the Square Problem Solving with Quadratic Functions Using the Quadratic Formula

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.2.HS.C.6 Interpret functions in terms of the situations they model.	Interpreting Functions	Sketching Graphs of Linear and Exponential Functions from a Context Rate of Change for Linear and Exponential Functions Rewriting and Interpreting Exponential Functions in Terms of Context
		CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable.	Interpreting Categorical and Quantitative Data	Data Displays on the Real Number Line Comparing the Shape, Center, and Spread of Data Sets Fitting Functions to Data
A1.2.2.2 Analyze and/or interpret data on a scatter plot.	A1.2.2.2.1 Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot.	CC.2.2.HS.C.6 Interpret functions in terms of the situations they model.	Interpreting Functions	Sketching Graphs of Linear and Exponential Functions from a Context Rate of Change for Linear and Exponential Functions Rewriting and Interpreting Exponential Functions in Terms of Context

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations.	Functions Building Functions Statistics and Probability	Slope-Intercept Form Direct Variation Comparing Linear and Nonlinear Data
		CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.	Interpreting Categorical and Quantitative Data	Summarizing and Interpreting Categorical Data Fitting Functions to Data Correlation
		CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.	Interpreting Categorical and Quantitative Data	Fitting Functions to Data
<b>MODULE 2—Linear Functions and Data Organizations</b>				
<b>ASSESSMENT ANCHOR A1.2.3 Data Analysis</b>				
A1.2.3.1 Use measures of dispersion to describe a set of data.	A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data.	CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable.	Interpreting Categorical and Quantitative Data	Data Displays on the Real Number Line Comparing the Shape, Center, and Spread of Data Sets Fitting Functions to Data
		CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.	Interpreting Categorical and Quantitative Data	Fitting Functions to Data

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
A1.2.3.2 Use data displays in problemsolving settings and/or to make predictions.	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation.	CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable.	Interpreting Categorical and Quantitative Data	Data Displays on the Real Number Line Comparing the Shape, Center, and Spread of Data Sets Fitting Functions to Data
	A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and-whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).	CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.	Interpreting Categorical and Quantitative Data	Fitting Functions to Data
	A1.2.3.2.3 Make predictions using the equations or graphs of best-fit lines of scatter plots.	CC.2.4.HS.B.5 Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.	Standard not addressed	Standard not addressed
A1.2.3.3 Apply probability to practical situations.	A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal, or percent.	CC.2.4.7.B.3 Investigate chance processes and develop, use, and evaluate probability models.	Interpreting Categorical and Quantitative Data	Fitting Functions to Data
		CC.2.4.HS.B.4 Recognize and evaluate random processes underlying statistical experiments.	Standard not addressed	Standard not addressed

<b>Algebra I Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.4.HS.B.7 Apply the rules of probability to compute probabilities of compound events in a uniform probability model.	Standard not addressed	Standard not addressed

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>MODULE 1—Geometric Properties and Reasoning</b>				
<b>ASSESSMENT ANCHOR G.1.1 Properties of Circles, Spheres, and Cylinders</b>				
G.1.1.1 Identify and/or use parts of circles and segments associated with circles, spheres, and cylinders.	G.1.1.1.1 Identify, determine, and/or use the radius, diameter, segment, and/or tangent of a circle.	CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles.	Expressing Geometric Properties with Equations  Circles	Equation of a Circle Problem Solving with the Equation of a Circle
	G.1.1.1.2 Identify, determine, and/or use the arcs, semicircles, sectors, and/or angles of a circle.			Quadrilaterals Inscribed in Circles
	G.1.1.1.3 Use chords, tangents, and secants to find missing arc measures or missing segment measures.			
	G.1.1.1.4 Identify and/or use the properties of a sphere or cylinder.	CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles.	Circles	Radians and Area of Sectors
		CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.	Geometric Measurement and Dimension	Cross Sections of 3-Dimensional Figures

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>MODULE 1—Geometric Properties and Reasoning</b>				
<b>ASSESSMENT ANCHOR G.1.2 Properties of Polygons and Polyhedra</b>				
G.1.2.1 Recognize and/or apply properties of angles, polygons, and polyhedra.	G.1.2.1.1 Identify and/or use properties of triangles. G.1.2.1.2 Identify and/or use properties of quadrilaterals. G.1.2.1.3 Identify and/or use properties of isosceles and equilateral triangles. G.1.2.1.4 Identify and/or use properties of regular polygons. G.1.2.1.5 Identify and/or use properties of pyramids and prisms.	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.	Geometry	Translations Reflections Rotations Composition of Transformations Dilations Dilations in the Coordinate Plane Congruence
		CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.	Congruence  Similarity, Right Triangles, and Trigonometry	What Is Proof? Proving Theorems About Lines and Angles Proving Theorems About Congruent Triangles  Problem Solving with Congruent Triangles Proving Theorems About Relationships in Triangles Proving Theorems About Parallelograms
		CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.	Geometric Measurement and Dimension	Cross Sections of 3-Dimensional Figures





<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures.	Similarity, Right Triangles, and Trigonometry  Circles	Transformations and Similarity Problem Solving with Transformations and Similarity Proving Theorems About Similar Triangles Tangents, Chords, Radii, and Angles in Circles
G.1.3.2 Write formal proofs and/or use logic statements to construct or validate arguments.	G.1.3.2.1 Write, analyze, complete, or identify formal proofs (e.g., direct and/or indirect proofs/proofs by contradiction).	CC.2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.	Standard not addressed	Standard not addressed
		CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.	Congruence  Similarity, Right Triangles, and Trigonometry	What Is Proof? Proving Theorems About Lines and Angles Proving Theorems About Congruent Triangles  Problem Solving with Congruent Triangles Proving Theorems About Relationships in Triangles Proving Theorems About Parallelograms

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.3.HS.A.6 Verify and apply theorems involving similarity as they relate to plane figures.	Similarity, Right Triangles, and Trigonometry  Circles	Transformations and Similarity Problem Solving with Transformations and Similarity Proving Theorems About Similar Triangles  Tangents, Chords, Radii, and Angles in Circles
		CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles.	Expressing Geometric Properties with Equations  Circles	Equation of a Circle Problem Solving with the Equation of a Circle  Quadrilaterals Inscribed in Circles
<b>MODULE 2—Coordinate Geometry and Measurement</b>				
<b>ASSESSMENT ANCHOR G.2.1 Coordinate Geometry and Right Triangles</b>				
G.2.1.1 Solve problems involving right triangles.	G.2.1.1.1 Use the Pythagorean theorem to write and/or solve problems involving right triangles. G.2.1.1.2 Use trigonometric ratios to write and/or solve problems involving right triangles.	CC.2.2.HS.C.9 Prove the Pythagorean identity and use it to calculate trigonometric ratios.	Standard not addressed	Standard not addressed

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.3.HS.A.7 Apply trigonometric ratios to solve problems involving right triangles.	Similarity, Right Triangles, and Trigonometry	Similarity and Trigonometric Ratios Problem Solving with Similarity and Trigonometric Ratios Sine and Cosine of Complementary Angles Law of Sines and Law of Cosines
G.2.1.2 Solve problems using analytic geometry.	G.2.1.2.1 Calculate the distance and/or midpoint between two points on a number line or on a coordinate plane. G.2.1.2.2 Relate slope to perpendicularity and/or parallelism (limit to linear algebraic equations). G.2.1.2.3 Use slope, distance, and/or midpoint between two points on a coordinate plane to establish properties of a two-dimensional shape.	CC.2.3.8.A.3 Understand and apply the Pythagorean theorem to solve problems.	Geometry	Understanding the Pythagorean Theorem Pythagorean Theorem - Hypotenuse Pythagorean Theorem - Legs Pythagorean Theorem - Mixed Problems Pythagorean Theorem - Distance Formula
		CC.2.3.HS.A.11 Apply coordinate geometry to prove simple geometric theorems algebraically.	Congruence  Expressing Geometric Properties with Equations	What Is Proof?  Coordinates of Parallel and Perpendicular Lines Problem Solving with Coordinates of Parallel and Perpendicular Lines Dividing a Segment Proportionally Using Coordinates to Find Perimeters and Areas

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
<b>MODULE 2—Coordinate Geometry and Measurement</b>				
<b>ASSESSMENT ANCHOR G.2.2 Measurements of Two-Dimensional Shapes and Figures</b>				
G.2.2.1 Use and/or compare measurements of angles.	G.2.2.1.1 Use properties of angles formed by intersecting lines to find the measures of missing angles.  G.2.2.1.2 Use properties of angles formed when two parallel lines are cut by a transversal to find the measures of missing angles.	CC.2.3.8.A.2 Understand and apply congruence, similarity, and geometric transformations using various tools.	Geometry	Translations Reflections Rotations Composition of Transformations Dilations Dilations in the Coordinate Plane Congruence
		CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.	Congruence          Similarity, Right Triangles, and Trigonometr	What Is Proof? Proving Theorems About Lines and Angles Proving Theorems About Congruent Triangles  Problem Solving with Congruent Triangles Proving Theorems About Relationships in Triangles Proving Theorems About Parallelograms

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
G.2.2.2 Use and/or develop procedures to determine or describe measures of perimeter, circumference, and/or area. (May require conversions within the same system.)	G.2.2.2.1 Estimate area, perimeter, or circumference of an irregular figure.	CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.	Interpreting Functions	Function Notation I Function Notation II Understanding the Domain of a Function
	G.2.2.2.2 Find the measurement of a missing length, given the perimeter, circumference, or area.	CC.2.3.HS.A.3 Verify and apply geometric theorems as they relate to geometric figures.	Congruence	What Is Proof? Proving Theorems About Lines and Angles Proving Theorems About Congruent Triangles
	G.2.2.2.3 Find the side lengths of a polygon with a given perimeter to maximize the area of the polygon.			
G.2.2.2.4 Develop and/or use strategies to estimate the area of a compound/composite figure.	CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles.	Circles	Problem Solving with Congruent Triangles Proving Theorems About Relationships in Triangles Proving Theorems About Parallelograms	
G.2.2.2.5 Find the area of a sector of a circle.				
G.2.2.3 Describe how a change in one dimension of a two-dimensional figure affects other measurements of that figure.	G.2.2.3.1 Describe how a change in the linear dimension of a figure affects its perimeter, circumference, and area (e.g., How does changing the length of the radius of a circle affect the circumference of the circle?).	CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles.	Expressing Geometric Properties with Equations	Equation of a Circle Problem Solving with the Equation of a Circle
			Circles	Quadrilaterals Inscribed in Circles

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
		CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles.	Circles	Radians and Area of Sectors
G.2.2.4 Apply probability to practical situations.	G.2.2.4.1 Use area models to find probabilities.	CC.2.3.HS.A.14 Apply geometric concepts to model and solve real-world problems.	Modeling with Geometry	Modeling Objects with Geometric Figures Using Geometric Relationships to Solve Design Problems Rates with Area and Volume
<b>MODULE 2—Coordinate Geometry and Measurement</b>				
<b>ASSESSMENT ANCHOR G.2.3 Measurements of Three-Dimensional Shapes and Figures</b>				
G.2.3.1 Use and/or develop procedures to determine or describe measures of surface area and/or volume. (May require conversions within the same system.)	G.2.3.1.1 Calculate the surface area of prisms, cylinders, cones, pyramids, and/or spheres. Formulas are provided on a reference sheet.	CC.2.3.8.A.1 Apply the concepts of volume of cylinders, cones, and spheres to solve real-world and mathematical problems.	Geometry	Volume of Cylinders Volume of Pyramids and Cones Volume of Spheres Volume of Composite Solids
	G.2.3.1.2 Calculate the volume of prisms, cylinders, cones, pyramids, and/or spheres. Formulas are provided on a reference sheet.	CC.2.3.HS.A.12 Explain volume formulas and use them to solve problems.	Geometry	Volume of Cylinders Volume of Pyramids and Cones Volume of Spheres
	G.2.3.1.3 Find the measurement of a missing length given the surface area or volume.	CC.2.3.HS.A.14 Apply geometric concepts to model and solve real-world problems.	Modeling with Geometry	Modeling Objects with Geometric Figures Using Geometric Relationships to Solve Design Problems Rates with Area and Volume

<b>Geometry Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards</b>				
<i>Anchor Descriptor</i>	<i>Eligible Content</i>	<i>PA Core Standard</i>	<i>Imagine Math Unit</i>	<i>Imagine Math Lesson</i>
G.2.3.2 Describe how a change in one dimension of a three-dimensional figure affects other measurements of that figure.	G.2.3.2.1 Describe how a change in the linear dimension of a figure affects its surface area or volume (e.g., How does changing the length of the edge of a cube affect the volume of the cube?).	CC.2.3.HS.A.13 Analyze relationships between two-dimensional and three-dimensional objects.	Geometric Measurement and Dimension	Cross Sections of 3-Dimensional Figures

