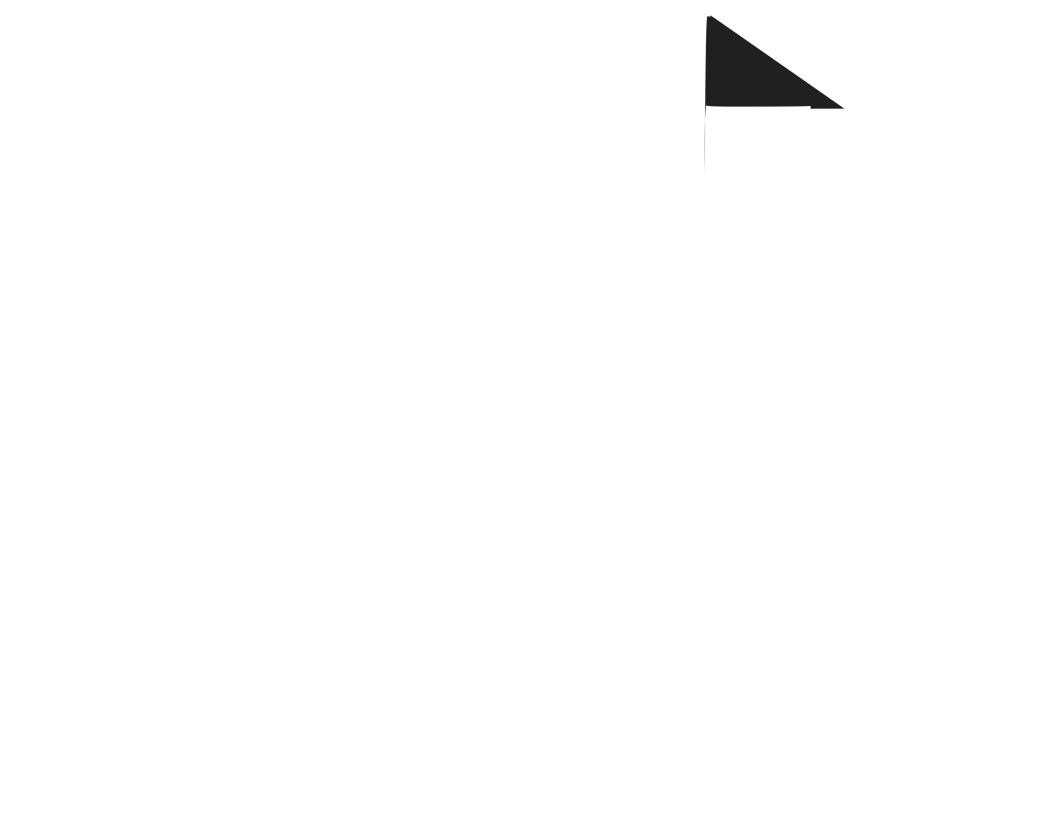
# Gra Mathematics 2

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STAAR R of how to	Reporting Category 1 – Num represent and manipulate nu	nerical Representations mbers and expressions.	and Relationsh	ips: The student will der	nonstrate an understanding



# 5.2 Prerequisite Skills/Links to TEKS Vertical Alignment

- count up to 10 items and demonstrate that the last count indicates how many items were counted
- demonstrate that the order of the counting sequence is always the same, regardless of what is counted
- count 1-10 items, with one count per item
- use words to rote count from 1 to 30
- know that objects, or parts of an object, can be counted

Identifying Points and Distances on Number Lines

- represent fractions and decimals to the tenths or hundredths as distances from zero on a number line
- determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line
- represent fractions of halves, fourths, and eighths as distances from zero on a number line
- explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model
- determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 g

# STAAR Reporting Category 1 – Numerical Representations and Relationships: The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations

(5.4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(A) identifiesperingé and continuous and continuous



# 5.4 Prerequisite Skills/Links to TEKS Vertical Alignment

- verbally identify, without counting, the number of objects from 1 to 5
- use the verbal ordinal terms
- demonstrate understanding that when counting, the items can be chosen in any order
- count up to 10 items and demonstrate that the last count indicates how many items were counted
- demonstrate that the order of the counting sequence is always the same, regardless of what is counted
- count 1-10 items, with one count per item
- use words to rote count from 1 to 30
- know that objects, or parts of an object, can be counted

Determining and Simplifying Numeric and Algebraic Expressions

- represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals
- interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left
- describe the mathematical relationships found in the base-10 place value system through the hundred thousands place)
- compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate
- use standard, word, and expanded forms to represent numbers up to 1,200
- use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones
- apply properties of operations to add and subtract two or three numbers
- use objects, pictures, and expanded and standard forms to represent numbers up to 120
- use concrete and pictorial models to compose and decompose numbers up to 120 in more than one way as so many hundreds, so many tens, and so many ones
- compose and decompose numbers up to 10 with objects and pictures

# STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

#### TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations

- (5.3) Number and operations. The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to
  - (A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division; Supporting Standard
  - (B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm; Supporting Standard
  - (C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm; Supporting Standard
  - (D) represent multiplication of decimals afom2Ttp24.7 -1.111 Td[io(m2Tt)-x Tchundr5(o)1( d5(r)4)2( )70.0108 Tc -25.46539 0bjt cumb s6(pTc -cum)-5(

## 5.3 Prerequisite Skills/Links to TEKS Vertical Alignment

- compose 10 with two or more addends with and without concrete objects
- use objects and pictorial models to solve word problems involving joining, separating, and comparing sets within 20 and unknowns as any one of the terms in the problem such as 2 + 4 = []; 3 + [] = 7; and 5 = [] 3
- use concrete and pictorial models to determine the sum of a multiple of 10 and a one-digit number in problems up to 99
- explain the strategies used to solve problems involving adding and subtracting within 10 using spoken words, concrete and pictorial models, and number sentences
- solve word problems using objects and drawings to find sums up to 10 and differences within 10
- model the action of joining to represent addition and the action of separating to represent subtraction

Multiplying Whole Numbers, (i) In (i) Ini 2 (2 (n) 1/3 B AN BUX2 (B) (i) Ini kma) X2 (d) D) BBN, (i) Inbsc 40 (s o T 40 A A A BO) (2 9 4 4 1 1 8 A C) 2 9 4 4 1 1 8 A C) 2 9 4 4 1 8 A C) 2 9 4 A C)

# 5.3

# **Prerequisite Skills/Links to TEKS Vertical Alignment**

## Adding to/taking away skills

- use informal strategies to separate up to 10 items into equal groups
- use concrete models or make a verbal word problem for subtracting 0-5 objects from a set
- use concrete objects, create pictorial models and share a verbal word problem for adding up to 5 objects

STAAR Reporting Category 2 – Computations and Algebraic Relationships: The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.				
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations			

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(5.4) Algebraic reasoning. The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity; Readiness Standard

(C) generate a numerical pattern when given a rule in the form y = ax or y = x + a and graph; and Readiness Standard

(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph. Supporting Standard

Models or solves problems involving whole number relationships or patterns.

5.4

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# Prerequisite Skills/Links to TEKS Vertical Alignment

• explain strategies used to solv

5.4

#### 5.4

#### **Prerequisite Skills/Links to TEKS Vertical Alignment**

- model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets Adding to/taking away skills
  - use informal strategies to separate up to 10 items into equal groups
  - use concrete models or make a verbal word problem for subtracting 0-5 objects from a set
  - use concrete objects, create pictorial models and share a verbal word problem for adding up to 5 objects



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# 5.4 Prerequisite Skills/Links to TEKS Vertical Alignment

- find the length of objects using concrete models for standard units of length
- describe a length to the nearest whole unit using a number and a unit
- measure the same object/ distance with units of two different lengths and describe how and why the measurements differ
- illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other
- use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement
- compare two objects with a common measurable attribute to see which object has more of/less of the attribute and describe the difference
- give an example of a measurable attribute of a given object, including length, capacity, and weight

#### Measurement skills

- informally recognize and compare weights of objects or people
- recognize how much can be placed within an object
- recognize and compare heights or lengths of people or objects

#### Measuring Angles and Using Angle Relationships

- determine the measure of an unknown angle formed by two non-overlapping adjacent angles given one or both angle measures
- draw an angle with a given measure
- determine the approximate measures of angles in degrees to the nearest whole number using a protractor
- illustrate degrees as the units used to measure an angle, where 1/360 of any circle is one degree and an angle that "cuts" n/360 out of any circle whose center is at the angle's vertex has a measure of n degrees. Angle measures are limited to whole numbers
- illustrate the measure of an angle as the part of a circle whose center is at the vertex of the angle that is "cut out" by the rays of the angle. Angle measures are limited to whole numbers

STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts. n(dds)47(nd6(n)1.)53048-4 s(EK)-3(S48-K)-3(nn)1.]TJ=148.1148



# 5.5 Prerequisite Skills/Links to TEKS Vertical Alignment

- create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons
- distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape
- classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language
- create two-dimensional shapes using a variety of materials and drawings
- classify and sort a variety of regular and irregular two-dimensional and three-dimensional figures regardless of orientation or size
- identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably
- identify two-dimensional components of three-dimensional objects
- identify three-dimensional solids, including cylinders, cones, spheres, and cubes, in the real world
- identify two-dimensional shapes, including circles, triangles, rectangles, and squares as special rectangles

#### Geometry and spatial sense skills

- slide, flip, and turn shapes to demonstrate that the shapes remain the same
- create shapes
- name common shapes

## Prerequisite Skills/Links to TEKS Vertical Alignment

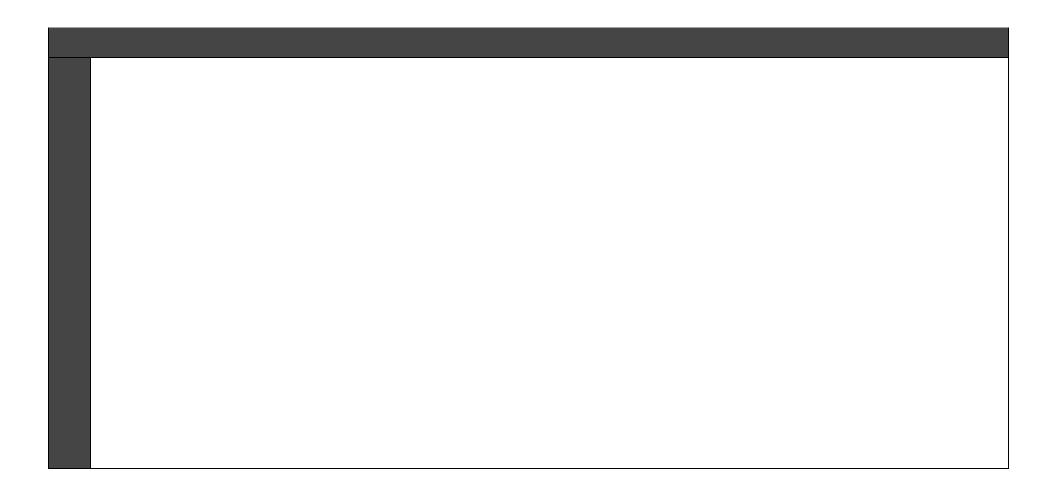
- determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row
- use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit
- determine a solution to a problem involving length, including estimating lengths
- determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes
- describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object
- find the length of objects using concrete models for standard units of length
- describe a length to the nearest whole unit using a number and a unit
- measure the same object/ distance with units of two different lengths and describe how and why the measurements differ

5.6

# STAAR Reporting Category 3 – Geometry and Measurement: The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectation

(5.7) Geometry and measurement. The student applies mathematical



# 5.7 Prerequisite Skills/Links to TEKS Vertical Alignment

- describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object
- find the length of objects using concrete models for standard units of length
- describe a length to the nearest whole unit using a number and a unit
- measure the same object/ distance with units of two different lengths and describe how and why the measurements differ
- illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other
- use measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement
- compare two objects with a common measurable attribute to see which object has more of/less of the attribute and describe the difference

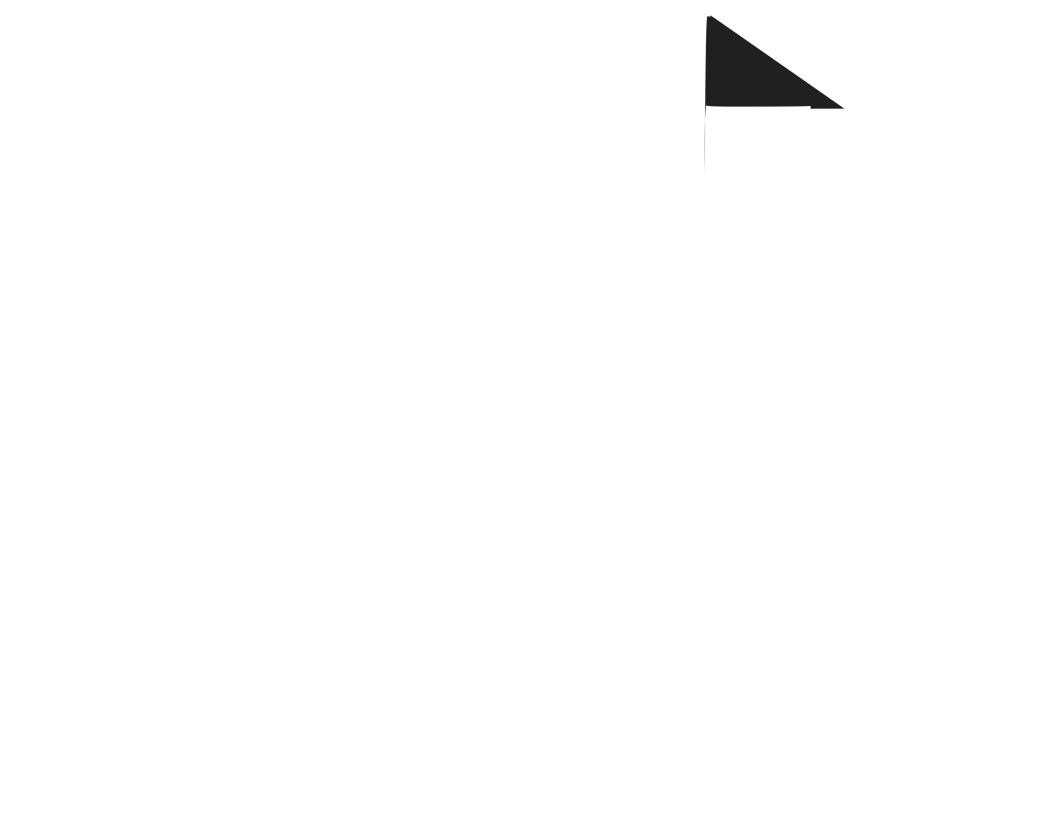
STAAR Reporting Category 3 – Geometry and Measurement: The represent and apply geometry and measurement concepts.	student will demonstrate an understanding of how to
TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations	Essence of TEKS Knowledge and Skills Statement/ STAAR-Tested Student Expectations
(5.8) Geometry and measurement. The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to  (A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the x-coordinate, the first number in an ordered pair, indicates movement parallel to the x-axis starting at the origin; and the y-coordinate, the second number, indicates movement parallel to the y-axis starting at the origin; Supporting Standard  (B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; Supporting Standard  (C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table. Readiness Standard	Locates points on a coordinate plane.

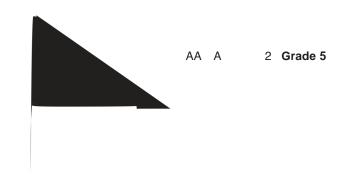
#### Prerequisite Skills/Links to TEKS Vertical Alignment

- compose two-dimensional shapes and three-dimensional solids with given properties or attributes
- classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices
- classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language
- create two-dimensional shapes based on given attributes, including number of sides and vertices
- compose two-dimensional shapes by joining two, three, or four figures to produce a target shape in more than one way if possible
- identify three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes), and triangular prisms, and describe their attributes using formal geometric language
- identify two-dimensional shapes, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons, and describe their attributes using formal geometric language
- create two-dimensional figures, including circles, triangles, rectangles, and squares, as special rectangles, rhombuses, and hexagons
- distinguish between attributes that define a two-dimensional or three-dimensional figure and attributes that do not define the shape
- classify and sort regular and irregular two-dimensional shapes based on attributes using informal geometric language
- create two-dimensional shapes using a variety of materials and drawings
- classify and sort a variety of regular and irregular two-dimensional and three-dimensional figures regardless of orientation or size
- identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably
- identify two-dimensional components of three-dimensional objects
- identify three-ddimeensionaalsadidss,inobudingg3(5U))T/c7154055T0-344642j0102892Tfd(()T389T05Td][(60),4666h()-3(de),2(fi),8))A(736(d))f((),00))2(1)T6(1),7(()08,10[d))d[(e)+33(a

5.8

5.8	Prerequisite Skills/Links to TEKS Vertical Alignment
	represent whole numbers as distances from any given location on a number line name the whole number that corresponds to a specific point on a number line locate the position of a given whole number on an open number line demonstrate use of location words (such as "over," "under," "above," "on," "beside," "next to," "between," "in front of," "near," "far," etc.)





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#### 5.10

#### **Prerequisite Skills/Links to TEKS Vertical Alignment**

- identify the costs and benefits of planned and unplanned spending decisions
- describe the relationship between the availability or scarcity of resources and how that impacts cost
- differentiate between producers and consumers and calculate the cost to produce a simple item
- identify examples of lending and use concepts of benefits and costs to evaluate lending decisions
- identify examples of borrowing and distinguish between responsible and irresponsible borrowing
- distinguish between a deposit and a withdrawal
- explain that saving is an alternative to spending
- calculate how money saved can accumulate into a larger amount over time
- consider charitable giving
- distinguish between spending and saving

#### Determining Values of Coins and Bills

- determine the value of a collection of coins and bills
- use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins
- determine the value of a collection of coins up to one dollar
- use relationships to count by twos, fives, and tens to determine the value of a collection of pennies, nickels, and/or dimes
- write a number with the cent symbol to describe the value of a coin
- identify U.S. coins, including pennies, nickels, dimes, and quarters, by value and describe the relationships among them
- identify U.S. coins by name, including pennies, nickels, dimes, and quarters

Mathematical Process Standards – Mathematical process standards will not be listed under a separate reporting category. Instead, they will be incorporated into test questions across reporting categories since the application of mathematical process standards is part of each knowledge statement.

#### TEKS Knowledge and Skills Statement/STAAR-Tested Student Expectations

- (5.1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to
  - (A) apply mathematics to problems arising in everyday life, society, and the workplace;
  - (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
  - (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
  - (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
  - (E) create and use representations to organize, record, and communicate mathematical ideas;
  - (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
  - (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

# 5.1 Prerequisite Skills/Links to TEKS Vertical Alignment

- display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
- analyze mathematical relationships to connect and communicate mathematical ideas
- create and use representations to organize, record, and communicate mathematical ideas
- communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
- select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems
- use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
- apply mathematics to problems arising in everyday life, society, and the workplace