

### **Open-Ended** Skills and Concepts

### Organized by TEKS Categories

### **GRADE 6 OPEN-ENDED SKILLS and CONCEPTS**

### **OVERVIEW**

This document was created with all students in mind and provides teachers with sets of 5 openended questions to assess student mastery of TEKS assessed on STAAR. Each set of questions in this document is correlated to a specific Category and TEKS. These materials can be utilized for guided practice, independent practice, or homework. These materials can be utilized with a whole class, small groups, and/or tutorial settings.

**NOTE:** There is no answer key provided for the Skills and Concepts problems as the authors' philosophy is that each teacher create a personalized Solutions Manual so the teacher becomes more familiar with the Revised TEKS and assessment of the Revised TEKS, as well as formulates various solution strategies for each question.

### **AUTHORS' VISION FOR IMPLEMENTATION**

### SKILLS AND CONCEPTS

- Skills and Concepts are open-ended questions that are organized by individual TEKS. Each Skills and Concepts includes 5 open-ended questions.
- The teacher sets the time limit prior to the students beginning the Skills and Concepts if the material is being utilized for independent practice.
- Students work on Skills and Concepts in partner pairs even during independent practice. Partner pairs are given specific "share questions" on the Skills and Concepts. The process that should be followed by all partner pairs is to complete the question(s) they are assigned to share, and then work on the other questions until time is called.
- The teacher calls time and the partner pairs guide class discussion on their "share questions" assignments. Students who did not complete the Skills and Concepts prior to the time limit may record on their individual papers during the discussion time but must record in a different color.
- A Skills and Concepts should NOT be sent home for homework until the majority of the class has demonstrated mastery of the TEKS addressed.

### **Mathematical Process Standards**

These student expectations will not be listed separately. They will be incorporated into assessments for TEKS in other categories since the application of mathematical process standards is part of each knowledge statement for all other TEKS.

#### 6.(1) Mathematical Process Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding.

TEKS	STUDENT EXPECTATION
6.1(A)	apply mathematics to problems arising in everyday life, society, and the workplace
6.1(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
6.1(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
6.1(D)	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
6.1(E)	create and use representations to organize, record, and communicate mathematical ideas
6.1(F)	analyze mathematical relationships to connect and communicate mathematical ideas
6.1(G)	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

### **Category 1: Number and Operations**

#### 6.(2) Number and Operations

The student applies mathematical process standards to represent and use rational numbers in a variety of forms.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.2(A)	classify whole numbers, integers, and rational numbers using a visual
		representation such as a Venn diagram to describe relationships between sets of
		numbers
Supporting	6.2(B)	identify a number, its opposite, and its absolute value
Supporting	6.2(C)	locate, compare, and order integers and rational numbers using a number line
Readiness	6.2(D)	order a set of rational numbers arising from mathematical and real-world contexts
Supporting	6.2(E)	extend representations for division to include fraction notation such as a/b
		represents the same number as $a \div b$ where $b \neq 0$

### 6.(3) Number and Operations

The student applies mathematical process standards to represent addition, subtraction, multiplication, and division while solving problems and justifying solutions.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.3(A)	recognize that dividing by a rational number and multiplying by its reciprocal
		result in equivalent values.
Supporting	6.3(B)	determine, with and without computation, whether a quantity is increased or decreased when multiplied by a fraction, including values greater than or less than one
Supporting	6.3(C)	represent integer operations with concrete models and connect the actions
		with the models to standardized algorithms
Readiness	6.3(D)	add, subtract, multiply, and divide integers fluently
Readiness	6.3(E)	multiply and divide positive rational numbers fluently

### **Category 2: Proportionality**

### 6.(4) Proportionality

The student applies mathematical process standards to develop an understanding of proportional relationships in problem situations.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.4(A)	compare two rules verbally, numerically, graphically, and symbolically in the
		form of $y = ax$ or $y = x + a$ in order to differentiate between additive and
		multiplicative relationships
Readiness	6.4(B)	apply qualitative and quantitative reasoning to solve prediction and
		comparison of real-world problems involving ratios and rates
Supporting	6.4(C)	give examples of ratios as multiplicative comparisons of two quantities
		describing the same attribute.
Supporting	6.4(D)	give examples of rates as the comparison by division of two quantities
		having different attributes, including rates as quotients
Readiness	6.4(E)	represent ratios and percents with concrete models, fractions, and decimals.
Supporting	6.4(F)	represent benchmark fractions and percents such as 1%, 10%, 25%, 33
		1/3%, and multiples of these values using 10 by 10 grids, strip diagrams,
		number lines, and numbers
Readiness	6.4(G)	generate equivalent forms of fractions, decimals, and percents using real-
		world problems, including problems that involve money
Readiness	6.4(H)	convert units within a measurement system, including the use of proportions
		and unit rates

### Proportionality

### 6.(5) Proportionality

The student applies mathematical process standards to solve problems involving proportional relationships.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.5(A)	represent mathematical and real-world problems involving ratios and rates
		using scale factors, tables, graphs, and proportions
Readiness	6.5(B)	solve real-world problems to find the whole given a part and the percent, to find the part given the whole and the percent, and to find the percent given the part and the whole, including the use of concrete and pictorial models
Supporting	6.5(C)	use equivalent fractions, decimals, and percents to show equal parts of the same whole

### **Category 3: Expressions, Equations, and Relationships**

#### 6.(6) Expressions, Equations, and Relationships

The student applies mathematical process standards to use multiple representations to describe algebraic relationships.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.6(A)	identify independent and dependent quantities from tables and graphs
Supporting	6.6(B)	write an equation that represents the relationship between independent and
		dependent quantities from a table
Readiness	6.6(C)	represent a given situation using verbal descriptions, tables, graphs, and
		equations in the form $y = kx$ or $y = x + b$

### **Expressions, Equations, and Relationships**

#### 6.(7) Expressions, Equations, and Relationships

The student applies mathematical process standards to develop concepts of expressions and equations.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.7(A)	generate equivalent numerical expressions using order of operations, including whole number exponents and prime factorization
Readiness	6.7(B)	distinguish between expressions and equations verbally, numerically, and algebraically
Supporting	6.7(C)	determine if two expressions are equivalent using concrete models, pictorial models, and algebraic representations
Supporting	6.7(D)	generate equivalent expressions using the properties of operations: inverse, identity, commutative, associative, and distributive properties

### **Expressions, Equations, and Relationships**

#### 6.(8) Expressions, Equations, and Relationships

The student applies mathematical process standards to use geometry to represent relationships and solve problems.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.8(A)	extend previous knowledge of triangles and their properties to include the sum of angles of a triangle, the relationship between the lengths of sides and measures of angles in a triangle, and determining when three lengths form a triangle
Supporting	6.8(B)	model area formulas for parallelograms, trapezoids, and triangles by
		decomposing and rearranging parts of these shapes
Supporting	6.8(C)	write equations that represent problems related to the area of rectangles, parallelograms, trapezoids, and triangles and volume of
		right rectangular prisms where dimensions are positive rational numbers
Readiness	6.8(D)	determine solutions for problems involving the area of rectangles,
		parallelograms, trapezoids, and triangles and volume of right
		rectangular prisms where dimensions are positive rational numbers

### **Category 3: Expressions, Equations, and Relationships**

### 6.(9) Expressions, Equations, and Relationships

The student applies mathematical process standards to use equations and inequalities to represent situations.

STAAR Standard	TEKS	STUDENT EXPECTATION	
Supporting	6.9(A)	write one-variable, one-step equations and inequalities to represent	
		constraints or conditions within the problem	
Supporting	6.9(B)	represent solutions for one-variable, one-step equations and inequalities on	
		number lines	
Supporting	6.9(C)	write corresponding real-world problems given one-variable, one-step	
		equations or inequalities	
	Expressions, Equations, and Delationships		

### Expressions, Equations, and Relationships

#### 6.(10) Expressions, Equations, and Relationships

The student applies mathematical process standards to use equations and inequalities to solve problems.

STAAR Standard	TEKS	STUDENT EXPECTATION
Readiness	6.10(A)	model and solve one-variable, one-step equations and inequalities that
		represent problems, including geometric concepts
Supporting	6.10(B)	determine if the given value(s) make(s) one-variable, one-step equations
		or inequalities true

	Category 4: Measurement and Data		
The stude	ent applies	6.(11) Measurement and Data mathematical process standards to use coordinate geometry to identify locations on a plane.	
STAAR Standard	TEKS	STUDENT EXPECTATION	
Readiness	6.11(A)	Graph points in all four quadrants using ordered pairs of rational numbers	
		Measurement and Data	
<b>6.(12) Measurement and Data</b> The student applies mathematical process standards to use numerical or graphical representations to analyze problems.			
STAAR Standard	TEKS	STUDENT EXPECTATION	
Supporting	6.12(A)	represent numeric data graphically, including dot plots, stem-and-leaf plots, histograms, and box plots	
Supporting	6.12(B)	use the graphical representation of numeric data to describe the center, spread and the shape of the data distribution	
Readiness	6.12(C)	summarize numeric data with numerical summaries, including the mean and median (measures of center) and the range and interquartile range (IQR) (measures of spread) and use these summaries to describe the center, spread, and shape of data distribution	
Readiness	6.12(D)	summarize categorical data with numerical and graphical summaries, including the mode, the percent of values in each category (relative frequency table), and the percent bar graph, and use these summaries to describe the data distribution	
Measurement and Data			
<b>6.(13) Measurement and Data</b> The student applies mathematical process standards to use numerical or graphical representations to solve problems.			
STAAR Standard	TEKS	STUDENT EXPECTATION	
Readiness	6.13(A)	interpret numeric data summarized in dot plots, stem-and-leaf plots, histograms and box plots	
Supporting	6.13(B)	distinguish between situations that yield data with and without variability	

### **Category 5: Personal Financial Literacy**

### 6.(14) Personal Financial Literacy

The student applies mathematical processes standards to develop an economic way of thinking and problem solving useful in one's life as a knowledgeable consumer and investor.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	6.14(A)	compare the features and costs of a checking account and a debit card
		offered by different local financial institutions
Supporting	6.14 (B)	distinguish between debit cards and credit cards
Supporting	6.14 (C)	balance a check register that includes deposits, withdrawals, and
		transfers
<b>Not Tested</b>	6.14 (D)	explain why it is important to establish a positive credit history
Supporting	6.14 (E)	describe the information in a credit report and how long it is retained
Supporting	6.14 (F)	describe the value of credit reports to borrowers and to lenders
Supporting	6.14 (G)	explain various methods to pay for college, including through savings,
		grants, scholarships, student loans, and work-study
Supporting	6.14 (H)	compare the annual salary of several occupations requiring various levels
		of post-secondary education or vocational training and calculate the
		effects of the different annual salaries on lifetime income



## Open Ended Skills and Concepts

### **TEKS CATEGORY 1** Numbers and Operations



## Open Ended Skills and Concepts

## TEKS CATEGORY 1 6.2C

### 6.2C Skills and Concepts 1

1. Fill in the blanks with "left of" or "right of" to indicate the position of the first number in relation to the second number on a number line.

3.2 is \_\_\_\_\_\_  $3\frac{1}{3}$   $4\frac{1}{4}$  is \_\_\_\_\_\_  $4\frac{2}{5}$   $-\frac{1}{4}$  is \_\_\_\_\_\_  $-\frac{1}{3}$ 

2. List 2 numbers that are near to but left of the given numbers on a number line.

and \_\_\_\_\_ are near to but left of  $\frac{3}{5}$ . \_\_\_\_\_ and \_\_\_\_\_ are near to but left of  $2\frac{1}{6}$ .

3. Name 2 numbers that are near to but right of the given numbers on a number line.

\_\_\_\_\_ and \_\_\_\_\_ are near to but right of -7.48.

4. Order  $\frac{3}{8}$ ,  $\frac{3}{4}$ ,  $\frac{5}{16}$  and  $\frac{1}{2}$  from least to greatest. Show your work to support your answer.

\_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/

Show the numbers on a number line.



\_\_\_\_/ \_\_\_\_\_

\_\_\_\_/ \_\_\_\_

5. Order 1.25, 1.38, 1.33, and 1.29 from greatest to least. Explain how you made the decision for the order you listed.

\_/ \_\_\_\_

Explanation:

Grade 6 Mathematics

TEKS 6.2C

### 6.2C Skills and Concepts 2

1. In each pair of integers, circle the number that would be left of the other number on a number line.

-5 -8 -15 8 -300 -75 31 42

- 2. Circle the number in each list that is closest to 3 on a number line.
  - $2\frac{3}{5}$   $3\frac{1}{3}$   $2\frac{1}{2}$
  - 2.78 2.98 3.12
- 3. Four golf scores are -3, +4, -5, and +1. In golf the smaller score is the better score. Which score is the best score of the four scores?

Graph the four scores on a number line.



4. Order  $3\frac{3}{5}$ ,  $3\frac{3}{10}$ ,  $4\frac{3}{4}$  and  $2\frac{1}{2}$  from least to greatest. Show your work to support your answer.

\_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/

Graph the four numbers on a number line.

5. Order 35.5, 31.8, 31.3, and 34.9 from greatest to least.

\_\_\_\_\_/ \_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/ \_\_\_\_\_/

Graph the f	four num	bers on	a num	ber line.
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6.2C Skills and Concepts 3

**Grade 6 Mathematics** 

- 1. Place a < , >, or = between the following pairs of rational numbers to make a true statement.
  - 3.14 3.25  $2\frac{1}{2}$  2.5 -7 -10 32 -32

2. Order the set of rational numbers from least to greatest. Show your work to support your answer.

 $-5.75 - 5\frac{1}{2} - 4.75 - 4\frac{1}{4}$ 

-4

Graph the four numbers on a number line.

3. Write a number on the blank line so the list is ordered from greatest to least.

18.9 \_\_\_\_ 18.8  $18\frac{2}{3}$ 

2.9 3.2  $2\frac{1}{2}$  2.75  $2\frac{2}{3}$  3 3.5

4. Plot each number in the set below on the number line.



- 5. Circle the numbers below that are between -3 and -3.5 on a number line.
  - $-3.9 \quad -3.2 \quad -3\frac{1}{4} \quad -3.75 \quad -3\frac{1}{5} \quad -3.1 \quad -3.55$

TEKS 6.2C

### 6.2C Skills and Concepts 4

- 1. Place a < , >, or = between the following pairs of numbers so that the statement is true.
  - 13.4 13.04  $2\frac{1}{4}$  2.5 -17 -11 -33 -31
- 2. Circle the number in each list that is closest to 5 on a number line.
  - $5\frac{3}{5}$   $5\frac{1}{3}$  4.9
  - 5.78  $4\frac{3}{5}$  5.2
- 3. Mrs. King has four pieces of yarn. They are  $2\frac{1}{2}$ , 3.4,  $2\frac{3}{4}$ , and 3.3 feet long. Order the lengths from longest to shortest. Show your work to support your answers

\_/ \_\_\_\_/ \_\_\_\_/ \_\_\_\_/ \_\_\_\_/ \_\_\_\_/ \_\_\_\_/

4. Mary ordered four numbers from least to greatest. Her ordered list is  $\frac{1}{5}$ , 0.3,  $\frac{3}{4}$ ,  $\frac{1}{2}$ . Do you agree or disagree with her ordered list? Justify your answer.





### Open Ended Skills and Concepts

## TEKS CATEGORY 1 6.3E

### 6.3E Skills and Concepts 1

1. Find the following products.

3.2×0.5	$4\frac{5}{9} \times 90$	$\frac{3}{8} \times \frac{40}{33}$	
58×3.5	7.5×121	138×450	

- 2. Find the following quotients.
  - 0.32 ÷ 0.4  $4\frac{1}{5} \div \frac{1}{2}$   $4\frac{3}{8} \div 7$ 72 ÷ 0.09 17.5 ÷ 2  $\frac{2}{3} \div 12$
- 3. Jonas has 40 marbles. He gave  $\frac{1}{5}$  of the marbles to Marvin and  $\frac{3}{8}$  of the marbles to Leroy. He kept the remaining marbles. How many marbles did each boy have?

- 4. Betty has 36 hair ribbons. She gave  $\frac{1}{3}$  of the ribbons to Sherry. She gave  $\frac{1}{8}$  of the remaining ribbons to Marcy. She kept the remaining ribbons. How many ribbons did each girl have?
- 5. Describe in your own words how to divide fractions.

Grade 6 Mathematics

### 6.3E Skills and Concepts 2

1. Find the following products.

$$2.2 \times 0.4 \qquad \qquad 3\frac{1}{18} \times 90 \qquad \qquad \frac{3}{8} \times \frac{7}{24}$$

 $24 \times 1.5 \qquad \qquad 3.5 \times 0.12 \qquad \qquad 1.38 \times 450$ 

- 2. Find the following quotients.
  - $1.32 \div 0.4$   $4\frac{1}{5} \div \frac{15}{14}$   $4\frac{1}{8} \div \frac{1}{8}$ 
     $7.2 \div 0.9$   $7.5 \div \frac{3}{2}$   $\frac{3}{2} \div 24$
- 3. The math quiz has 45 problems. Martha got  $\frac{7}{9}$  of the problems correct. How many problems did Martha get incorrect?

4. Beau has 36 marbles. He gave his brother  $\frac{4}{9}$  of them. How many marbles did each boy have?

5. Describe in your own words how to divide a fraction and a decimal.



### Open Ended Skills and Concepts

## **TEKS CATEGORY 2** Proportionality

![](_page_19_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 2 6.4C

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Grade 6 Mathematics

TEKS 6.4C

### 6.4C Skills and Concepts 1

Complete the following statements.

1. If a = 6 and c = 15, then c is \_\_\_\_\_\_ times a.

- 2. If a garden contained 20 tomato plants and 18 pepper plants, then the number of tomato plants is \_\_\_\_\_\_times the number of pepper plants.
- A recipe requires 2 cups of sugar and 3.5 cups of flour. The number of cups of sugar in the recipe is
   \_\_\_\_\_\_ times the number of cups of flour.
- 4. If a flower bouquet contained 8 roses and 12 carnations, then the number of roses in the bouquet is \_\_\_\_\_\_times the number of carnations.

Grade 6 Mathematics

### 6.4C Skills and Concepts 2

Complete the following statements.

1. If b = 60 and c = 25, then c is \_\_\_\_\_\_ times b.

- 2. If a garden contained 12 squash plants and 10 pepper plants, then the number of squash plants is \_\_\_\_\_\_times the number of pepper plants.
- 3. A company logo has 15 red stripes and 10 blue stripes. The number of red stripes is \_\_\_\_\_\_ times the number of blue stripes in the logo.
- If a bag of marbles has 15 red, 15 blue, 10 green, and 9 white marbles. The number of red marbles in the bag is \_\_\_\_\_\_times the number of green marbles. The number of white marbles is \_\_\_\_\_\_times the number of blue marbles in the bag.

![](_page_22_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 2 6.5C

### 6.5C Skills and Concepts 1

- 1. If 50% of a circle is shaded, what fractional part of the circle is NOT shaded?
- 2. Shade the models below to represent  $\frac{2}{5}$ , 0.4, and 40%.

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What do you notice about the shaded part of each model?

3. Shade the model below to show 37.5%.

![](_page_23_Figure_10.jpeg)

What fractional part did you shade?

4. What decimal and percent are equivalent to  $\frac{7}{20}$ ?

Shade the model to represent  $\frac{7}{20}$ .

![](_page_24_Picture_5.jpeg)

5. Shade this model to represent  $\frac{7}{20}$ .

![](_page_24_Figure_7.jpeg)

### 6.5C Skills and Concepts 2

- 1. If 35% of a rectangle is shaded, what fractional part of the rectangle is NOT shaded?
- 2. Shade the models below to represent  $\frac{3}{10}$ , 0.3, and 30%.

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				[
				ſ
				ſ
				[
				[

![](_page_25_Figure_6.jpeg)

What do you notice about the shaded part of each model?

3. Shade the model below to show  $\frac{5}{16}$ . (Hint: Each eighth represents how many sixteenths?)

![](_page_25_Figure_10.jpeg)

What percent did you shade?

4. What decimal and percent are equivalent to  $\frac{9}{40}$ ?

Shade the model to represent  $\frac{9}{40}$ .

![](_page_26_Picture_5.jpeg)

5. Shade this model to represent  $\frac{11}{16}$ . (Hint: Would it help to divide one of the smaller rectangles into fourths? If you did, what part of the whole is each of those smallest rectangles? )

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![](_page_27_Picture_0.jpeg)

## Open Ended Skills and Concepts

### **TEKS CATEGORY 3** Expressions, Equations, and Relationships

![](_page_28_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 3 6.6A

### 6.6A Skills and Concepts 1

- 1. In your own words, describe what independent and dependent quantities are in a relationship.
- 2. The table below shows the relationship between the number of oranges and the number of boxes of oranges.

Number of Boxes	3	4	6	8
Number of Oranges	54	72	108	144

The number of \_\_\_\_\_\_ depends upon the number of \_\_\_\_\_\_.

The independent quantity is \_\_\_\_\_\_

he dependent quantity is	
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3. The area of a rectangle with a width of 8 units can be expressed as A = 8x, where x represents the length of the rectangle. Complete the table below with values that represent the length and the area of this rectangle. Label the title of each row.

What is the dependent quantity in this relationship?

On which row of the table should the dependent quantity be located?

If you were graphing these values on a grid, which axis would be the vertical axis?

4. The number of nickels in a coin collection is twice the number of dimes in the collection. Complete the table below to show possible number of nickels and dimes in the collection. Label the rows of the table.

What is the independent quantity in this relationship?

On which row of the table should the independent quantity be located?

If you were graphing these values on a grid, which axis would be the horizontal axis?

5. The length of a rectangle is 2 inches more than the width. Create a table to show possible values for the dimensions of the rectangle. Graph these values on the grid below.

![](_page_30_Figure_4.jpeg)

![](_page_30_Figure_5.jpeg)

### 6.6A Skills and Concepts 2

1. In a table, where should the dependent quantity be located?

On a graph, where should the dependent quantity be located?

2. The table below shows the relationship between the inches and feet.

Number of Inches	36	48	60	108
Number of Feet	3	4	5	9

The number of \_\_\_\_\_\_ depends upon the number of \_\_\_\_\_\_.

The independent quantity is \_\_\_\_\_\_.

The dependent quantity is \_\_\_\_\_\_.

Would it be reasonable that the number of inches could be the bottom row and the number of feet be the top row in this situation?

If so, what does that mean about this situation?

3. The area of a triangle with a base of 8 units can be expressed as A = 4x, where x represents the height of the triangle. Complete the table below with values that represent the height and the area of this triangle. Label the title of each row.

What is the dependent quantity in this relationship?

On which row of the table should the dependent quantity be located?

If you were graphing these values on a grid, which quantity would be represented by the vertical axis?

4. Colson collects baseball and football sports cards. The number of baseball cards he has is 35 more than the number of football cards. Complete the table below to show possible numbers of the baseball and football cards he has collected. Label the rows of the table.

What is the independent quantity in this relationship?

On which row of the table should the independent quantity be located?

If you were graphing these values on a grid, which quantity would be represented by the horizontal axis?

5. The length of a rectangle is 3 inches more than twice the width. Create a table to show possible values for the dimensions of the rectangle. Graph these values on the grid below.

![](_page_32_Figure_10.jpeg)

![](_page_33_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 3 6.8D

### 6.8D Skills and Concepts 2

1. A rectangular prism has a base area of 42 square inches. The volume of the prism is 356 cubic inches. What is the height of the prism? Show your work.

![](_page_34_Figure_5.jpeg)

2. One edge of a cube is 12 centimeters. What is the area of the top of the cube? Show your work.

![](_page_34_Figure_7.jpeg)

What is the volume of the cube? Show your work.

3. The parallelogram below has a height of 8.5 units and a base of 25.5 units. What is the area of the parallelogram? Show your work.

![](_page_34_Figure_10.jpeg)

4. An isosceles triangle has an altitude to the base drawn. Find the area of the shaded right triangle. Show your work.

![](_page_35_Figure_4.jpeg)

5. Find the area of the composite figure below if CF = 6 and AE = ED = 8.

![](_page_35_Figure_6.jpeg)

Grade 6 Mathematics

### 6.8D Skills and Concepts 1

1. Find the area of the trapezoid below. Show your work.

![](_page_36_Figure_4.jpeg)

2. Find the area of the right triangles shown below. Show your work.

![](_page_36_Figure_6.jpeg)

3. The area of a parallelogram is 180 square units. The base of the parallelogram is 24 units.

![](_page_36_Figure_8.jpeg)

What is the height of the parallelogram? Show your work.

4. The area of the triangle is 176 square units. What is the height of the triangle? Show your work

![](_page_37_Figure_4.jpeg)

5. The area of the triangle below is 120 square units. What will be the entire length of the base of the triangle? Show your work.

![](_page_37_Figure_6.jpeg)

![](_page_38_Picture_0.jpeg)

### Open Ended Skills and Concepts

### **TEKS CATEGORY 4** Measurement and Data

![](_page_39_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 4 6.11A

### 6.11A Skills and Concepts 1

1. List 5 ordered pairs that would be located in Quadrant I when graphed on a coordinate plane.

2. List 5 ordered pairs that would be located in Quadrant IV when graphed on a coordinate plane.

3. List 5 ordered pairs that would be located on the *y*-axis when graphed on a coordinate plane.

4. List 5 ordered pairs that would be located in Quadrant II when graphed on a coordinate plane.

5. List 5 ordered pairs that would be located on the *x*-axis when graphed on a coordinate plane.

Grade 6 Mathematics

**TEKS 6.11A** 

### 6.11A Skills and Concepts 2

1. Identify which Quadrant or which axis each ordered pair would be located in or on when graphed.

![](_page_41_Figure_5.jpeg)

2. Circle the ordered pairs that have an *x*-coordinate and a *y*-coordinate that are opposites.

(3, 3) (0, 0) (1, -1) (-4, 4) (3, -3) (-2.5, 2.5) (-1, -1) (-5, 5)

3. Circle the ordered pairs that have an x-coordinate greater than 1 and a y-coordinate less than -2. (3, -3) (0, 0) (2, -1) (4, -4) (0, -3) (2, -2) (6, -7) (-5, 5)

Below each ordered pair, label the Quadrant or axis the point would be located in or on.

4. Plot the points from Question 3 on the coordinate grid below. Label each point with its ordered pair.

![](_page_41_Figure_11.jpeg)

5. Plot the ordered pairs from Question 1 on the grid below. Label each point with its ordered pair.

![](_page_42_Figure_4.jpeg)

![](_page_43_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 4 6.13B

### 6.13B Skills and Concepts 1

- 1. Write a geometric situation that would yield data with variability.
- 2. Write a geometric situation that would yield data without variability.

3. Is the following situation one that will yield data with variability or without variability? Explain your answer.

What is the number of girls in the class, if there are 14 boys and the ratio of boys to girls is 2:3?

4. Is the following situation one that will yield data with variability or without variability? Explain your answer.

How many nickels are in a collection of 25 coins consisting of nickels and quarters?

5. Is the following situation one that will yield data with variability or without variability? Explain your answer.

What is the length of a rectangle if it is 8 units longer than the width?

### 6.13B Skills and Concepts 2

- 1. Write a situation that would yield data with variability.
- 2. Write a situation that would yield data without variability.

3. Is the following situation one that will yield data with variability or without variability? Explain your answer.

If I had \$3.00, but I spent only two-thirds of it for lunch, how much did I spend for lunch?

4. Is the following situation one that will yield data with variability or without variability? Explain your answer.

How many quarts are in 5 gallons?

5. Is the following situation one that will yield data with variability or without variability? Explain your answer.

What is the height of a parallelogram with an area of 38 square feet?

![](_page_46_Picture_0.jpeg)

## GRADE 6 Open Ended Skills and Concepts

### **TEKS CATEGORY 5** Personal Financial Literacy

![](_page_47_Picture_0.jpeg)

## Open Ended Skills and Concepts

## TEKS CATEGORY 5 6.14H

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Grade 6 Mathematics

TEKS 6.14H

### 6.14H Skills and Concepts 1

- 1. How can you compare the salaries of different occupations?
- 2. Besides salary, what other factors could influence your choice of a career?
- 3. When researching occupational salaries, Marilyn found the median salary of Occupation A to be \$45,000. What is a median salary?
- 4. The median salary for an office manager is \$41,960. The median salary for an executive assistant is \$49,964. Compare the salaries of these two occupations over 30 years.

5. Which do you think would earn more money yearly? Explain your choice.

Dental assistant

Bakery assistant

Lawyer

Policeman

Do some research and see if your choice was correct.

### 6.14H Skills and Concepts 2

- 1. Why do you think the amount of education affects the salaries for some careers?
- 2. Name at least 2 careers you are interested in that require education or training after high school.

- 3. When researching occupational salaries, Larry found the median salary of Occupation A to be \$53,500. He also found the median salary of Occupation B to be \$60,000. How much more would a person make at Occupation B than Occupation A if they worked at that position for 25 years?
- 4. The median wage for an office manager is \$14.98 per hour. The median wage for a registered nurse is \$27.68. The median wage for a customer service representative is \$12.29 per hour. Compare the wages of these three occupations for a 40-hour week, a 52-week year, and a 25-year career.

5. Research the median salaries in Texas for the following occupations that require an education beyond high school:

Mechanical Engineer

Software Engineer

Accountant