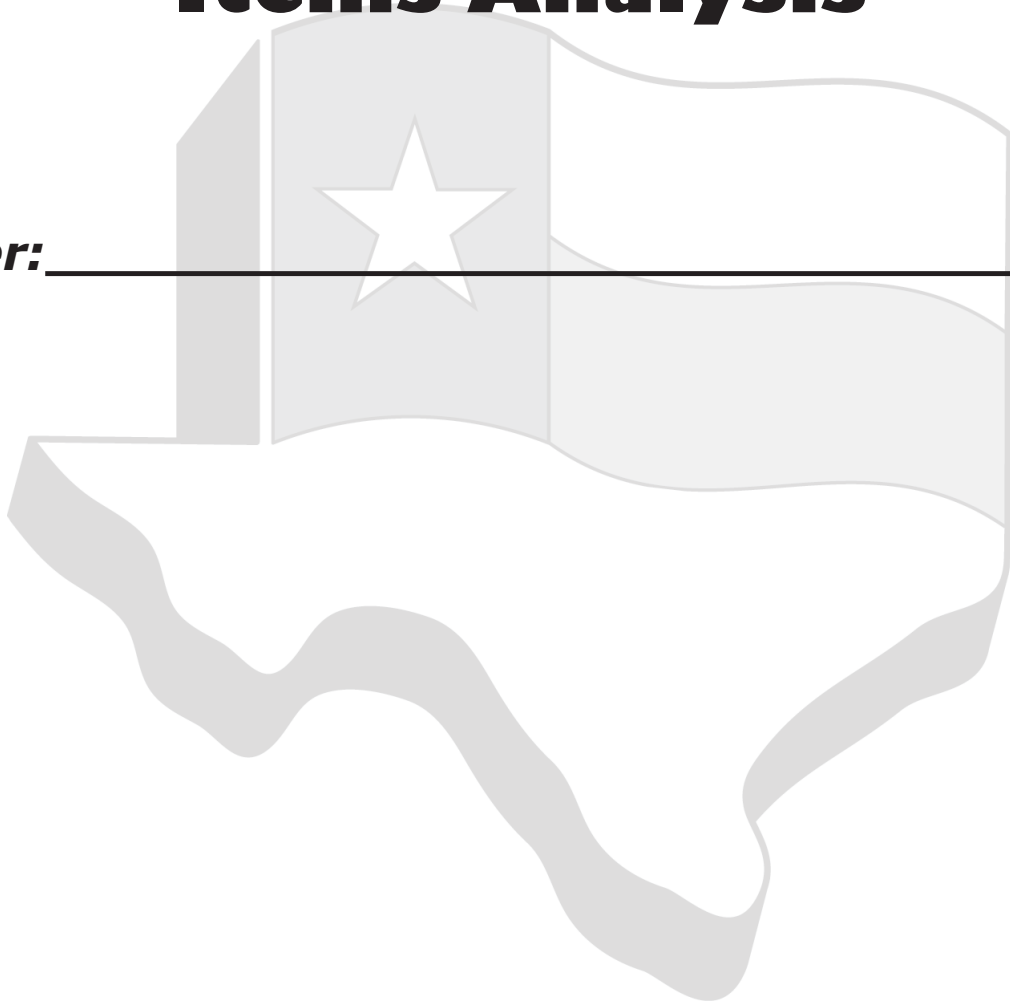


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# **Seventh Grade Mathematics**

## **2018 Released Items Analysis**

**Teacher:** \_\_\_\_\_



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# 7th Grade Mathematics

Released Items

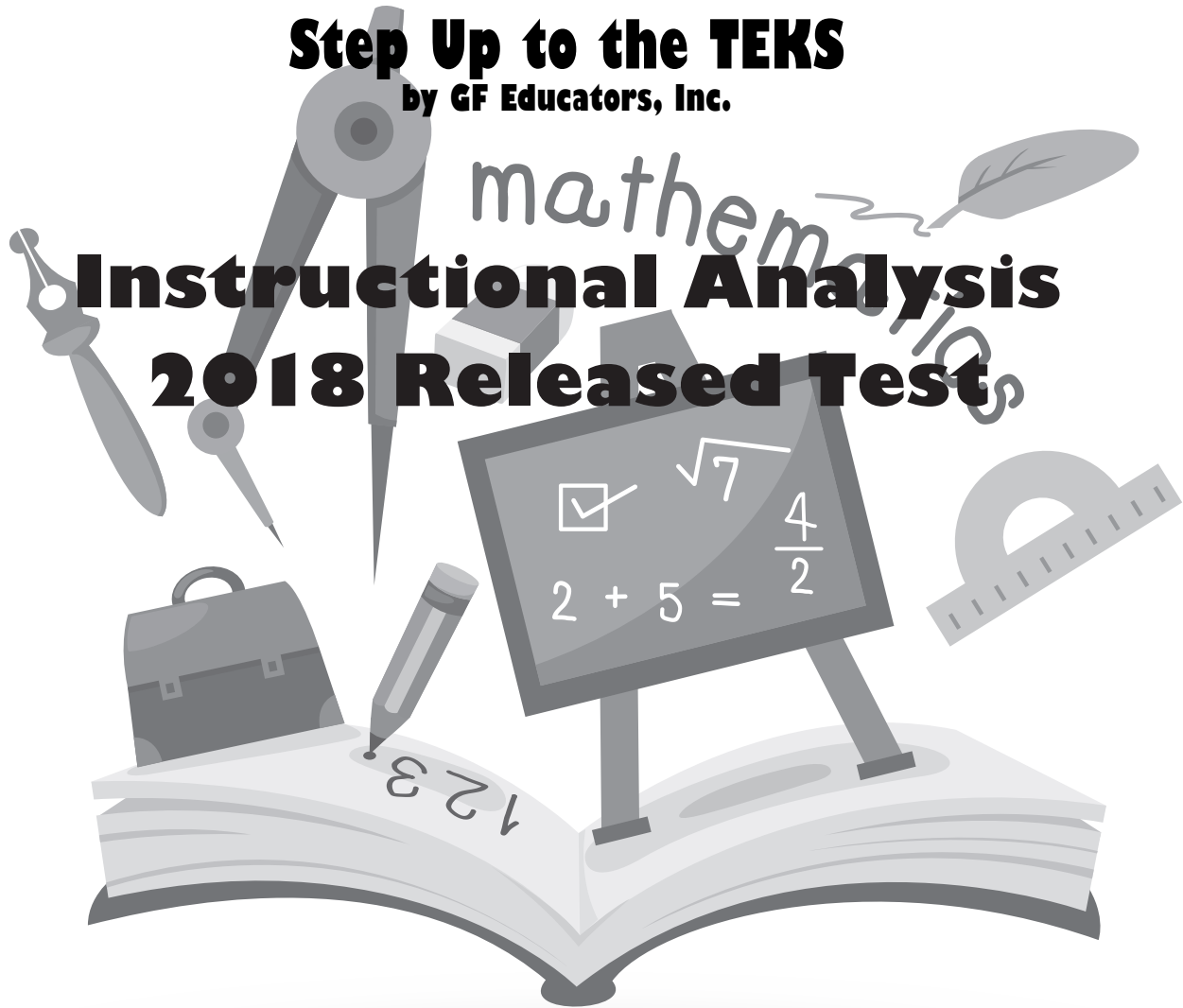
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Teacher: \_\_\_\_\_

Date: \_\_\_\_\_

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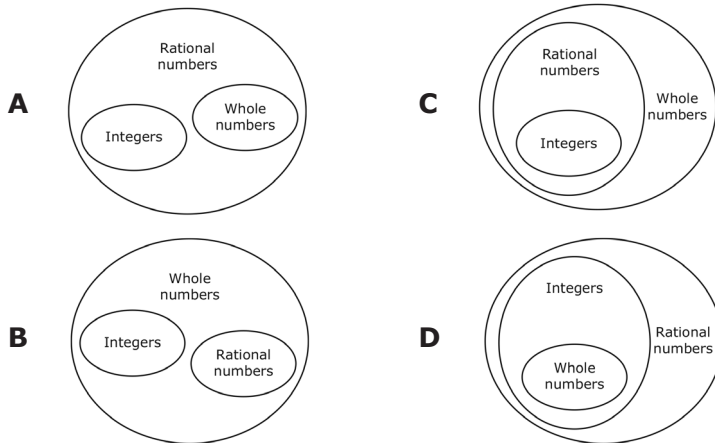
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# Instructional Analysis 2018 Released Test

**TEKS 7.2A Supporting Standard**  
extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers

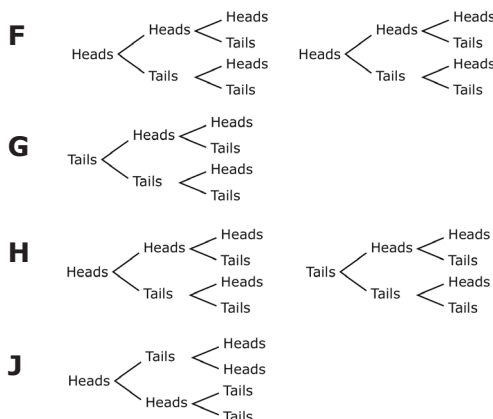
**ITEM 37** Which diagram best represents the relationship among integers, rational numbers, and whole numbers?




Item Analysis	
<b>Verb</b>	Extend
<b>Using or Including</b>	Visual Representation
<b>Concept</b>	Sets and Subsets
<b>Process TEKS</b>	7.1B, 7.1E, 7.1F
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**TEKS 7.6A Supporting Standard**  
represent sample spaces for simple and compound events using lists and tree diagrams

**ITEM 8** Jack tossed a coin three times. Which tree diagram shows all the possible outcomes of the coin landing heads up or tails up?



Item Analysis	
<b>Verb</b>	Represent
<b>Using or Including</b>	Tree Diagrams
<b>Concept</b>	Compound Events
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1F
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**TEKS 7.6H Readiness Standard**

solve problems using qualitative and quantitative predictions and comparisons from simple experiments

**ITEM**

**15** The manager of a movie theater randomly surveyed 50 people who entered the movie theater on Friday. The manager asked about the type of movie each person preferred. The results of the survey are shown in the table.

Survey Results

Type of Movie	Number of People
Horror	12
Comedy	15
Action	17
Drama	6

Based on the results in the table, which statement about a person who will go to this theater next Friday is true?

- A** The person is three times as likely to prefer comedy as horror.
- B** The person is twice as likely to prefer drama as horror.
- C** The person is less likely to prefer horror or drama than action.
- D** The person is more likely to prefer horror or comedy than action or drama.

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Simple Experiments
<b>Concept</b>	Qualitative and Quantitative Predictions
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1E, 7.1G</b>

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**TEKS 7.6H Readiness Standard**

solve problems using qualitative and quantitative predictions and comparisons from simple experiments

**ITEM**

**21** The 200 students in a school band will attend an awards dinner. A random survey of 25 of these students was conducted to determine how many of each meal should be prepared for the dinner. The results of the survey are shown.

- 12 students want a beef meal
- 8 students want a chicken meal
- 5 students want a pasta meal

Based on the survey results, which of these is the best prediction of the meals wanted by the 200 students?

- A** There are 16 students who want a beef meal.
- B** There are 52 students who want either a chicken meal or a pasta meal.
- C** There are 32 more students who want a beef meal than want a chicken meal.
- D** There are 24 more students who want a pasta meal than a chicken meal.

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Simple Experiments
<b>Concept</b>	Qualitative and Quantitative Predictions
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1G</b>

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**TEKS 7.6I Readiness Standard**  
determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces

**ITEM**  
**3** A classroom is arranged with 8 seats in the front row, 10 seats in the middle row, and 12 seats in the back row. The teacher randomly assigned seats to students as they enter the classroom.

What is the probability that the first student who enters the classroom will be assigned a seat in the front row?

**A**  $\frac{2}{5}$   
**B**  $\frac{2}{3}$   
**C**  $\frac{4}{11}$   
**D**  $\frac{4}{15}$

Item Analysis	
<b>Verb</b>	Determine
<b>Using or Including</b>	Sample Spaces
<b>Concept</b>	Theoretical Probability
<b>Process TEKS</b>	7.1A, 7.1B, 7.1F
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**TEKS 7.6I Readiness Standard**  
determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces

**ITEM**  
**25** A number cube with faces labeled from 1 to 6 was rolled 20 times. Each time the number cube was rolled, the number showing on the top face was record. The table shows the results.

Number Showing on Top Face	Frequency
1	0
2	3
3	3
4	6
5	3
6	5

Based on these results, what is the experimental probability that the next time the number cube is rolled it will land with 5 or 6 showing on the top face?

**A**  $\frac{2}{5}$   
**B**  $\frac{3}{20}$   
**C**  $\frac{1}{3}$   
**D**  $\frac{3}{5}$

Item Analysis	
<b>Verb</b>	Determine
<b>Using or Including</b>	Data
<b>Concept</b>	Experimental Probability
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1F
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**TEKS 7.3A Supporting Standard**  
add, subtract, multiply, and divide rational numbers fluently

**ITEM**

**30** What is the value of the expression  $-9 \times 2.2$ ?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

**Item Analysis**

<b>Verb</b>	Multiply
<b>Using or Including</b>	Fluently
<b>Concept</b>	Rational Numbers
<b>Process TEKS</b>	<b>7.1B, 7.1F</b>

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**TEKS 7.3B Readiness Standard**

apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers

**ITEM**

**17** Maya has 120 caramel apples to sell. Each caramel apple is covered with one topping.

- $\frac{1}{5}$  of the caramel apples are covered with peanuts.
- $\frac{1}{3}$  are covered with chocolate chips.
- $\frac{3}{10}$  are covered with coconut.
- The rest are covered with sprinkles.

How many caramel apples are covered with sprinkles?

- A** 100
- B** 33
- C** 25
- D** 20

**Item Analysis**

<b>Verb</b>	Apply
<b>Using or Including</b>	Addition, Subtraction, Multiplication
<b>Concept</b>	Operations of Rational Numbers
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1F</b>

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**TEKS 7.3B Readiness Standard**  
apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers

**ITEM 35** Marsha gave the cashier \$20 to pay for 3 pairs of socks. The cashier gave her \$5.03 in change. Each pair of socks cost the same amount.

What is the cost in dollars and cents for each pair of socks?


Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

Item Analysis	
<b>Verb</b>	Apply
<b>Using or Including</b>	Subtraction, Division
<b>Concept</b>	Operations of Rational Numbers
<b>Process TEKS</b>	7.1A, 7.1B, 7.1F
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**TEKS 7.4A Readiness Standard**  
represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including  $d = rt$

**ITEM 5** Cheddar cheese costs \$4.25 per pound. Which equation best represents  $y$ , the total cost of  $x$  pounds of cheddar cheese?

**A**  $x = 4.25 + y$   
**B**  $x = 4.25y$   
**C**  $y = 4.25 + x$   
**D**  $y = 4.25x$

Item Analysis	
<b>Verb</b>	Represent
<b>Using or Including</b>	Algebraic Representation
<b>Concept</b>	Constant Rate of Change
<b>Process TEKS</b>	7.1A, 7.1B, 7.1D, 7.1F
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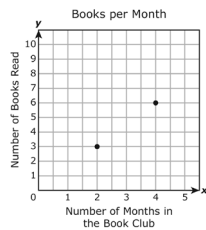


**TEKS 7.4A Readiness Standard**

represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including  $d = rt$

**ITEM**

**40** The graph represents the linear relationship between the number of books Layla has read and the number of months she has been a member of a book club.



Which of these statements is supported by the rate of change in this relationship?

- F** Layla read 2 books in the first 3 months she was a member of the book club.
- G** Layla read 3 books in the first 2 months she was a member of the book club.
- H** Layla read 3 books in the first 4 months she was a member of the book club.
- J** Layla read 4 books in the first 3 months she was a member of the book club.

**Item Analysis**

<b>Verb</b>	Represent
<b>Using or Including</b>	Graphical, Verbal Description
<b>Concept</b>	Constant Rate of Change
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1D, 7.1G</b>

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**TEKS 7.4C Supporting Standard**

determine the constant of proportionality ( $k = y/x$ ) within mathematical and real-world problems

**ITEM**

**1** A recipe says to use 3 cups of flour to make 48 cookies. What is the constant of proportionality that relates the number of cookies made,  $y$ , to the number of cups of flour used,  $x$ ?

- A** 0.6
- B** 48
- C** 3
- D** 16

**Item Analysis**

<b>Verb</b>	Calculate
<b>Using or Including</b>	Real-World Problems
<b>Concept</b>	Unit Rates
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1F</b>

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**TEKS 7.4D Readiness Standard**  
solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

**ITEM**

**9** The ratio of boys to girls in Ms. Cunningham’s class is 2 to 3. There are 18 girls in the class.

What is the total number of students in Ms. Cunningham’s class?

- A** 12
- B** 30
- C** 45
- D** 27

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Percents
<b>Concept</b>	Percent Problems
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1F</b>

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**TEKS 7.4D Readiness Standard**  
solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems

**ITEM**

**26** Russell has a collection of 1,200 pennies. Of these pennies, 25% are dated before 1980, 35% are dates from 1980 to 2000, and the rest are dated after 2000.

How many pennies in Russell’s collection are dated after 2000?

- F** 480
- G** 720
- H** 40
- J** 60

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Percents
<b>Concept</b>	Percent Problems
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1F</b>

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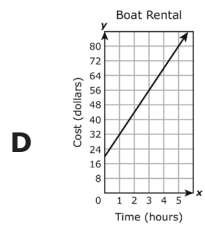
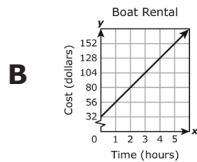
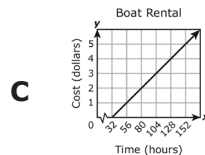
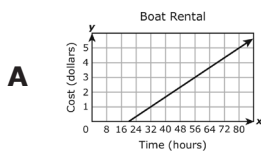
**TEKS 7.7A Readiness Standard**

represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form  $y = mx + b$

**11** The table shows the relationship between  $y$ , the cost to rent a boat, and  $x$ , the amount of time the boat is rented.

Boat Rental Costs	
Time, $x$ (hours)	Cost, $y$ (dollars)
1	32
3	56
5	80
7	104

Which graph best represents the relationship between  $x$  and  $y$  shown in the table?



**Item Analysis**

<b>Verb</b>	Represent
<b>Using or Including</b>	Table
<b>Concept</b>	Linear Relationships
<b>Process TEKS</b>	7.1A, 7.1B, 7.1D, 7.1F

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**TEKS 7.7A Readiness Standard**

represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form  $y = mx + b$

**ITEM**

**24** A fish is swimming at a constant rate toward the ocean floor. The equation  $y = -7x - 3$  can be used to represent this situation, where  $y$  is the depth of the fish in meters below sea level and  $x$  is the number of seconds the fish has been swimming.

Which statement best describes the depth of the fish, given this equation?

- F** From a starting position of 7 meters below sea level, the fish is descending 3 meters per second.
- G** From a starting position of 7 meters below sea level, the fish is ascending 3 meters per second.
- H** From a starting position of 3 meters below sea level, the fish is descending 7 meters per second.
- J** From a starting position of 3 meters below sea level, the fish is ascending 7 meters per second.

**Item Analysis**

<b>Verb</b>	Represent
<b>Using or Including</b>	Verbal Description
<b>Concept</b>	Linear Relationship
<b>Process TEKS</b>	7.1A, 7.1B, 7.1D, 7.1G

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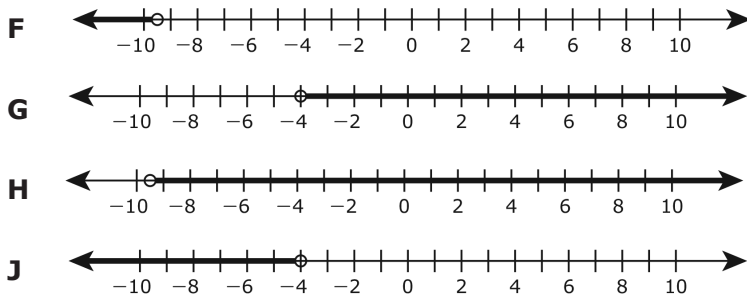


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**TEKS 7.10B Supporting Standard**  
represent solutions for one-variable, two-step equations and inequalities on number lines

**ITEM**

**20** Which number line best represents the solution to the inequality  $3.3w - 9 > -22.2$ ?



**Item Analysis**

<b>Verb</b>	Write
<b>Using or Including</b>	NA
<b>Concept</b>	One-Variable, Two-Step Inequality
<b>Process TEKS</b>	<b>7.1B, 7.1E, 7.1F</b>

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**TEKS 7.10C Supporting Standard**  
write a corresponding real-world problem given a one-variable, two-step equation or inequality

**ITEM**

**33** Which statement can be represented by this inequality?

$$120 \leq 12k + 29$$

- A** Felica has 12 buttons in her collection. She will collect 29 new buttons every year. Felica collects buttons for  $k$  years. For what values of  $k$  will Felica have at least 120 buttons?
- B** Felica has 29 buttons in her collection. She will collect 12 new buttons every year. Felica collects buttons for  $k$  years. For what values of  $k$  will Felica have at least 120 buttons.
- C** Felica has 29 buttons in her collection. She will collect 12 new buttons every year. Felica collects buttons for  $k$  year. For what values of  $k$  will Felica have at most 120 buttons?
- D** Felica has 12 buttons in her collection. She will collect 29 new buttons every year. Felica collects buttons for  $k$  years. For what values of  $k$  will Felica have at most 120 buttons?

**Item Analysis**

<b>Verb</b>	Write
<b>Using or Including</b>	NA
<b>Concept</b>	One-Variable, Two-Step Inequality Problem
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1D, 7.1F</b>

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**TEKS 7.11A Readiness Standard**  
model and solve one-variable, two-step equations and inequalities

**ITEM**

**7** What is the solution set for  $-4x - 10 \leq 2$ ?

- A**  $x \leq -3$
- B**  $x \geq -3$
- C**  $x \leq 2$
- D**  $x \geq 2$

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Inequality
<b>Concept</b>	One-Variable, Two-Step Inequalities
<b>Process TEKS</b>	<b>7.1B, 7.1F</b>

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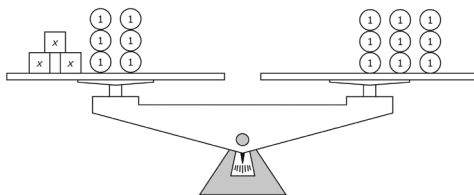


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**TEKS 7.11A Readiness Standard**  
model and solve one-variable, two-step equations and inequalities

**ITEM**

**28** The model represents an equation.



What is the solution for this equation?

- F**  $x = 3$
- G**  $x = 15$
- H**  $x = 5$
- J**  $x = 1$

**Item Analysis**

<b>Verb</b>	Model and Solve
<b>Using or Including</b>	Equation
<b>Concept</b>	One-Variable, Two-Step Equation
<b>Process TEKS</b>	<b>7.1B, 7.1E, 7.1F</b>

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**TEKS 7.11B Supporting Standard**  
determine if the given value(s) make(s) one-variable, two-step equations and inequalities true


**ITEM**  
**38** Which equation is true when  $k = -15$ ?

**F**  $3k - 11 = -34$   
**G**  $-53 + 4k = 7$   
**H**  $\frac{k}{3} + 17 = 12$   
**J**  $\frac{k}{5} + 2.5 = 0.5$

Item Analysis	
<b>Verb</b>	Determine
<b>Using or Including</b>	Equation
<b>Concept</b>	Value True
<b>Process TEKS</b>	<b>7.1B, 7.1F</b>
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**ITEM**

**ITEM**

Item Analysis	
<b>Verb</b>	
<b>Using or Including</b>	
<b>Concept</b>	
<b>Process TEKS</b>	
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**TEKS 7.4E Supporting Standard**

convert between measurement systems, including the use of proportions and the use of unit rates

**ITEM**

**19** The distance between two towns is 120 kilometers. There are approximately 8 kilometers in 5 miles.

Which measurement is closest to the number of miles between these two towns?

- A 75 mi
- B 3 mi
- C 192 mi
- D 117 mi

**Item Analysis**

<b>Verb</b>	Convert
<b>Using or Including</b>	Unit Rate
<b>Concept</b>	Between Measurement Systems
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1F</b>

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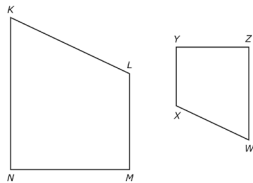
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**TEKS 7.5A Supporting Standard**

generalize the critical attributes of similarity, including ratios within and between similar shapes

**ITEM**

**4** Quadrilateral  $KLMN$  is similar to quadrilateral  $WXYZ$ .



Which statement about these quadrilaterals must be true?

- F  $\frac{KL}{WX} = \frac{WZ}{KN}$
- G Angle  $NKL$  is congruent to angle  $ZWX$ .
- H  $\frac{KL}{YZ} = \frac{LM}{ZW}$
- J Angle  $NKL$  is congruent to angle  $XYZ$ .

**Item Analysis**

<b>Verb</b>	Generalize
<b>Using or Including</b>	NA
<b>Concept</b>	Critical Attributes of Similarity
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1G</b>

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**TEKS 7.5B Supporting Standard**  
describe  $\pi$  as the ratio of the circumference of a circle to its diameter

**ITEM**

**27** A group of students formed a circle during a game. The circumference of the circle was about 43.96 feet, and the diameter of the circle was 14 feet.

Which expression best represents the value of  $\pi$ ?

- A  $\frac{43.96}{7}$
- B  $\frac{43.96}{14}$
- C  $\frac{7}{43.96}$
- D  $\frac{14}{43.96}$

**Item Analysis**

<b>Verb</b>	Describe
<b>Using or Including</b>	Ratio
<b>Concept</b>	$\pi$
<b>Process TEKS</b>	<b>7.1B, 7.1F</b>

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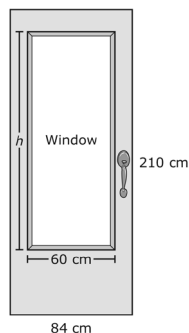


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**TEKS 7.5C Readiness Standard**  
solve mathematical and real-world problems involving similar shape and scale drawings

**ITEM**

**16** The diagram shows a door that has a window in it. The front door and the window are similar rectangles that have the dimensions shown.



What is  $h$ , the height of the window in centimeters?

- F 66 cm
- G 186 cm
- H 150 cm
- J Not here

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Similar Shapes
<b>Concept</b>	Similarity Problems
<b>Process TEKS</b>	<b>7.1A, 7.1B, 7.1E, 7.1F</b>

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**TEKS 7.5C Readiness Standard**

solve mathematical and real-world problems involving similar shape and scale drawings

**ITEM**

**32** An architect built a scale model of a sports stadium using a scale in which 2 inches represents 30 feet. The height of the sports stadium is 180 feet.

What is the height of the scale model in inches?

- F** 3 in.
- G** 105 in.
- H** 12 in.
- J** 60 in.

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Similar Shape
<b>Concept</b>	Height
<b>Process TEKS</b>	7.1A, 7.1B, 7.1F

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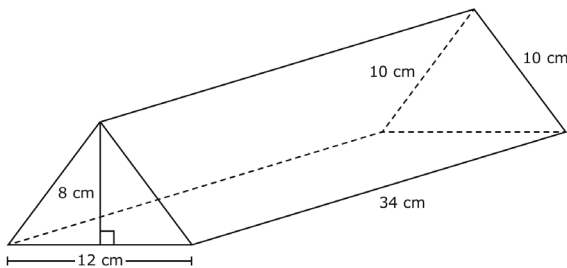
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**TEKS 7.9A Readiness Standard**

solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids

**ITEM**

**10** The dimensions of a triangular prism are shown in the diagram.



What is the volume of the triangular prism in cubic centimeters?

- F** 1,360 cm<sup>3</sup>
- G** 408 cm<sup>3</sup>
- H** 1,632 cm<sup>3</sup>
- J** 816 cm<sup>3</sup>

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Triangular Prisms
<b>Concept</b>	Volume
<b>Process TEKS</b>	7.1B, 7.1C, 7.1E, 7.1F

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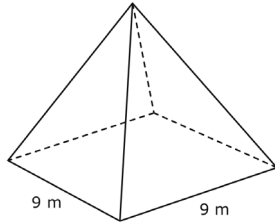


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**TEKS 7.9A Readiness Standard**  
solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids

**ITEM**

**39** Some of the dimensions of a square pyramid are shown in the diagram. The height of the square pyramid is 7.5 meters.



What is the volume of the square pyramid in cubic meters?

- A 202.5 m<sup>3</sup>
- B 303.75 m<sup>3</sup>
- C 270 m<sup>3</sup>
- D 243 m<sup>3</sup>

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Square pyramid
<b>Concept</b>	Volume
<b>Process TEKS</b>	7.1B, 7.1C, 7.1E, 7.1F

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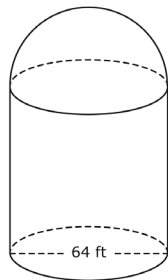


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**TEKS 7.9B Readiness Standard**  
determine the circumference and area of circles

**ITEM**

**2** An observatory is shaped like a cylinder standing on one of its bases with a dome on top. The diameter of the floor of the observatory is 64 feet, as shown in the diagram.



Which measurement is closest to the circumference of the base of the observatory in feet?

- F 209.96 ft
- G 3,215.36 ft
- H 100.48 ft
- J 401.92 ft

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	Circle
<b>Concept</b>	Circumference
<b>Process TEKS</b>	7.1A, 7.1B, 7.1C, 7.1E, 7.1F

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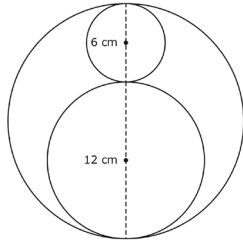


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**TEKS 7.9B Readiness Standard**  
determine the circumference and area of circles

**ITEM**

**23** A company's logo was designed using circles of 3 different sizes. The diameters of two of the circles are shown.



Which measurement is closest to the area of the largest circle in square centimeters?

- A 56.52 cm<sup>2</sup>
- B 141.30 cm<sup>2</sup>
- C 1,017.36 cm<sup>2</sup>
- D 254.34 cm<sup>2</sup>

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	Circles
<b>Concept</b>	Area
<b>Process TEKS</b>	7.1A, 7.1B, 7.1C, 7.1E, 7.1F

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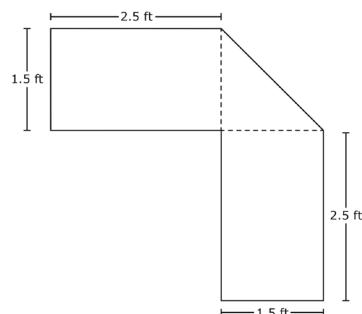
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**TEKS 7.9C Readiness Standard**

determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles

**ITEM**

**14** The top surface of a desk is composed of 2 rectangles and a triangle. Some side lengths of the top surface of the desk are shown.



What is the area of the top surface of the desk in square feet?

- F 9.75 ft<sup>2</sup>
- G 8.625 ft<sup>2</sup>
- H 7.50 ft<sup>2</sup>
- J 9.375 ft<sup>2</sup>

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	Rectangle, Triangle
<b>Concept</b>	Area of Composite Figures
<b>Process TEKS</b>	7.1A, 7.1B, 7.1C, 7.1E, 7.1F

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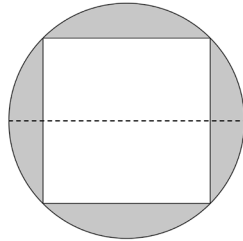


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**TEKS 7.9C Readiness Standard**  
determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles

**ITEM**

**34** The figure shown was created by placing the vertices of a square on the circle. Use the ruler provided to measure the dimensions of the square and the circle to the nearest centimeter.



Which measurement is closest to the area of the shaded region of the figure in square centimeters?

- F 17.6 cm<sup>2</sup>
- G 265.0 cm<sup>2</sup>
- H 29.5 cm<sup>2</sup>
- J 127.5 cm<sup>2</sup>

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Squares and Circles
<b>Concept</b>	Composite Figures
<b>Process TEKS</b>	7.1A, 7.1B, 7.1C, 7.1E, 7.1F

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**TEKS 7.11C Supporting Standard**  
write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships

**ITEM**

**12** The sum of the measures of angle *M* and angle *R* is 90°.

- The measure of angle *M* is  $(5x + 10)^\circ$
- The measure of angle *R* is  $55^\circ$ .

What is the value of *x*?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Sum of Angles in a Triangle
<b>Concept</b>	Equations of Geometric Concepts
<b>Process TEKS</b>	7.1B, 7.1E, 7.1F

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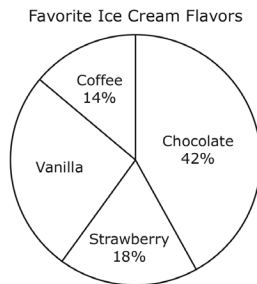
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**TEKS 7.6G Readiness Standard**

solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents

**ITEM**

**6** Ursula surveyed 50 classmates about their favorite ice cream flavors. Each classmate chose one flavor. The results are shown in the circle graph.



How many more of Ursula’s classmates chose chocolate than chose vanilla?

- F** 8
- G** 6
- H** 34
- J** 16

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Circle Graph
<b>Concept</b>	Data
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1F

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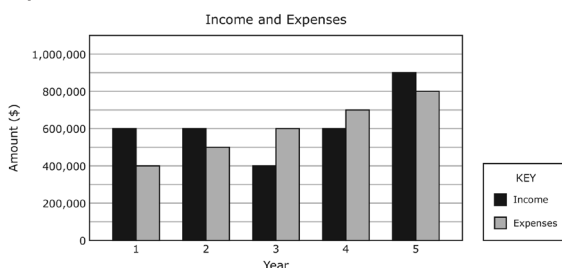
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**TEKS 7.6G Readiness Standard**

solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents

**ITEM**

**31** The bar graph shows a company’s income and expenses over the last 5 years.



Which statement is supported by the information in the graph?

- A** Expenses have increased \$200,000 each year over the last 5 years.
- B** The income in Year 5 was twice the income in Year 1.
- C** The combined income in Years 1, 2, and 3 was equal to the combined expenses in Years 1, 2, and 3.
- D** The combined expenses in Years 3 and 4 were \$300,000 more than the combined income in Years 3 and 4.

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Bar Graph
<b>Concept</b>	Data
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1G

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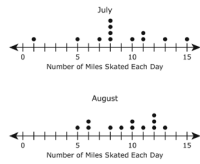


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**TEKS 7.12A Readiness Standard**

compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads

**13** The dot plots show the numbers of miles Ian skated on several days in two different months?



Which statement is supported by the information in the dot plot?

- A** The least number of miles Ian skated on a day in July is greater than the least number of miles Ian skated on a day in August.
- B** The median number of miles Ian skated each day in July is greater than the median number of miles Ian skated each day in August.
- C** The mode of the number of miles Ian skated each day in July is less than the mode of the number of miles Ian skated each day in August.
- D** The range of the number of miles Ian skated each day in July is less than the range of the number of miles Ian skated each day in August.

**Item Analysis**

<b>Verb</b>	Compare
<b>Using or Including</b>	Centers, Spread
<b>Concept</b>	Two Groups of Numeric Data
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1G

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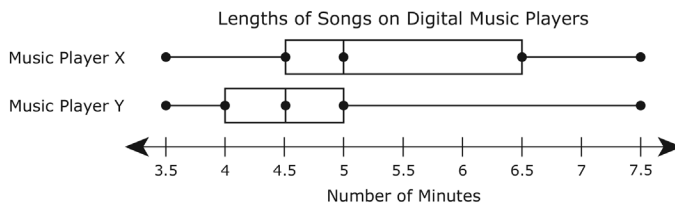
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**TEKS 7.12A Readiness Standard**

compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads

**ITEM**

**36** The box plots show the lengths of the songs on two digital music players in minutes.



Which statement is best supported by the information in the box plots?

- F** The interquartile range of the data for Music Player X is equal to the interquartile range of the data for Music Player Y.
- G** The interquartile range of the data for Music Player X is greater than the interquartile range of the data for Music Player Y.
- H** The median length of the songs on Music Player X is equal to the median length of the songs on Music Player Y.
- J** The median length of the songs on Music Player X is less than the median length of the songs on Music Player Y.

**Item Analysis**

<b>Verb</b>	Compare
<b>Using or Including</b>	Centers, Spread
<b>Concept</b>	Two Groups of Numeric Data
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1G

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**TEKS 7.12B Supporting Standard**  
use data from a random sample to make inferences about a population

**ITEM**

**18** The manager of a music store surveyed a random sample of customers who shop in the store about their favorite type of music. The table shows the number of customers who selected each type of music.

Favorite Type of Music

Rock	Country	Jazz	Classical	Rap	Pop
37	27	5	9	12	35

Based on the information in the table, which inference about the favorite type of music of all the customers who shop in the music store appears to be valid?

- F** They are certain to select rock or pop music.
- G** They are less likely to select country or rap music than rock music.
- H** They are more likely to select country music than jazz, classical, or rap music.
- J** They are certain to select any type of music other than jazz music.

**Item Analysis**

<b>Verb</b>	Use
<b>Using or Including</b>	Inferences
<b>Concept</b>	Sample Populations
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1G

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**TEKS 7.13A Supporting Standard**  
calculate the sales tax for a given purchase and calculate income tax for earned wages

**ITEM**

**22** The price of a DVD is \$24.00 plus 8% sales tax. What is the sales tax on this DVD in dollars and cents?

Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

**Item Analysis**

<b>Verb</b>	Calculate
<b>Using or Including</b>	NA
<b>Concept</b>	Sales Tax
<b>Process TEKS</b>	7.1A, 7.1B, 7.1F

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**TEKS 7.13C Supporting Standard**  
create and organize a financial assets and liabilities record and construct a net worth statement


**ITEM 29** The table shows Peter’s net worth statement. Assets are shown as positive numbers, and liabilities are shown as negative numbers. The value of Peter’s house is not given.

Net Worth Statement


Item	Value
House (current value)	
Checking account	\$900
Credit-card debt	-\$3,400
Automobile (current value)	\$16,900
Student loans	-\$16,300
Investments	\$4,500
Savings account	\$1,200

Peter’s net worth is \$101,800. Based on the information in the table, what is the current value of Peter’s house?

**A** \$58,600  
**B** \$78,300  
**C** \$98,000  
**D** \$82,100

Item Analysis	
<b>Verb</b>	Create
<b>Using or Including</b>	Net Worth Statement
<b>Concept</b>	Financial Assets and Liabilities
<b>Process TEKS</b>	7.1A, 7.1B, 7.1E, 7.1F
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**ITEM**

Item Analysis	
<b>Verb</b>	
<b>Using or Including</b>	
<b>Concept</b>	
<b>Process TEKS</b>	
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**Category 1**  
**Probability and Numerical Representations**  
**6 Total Questions**

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Process TEKS</b>
<b>7.2A</b> extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers	<b>37</b>	<b>D</b>	<b>7.1B, 7.1E, 7.1F</b>
<b>7.6A</b> represent sample spaces for simple and compound events using lists and tree diagrams	<b>8</b>	<b>H</b>	<b>7.1A, 7.1B, 7.1E, 7.1F</b>
<b>7.6C</b> make predictions and determine solutions using experimental data for simple and compound events	<b>NT</b>		
<b>7.6D</b> make predictions and determine solutions using theoretical probability for simple and compound events	<b>NT</b>		
<b>7.6E</b> find the probabilities of a simple event and its complement and describe the relationship between the two	<b>NT</b>		
<b>7.6H</b> solve problems using qualitative and quantitative predictions and comparisons from simple experiments	<b>15</b>	<b>D</b>	<b>7.1A, 7.1B, 7.1E, 7.1G</b>
	<b>21</b>	<b>C</b>	<b>7.1A, 7.1B, 7.1G</b>
<b>7.6I</b> determine experimental and theoretical probabilities related to simple and compound events using data and sample spaces	<b>3</b>	<b>D</b>	<b>7.1A, 7.1B, 7.1F</b>
	<b>25</b>	<b>A</b>	<b>7.1A, 7.1B, 7.1E, 7.1F</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 4/6 questions

**Category 2**  
**Computations and Algebraic Relationships**  
**15 Total Questions**

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Process TEKS</b>
<b>7.3A</b> add, subtract, multiply, and divide rational numbers fluently	<b>30</b>	<b>-19.8</b>	<b>7.1B, 7.1F</b>
<b>7.3B</b> apply and extend previous understandings of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers	<b>17</b>	<b>D</b>	<b>7.1A, 7.1B, 7.1F</b>
	<b>35</b>	<b>4.99</b>	<b>7.1A, 7.1B, 7.1F</b>
<b>7.4A</b> represent constant rates of change in mathematical and real-world problems given pictorial, tabular, verbal, numeric, graphical, and algebraic representations, including $d = rt$	<b>5</b>	<b>B</b>	<b>7.1A, 7.1B, 7.1D, 7.1F</b>
	<b>40</b>	<b>G</b>	<b>7.1A, 7.1B, 7.1D, 7.1G</b>
<b>7.4B</b> calculate unit rates from rates in mathematical and real-world problems	<b>NT</b>		
<b>7.4C</b> determine the constant of proportionality ( $k = y/x$ ) within mathematical and real-world problems	<b>1</b>	<b>D</b>	<b>7.1A, 7.1B, 7.1F</b>
<b>7.4D</b> solve problems involving ratios, rates, and percents, including multi-step problems involving percent increase and percent decrease, and financial literacy problems	<b>9</b>	<b>B</b>	<b>7.1A, 7.1B, 7.1F</b>
	<b>26</b>	<b>F</b>	<b>7.1A, 7.1B, 7.1F</b>
<b>7.7A</b> represent linear relationships using verbal descriptions, tables, graphs, and equations that simplify to the form $y = mx + b$	<b>11</b>	<b>D</b>	<b>7.1A, 7.1B, 7.1D, 7.1F</b>
	<b>24</b>	<b>H</b>	<b>7.1A, 7.1B, 7.1D, 7.1G</b>
<b>7.10A</b> write one-variable, two-step equations and inequalities to represent constraints or conditions within problems	<b>NT</b>		
<b>7.10B</b> represent solutions for one-variable, two-step equations and inequalities on number lines	<b>20</b>	<b>G</b>	<b>7.1B, 7.1E, 7.1F</b>
<b>7.10C</b> write a corresponding real-world problem given a one-variable, two-step equation or inequality	<b>33</b>	<b>B</b>	<b>7.1A, 7.1B, 7.1D, 7.1F</b>
<b>7.11A</b> model and solve one-variable, two-step equations and inequalities	<b>7</b>	<b>B</b>	<b>7.1B, 7.1F</b>
	<b>28</b>	<b>J</b>	<b>7.1B, 7.1E, 7.1F</b>
<b>7.11B</b> determine if the given value(s) make(s) one-variable, two-step equations and inequalities true	<b>38</b>	<b>H</b>	<b>7.1B, 7.1F</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 10/15 questions

**Category 3**  
**Geometry and Measurement**  
**12 Total Questions**

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Process TEKS</b>
<b>7.4E</b> convert between measurement systems, including the use of proportions and the use of unit rates	<b>19</b>	<b>C</b>	<b>7.1A, 7.1B, 7.1F</b>
<b>7.5A</b> generalize the critical attributes of similarity, including ratios within and between similar shapes	<b>4</b>	<b>G</b>	<b>7.1A, 7.1B, 7.1G</b>
<b>7.5B</b> describe $\pi$ as the ratio of the circumference of a circle to its diameter	<b>27</b>	<b>B</b>	<b>7.1B, 7.1F</b>
<b>7.5C</b> solve mathematical and real-world problems involving similar shape and scale drawings	<b>16</b>	<b>H</b>	<b>7.1A, 7.1B, 7.1E, 7.1F</b>
	<b>32</b>	<b>H</b>	<b>7.1A, 7.1B, 7.1F</b>
<b>7.9A</b> solve problems involving the volume of rectangular prisms, triangular prisms, rectangular pyramids, and triangular pyramids	<b>10</b>	<b>H</b>	<b>7.1B, 7.1C, 7.1E, 7.1F</b>
	<b>39</b>	<b>A</b>	<b>7.1B, 7.1C, 7.1E, 7.1F</b>
<b>7.9B</b> determine the circumference and area of circles	<b>2</b>	<b>F</b>	<b>7.1A, 7.1B, 7.1C, 7.1E, 7.1F</b>
	<b>23</b>	<b>D</b>	<b>7.1A, 7.1B, 7.1C, 7.1E, 7.1F</b>
<b>7.9C</b> determine the area of composite figures containing combinations of rectangles, squares, parallelograms, trapezoids, triangles, semicircles, and quarter circles	<b>14</b>	<b>G</b>	<b>7.1A, 7.1B, 7.1C, 7.1E, 7.1F</b>
	<b>34</b>	<b>H</b>	<b>7.1A, 7.1B, 7.1C, 7.1E, 7.1F</b>
<b>7.9D</b> solve problems involving the lateral and total surface area of a rectangular prism, rectangular pyramid, triangular prism, and triangular pyramid by determining the area of the shape's net	<b>NT</b>		
<b>7.11C</b> write and solve equations using geometry concepts, including the sum of the angles in a triangle, and angle relationships	<b>12</b>	<b>5</b>	<b>7.1B, 7.1E, 7.1F</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 8/12 questions

**Category 4**  
**Data Analysis and Personal Finance**  
**7 Total Questions**

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Process TEKS</b>
<b>7.6G</b> solve problems using data represented in bar graphs, dot plots, and circle graphs, including part-to-whole and part-to-part comparisons and equivalents			
<b>7.12A</b> compare two groups of numeric data using comparative dot plots or box plots by comparing their shapes, centers, and spreads			
<b>7.12B</b> use data from a random sample to make inferences about a population			
<b>7.12C</b> compare two populations based on data in random samples from these populations, including informal comparative inferences about differences between the two populations			
<b>7.13A</b> calculate the sales tax for a given purchase and calculate income tax for earned wages			
<b>7.13B</b> identify the components of a personal budget, including income; planned savings for college, retirement, and emergencies; taxes; and fixed and variable expenses, and calculate what percentage each category comprises of the total budget			
<b>7.13C</b> create and organize a financial assets and liabilities record and construct a net worth statement			
<b>7.13D</b> use a family budget estimator to determine the minimum household budget and average hourly wage needed for a family to meet its basic needs in the student's city or another large city nearby			
<b>7.13E</b> calculate and compare simple interest and compound interest earnings			
<b>7.13F</b> analyze and compare monetary incentives, including sales, rebates, and coupons			

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 4/7 questions