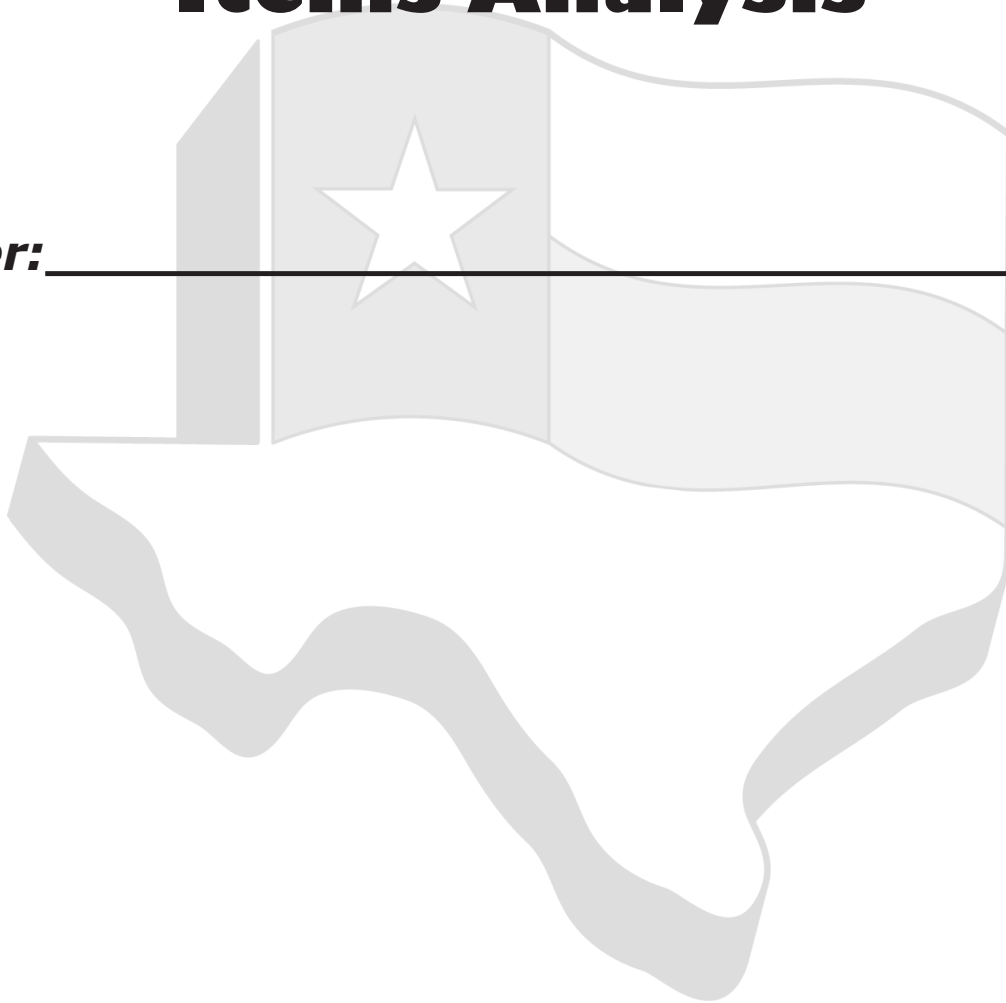


Step Up to the TEKS  
by GF Educators, Inc.

# **Eighth Grade Mathematics**

## **2016 Released Items Analysis**

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



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Edition I



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# 8th Grade Mathematics

*Released Items*

Name: \_\_\_\_\_

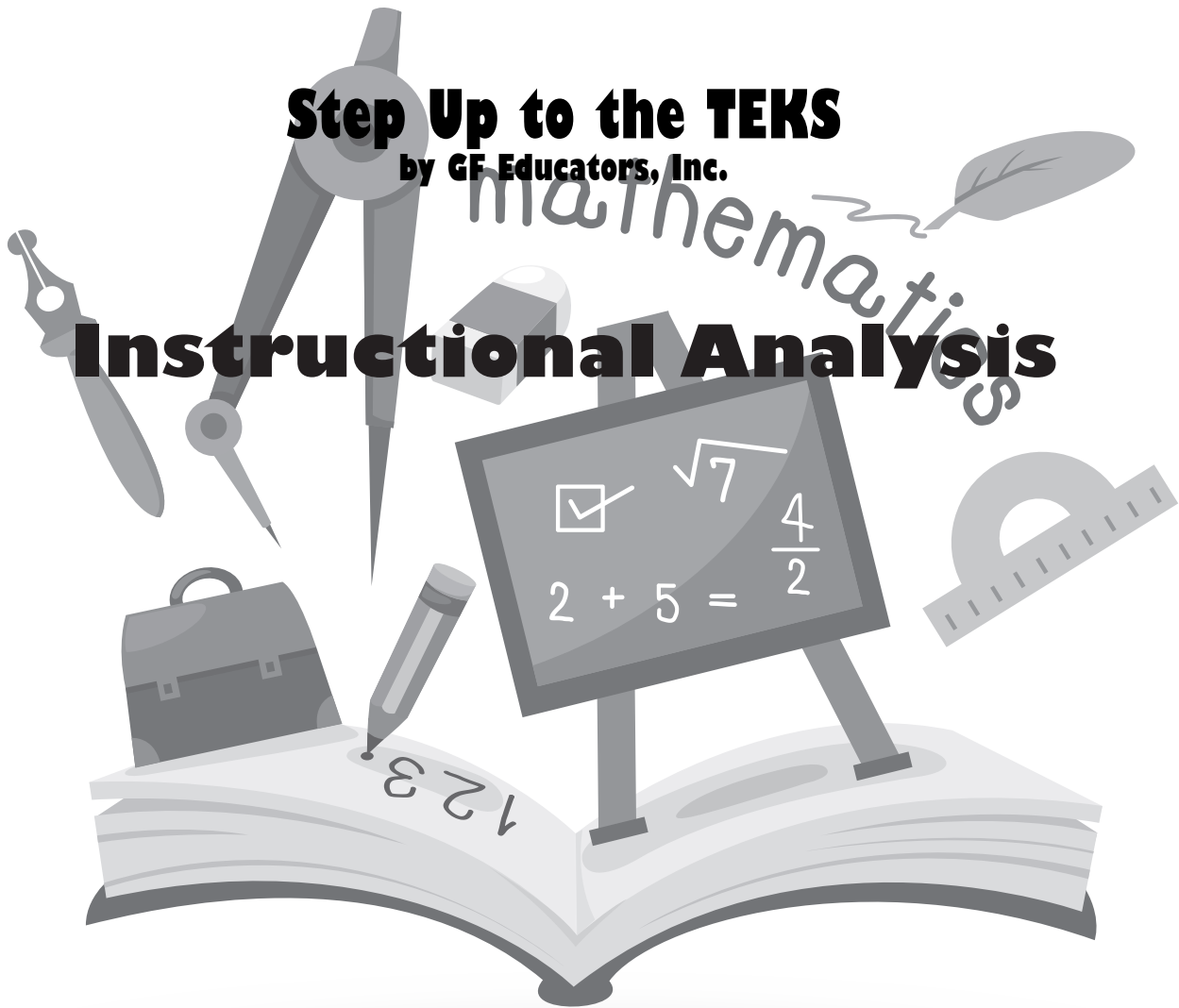
Teacher: \_\_\_\_\_

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

## Step Up to the TEKS

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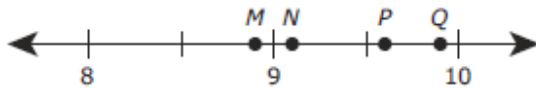
# Instructional Analysis



**TEKS 8.2B Supporting Standard**  
approximate the value of an irrational number, including  $\pi$  and square roots of numbers less than 225, and locate that rational number approximation on a number line

**ITEM**

**48** Which point on the number line best represents the location of  $\sqrt{92}$  ?



- F** Point M
- G** Point N
- H** Point P
- J** Point Q

**Item Analysis**

<b>Verb</b>	Approximate Locate
<b>Using or Including</b>	Square Root
<b>Concept</b>	Irrational Number
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.2C Supporting Standard**  
convert between standard decimal notation and scientific notation

**ITEM**

**21** Jamie used a microscope to measure the diameter of a hair. She found that the diameter of the hair was 0.000072 meter. How is this number written in scientific notation?

- A**  $7.2 \times 10^{-5}$
- B**  $7.2 \times 10^6$
- C**  $7.2 \times 10^5$
- D**  $7.2 \times 10^{-6}$

**Item Analysis**

<b>Verb</b>	Convert
<b>Using or Including</b>	NA
<b>Concept</b>	Decimal Notation to Scientific Notation
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1F</b>

**Notes**

**TEKS 8.2D Readiness Standard**  
order a set of real numbers arising from mathematical and real-world contexts

**ITEM**

**1** Four students are each trying to raise the same amount of money for a class trip. The table below shows how much of each student's goal has been met.

Fund-Raiser Progress

Student	Part of Goal Met
Chelsea	0.7
Devon	$\frac{2}{3}$
Huang	$\frac{5}{8}$
Marcela	65%

Which list shows the numbers in the table in order from least to greatest?

- A** 0.7, 65%,  $\frac{5}{8}$ ,  $\frac{2}{3}$
- B** 0.7,  $\frac{5}{8}$ , 65%,  $\frac{2}{3}$
- C**  $\frac{5}{8}$ , 65%,  $\frac{2}{3}$ , 0.7
- D**  $\frac{5}{8}$ ,  $\frac{2}{3}$ , 65%, 0.7

**Item Analysis**

<b>Verb</b>	Order
<b>Using or Including</b>	Real-World
<b>Concept</b>	Real Numbers
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.2D Readiness Standard**  
order a set of real numbers arising from mathematical and real-world contexts

**ITEM**

**30** Three groups of students used different methods to estimate the diagonal length of a patio in feet. Their results were:

- $4\sqrt{13}$  ft
- $14\frac{2}{5}$  ft
- 14.33 ft

Which list shows these diagonal lengths in order from greatest to least?

- F** 14.33,  $14\frac{2}{5}$ ,  $4\sqrt{13}$
- G** 14.33,  $4\sqrt{13}$ ,  $14\frac{2}{5}$
- H**  $14\frac{2}{5}$ , 14.33,  $4\sqrt{13}$
- J**  $4\sqrt{13}$ ,  $14\frac{2}{5}$ , 14.33

**Item Analysis**

<b>Verb</b>	Order
<b>Using or Including</b>	Real-World
<b>Concept</b>	Real Numbers
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1F</b>

**Notes**



**TEKS 8.2D Readiness Standard**  
order a set of real numbers arising from mathematical and real-world contexts

**ITEM**  
**37** Which list shows the numbers below in order from least to greatest?

5.78, -5.9, 58%,  $-\frac{23}{4}$

**A** -5.9,  $-\frac{23}{4}$ , 5.78, 58%  
**B**  $-\frac{23}{4}$ , -5.9, 58%, 5.78  
**C** -5.9,  $-\frac{23}{4}$ , 58%, 5.78  
**D** 58%,  $-\frac{23}{4}$ , 5.78, -5.9

Item Analysis	
<b>Verb</b>	Order
<b>Using or Including</b>	Mathematical
<b>Concept</b>	Real Numbers
<b>Process TEKS</b>	<b>8.1B, 8.1F</b>
<b>Notes</b>	

**TEKS**

**ITEM**

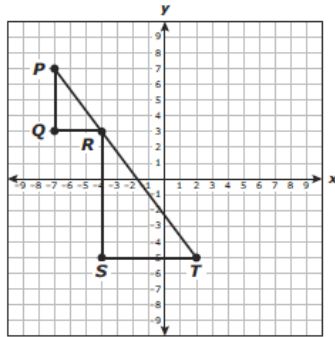
Item Analysis	
<b>Verb</b>	
<b>Using or Including</b>	
<b>Concept</b>	
<b>Process TEKS</b>	
<b>Notes</b>	

**TEKS 8.4A Supporting Standard**

use similar right triangles to develop an understanding that slope,  $m$ , given as the rate comparing the change in  $y$ -values to the change in  $x$ -values,  $(y_2 - y_1)/(x_2 - x_1)$ , is the same for any two points  $(x_1, y_1)$  and  $(x_2, y_2)$  on the same line

**ITEM**

**22** Triangles PQR and RST are similar right triangles.



Which proportion can be used to show that the slope of PR is equal to the slope of RT?

- F  $\frac{3 - 7}{-4 - (-7)} = \frac{-5 - 3}{2 - (-4)}$
- G  $\frac{3 - (-4)}{7 - (-7)} = \frac{-5 - 2}{3 - (-4)}$
- H  $\frac{-4 - (-7)}{3 - 7} = \frac{2 - (-4)}{-5 - 3}$
- J  $\frac{-4 - (-3)}{-7 - 7} = \frac{2 - (-5)}{-4 - 3}$

**Item Analysis**

<b>Verb</b>	Use
<b>Using or Including</b>	Change in $y$ -values to change in $x$ -values
<b>Concept</b>	Similar Right Triangles
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>

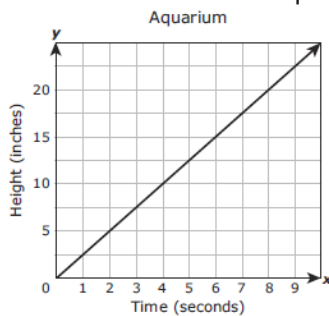
**Notes**

**TEKS 8.4B Readiness Standard**

graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship

**ITEM**

**5** An aquarium is being filled with water. The graph shows the height of the water over time as the aquarium is being filled.



Which statement best describes the rate of change for this situation?

- A The height of the water increases 20 inches per second.
- B The height of the water increases 1 inch per second.
- C The height of the water increases 5 inches per second.
- D The height of the water increases 2.5 inches per second.

**Item Analysis**

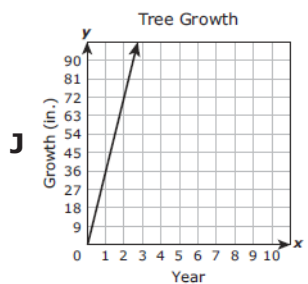
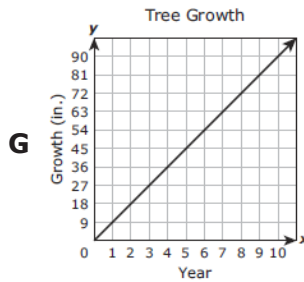
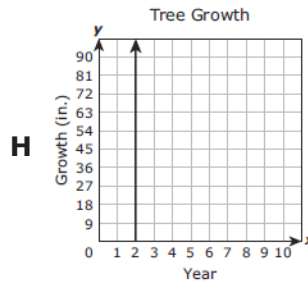
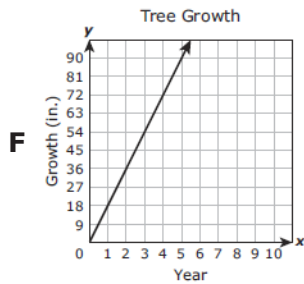
<b>Verb</b>	Interpret
<b>Using or Including</b>	NA
<b>Concept</b>	Unit Rate as Slope
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.4B Readiness Standard**

graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship

**34** A tree in Dante’s neighborhood grew 18 inches in the first 2 years after it was planted. If the tree continues to grow at this same rate, which graph best represents the growth rate of the tree in inches per year?



**Item Analysis**

**Verb**

Graph

**Using or Including**

NA

**Concept**

Proportional Relationships

**Process TEKS**

**8.1A, 8.1B, 8.1E, 8.1F**

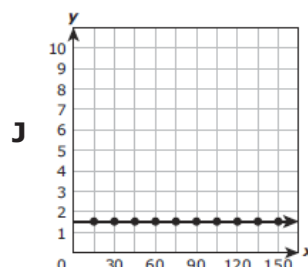
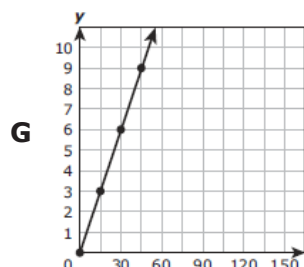
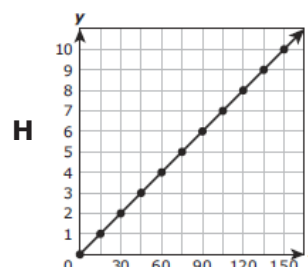
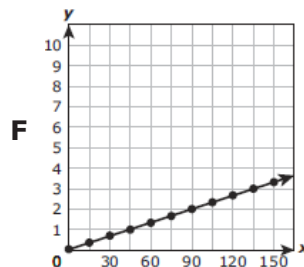
**Notes**

**TEKS 8.4B Readiness Standard**

graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship

**ITEM**

**42** On a field trip, there are 3 adults for every 45 students. Which graph models a relationship with the same unit rate?



**Item Analysis**

**Verb**

Graph

**Using or Including**

NA

**Concept**

Proportional Relationships

**Process TEKS**

**8.1A, 8.1B, 8.1E, 8.1F**

**Notes**

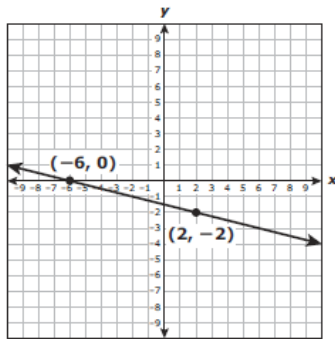


**TEKS 8.4C Readiness Standard**

use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems

**ITEM**

**12** What are the slope and the y-intercept of the graph of the linear function shown on the grid?



- F** Slope = 4, y-intercept = 6
- G** Slope = 4, y-intercept = -1.5
- H** Slope =  $-\frac{1}{4}$ , y-intercept = -1.5
- J** Slope =  $\frac{1}{4}$ , y-intercept = -6

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	Graph
<b>Concept</b>	Slope y-intercept
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>

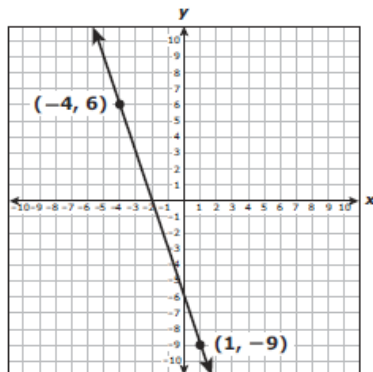
**Notes**

**TEKS 8.4C Readiness Standard**

use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems

**ITEM**

**39** The graph of a linear function is shown on the coordinate grid.



What is the y-intercept of the graph of the linear function?

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>	Determine
<b>Using or Including</b>	Graph
<b>Concept</b>	y-intercept
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.4C Readiness Standard**

use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems

**ITEM**

**47** Carolyn will buy the same number of stamps every month to add to a stamp collection her grandfather gave her. The table shows the number of stamps Carolyn will have at the end of  $x$  months.

Carolyn's Stamp Collection

Number of Months, $x$	1	3	6	10
Number of Stamps, $y$	250	350	500	700

How many stamps was Carolyn given, and how many stamps will she buy every month?

- A** Carolyn was given 200 stamps, and she will buy 50 stamps every month.
- B** Carolyn was given 180 stamps, and she will buy 70 stamps every month.
- C** Carolyn was given 180 stamps, and she will buy 50 stamps every month.
- D** Carolyn was given 200 stamps, and she will buy 70 stamps every month.

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	Table
<b>Concept</b>	Rate of Change
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.5B Supporting Standard**

represent linear non-proportional situations with tables, graphs, and equations in the form of  $y = mx + b$ , where  $b \neq 0$

**ITEM**

**16** Which table contains only corresponding  $x$ -values and  $y$ -values where the value of  $y$  is 3 more than the quotient of  $x$  and 2?

**F**

$x$	$y$
7	5
10	6.5
14	8.5
17	10

**H**

$x$	$y$
7	3.5
10	5
14	7
17	8.5

**G**

$x$	$y$
7	6.5
10	8
14	10
17	11.5

**J**

$x$	$y$
7	0.5
10	2
14	4
17	5.5

**Item Analysis**

<b>Verb</b>	Represent
<b>Using or Including</b>	Tables
<b>Concept</b>	Linear Non-Proportional
<b>Process TEKS</b>	<b>8.1B, 8.1D, 8.1F</b>

**Notes**

**TEKS 8.5E Supporting Standard**  
solve problems involving direct variation

**ITEM**  
9 The value of  $y$  varies directly with  $x$ . When  $y = 75$ ,  $x = \frac{1}{2}$ .  
What is the value of  $y$  when  $x$  is  $2\frac{1}{4}$ ?

A  $84\frac{3}{8}$   
B  $337\frac{1}{2}$   
C  $16\frac{2}{3}$   
D  $168\frac{3}{4}$

Item Analysis	
Verb	Solve
Using or Including	NA
Concept	Direct Variation
Process TEKS	8.1B, 8.1C, 8.1F
Notes	

**TEKS 8.5F Supporting Standard**  
distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form  $y = kx$  or  $y = mx + b$ , where  $b \neq 0$

**ITEM**  
2 Which graph shows a proportional relationship between  $x$  and  $y$ ?

**F**

**H**

**G**

**J**

Item Analysis	
Verb	Distinguish
Using or Including	Graphs
Concept	Proportional
Process TEKS	8.1B, 8.1E, 8.1F
Notes	

**TEKS 8.5G Readiness Standard**  
identify functions using sets of ordered pairs, tables, mappings, and graphs

**ITEM 25** Which set of ordered pairs represents  $y$  as a function of  $x$ ?

- A**  $\{(2, 1), (4, 2), (6, 3), (8, 4)\}$
- B**  $\{(0, 0), (1, 1), (1, 0), (2, 1)\}$
- C**  $\{(3, 3), (3, 4), (4, 3), (4, 4)\}$
- D**  $\{(1, 5), (1, 5), (2, 10), (2, 15)\}$

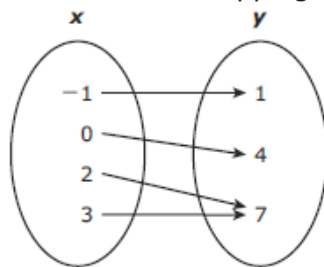
**Item Analysis**

<b>Verb</b>	Identify
<b>Using or Including</b>	Sets of Ordered Pairs
<b>Concept</b>	Functions
<b>Process TEKS</b>	<b>8.1B, 8.1F</b>

**Notes**

**TEKS 8.5G Readiness Standard**  
identify functions using sets of ordered pairs, tables, mappings, and graphs

**ITEM 28** Which statement describes the mapping?



- F** The mapping represents  $y$  as a function of  $x$ , because each  $y$ -value corresponds to exactly one  $x$ -value.
- G** The mapping does not represent  $y$  as a function of  $x$ , because two of the  $x$ -values correspond to the same  $y$ -value.
- H** The mapping represents  $y$  as a function of  $x$ , because each  $x$ -value corresponds to exactly one  $y$ -value.
- J** The mapping does not represent  $y$  as a function of  $x$ , because there are more  $x$ -values than different corresponding  $y$ -values.

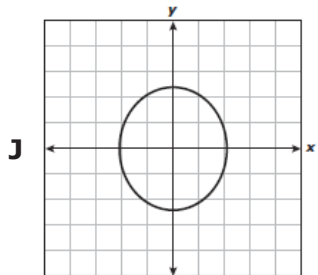
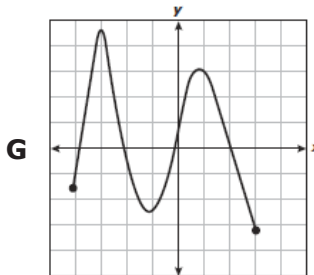
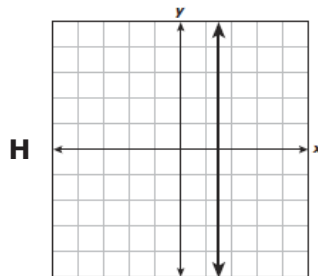
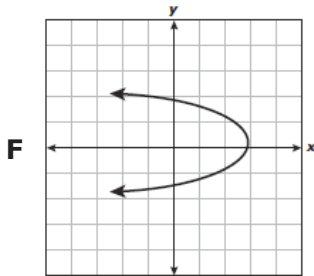
**Item Analysis**

<b>Verb</b>	Identify
<b>Using or Including</b>	Mappings
<b>Concept</b>	Functions
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.5G Readiness Standard**  
Identify functions using sets of ordered pairs, tables, mappings, and graphs

**ITEM 56** Which graph represents  $y$  as a function of  $x$ ?



**Item Analysis**

<b>Verb</b>	Identify
<b>Using or Including</b>	Graphs
<b>Concept</b>	Functions
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.5H Supporting Standard**  
Identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems

**ITEM 20** Which situation represents a proportional relationship?

- F** The cost of purchasing a basket of oranges for \$1.30 per pound plus \$5.00 for the basket
- G** The cost of purchasing peaches for \$7.00 per box of peaches with a delivery charge of \$3.00
- H** The cost of purchasing grapefruit for \$1.80 per pound with a coupon for \$1.00 off the total cost
- J** The cost of purchasing apples for \$1.75 per pound plus a shipping fee of \$0.16 per pound

**Item Analysis**

<b>Verb</b>	Identify
<b>Using or Including</b>	Real-World
<b>Concept</b>	Proportional
<b>Process TEKS</b>	<b>8.1A, 8.1B</b>

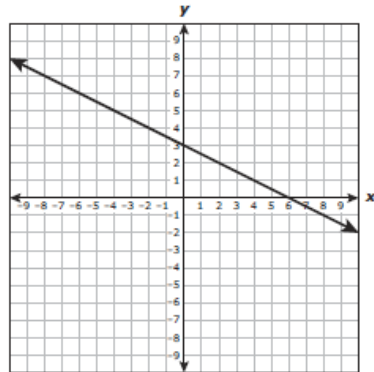
**Notes**

**TEKS 8.5I Readiness Standard**

write an equation in the form  $y = mx + b$  to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations

**ITEM**

**14** Which function is best represented by this graph?



- F**  $y = \frac{1}{2}x + 6$
- G**  $y = 2x + 3$
- H**  $y = 2x + 6$
- J**  $y = -\frac{1}{2}x + 3$

**Item Analysis**

<b>Verb</b>	Write
<b>Using or Including</b>	Graph
<b>Concept</b>	Equation
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1D, 8.1F</b>

**Notes**

**TEKS 8.5I Readiness Standard**

write an equation in the form  $y = mx + b$  to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations

**ITEM**

**36** Mr. Leonard is renting a car for one day. The table below shows the total amount he will be charged for the car based on the number of miles he drives.

Car Rental

Number of Miles, $m$	Total Amount Charged, $c$
5	\$30.50
10	\$31.00
15	\$31.50
20	\$32.00

Which equation best represents  $c$ , the number of dollars Mr. Leonard should be charged for driving  $m$  miles?

- F**  $c = 0.10m + 30$
- G**  $c = 30m + 0.10$
- H**  $c = 0.50m + 30$
- J**  $c = 30m + 0.50$

**Item Analysis**

<b>Verb</b>	Write
<b>Using or Including</b>	Table
<b>Concept</b>	Equation
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1D, 8.1F</b>

**Notes**

<b>TEKS 8.5I Readiness Standard</b> write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations			
<p><b>ITEM 54</b> Frankie bought a new computer. He made an initial payment of \$50 to the store, and he will pay \$30 each month until the computer is paid off. Which equation represents the relationship between <math>m</math>, the number of monthly payments Frankie has made, and <math>t</math>, the total amount that Frankie has paid the store?</p> <p><b>F</b> <math>t = 50m + 30</math>  <b>G</b> <math>t = 30m - 50</math>  <b>H</b> <math>t = 50m - 30</math>  <b>J</b> <math>t = 30m + 50</math></p>	<b>Item Analysis</b>		
	<table border="1"> <tr> <td><b>Verb</b></td> <td>Write</td> </tr> </table>	<b>Verb</b>	Write
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	<table border="1"> <tr> <td><b>Using or Including</b></td> <td>Verbal</td> </tr> </table>	<b>Using or Including</b>	Verbal
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<b>Concept</b>	Equation		
<table border="1"> <tr> <td><b>Process TEKS</b></td> <td><b>8.1A, 8.1B, 8.1D, 8.1F</b></td> </tr> </table>	<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1D, 8.1F</b>	
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1D, 8.1F</b>		
<b>Notes</b>			

<b>TEKS 8.8A Supporting Standard</b> write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants			
<p><b>ITEM 52</b> Veronica is ordering trophies for her school. Company P charges \$3.50 for each trophy and a one-time engraving fee of \$25. Company R charges \$7.50 for each trophy and a one-time engraving fee of \$17. Which inequality can be used to find <math>x</math>, the minimum number of trophies that can be ordered so that the total charge at Company P is less than the total charge at Company R?</p> <p><b>F</b> <math>3.5 + 25x &lt; 7.5 + 17x</math>  <b>G</b> <math>3.5 + 25x &gt; 7.5 + 17x</math>  <b>H</b> <math>3.5x + 25 &lt; 7.5x + 17</math>  <b>J</b> <math>3.5x + 25 &gt; 7.5x + 17</math></p>	<b>Item Analysis</b>		
	<table border="1"> <tr> <td><b>Verb</b></td> <td>Write</td> </tr> </table>	<b>Verb</b>	Write
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	<table border="1"> <tr> <td><b>Using or Including</b></td> <td>NA</td> </tr> </table>	<b>Using or Including</b>	NA
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<table border="1"> <tr> <td><b>Concept</b></td> <td>Inequality</td> </tr> </table>	<b>Concept</b>	Inequality	
<b>Concept</b>	Inequality		
<table border="1"> <tr> <td><b>Process TEKS</b></td> <td><b>8.1A, 8.1B, 8.1D, 8.1F</b></td> </tr> </table>	<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1D, 8.1F</b>	
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1D, 8.1F</b>		
<b>Notes</b>			

**TEKS 8.8C Readiness Standard**  
model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants

**ITEM**

**7** Carnival M charges an entrance fee of \$5.00 and \$0.65 per ticket for the rides. Carnival P charges an entrance fee of \$10.00 and \$0.45 per ticket for the rides. How many tickets must be purchased in order for the total cost at Carnival M and Carnival P to be the same?

- A 25
- B 10
- C 50
- D 75

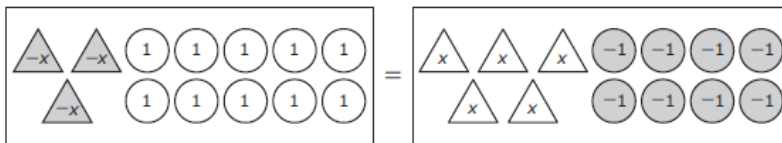
**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Real-World
<b>Concept</b>	Equation
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1F</b>
<b>Notes</b>	

**TEKS 8.8C Readiness Standard**  
model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants

**ITEM**

**31** The model represents an equation.



What value of  $x$  makes the equation true?

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>	Mathematical
<b>Concept</b>	Equation
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1F</b>
<b>Notes</b>	



**TEKS 8.8C Readiness Standard**

model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants

**ITEM**

**44** The measures of two angles are  $(5x + 24)^\circ$  and  $(9x - 17)^\circ$ .  
What is the value of  $x$  if these angles are congruent?

- F** 1.75
- G** 13.2
- H** 0.5
- J** 10.25

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Mathematical
<b>Concept</b>	Equation
<b>Process TEKS</b>	<b>8.1B, 8.1F</b>

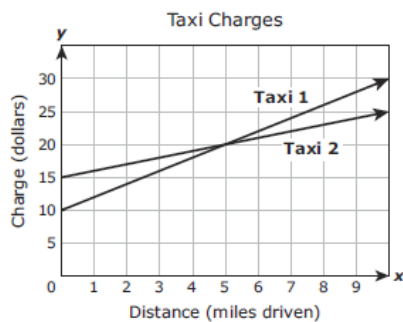
**Notes**

**TEKS 8.9A Supporting Standard**

identify and verify the values of  $x$  and  $y$  that simultaneously satisfy two linear equations in the form  $y = mx + b$  from the intersections of the graphed equations

**ITEM**

**50** The graph models the linear relationship between the charge for a trip and the number of miles driven for two taxis.



Based on the graph, which statement appears to be true?

- F** The charge for a trip with a distance of 5 miles is \$5 greater for Taxi 1 than for Taxi 2.
- G** The charge for a trip with a distance of 5 miles is \$5 less for Taxi 1 than for Taxi 2.
- H** The charge for a trip with a distance of 5 miles is \$20 for both Taxi 1 and Taxi 2.
- J** The charge for a trip with a distance of 5 miles cannot be determined for either Taxi 1 or Taxi 2.

**Item Analysis**

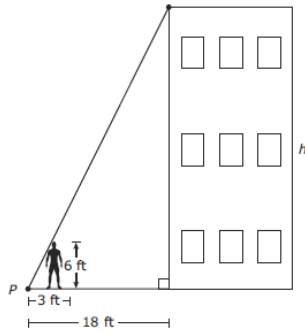
<b>Verb</b>	Identify
<b>Using or Including</b>	NA
<b>Concept</b>	Values that Satisfy Two Linear Equations
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.3A Supporting Standard**

generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation

**6** In the diagram a person who is 6 ft tall is standing on the ground 3 ft away from point P. A line segment drawn from the top corner of the building to point P creates two similar triangles.



Not drawn to scale

Which proportion can be used to find h, the height of the building in feet?

- F  $\frac{3}{h} = \frac{18}{6}$
- G  $\frac{6}{3} = \frac{h}{18}$
- H  $\frac{13}{5} = \frac{h}{6}$
- J  $\frac{6}{3} = \frac{18}{h}$

**Item Analysis**

<b>Verb</b>	Generalize
<b>Using or Including</b>	NA
<b>Concept</b>	Ratio of Corresponding Sides
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1E, 8.1F</b>

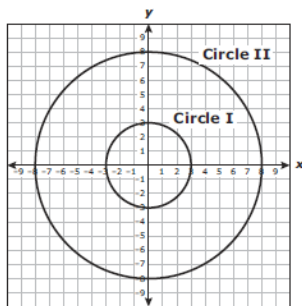
**Notes**

**TEKS 8.3C Readiness Standard**

use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation

**ITEM**

**26** Circle I was dilated with the origin as the center of dilation to create Circle II.



Which rule best represents the dilation applied to Circle I to create Circle II?

- F  $(x, y) \rightarrow (\frac{3}{8}x, \frac{3}{8}y)$
- G  $(x, y) \rightarrow (\frac{8}{3}x, \frac{8}{3}y)$
- H  $(x, y) \rightarrow (x + 5, y + 5)$
- J  $(x, y) \rightarrow (x - 5, y - 5)$

**Item Analysis**

<b>Verb</b>	Use
<b>Using or Including</b>	NA
<b>Concept</b>	Algebraic Representation of Scale Factor
<b>Process TEKS</b>	<b>8.1B, 8.1D, 8.1F</b>

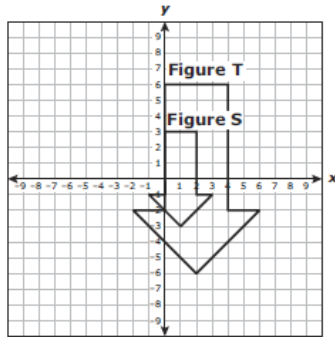
**Notes**

**TEKS 8.3C Readiness Standard**

use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation

**ITEM**

**51** Figure S, the small arrow, was dilated with the origin as the center of dilation to create Figure T, the large arrow.



Which rule best represents the dilation that was applied to Figure S to create Figure T?

- A  $(x, y) \rightarrow (2x, 2y)$
- B  $(x, y) \rightarrow (2x, 4y)$
- C  $(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$
- D  $(x, y) \rightarrow (\frac{1}{4}x, \frac{1}{4}y)$

**Item Analysis**

<b>Verb</b>	Use
<b>Using or Including</b>	NA
<b>Concept</b>	Algebraic Representation of Scale Factor
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1F</b>

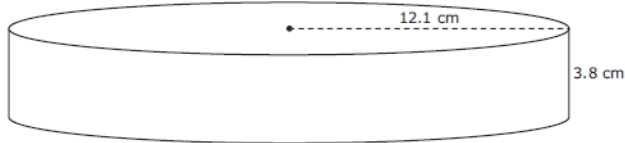
**Notes**

**TEKS 8.6A Supporting Standard**

describe the volume formula  $V = Bh$  of a cylinder in terms of its base area and its height

**ITEM**

**29** A cylinder and its dimensions are shown below.



One equation for calculating the volume of a cylinder is  $V = Bh$ , where  $B$  represents the area of the base of the cylinder. Which expression can be used to find the value of  $B$ , in square centimeters, for this cylinder?

- A  $\pi(12.1)^2$
- B  $2\pi(12.1)$
- C  $\pi(3.8)^2$
- D None of these

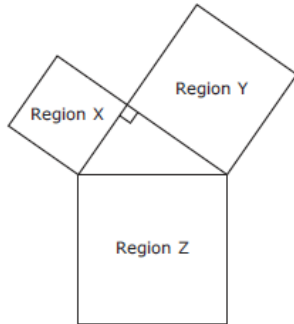
**Item Analysis**

<b>Verb</b>	Describe
<b>Using or Including</b>	NA
<b>Concept</b>	Volume Formula
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.6C Supporting Standard**  
use models and diagrams to explain the Pythagorean theorem

**35** An artist joined three square regions at their vertices to create the figure shown in the diagram.



The artist will use small congruent square tiles to cover each region without any gaps or overlaps. Based on the information, which statement is true?

- A** The number of tiles needed to cover Region X is the same as the number of tiles needed to cover both Region Y and Region Z.
- B** The number of tiles needed to cover Region Y is the same as the number of tiles needed to cover both Region X and Region Z.
- C** The number of tiles needed to cover Region Z is the same as the number of tiles needed to cover both Region X and Region Y.
- D** None of these

**Item Analysis**

<b>Verb</b>	Use
<b>Using or Including</b>	Model
<b>Concept</b>	Pythagorean Theorem
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.7A Readiness Standard**  
solve problems involving the volume of cylinders, cones, and spheres

**ITEM 17** A ball shaped like a sphere has a radius of 2.7 centimeters. Which measurement is closest to the volume of the ball in cubic centimeters?

- A** 46.38 cm<sup>3</sup>
- B** 33.93 cm<sup>3</sup>
- C** 122.15 cm<sup>3</sup>
- D** 82.45 cm<sup>3</sup>

**Item Analysis**

<b>Verb</b>	Solve
<b>Using or Including</b>	Sphere
<b>Concept</b>	Volume
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>

**Notes**

**TEKS 8.7A Readiness Standard**  
solve problems involving the volume of cylinders, cones, and spheres

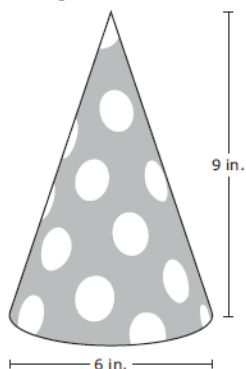
**ITEM 38** A storage container for oil is in the shape of a cylinder with a diameter of 10 ft and a height of 17 ft. Which measurement is closest to the volume of the storage container in cubic feet?

**F** 534 ft<sup>3</sup>  
**G** 1,335 ft<sup>3</sup>  
**H** 691 ft<sup>3</sup>  
**J** 1,696 ft<sup>3</sup>

Item Analysis	
<b>Verb</b>	Solve
<b>Using or Including</b>	Cylinder
<b>Concept</b>	Volume
<b>Process TEKS</b>	8.1A, 8.1B, 8.1C, 8.1F
<b>Notes</b>	

**TEKS 8.7A Readiness Standard**  
solve problems involving the volume of cylinders, cones, and spheres

**ITEM 55** A party hat is shaped like a cone. The dimensions of the party hat are shown in the diagram.



Which measurement is closest to the volume of the party hat in cubic inches?

**A** 84.82 in.<sup>3</sup>  
**B** 339.29 in.<sup>3</sup>  
**C** 254.47 in.<sup>3</sup>  
**D** 1,017.88 in.<sup>3</sup>

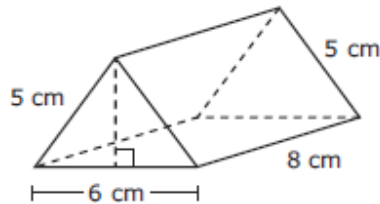
Item Analysis	
<b>Verb</b>	Solve
<b>Using or Including</b>	Cone
<b>Concept</b>	Volume
<b>Process TEKS</b>	8.1A, 8.1B, 8.1C, 8.1E, 8.1F
<b>Notes</b>	

**TEKS 8.7B Readiness Standard**

use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders

**ITEM**

**10** A triangular prism and its dimensions are shown in the diagram.



What is the lateral surface area of this triangular prism in square centimeters?

- F** 192 cm<sup>2</sup>
- G** 128 cm<sup>2</sup>
- H** 152 cm<sup>2</sup>
- J** 144 cm<sup>2</sup>

**Item Analysis**

<b>Verb</b>	Use Determine
<b>Using or Including</b>	Triangular Prism
<b>Concept</b>	Lateral Surface Area
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>

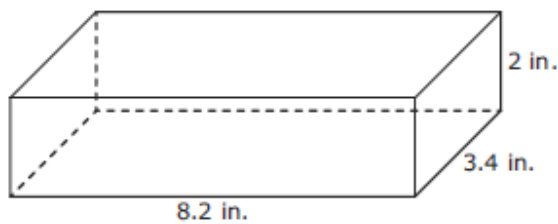
**Notes**

**TEKS 8.7B Readiness Standard**

use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders

**ITEM**

**45** A rectangular prism and its dimensions are shown in the diagram.



What is the total surface area of this rectangular prism in square inches?

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

**Item Analysis**

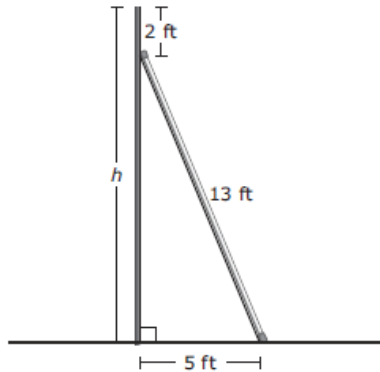
<b>Verb</b>	Use Determine
<b>Using or Including</b>	Rectangular Prism
<b>Concept</b>	Total Surface Area
<b>Process TEKS</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.7C Readiness Standard**  
use the Pythagorean theorem and its converse to solve problems

**ITEM**

**15** The set designer for a play painted some background scenery on a large piece of plywood. He used a 13-foot-long pole to hold the piece of plywood upright, as shown in the diagram below.



What is  $h$ , the total height in feet of the piece of plywood? Record your answer and fill in the bubbles on your answer document. Be sure to use the correct place value.

**Item Analysis**

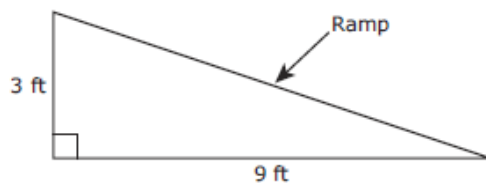
<b>Verb</b>	Use
<b>Using or Including</b>	NA
<b>Concept</b>	Pythagorean Theorem
<b>Process TEKS</b>	8.1A, 8.1B, 8.1C, 8.1E, 8.1F

**Notes**

**TEKS 8.7C Readiness Standard**  
use the Pythagorean theorem and its converse to solve problems

**ITEM**

**32** The diagram below shows the side view of a ramp used to help load and unload a moving van.



Which measurement is closest to the length of the ramp in feet?

- F** 8.5 ft
- G** 10.5 ft
- H** 9.5 ft
- J** 13.5 ft

**Item Analysis**

<b>Verb</b>	Use
<b>Using or Including</b>	NA
<b>Concept</b>	Pythagorean Theorem
<b>Process TEKS</b>	8.1A, 8.1B, 8.1C, 8.1E, 8.1F

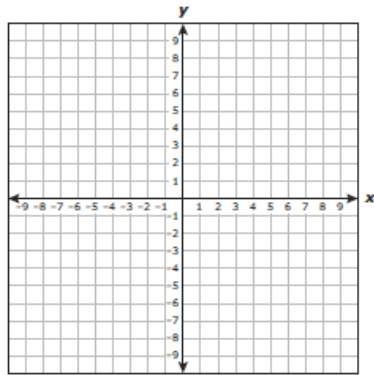
**Notes**

**TEKS 8.7D Supporting Standard**

determine the distance between two points on a coordinate plane using the Pythagorean theorem

**ITEM**

**3** Point M is located at (4, 6) on a coordinate grid. Point M is translated 8 units to the left and 9 units down to create point M'.



Which measurement is closest to the distance between point M and point M' in units?

- A 4 units
- B 17 units
- C 9 units
- D 12 units

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	Pythagorean Theorem
<b>Concept</b>	Distance on a Coordinate Plane
<b>Process TEKS</b>	8.1B, 8.1C, 8.1E, 8.1F

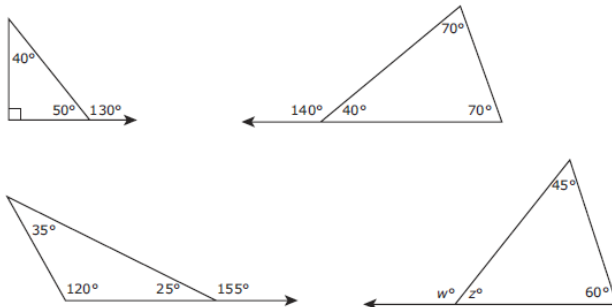
**Notes**

**TEKS 8.8D Supporting Standard**

use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles

**ITEM**

**24** Four triangles are shown.



Based on these triangles, which statement is true?

- F  $w = 75^\circ$ , because  $45 + 60 = 105$  and  $180 - 105 = 75$
- G  $w = 105^\circ$ , because  $180 - (45 + 60) = 75$  and  $180 - 75 = 105$
- H  $w = 285^\circ$ , because  $45 + 60 = 105$  and  $105 + 180 = 285$
- J  $w = 165^\circ$ , because  $180 - 60 = 120$  and  $120 + 45 = 165$

**Item Analysis**

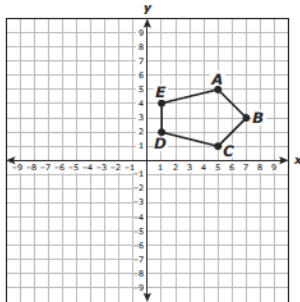
<b>Verb</b>	Use
<b>Using or Including</b>	Exterior Angle of Triangles
<b>Concept</b>	Informal Arguments
<b>Process TEKS</b>	8.1B, 8.1E, 8.1G

**Notes**



**TEKS 8.10A Supporting Standard**  
generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane

**ITEM 43** Pentagon ABCDE is rotated 180° clockwise about the origin to form pentagon A'B'C'D'E'.



Which statement is true?

- A** Pentagon ABCDE is congruent to pentagon A'B'C'D'E'.
- B** The sum of the angle measures of pentagon A'B'C'D'E' is 180° more than the sum of the angle measures of pentagon ABCDE.
- C** Each side length of pentagon A'B'C'D'E' is 2 times the corresponding side length of pentagon ABCDE.
- D** Each side length of pentagon A'B'C'D'E' is the corresponding side length of pentagon ABCDE.

**Item Analysis**

<b>Verb</b>	Generalize
<b>Using or Including</b>	Rotation
<b>Concept</b>	Congruence
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.10B Supporting Standard**  
differentiate between transformations that preserve congruence and those that do not

**ITEM 33** Which representation of a transformation on a coordinate grid does **not** preserve congruence?

- A**  $(x, y) \rightarrow (\frac{1}{7}x, \frac{1}{7}y)$
- B**  $(x, y) \rightarrow (x + 7, y + 7)$
- C**  $(x, y) \rightarrow (x, -y)$
- D**  $(x, y) \rightarrow (y, -x)$

**Item Analysis**

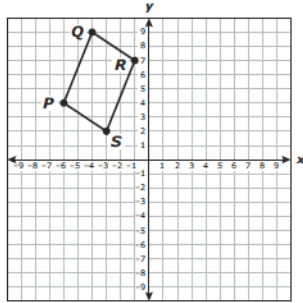
<b>Verb</b>	Differentiate
<b>Using or Including</b>	NA
<b>Concept</b>	Congruence
<b>Process TEKS</b>	<b>8.1B, 8.1F</b>

**Notes**

**TEKS 8.10C Readiness Standard**  
explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation

**ITEM**

**8** The coordinate grid shows parallelogram PQRS.



Parallelogram PQRS is rotated 90° clockwise about the origin to create parallelogram P'Q'R'S'. Which rule describes this transformation?

- F**  $(x, y) \rightarrow (x, -y)$
- G**  $(x, y) \rightarrow (-x, y)$
- H**  $(x, y) \rightarrow (y, x)$
- J**  $(x, y) \rightarrow (y, -x)$

**Item Analysis**

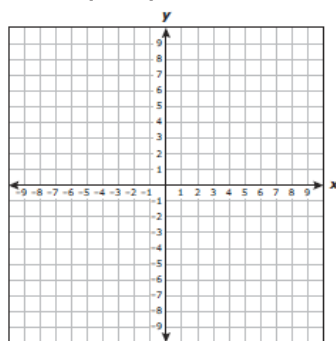
<b>Verb</b>	Explain
<b>Using or Including</b>	Algebraic Representation
<b>Concept</b>	Rotation
<b>Process TEKS</b>	<b>8.1B, 8.1D, 8.1F</b>

**Notes**

**TEKS 8.10C Readiness Standard**  
explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation

**ITEM**

**19** The coordinates of the vertices of a quadrilateral are P(1, 2), R(1, 4), S(3, 4), and T(4, 2).



Quadrilateral PRST is reflected across the y-axis to create quadrilateral P'R'S'T'. Which rule describes this transformation?

- A**  $(x, y) \rightarrow (x, -y)$
- B**  $(x, y) \rightarrow (-x, y)$
- C**  $(x, y) \rightarrow (y, -x)$
- D**  $(x, y) \rightarrow (-y, x)$

**Item Analysis**

<b>Verb</b>	Explain
<b>Using or Including</b>	Algebraic Representation
<b>Concept</b>	Reflection
<b>Process TEKS</b>	<b>8.1B, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.10C Readiness Standard**  
explain the effect of translations, reflections over the x- or y-axis, and rotations limited to 90°, 180°, 270°, and 360° as applied to two-dimensional shapes on a coordinate plane using an algebraic representation

<p><b>ITEM</b> <b>40</b> Triangle ABC was translated 2 units to the right and 3 units down. Which rule describes the translation that was applied to triangle ABC to create triangle A'B'C'?</p> <p><b>F</b> <math>(x, y) \rightarrow (x - 3, y + 2)</math>  <b>G</b> <math>(x, y) \rightarrow (x + 2, y - 3)</math>  <b>H</b> <math>(x, y) \rightarrow (2x, -3y)</math>  <b>J</b> <math>(x, y) \rightarrow (-3x, 2y)</math></p>	<b>Item Analysis</b>	
	<b>Verb</b>	Explain
	<b>Using or Including</b>	Algebraic Representation
	<b>Concept</b>	Translation
	<b>Process TEKS</b>	<b>8.1B, 8.1D, 8.1F</b>
<b>Notes</b>		

**TEKS 8.10D Supporting Standard**  
model the effect on linear and area measurements of dilated two-dimensional shapes

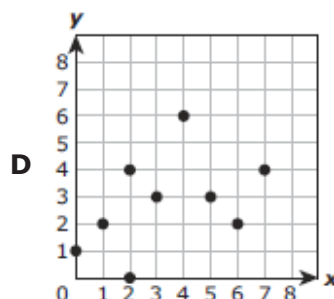
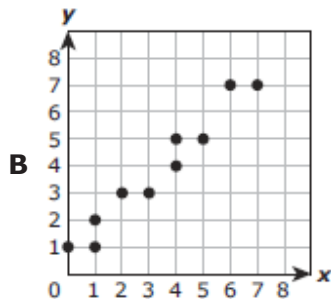
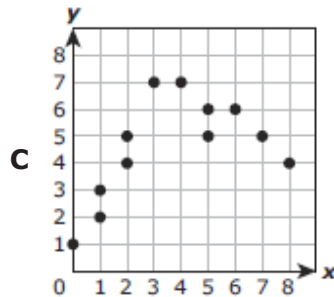
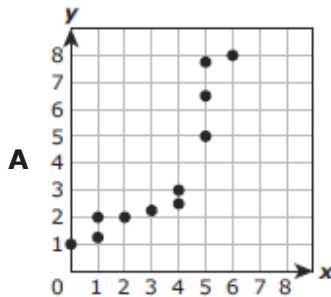
<p><b>ITEM</b> <b>13</b> A preschool has a rectangular field and a rectangular playground that are similar in shape. Each dimension of the field is 3.2 times the corresponding dimension of the playground. Which statement is true?</p> <p><b>A</b> The area of the field is 6.4 times the area of the playground.  <b>B</b> The area of the field is 10.24 times the area of the playground.  <b>C</b> The perimeter of the field is 6.4 times the perimeter of the playground.  <b>D</b> The perimeter of the field is 10.24 times the perimeter of the playground.</p>	<b>Item Analysis</b>	
	<b>Verb</b>	Model
	<b>Using or Including</b>	NA
	<b>Concept</b>	Area Measurement
	<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1G</b>
<b>Notes</b>		

**TEKS 8.5C Supporting Standard**

contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation

**ITEM**

**53** Which scatterplot suggests a linear relationship between  $x$  and  $y$ ?



**Item Analysis**

**Verb**

Contrast

**Using or Including**

Graphical Representation

**Concept**

Linear Relationship

**Process TEKS**

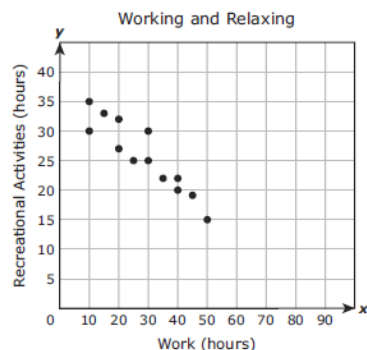
**8.1B, 8.1E, 8.1F**

**Notes**

**TEKS 8.5D Readiness Standard**

use a trend line that approximates the linear relationship between bivariate sets of data to make predictions

**23** The scatterplot shows the average number of hours each of 13 people spends at work every week and the average number of hours each of them spends on recreational activities every week.



Based on the scatterplot, what is the best prediction of the average number of hours a person spends at work every week if that person spends an average of 10 hours on recreational activities every week?

- A** 33 h
- B** 85 h
- C** 50 h
- D** 65 h

**Item Analysis**

**Verb**

Predict

**Using or Including**

Trend Line

**Concept**

Linear Relationship

**Process TEKS**

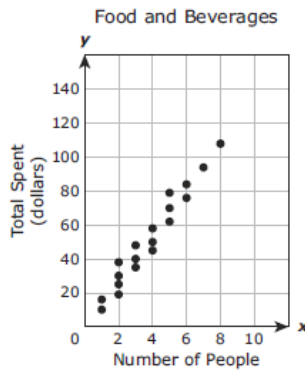
**8.1A, 8.1B, 8.1C, 8.1E, 8.1F**

**Notes**

**TEKS 8.5D Readiness Standard**

use a trend line that approximates the linear relationship between bivariate sets of data to make predictions

**27** The manager of a restaurant recorded how many people were in different groups of customers and how much those groups spent on food and beverages. The scatterplot below shows the data she recorded.



Based on this scatterplot, about how much money would a group of 10 people be expected to spend on food and beverages at this restaurant?

- A** \$135
- B** \$115
- C** \$105
- D** \$150

**Item Analysis**

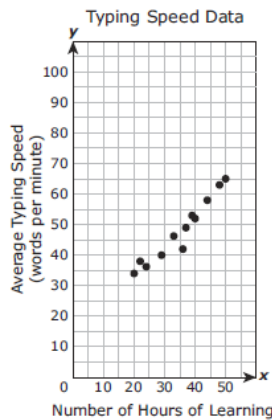
<b>Verb</b>	Predict
<b>Using or Including</b>	Trend Line
<b>Concept</b>	Linear Relationship
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.5D Readiness Standard**

use a trend line that approximates the linear relationship between bivariate sets of data to make predictions

**46** The scatterplot shows the number of hours that 12 people spent learning to type on a keyboard and each person's average typing speed.



Based on the scatterplot, what is the best prediction of a person's average typing speed in words per minute (wpm) if the person has spent 70 hours learning to type?

- F** 100 wpm
- G** 55 wpm
- H** 85 wpm
- J** 70 wpm

**Item Analysis**

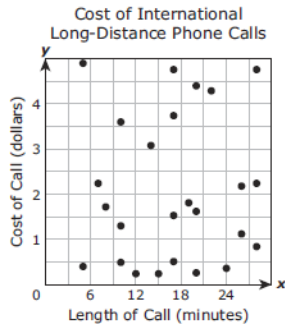
<b>Verb</b>	Predict
<b>Using or Including</b>	Trend Line
<b>Concept</b>	Linear Relationship
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>

**Notes**

**TEKS 8.11A Supporting Standard**

construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data

**11** Julie made 25 international long-distance phone calls to London last month. The scatterplot below shows the length and cost of each phone call she made.



Which conclusion is best supported by the scatterplot?

- A** As the length of a call increases, the cost of the call increases.
- B** As the length of a call increases, the cost of the call remains the same.
- C** As the length of a call increases, the cost of the call decreases.
- D** There is no relationship between the length of a call and the cost of a call.

**Item Analysis**

<b>Verb</b>	Describe
<b>Using or Including</b>	Scatterplot
<b>Concept</b>	No Association
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1E, 8.1G</b>

**Notes**

**TEKS 8.11B Supporting Standard**

determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points

**ITEM**

**49** The list shows the number of songs that five students each downloaded last week. 32, 43, 38, 28, 51 What is the mean absolute deviation of the numbers in the list?

- A** 34.4
- B** 6.88
- C** 38.4
- D** 7.68

**Item Analysis**

<b>Verb</b>	Determine
<b>Using or Including</b>	No more than 10 data points
<b>Concept</b>	Mean Absolute Deviation
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1F</b>

**Notes**

**TEKS 8.12D Readiness Standard**  
calculate and compare simple interest and compound interest earnings

**ITEM**

**4** Tamara invested \$15,000 in an account that pays 4% annual simple interest. Tamara will not make any additional deposits or withdrawals. How much interest will Tamara earn on her investment at the end of 3 years?

- F** \$1,800
- G** \$600
- H** \$450
- J** \$1,873

**Item Analysis**

<b>Verb</b>	Calculate
<b>Using or Including</b>	NA
<b>Concept</b>	Simple Interest
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>

**Notes**

**TEKS 8.12D Readiness Standard**  
calculate and compare simple interest and compound interest earnings

**ITEM**

**41** Nicolas has \$650 to deposit into two different savings accounts.

- Nicolas will deposit \$400 into Account I, which earns 3.5% annual simple interest.
- He will deposit \$250 into Account II, which earns interest compounded annually.

Nicolas will not make any additional deposits or withdrawals. Which amount is closest to the total balance of these two accounts at the end of 2 years?

- A** \$672.13
- B** \$695.00
- C** \$694.25
- D** \$694.51

**Item Analysis**

<b>Verb</b>	Calculate
<b>Using or Including</b>	NA
<b>Concept</b>	Simple and Compound Interest
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>

**Notes**

**TEKS 8.12G Supporting Standard**

estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college

**ITEM**

**18** Alejandra and her family are discussing how to pay for her college education. The cost of tuition at the college that Alejandra wants to attend is \$9,000 per year. Alejandra’s parents will pay 85% of the tuition cost every year, and she will pay the rest. Alejandra has one year to save enough money to attend her first year of college. What is the minimum amount of money she should save every month in order to reach her goal?

- F \$637.50
- G \$1,350.00
- H \$112.50
- J \$28.12

**Item Analysis**

<b>Verb</b>	Estimate
<b>Using or Including</b>	Family Contribution Savings Plan
<b>Concept</b>	Cost of College
<b>Process TEKS</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>

**Notes**

**TEKS**

**ITEM**

**Item Analysis**

<b>Verb</b>	
<b>Using or Including</b>	
<b>Concept</b>	
<b>Process TEKS</b>	

**Notes**



**Category 1**  
**Numerical Representations and Relationships**  
**5 Total Questions**

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Notes</b>
<b>8.2A</b> extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers	<b>NT</b>		
<b>8.2B</b> approximate the value of an irrational number, including $\pi$ and square roots of numbers less than 225, and locate that rational number approximation on a number line	<b>48</b>	<b>H</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.2C</b> convert between standard decimal notation and scientific notation	<b>21</b>	<b>A</b>	<b>8.1A, 8.1B, 8.1F</b>
<b>8.2D</b> order a set of real numbers arising from mathematical and real-world contexts	<b>1</b>	<b>C</b>	<b>8.1A, 8.1B, 8.1E, 8.1F</b>
	<b>30</b>	<b>J</b>	<b>8.1A, 8.1B, 8.1F</b>
	<b>37</b>	<b>C</b>	<b>8.1B, 8.1F</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 3/5 questions

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

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Notes</b>
<b>8.4A</b> use similar right triangles to develop an understanding that slope, $m$ , given as the rate comparing the change in $y$ -values to the change in $x$ -values, $(y_2 - y_1)/(x_2 - x_1)$ , is the same for any two points $(x_1, y_1)$ and $(x_2, y_2)$ on the same line	<b>22</b>	<b>F</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.4B</b> graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship	<b>5</b>	<b>D</b>	<b>8.1A, 8.1B, 8.1E, 8.1G</b>
	<b>34</b>	<b>G</b>	<b>8.1A, 8.1B, 8.1E, 8.1F</b>
	<b>42</b>	<b>H</b>	<b>8.1A, 8.1B, 8.1E, 8.1F</b>
<b>8.4C</b> use data from a table or graph to determine the rate of change or slope and $y$ -intercept in mathematical and real-world problems	<b>12</b>	<b>H</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
	<b>39</b>	<b>-6</b>	<b>8.1B, 8.1E, 8.1F</b>
	<b>47</b>	<b>A</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1G</b>
<b>8.5A</b> represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$	<b>NT</b>		
<b>8.5B</b> represent linear non-proportional situations with tables, graphs, and equations in the form of $y = mx + b$ , where $b \neq 0$	<b>16</b>	<b>G</b>	<b>8.1B, 8.1D, 8.1F</b>
<b>8.5E</b> solve problems involving direct variation	<b>9</b>	<b>B</b>	<b>8.1B, 8.1C, 8.1F</b>
<b>8.5F</b> distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form $y = kx$ or $y = mx + b$ , where $b \neq 0$	<b>2</b>	<b>F</b>	<b>8.1B, 8.1E, 8.1F</b>
<b>8.5G</b> identify functions using sets of ordered pairs, tables, mappings, and graphs	<b>25</b>	<b>A</b>	<b>8.1B, 8.1F</b>
	<b>28</b>	<b>H</b>	<b>8.1B, 8.1E, 8.1G</b>
	<b>56</b>	<b>G</b>	<b>8.1B, 8.1E, 8.1F</b>
<b>8.5H</b> identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems	<b>20</b>	<b>J</b>	<b>8.1A, 8.1B</b>
<b>8.5I</b> write an equation in the form $y = mx + b$ to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations	<b>14</b>	<b>J</b>	<b>8.1B, 8.1C, 8.1D, 8.1F</b>
	<b>36</b>	<b>F</b>	<b>8.1A, 8.1B, 8.1C, 8.1D, 8.1F</b>
	<b>54</b>	<b>J</b>	<b>8.1A, 8.1B, 8.1D, 8.1F</b>
<b>8.8A</b> write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants	<b>52</b>	<b>H</b>	<b>8.1A, 8.1B, 8.1D, 8.1F</b>
<b>8.8B</b> write a corresponding real-world problem when given a one-variable equation or inequality with variables on both sides of the equal sign using rational number coefficients and constants	<b>NT</b>		
<b>8.8C</b> model and solve one-variable equations with variables on both sides of the equal sign that represent mathematical and real-world problems using rational number coefficients and constants	<b>7</b>	<b>A</b>	<b>8.1A, 8.1B, 8.1F</b>
	<b>31</b>	<b>2.25</b>	<b>8.1B, 8.1E, 8.1F</b>
	<b>44</b>	<b>J</b>	<b>8.1B, 8.1F</b>
<b>8.9A</b> identify and verify the values of $x$ and $y$ that simultaneously satisfy two linear equations in the form $y = mx + b$ from the intersections of the graphed equations	<b>50</b>	<b>H</b>	<b>8.1A, 8.1B, 8.1E, 8.1G</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 15/22 questions

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

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Notes</b>
<b>8.3A</b> generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation	<b>6</b>	<b>G</b>	<b>8.1A, 8.1B, 8.1E, 8.1F</b>
<b>8.3B</b> compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane	<b>NT</b>		
<b>8.3C</b> use an algebraic representation to explain the effect of a given positive rational scale factor applied to two-dimensional figures on a coordinate plane with the origin as the center of dilation	<b>26</b>	<b>G</b>	<b>8.1B, 8.1D, 8.1F</b>
	<b>51</b>	<b>A</b>	<b>8.1B, 8.1E, 8.1F</b>
<b>8.6A</b> describe the volume formula $V = Bh$ of a cylinder in terms of its base area and its height	<b>29</b>	<b>A</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.6C</b> use models and diagrams to explain the Pythagorean theorem	<b>35</b>	<b>C</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1G</b>
<b>8.7A</b> solve problems involving the volume of cylinders, cones, and spheres	<b>17</b>	<b>D</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>
	<b>38</b>	<b>G</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>
	<b>55</b>	<b>A</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.7B</b> use previous knowledge of surface area to make connections to the formulas for lateral and total surface area and determine solutions for problems involving rectangular prisms, triangular prisms, and cylinders	<b>10</b>	<b>G</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
	<b>45</b>	<b>102.16</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.7C</b> use the Pythagorean theorem and its converse to solve problems	<b>15</b>	<b>14</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>
	<b>32</b>	<b>H</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.7D</b> determine the distance between two points on a coordinate plane using the Pythagorean theorem	<b>3</b>	<b>D</b>	<b>8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.8D</b> use informal arguments to establish facts about the angle sum and exterior angle of triangles, the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles	<b>24</b>	<b>G</b>	<b>8.1B, 8.1E, 8.1G</b>
<b>8.10A</b> generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane	<b>43</b>	<b>A</b>	<b>8.1B, 8.1E, 8.1G</b>
<b>8.10B</b> differentiate between transformations that preserve congruence and those that do not	<b>33</b>	<b>A</b>	<b>8.1B, 8.1F</b>
<b>8.10C</b> explain the effect of translations, reflections over the x- or y-axis, and rotations limited to $90^\circ$ , $180^\circ$ , $270^\circ$ , and $360^\circ$ as applied to two-dimensional shapes on a coordinate plane using an algebraic representation	<b>8</b>	<b>J</b>	<b>8.1B, 8.1D, 8.1F</b>
	<b>19</b>	<b>B</b>	<b>8.1B, 8.1E, 8.1F</b>
	<b>40</b>	<b>G</b>	<b>8.1B, 8.1D, 8.1F</b>
<b>8.10D</b> model the effect on linear and area measurements of dilated two-dimensional shapes	<b>13</b>	<b>B</b>	<b>8.1A, 8.1B, 8.1G</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 12/20 questions

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

<b>TEKS</b>	<b>Item</b>	<b>Correct Answer</b>	<b>Notes</b>
<b>8.5C</b> contrast bivariate sets of data that suggest a linear relationship with bivariate sets of data that do not suggest a linear relationship from a graphical representation	<b>53</b>	<b>B</b>	<b>8.1B, 8.1E, 8.1F</b>
<b>8.5D</b> use a trend line that approximates the linear relationship between bivariate sets of data to make predictions	<b>23</b>	<b>D</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>
	<b>27</b>	<b>A</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>
	<b>46</b>	<b>H</b>	<b>8.1A, 8.1B, 8.1C, 8.1E, 8.1F</b>
<b>8.11A</b> construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data	<b>11</b>	<b>D</b>	<b>8.1A, 8.1B, 8.1E, 8.1G</b>
<b>8.11B</b> determine the mean absolute deviation and use this quantity as a measure of the average distance data are from the mean using a data set of no more than 10 data points	<b>49</b>	<b>B</b>	<b>8.1A, 8.1B, 8.1F</b>
<b>8.12A</b> solve real-world problems comparing how interest rate and loan length affect the cost of credit	<b>NT</b>		
<b>8.12C</b> explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time	<b>NT</b>		
<b>8.12D</b> calculate and compare simple interest and compound interest earnings	<b>4</b>	<b>F</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>
	<b>41</b>	<b>D</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>
<b>8.12G</b> estimate the cost of a two-year and four-year college education, including family contribution, and devise a periodic savings plan for accumulating the money needed to contribute to the total cost of attendance for at least the first year of college	<b>18</b>	<b>H</b>	<b>8.1A, 8.1B, 8.1C, 8.1F</b>

Shaded - Readiness TEKS, NT - Not Tested  
 Readiness TEKS - 5/9 questions