Step Up to the TEKS
by GF Educators, Inc.

Eighth Grade Mathematics

2017 Released Items Analysis

Teacher: _____

Edition I

GF Educators Inc.
STEP IT UP

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Teacher: _____

Date: _____

Step Up to the TEKS

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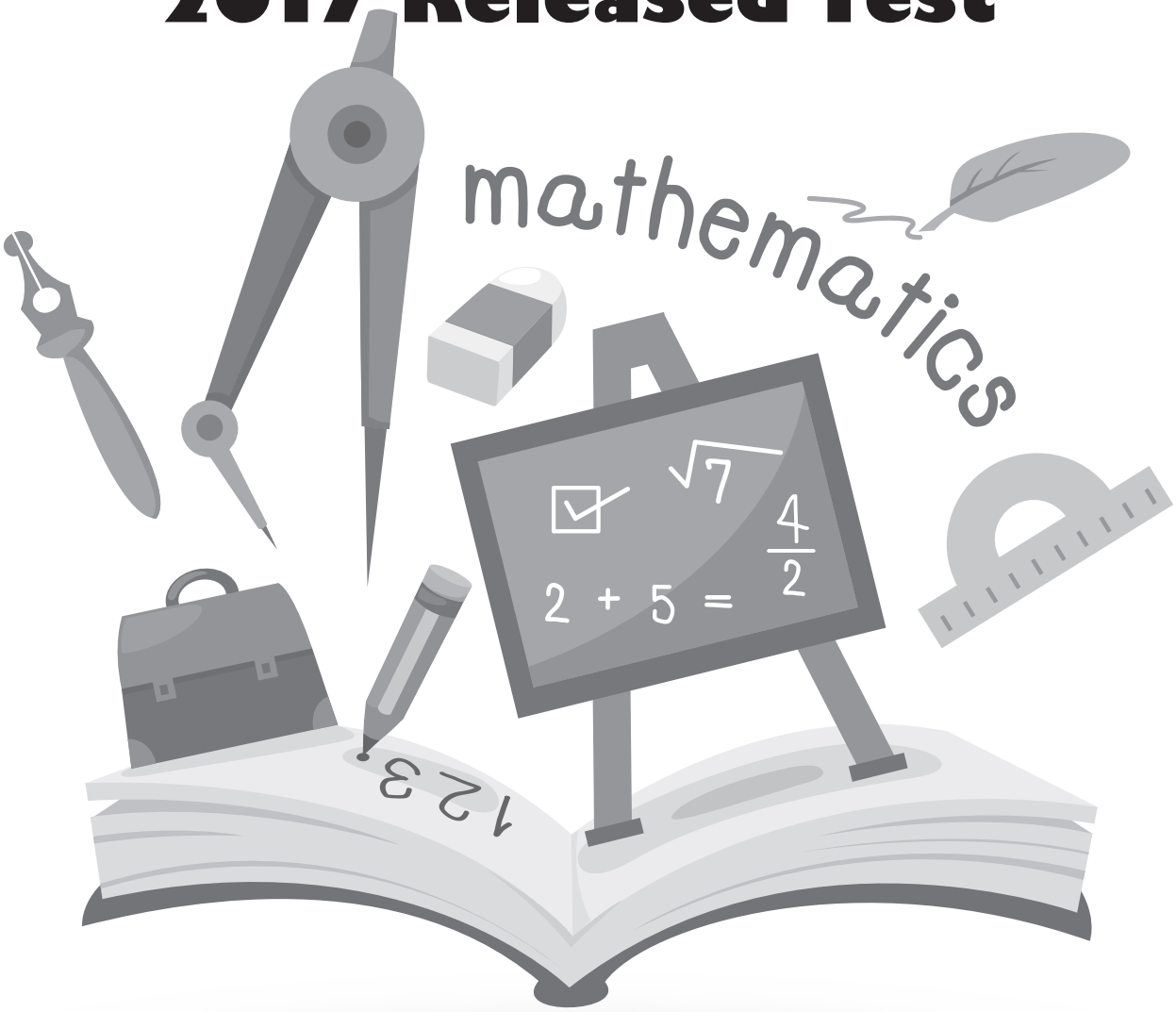
Instructional Analysis
2017 Released Test



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

ITEM

31 Paula completely covered a square wall using 87.5 ft^2 of wallpaper without any overlap. Which measurement is closest to the side length of this wall in feet?

A 22 ft
B 44 ft
C 9 ft
D 7 ft

Item Analysis	
Verb	Approximate
Using or Including	Square root
Concept	Value of an Irrational Number
Process TEKS	**8.1A, 8.1B, 8.1C, 8.1F**

Notes

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

ITEM

18 The mass of a textbook is approximately 0.00165 metric ton. How is this number written in scientific notation?

F 165×10^{-5}
G 1.65×10^{-3}
H 16.5×10^{-4}
J 0.165×10^{-2}

Item Analysis	
Verb	Convert
Using or Including	NA
Concept	Scientific Notation
Process TEKS	**8.1A, 8.1B, 8.1F**

Notes

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

ITEM
3 Two numbers are shown on the number line.

Which value is NOT located between these two numbers on the number line?

A π
B $\sqrt{9}$
C $\frac{\pi}{9}$
D $\frac{\pi^2}{9}$

Item Analysis	
Verb	Order
Using or Including	Mathematical
Concept	Set of Real Numbers
Process TEKS	**8.1B, 8.1C, 8.1E, 8.1F**

Notes

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

ITEM
29 An inequality is shown.

$$\frac{1}{8} < x < 18\%$$

Which value of x makes the inequality true?

A $\frac{1}{5}$
B 1.6
C 0.09
D $\sqrt{0.02}$

Item Analysis	
Verb	Order
Using or Including	Mathematical
Concept	Set of Real Numbers
Process TEKS	**8.1B, 8.1C, 8.1F**

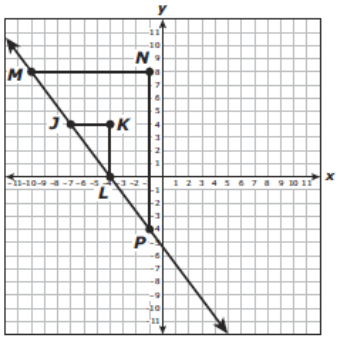
Notes

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

30 Triangle MNP and triangle JKL are similar right triangles.



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

F $\frac{0-(-7)}{4-(-4)} = \frac{-5-(-10)}{8-(-1)}$

G $\frac{0-4}{-4-(-7)} = \frac{-4-8}{-1-(-10)}$

H $\frac{0-(-4)}{4-(-7)} = \frac{-4-(-1)}{8-(-10)}$

J $\frac{-4-(-7)}{0-4} = \frac{-1-(-10)}{-4-8}$

Item Analysis	
Verb	Use
Using or Including	Similar Triangles
Concept	Slope
Process TEKS	**8.1B, 8.1E, 8.1G**

Notes

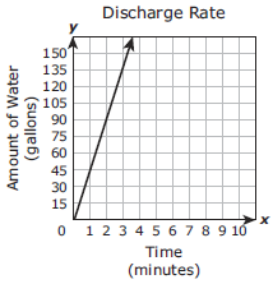
TEKS 8.4B Readiness Standard

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

ITEM

28 A water hose discharges water at a rate of 45 gallons per minute. Which graph has a slope that best represents this rate?

F



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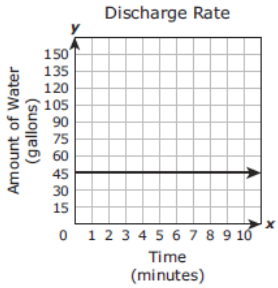

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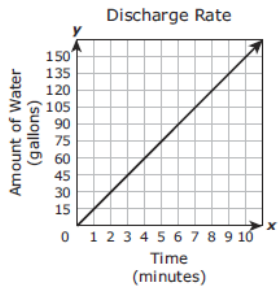

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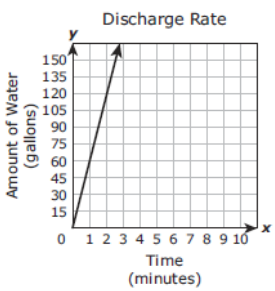


Item Analysis	
Verb	Graph
Using or Including	Unit Rate
Concept	Proportional Relationship
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

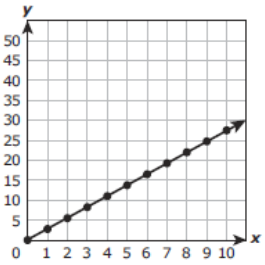
Notes

TEKS 8.4B Readiness Standard
graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship

ITEM

28 Leanor pays a total of $16.50 for every 6 shirts she has dry-cleaned. Which graph models a relationship with the same unit rate?

F



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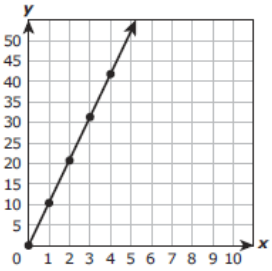

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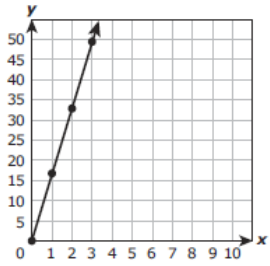

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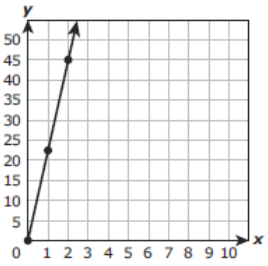


Item Analysis	
Verb	Graph
Using or Including	Unit Rate
Concept	Proportional Relationship
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

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

6 The table shows the number of gallons of gasoline in a car's gas tank after the car has been driven x miles.

Gasoline Usage

Miles Driven, x	Gallons of Gasoline in Tank, y
0	15
10	14.6
20	14.2
35	13.6
60	12.6
75	12

When these data are graphed on a coordinate grid, the points all lie on the same line. What are the slope and y-intercept of this line?

F Slope = $\frac{1}{25}$, y-intercept = 375

G Slope = $-\frac{1}{25}$, y-intercept = 15

H Slope = 25, y-intercept = 375

J Slope = -25, y-intercept = 15

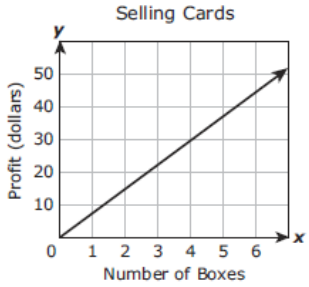
Item Analysis	
Verb	Use
Using or Including	Real-World Problems
Concept	Slope, y-intercept
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

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

39 Emily sells greeting cards. The graph models the linear relationship between the number of boxes of cards she sells and her profit.



Which of these best describes the profit Emily makes from selling these cards?

A $7.50 per box
B $10.00 per box
C $4.00 per 30 boxes
D $3.00 per 4 boxes

Item Analysis	
Verb	Use
Using or Including	Real-World Problem
Concept	Rate of Change
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

TEKS 8.5A Supporting Standard
represent linear proportional situations with tables, graphs, and equations in the form of $y = kx$

ITEM

8 The approximate volume in milliliters, m, for a volume of f fluid ounces is equal to 29.57 times the value of f. Which table represents this relationship?

F

Liquid Volume

Fluid Ounces, f	Milliliters, m
29.57	1
59.14	2
88.71	3
118.28	4

H

Liquid Volume

Fluid Ounces, f	Milliliters, m
0	29.57
1	59.14
2	88.71
3	118.28

G

Liquid Volume

Fluid Ounces, f	Milliliters, m
29.57	0
59.14	1
88.71	2
118.28	3

J

Liquid Volume

Fluid Ounces, f	Milliliters, m
1	29.57
2	59.14
3	88.71
4	118.28

Item Analysis	
Verb	Represent
Using or Including	Tables
Concept	Linear Proportional
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

TEKS 8.5E Supporting Standard
solve problems involving direct variation

ITEM

34 The number of gift baskets Nikki can make varies directly with the amount of time she spends making the baskets. She can make 4 baskets in $\frac{1}{2}$ hour.

How many baskets can Nikki make in 5 hours?

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

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

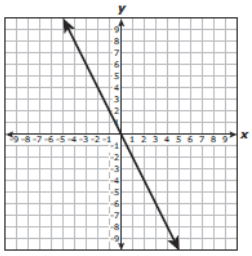
Notes

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 ≠ 0

ITEM

1 Which graph shows a non-proportional linear relationship between *x* and *y*?

F



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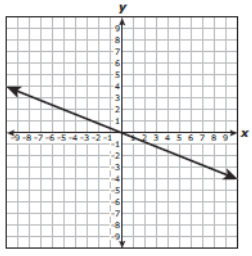

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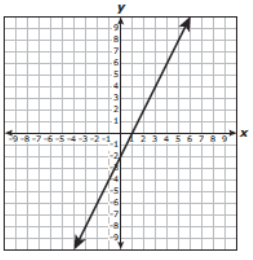

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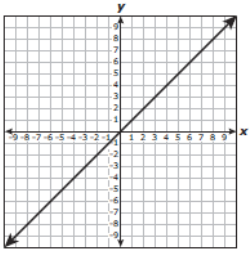


Item Analysis	
Verb	Distinguish
Using or Including	Graphs
Concept	Non-Proportional
Process TEKS	**8.1B, 8.1E, 8.1F**

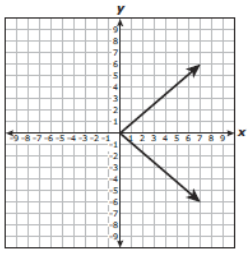
Notes

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

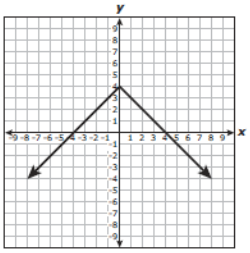
ITEM

11 Which graph does NOT represent y as a function of *x*?

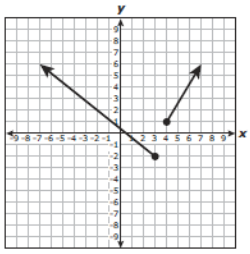
A



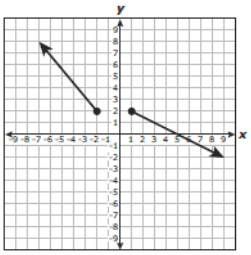
C



B



D



Item Analysis	
Verb	Identify
Using or Including	Graphs
Concept	Function
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, 5), (3, 1), (2, 1), (4, 7)}
B {(3, 2), (4, 3), (5, 2), (2, 6)}
C {(1, 3), (3, 5), (2, 5), (1, 6)}
D {(4, 7), (4, 6), (4, 4), (4, 1)}

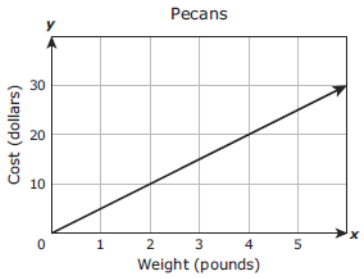
Item Analysis	
Verb	Identify
Using or Including	Ordered Pairs
Concept	Function
Process TEKS	**8.1B, 8.1F**

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

19 The graph shows the relationship between the cost of some pecans and the weight of the pecans in pounds.



Which function best represents the relationship shown in the graph?

A $y = 5x$
B $y = \frac{1}{5}x$
C $y = 2x$
D $y = \frac{1}{2}x$

Item Analysis	
Verb	Write
Using or Including	Graphical Representation
Concept	Equation $y = mx + b$
Process TEKS	**8.1A, 8.1B, 8.1D, 8.1F**

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

37 Melissa is saving $25 that she earned for washing her mom's car. She earns $10 every week for doing chores, which she also saves.

Which function can be used to find t, the amount of money Melissa will have saved at the end of n weeks of doing chores?

A $t = 10n + 25$
B $t = 25n + 10$
C $t = 35n$
D $t = 15n$

Item Analysis	
Verb	Write
Using or Including	Verbal Representation
Concept	Equation $y = mx + b$
Process TEKS	**8.1A, 8.1B, 8.1D, 8.1F**

Notes

TEKS 8.8A Supporting Standard
write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants

ITEM

15 Two eighth-grade classes are selling raffle tickets to raise money.

- One class is selling tickets for $2.50 each and has already raised $350.
- The other class is selling tickets for $3.00 each and has already raised $225.

Which equation can be used to find t, the number of tickets each class needs to sell so that the total amount raised is the same for both classes?

A $3t + 350 = 2.50t + 225$
B $350t + 2.50 = 225t + 3$
C $2.50t + 350 = 3t + 225$
D Not here

Item Analysis

Verb	Write
Using or Including	Rational Coefficients and Constants
Concept	One-Variable Equation Variables on Both Sides
Process TEKS	**8.1A, 8.1B, 8.1F**

Notes

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

12 What value of x makes this equation true?

$$\frac{x}{3} - 3 = \frac{x}{9} + 3$$

F 3
G −9
H −1
J 27

Item Analysis

Verb	Solve
Using or Including	Mathematical
Concept	One-Variable Equation Variables on Both Sides
Process TEKS	**8.1B, 8.1F**

Notes

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

23 A rectangle's perimeter and its area have the same numerical value. The width of the rectangle is 3 units. What is the length of the rectangle in units?

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

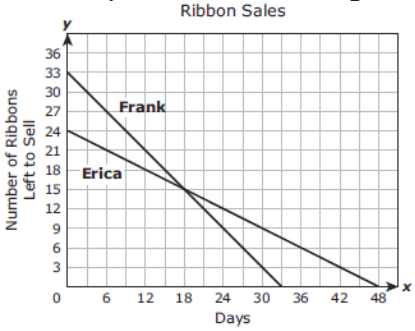
Item Analysis	
Verb	Solve
Using or Including	Real-World Situations
Concept	One-Variable Equation Variables on Both Sides
Process TEKS	**8.1B, 8.1C, 8.1F**

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

42 Frank and Erica are selling ribbons to raise money for the football team. The graph shows the linear relationship between the number of ribbons each of them has left to sell and the number of days that they have been selling ribbons.



On which day does it appear that Frank and Erica will have the same number of ribbons left to sell?

F Day 15
G Day 48
H Day 33
J Day 18

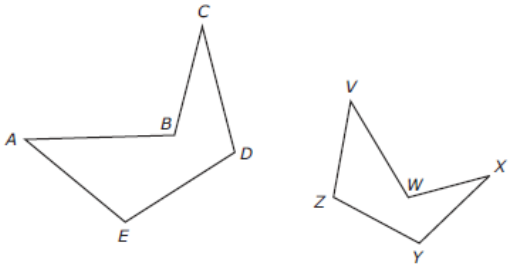
Item Analysis	
Verb	Identify
Using or Including	Intersection of the Graphed Equations
Concept	Values that Satisfy Both Linear Equations
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

TEKS 8.3A Supporting Standard
generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation

ITEM

17 Figure ABCDE is similar to figure VWXYZ.



Which proportion must be true?

A $\frac{AE}{XY} = \frac{CD}{VZ}$
B $\frac{AB}{VW} = \frac{YZ}{DE}$
C $\frac{BC}{XY} = \frac{DE}{YZ}$
D $\frac{AB}{VW} = \frac{CD}{XY}$

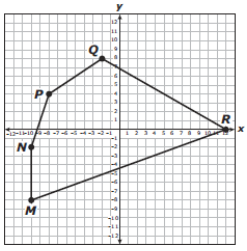
Item Analysis	
Verb	Generalize
Using or Including	Shapes
Concept	Ratios of Corresponding Sides
Process TEKS	**8.1B, 8.1E, 8.1G**

Notes

TEKS 8.3B Supporting Standard
compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane

ITEM

20 Pentagon MNPQR is shown on the coordinate grid. Pentagon MNPQR is dilated with the origin as the center of dilation using the rule $(x, y) \rightarrow (\frac{1}{4}x, \frac{1}{4}y)$ to create pentagon M'N'P'Q'R'.



Which statement is true?

F Pentagon M'N'P'Q'R' is larger than pentagon MNPQR, because the scale factor is greater than 1.
G Pentagon M'N'P'Q'R' is smaller than pentagon MNPQR, because the scale factor is less than 1.
H Pentagon M'N'P'Q'R' is smaller than pentagon MNPQR, because the scale factor is greater than 1.
J Pentagon M'N'P'Q'R' is larger than pentagon MNPQR, because the scale factor is less than 1.

Item Analysis	
Verb	Compare and Contrast
Using or Including	Coordinate Plane
Concept	Attributes of a Shapes and Dilations
Process TEKS	**8.1B, 8.1E, 8.1G**

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

5 Triangle MNP is graphed on a coordinate grid with vertices at M (−3, −6), N (0, 3) and P (6, −3). Triangle MNP is dilated by a scale factor of u with the origin as the center of dilation to create triangle M'N'P'.

Which ordered pair represents the coordinates of the vertex P'?

A $(6 + u, -3 + u)$
B $(\frac{6}{U}, -\frac{3}{U})$
C $(6 + \frac{1}{U}, -3 + \frac{1}{U})$
D $(6u, -3u)$

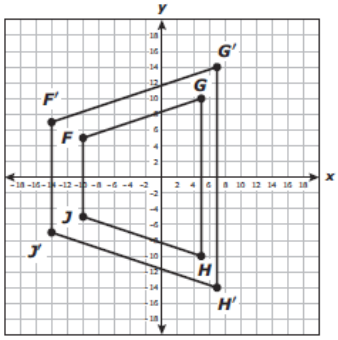
Item Analysis	
Verb	Use
Using or Including	Algebraic Representations
Concept	Dilation
Process TEKS	**8.1B, 8.1F**

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

36 Quadrilateral FGHJ was dilated with the origin as the center of dilation to create quadrilateral FG''H'J'.



Which rule best represents the dilation that was applied to quadrilateral FGHJ to create quadrilateral FG''H'J'?

F $(x, y) \rightarrow (\frac{5}{7}x , \frac{5}{7}y)$
G $(x, y) \rightarrow (x + 1, y + 2)$
H $(x, y) \rightarrow (1.4x , 1.4y)$
J $(x, y) \rightarrow (x - 2, y + 1)$

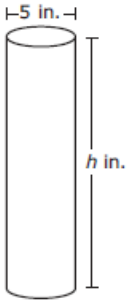
Item Analysis	
Verb	Use
Using or Including	Coordinate Plane
Concept	Dilation
Process TEKS	**8.1B, 8.1E, 8.1F**

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

7 A cylinder and its dimensions are shown in the diagram.



Which equation can be used to find V, the volume of the cylinder in cubic inches?

A $V = \pi(2.5h)^2$
B $V = \pi(5h)^2$
C $V = \pi(2.5)^2h$
D $V = \pi(5)^2h$

Item Analysis	
Verb	Describe
Using or Including	$V = Bh$
Concept	Volume
Process TEKS	**8.1B, 8.1C, 8.1E, 8.1G**

Notes

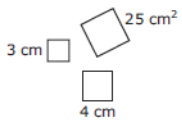
TEKS 8.6C Supporting Standard
use models and diagrams to explain the Pythagorean theorem

ITEM

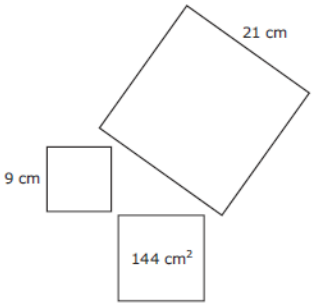
26 When three squares are joined at their vertices to form a right triangle, the combined area of the two smaller squares is the same as the area of the largest square.

Which three squares do NOT support this statement?

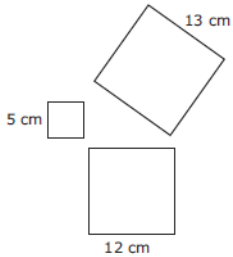
F



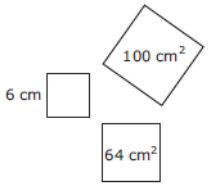
H



G



J



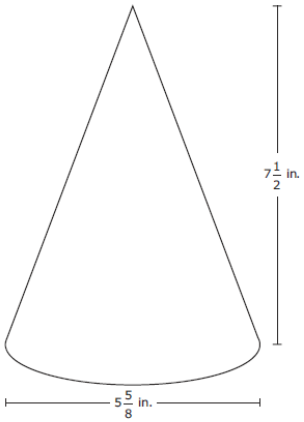
Item Analysis	
Verb	Use
Using or Including	Model
Concept	Pythagorean Theorem
Process TEKS	**8.1B, 8.1E, 8.1G**

Notes

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

ITEM

24 A cone and its dimensions are shown in the diagram.



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

F 186.38 in.^{3}
G 248.50 in.^{3}
H 745.51 in.^{3}
J 62.13 in.^{3}

Item Analysis	
Verb	Solve
Using or Including	Cone
Concept	Volume
Process TEKS	**8.1B, 8.1E, 8.1F**

Notes

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

ITEM

41 A container that holds sugar is shaped like a cylinder. The radius of the container is 3 inches, and the height of the container is 10.5 inches.

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

A 254.47 in.^{3}
B 296.88 in.^{3}
C 395.84 in.^{3}
D 197.92 in.^{3}

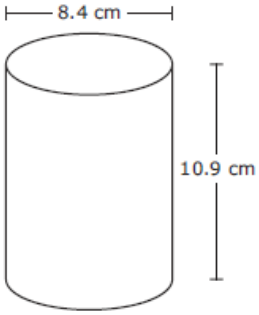
Item Analysis	
Verb	Solve
Using or Including	Cylinder
Concept	Volume
Process TEKS	**8.1B, 8.1F**

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

14 A cylinder and its dimensions are shown in the diagram.



Which measurement is closest to the lateral surface area of the cylinder in square centimeters?

F 575.3 cm^2
G 287.6 cm^2
H 398.5 cm^2
J 604.1 cm^2

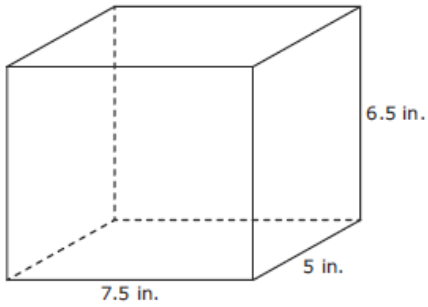
Item Analysis	
Verb	Use
Using or Including	Cylinder
Concept	Lateral Surface Area
Process TEKS	**8.1B, 8.1E, 8.1F**

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

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



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

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

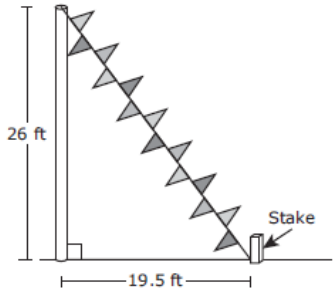
Item Analysis	
Verb	Use
Using or Including	Rectangular Prism
Concept	Total Surface Area
Process TEKS	**8.1B, 8.1D, 8.1F**

Notes

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

ITEM

9 The manager of a car dealership wants to attach a rope with flags to the top of a pole and to a stake in the ground, as shown in the diagram.



Based on the diagram, what is the distance in feet from the top of the pole to the bottom of the stake?

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

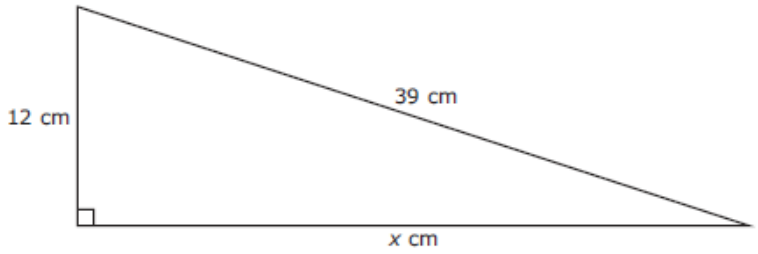
Item Analysis	
Verb	Solve
Using or Including	NA
Concept	Pythagorean Theorem
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

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

ITEM

33 A right triangle and two of its side lengths are shown in the diagram.



Which measurement is closest to the value of x in centimeters?

A 37.1 cm
B 40.8 cm
C 27 cm
D 51 cm

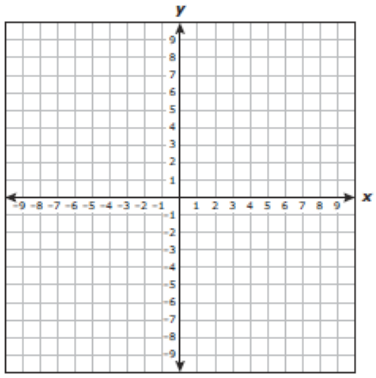
Item Analysis	
Verb	Use
Using or Including	NA
Concept	Pythagorean Theorem
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

TEKS 8.7D Supporting Standard
determine the distance between two points on a coordinate plane using the Pythagorean theorem

ITEM

22 Point J (−4, −6) and point K (4, 4) are located on a coordinate grid.



Which measurement is closest to the distance between point J and point K in units?

F 18 units
G 6 units
H 13 units
J 9 units

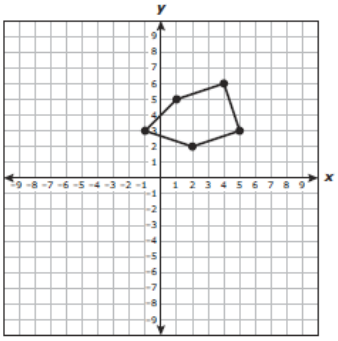
Item Analysis	
Verb	Determine
Using or Including	Pythagorean Theorem
Concept	Distance
Process TEKS	**8.1B, 8.1E, 8.1F**

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

2 The coordinate grid shows a pentagon. The pentagon is translated 1 unit to the left and 10 units down to create a new pentagon.



Which rule describes this transformation?

F $(x, y) \rightarrow (x - 1, y - 10)$
G $(x, y) \rightarrow (x + 1, y - 10)$
H $(x, y) \rightarrow (x - 1, y + 10)$
J $(x, y) \rightarrow (x + 1, y + 10)$

Item Analysis	
Verb	Explain
Using or Including	Algebraic Representation
Concept	Translation
Process TEKS	**8.1B, 8.1E, 8.1F**

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

27 A circle is graphed on a coordinate grid and then reflected across the *y*-axis. If the center of the original circle was located at (x, y), which ordered pair represents the center of the new circle after the transformation?

A (x, y)
B $(x, -y)$
C $(-x, y)$
D $(-x, -y)$

Item Analysis	
Verb	Explain
Using or Including	Algebraic Representation
Concept	Reflection
Process TEKS	**8.1B, 8.1E, 8.1F**

Notes

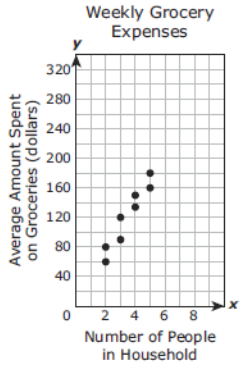
Item Analysis	
Verb	
Using or Including	
Concept	
Process TEKS	

Notes

TEKS 8.5D Readiness Standard
use a trend line that approximates the linear relationship between bivariate sets of data to make predictions

ITEM

10 The scatterplot shows the number of people in each of 8 different households and the average amount of money each household spent on groceries.



Based on the scatterplot, what is the best prediction of the average amount of money spent on groceries for a household that has 7 people?

F $240
G $190
H $210
J $300

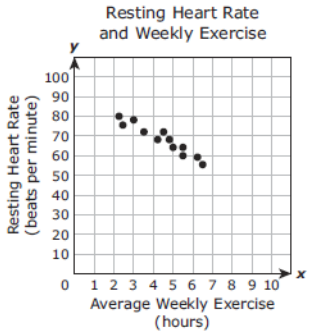
Item Analysis	
Verb	Make
Using or Including	Trend Line
Concept	Predictions
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

TEKS 8.5D Readiness Standard
use a trend line that approximates the linear relationship between bivariate sets of data to make predictions

ITEM

32 Ben collected data from a group of 12 people. He measured each person's resting heart rate and recorded the average number of hours each person exercised per week. He created a scatterplot to show the data he collected.



Based on the scatterplot, what is the best prediction of the resting heart rate, in beats per minute, of a person who exercises an average of 8 hours each week?

F 30 beats per minute
G 50 beats per minute
H 55 beats per minute
J 60 beats per minute

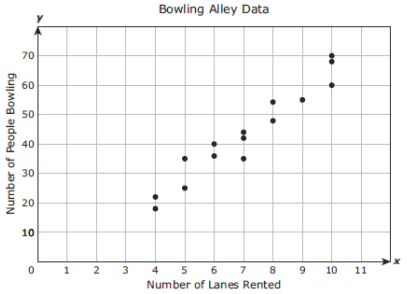
Item Analysis	
Verb	Make
Using or Including	Trend Line
Concept	Linear Relationship
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1G**

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

ITEM

40 The daily attendance at a bowling alley was recorded for 15 days. The scatterplot shows the number of lanes rented each day and the number of people who bowled that day.



Which statement is best supported by the scatterplot?

F There is a non-linear association between the number of lanes rented and the number of people who bowl.

G There is a negative linear association between the number of lanes rented and the number of people who bowl.

H There is no apparent association between the number of lanes rented and the number of people who bowl.

J There is a positive linear association between the number of lanes rented and the number of people who bowl.

Item Analysis	
Verb	Describe
Using or Including	Scatterplot
Concept	Linear Association
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1G**

Notes

TEKS 8.12A Supporting Standard
solve real-world problems comparing how interest rate and loan length affect the cost of credit

ITEM

21 Clarissa needs a $2,500 loan in order to buy a car. Which loan option would allow her to pay the least amount of interest?

A An 18-month loan with a 4.75% annual simple interest rate

B A 30-month loan with a 4.00% annual simple interest rate

C A 24-month loan with a 4.25% annual simple interest rate

D A 36-month loan with a 4.50% annual simple interest rate

Item Analysis	
Verb	Solve
Using or Including	Real-World
Concept	Interest Rate Loan Length
Process TEKS	**8.1A, 8.1B, 8.1G**

Notes

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

ITEM
16 Mr. Wilkins deposited $2,500 in a new account at his bank.

- The bank pays 6.5% interest compounded annually on this account.
- Mr. Wilkins makes no additional deposits or withdrawals.

Which amount is closest to the balance of the account at the end of 2 years?

F $2,835.56
G $2,513.00
H $2,662.50
J $2,825.00

Item Analysis	
Verb	Calculate
Using or Including	NA
Concept	Compound Interest
Process TEKS	**8.1A, 8.1B, 8.1F**

Notes

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

ITEM
35 Mr. Flores opened an account with a deposit of $5,000.

- The account earned annual simple interest.
- He did not make any additional deposits or withdrawals.
- At the end of 4 years, the balance of the account was $6,500.

What is the annual interest rate on this account?

A 5.8%
B 7.5%
C 3.3%
D 1.9%

Item Analysis	
Verb	Calculate
Using or Including	NA
Concept	Simple Interest
Process TEKS	**8.1A, 8.1B, 8.1F**

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

13 An eighth-grade student estimated that she needs $8,800 for tuition and fees for each year of college. She already has $5,000 in a savings account. The table shows the projected future value of the account in five years based on different monthly deposits.

Future Value of a Savings Account

Initial Balance (dollars)	$5,000	$5,000	$5,000	$5,000
Monthly Deposit (dollars)	$100	$200	$300	$400
Account Value in Five Years (dollars)	$12,273	$18,737	$25,202	$31,667

The student wants to have enough money saved in five years to pay the tuition and fees for her first two years of college. Based on the table, what is the minimum amount she should deposit in the savings account every month?

A $200
B $300
C $100
D $400

Item Analysis

Verb	Estimate
Using or Including	Family Contribution
Concept	Paying for College
Process TEKS	**8.1A, 8.1B, 8.1E, 8.1F**

Notes

TEKS

ITEM

Item Analysis

Verb	
Using or Including	
Concept	
Process TEKS	

Notes

Category 1
Numerical Representations and Relationships
4 Total Questions

TEKS	Item	Correct Answer	Notes
8.2A extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of real numbers	**NT**		
8.2B approximate the value of an irrational number, including π and square roots of numbers less than 225, and locate that rational number approximation on a number line	**31**	**C**	
8.2C convert between standard decimal notation and scientific notation	**18**	**G**	
8.2D order a set of real numbers arising from mathematical and real-world contexts	**3**	**C**	
	29	**D**	

Shaded - Readiness TEKS, NT - Not Tested
Readiness TEKS - 2/4 questions

Category 2
Computations and Algebraic Relationships
16 Total Questions

TEKS	Item	Correct Answer	Notes
8.4A 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	**30**	**G**	
8.4B graph proportional relationships, interpreting the unit rate as the slope of the line that models the relationship	**4**	**F**	
	28	**F**	
8.4C use data from a table or graph to determine the rate of change or slope and y-intercept in mathematical and real-world problems	**6**	**G**	
	39	**A**	
8.5A represent linear proportional situations with tables, graphs, and equations in the form of y = kx	**8**	**J**	
8.5B represent linear non-proportional situations with tables, graphs, and equations in the form of y = mx + b, where b ≠ 0	**NT**		
8.5E solve problems involving direct variation	**34**	**40**	
8.5F distinguish between proportional and non-proportional situations using tables, graphs, and equations in the form y = kx or y = mx + b, where b ≠ 0	**1**	**B**	
8.5G identify functions using sets of ordered pairs, tables, mappings, and graphs	**11**	**A**	
	25	**B**	
8.5H identify examples of proportional and non-proportional functions that arise from mathematical and real-world problems	**NT**		
8.5I write an equation in the form y = mx + b to model a linear relationship between two quantities using verbal, numerical, tabular, and graphical representations	**19**	**A**	
	37	**A**	
8.8A write one-variable equations or inequalities with variables on both sides that represent problems using rational number coefficients and constants	**15**	**C**	
8.8B 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	**NT**		
8.8C 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	**12**	**J**	
	23	**6**	
8.9A 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	**42**	**J**	

Shaded - Readiness TEKS, NT - Not Tested
Readiness TEKS - 10/16 questions

Category 3
Geometry and Measurement
15 Total Questions

TEKS	Item	Correct Answer	Notes
8.3A generalize that the ratio of corresponding sides of similar shapes are proportional, including a shape and its dilation	**17**	**D**	
8.3B compare and contrast the attributes of a shape and its dilation(s) on a coordinate plane	**20**	**G**	
8.3C 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	**5**	**D**	
	36	**H**	
8.6A describe the volume formula V = Bh of a cylinder in terms of its base area and its height	**7**	**C**	
8.6C use models and diagrams to explain the Pythagorean theorem	**26**	**H**	
8.7A solve problems involving the volume of cylinders, cones, and spheres	**24**	**J**	
	41	**B**	
8.7B 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	**14**	**G**	
	38	**237.5**	
8.7C use the Pythagorean theorem and its converse to solve problems	**9**	**32.5**	
	33	**A**	
8.7D determine the distance between two points on a coordinate plane using the Pythagorean theorem	**22**	**H**	
8.8D 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	**NT**		
8.10A generalize the properties of orientation and congruence of rotations, reflections, translations, and dilations of two-dimensional shapes on a coordinate plane	**NT**		
8.10B differentiate between transformations that preserve congruence and those that do not	**NT**		
8.10C 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	**2**	**F**	
	27	**C**	
8.10D model the effect on linear and area measurements of dilated two-dimensional shapes	**NT**		

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

Category 4
Data Analysis and Personal Finance
7 Total Questions

TEKS	Item	Correct Answer	Notes
8.5C 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	**NT**		
8.5D use a trend line that approximates the linear relationship between bivariate sets of data to make predictions	**10**	**F**	
	32	**G**	
8.11A construct a scatterplot and describe the observed data to address questions of association such as linear, nonlinear, and no association between bivariate data	**40**	**J**	
8.11B 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	**NT**		
8.12A solve real-world problems comparing how interest rate and loan length affect the cost of credit	**21**	**A**	
8.12C explain how small amounts of money invested regularly, including money saved for college and retirement, grow over time	**NT**		
8.12D calculate and compare simple interest and compound interest earnings	**16**	**F**	
	35	**B**	
8.12G 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	**13**	**A**	

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