

# Texas Assessment of Knowledge and Skills

Grade: 09

Subject: Mathematics

Administration: Spring 2003

NOTE: Measurement questions may have had scale altered in duplication.

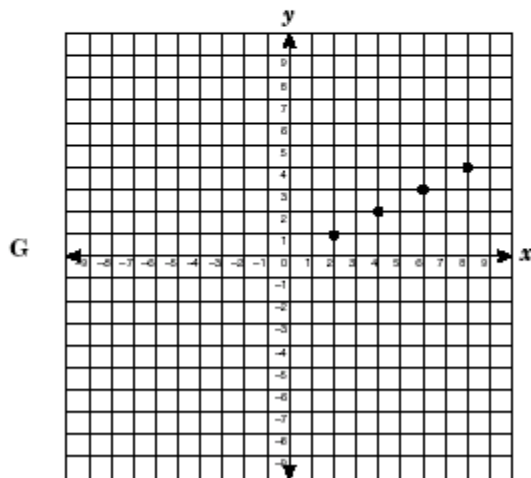
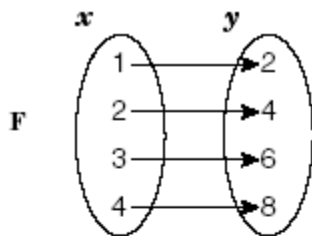
**9-Objective 1:** The student will describe functional relationships in a variety of ways.

**A(b)(1)Foundations for functions.** The student understands that a function represents a dependence of one quantity on another and can be described in a variety of ways.

**(D) The student represents relationships among quantities using [concrete] models, tables, graphs, diagrams, verbal descriptions, equations, and inequalities.**

24 The function  $f(x) = \{(1, 2), (2, 4), (3, 6), (4, 8)\}$  can be represented in several other ways.

Which is NOT a correct representation of the function  $f(x)$ ?



**H**  $x$  is a natural number less than 5 and  $y$  is twice  $x$

**J**  $y = 2x$  and the domain is  $\{1, 2, 3, 4\}$

## 9-Objective 1

**AB1(E) The student interprets and makes inferences from functional relationships.**

25 Which is always a correct conclusion about the quantities in the function  $y = x + 4$ ?

- A The variable  $x$  is always 4 more than  $y$ .
- B When the value of  $x$  is negative, the value of  $y$  is also negative.
- C The variable  $y$  is always greater than  $x$ .
- D As the value of  $x$  increases, the value of  $y$  decreases.

**AB1(A) The student describes independent and dependent quantities in functional relationships.**

42 For a car traveling at a speed of 50 miles per hour, the relationship between the distance traveled,  $d$ , and the time traveled,  $t$ , is described by the function  $d = 50t$ . Which statement is true?

- F The time traveled depends on the distance traveled.
- G The distance traveled depends on the time traveled.
- H The speed of the car depends on the distance traveled.
- J The speed of the car depends on the time traveled.

**AB1(C) The student describes functional relationships for given problem situations and writes equations or inequalities to answer questions arising from the situations.**

45 The Alejo family budgeted \$2000 for their vacation. Their budget consisted of \$800 for travel costs and \$75 per day for other expenses. Which inequality represents the number of days,  $x$ , the family could have stayed on vacation?

- A  $800 + 75x \leq 2000$
- B  $800x + 75 \geq 2000$
- C  $800x - 75 \geq 2000$
- D  $800 - 75x \leq 2000$

## 9-Objective 1

**AB1(B)** The student [gathers and records data, or] uses data sets, to determine functional (systematic) relationships between quantities.

49 Students in a science class recorded lengths of a stretched spring, as shown in the table below.

Length of Stretched Spring

Distance Stretched, $x$ (centimeters)	Weight, $y$ (newtons)
0	0
2	10
4	20
7	35
9	45
10	50

Which equation best represents the relationship between distance stretched,  $x$ , and the weight on the spring,  $y$ ?

**A**  $y = -5x$

**B**  $y = \frac{5}{x}$

**C**  $y = 5x^2$

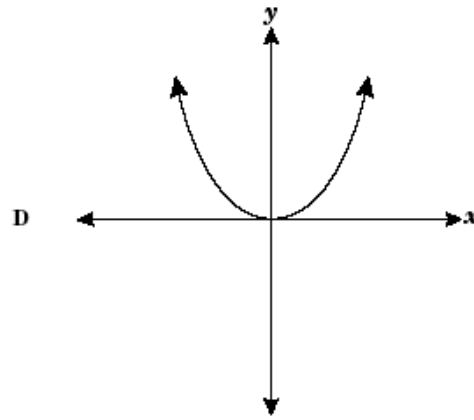
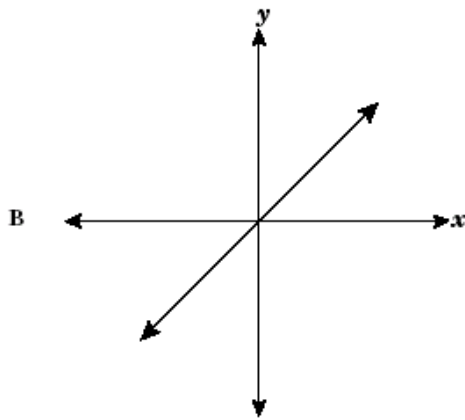
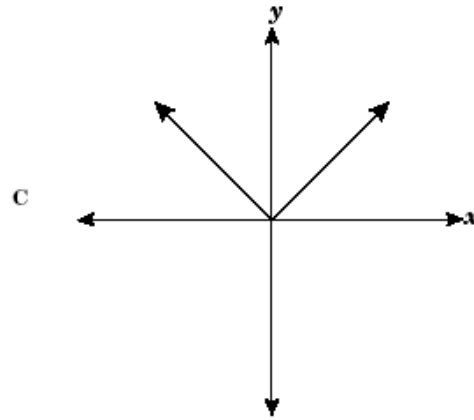
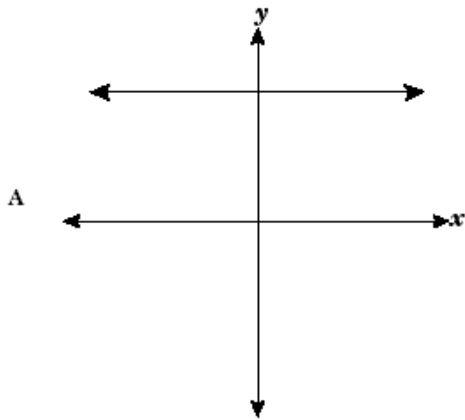
**D**  $y = 5x$

**9-Objective 2:** The student will demonstrate an understanding of the properties and attributes of functions.

**A(b)(2) Foundations for functions.** The student uses the properties and attributes of functions.

**(A)** The student identifies [and sketches] the general forms of linear ( $y = x$ ) and quadratic ( $y = x^2$ ) parent functions.

7 Which is the best representation of the function  $y = x$ ?



## 9-Objective 2

**AB2(D) In solving problems, the student [collects and] organizes data, [makes and] interprets scatterplots, and models, predicts, and makes decisions and critical judgments.**

**11** Monica collected data on the ages and heights of a random sample of sixth-, seventh-, and eighth-grade students at her school. If she plots the data on a scatterplot, what relationship will she most likely see between age and height?

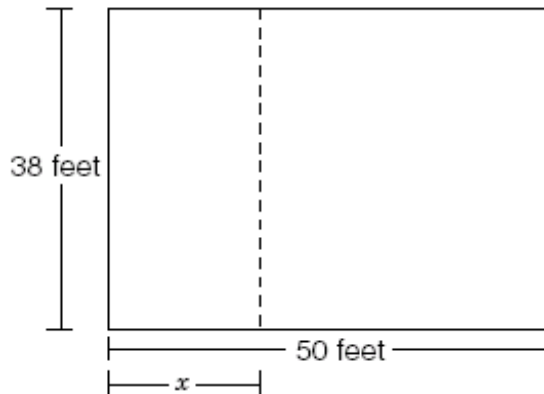
- A** A negative correlation
- B** No correlation
- C** A positive correlation
- D** A constant correlation

## 9-Objective 2

**A(b)(3) Foundations for functions. The student understands how algebra can be used to express generalizations and recognizes and uses the power of symbols to represent situations.**

**(A) The student uses symbols to represent unknowns and variables.**

**19** A large room has the dimensions shown below. A partition is to be installed so that 2 classes can use it. The area of the smaller classroom is  $38x$ . How can the area of the larger classroom be expressed in terms of  $x$ ?



- A  $50 - 38x$
- B  $\frac{38(50)}{3x}$
- C  $\frac{(50 - x)}{38}$
- D  $38(50 - x)$

**A(b)(4) Foundations for functions. The student understands the importance of the skills required to manipulate symbols in order to solve problems and uses the necessary algebraic skills required to simplify algebraic expressions and solve equations and inequalities in problem situations.**

**(A) The student finds specific function values, simplifies polynomial expressions, transforms and solves equations, and factors as necessary in problem situations.**

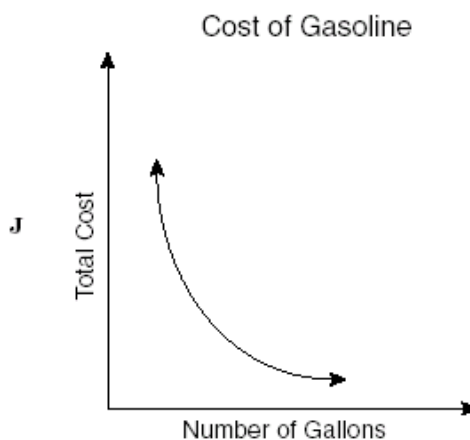
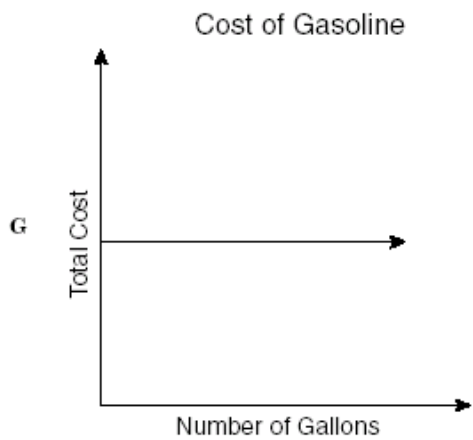
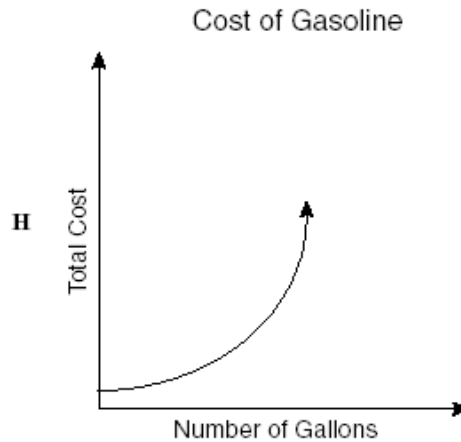
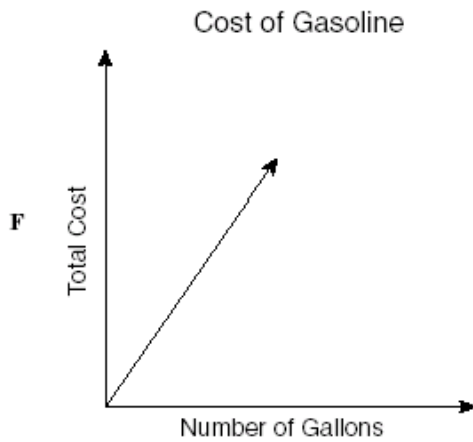
**46** The area of a rectangle is given by the equation  $2l^2 - 5l = 18$ , in which  $l$  is the rectangle's length. What is the length of the rectangle?

- F 1.5
- G 2
- H 4.5
- J 6

## 9-Objective 2

**AB2(C)** The student interprets situations in terms of given graphs [or creates situations that fit given graphs].

**48** Identify the graph that best represents the relationship between the number of gallons of gasoline Mr. Johnson purchased at \$1.49 a gallon and the total cost of his gasoline.



**9-Objective 3:** The student will demonstrate an understanding of linear functions.

**A(c)(2) Linear functions.** The student understands the meaning of the slope and intercepts of linear functions and interprets and describes the effects of changes in parameters of linear functions in real-world and mathematical situations.

**(G) The student relates direct variation to linear functions and solves problems involving proportional change.**

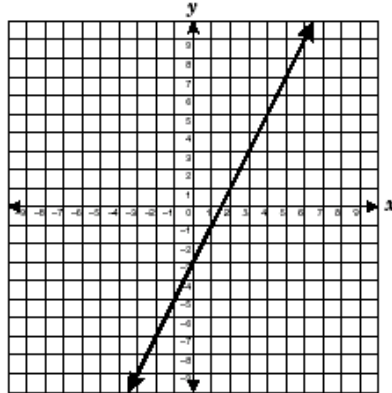
**2** On a certain day the exchange rate of Mexican pesos for U.S. dollars was approximately 10 pesos for 1 dollar. If an exchange of 4,000 pesos was made that day, what was the approximate value of the exchange in dollars?

- F** \$40
- G** \$400
- H** \$4,000
- J** \$40,000

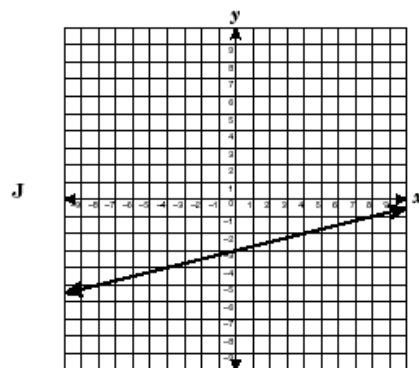
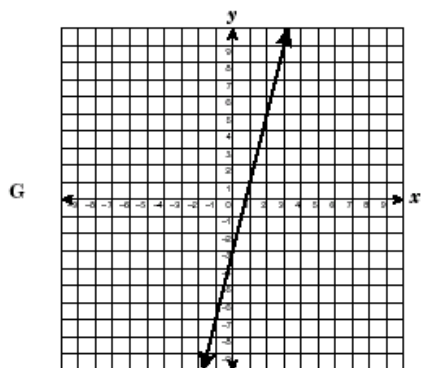
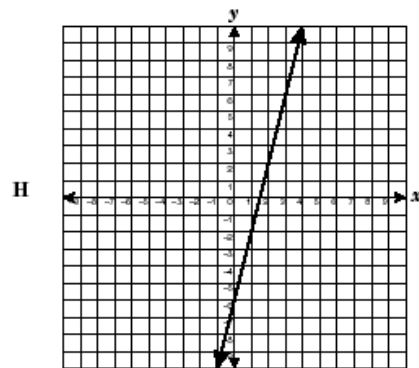
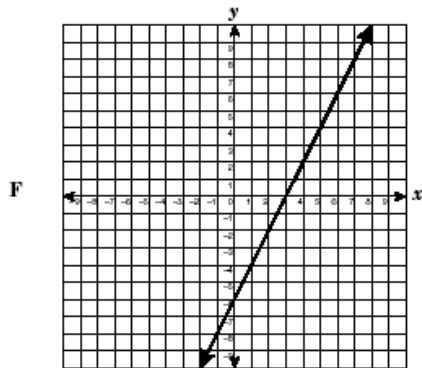
### 9-Objective 3

AC2(C) The student investigates, describes, and predicts the effects of changes in  $m$  and  $b$  on the graph of  $y = mx + b$ .

18 The graph of a line that contains the points  $(-1, 5)$  and  $(4, 5)$  is shown below.



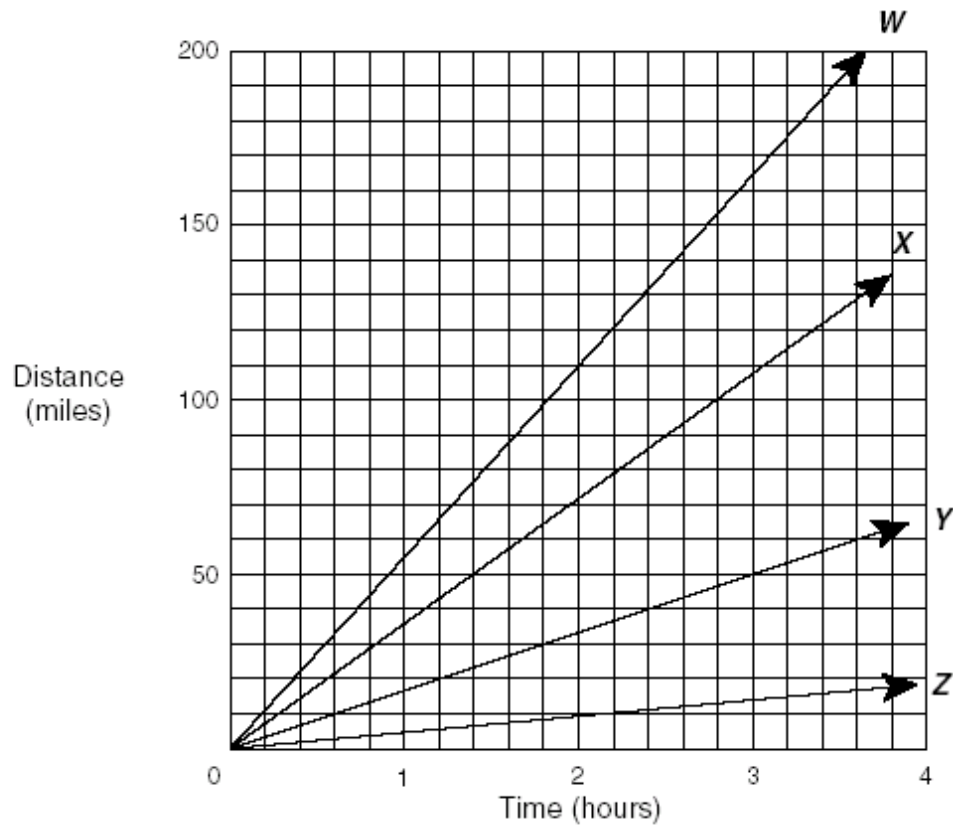
Which best represents this line if the slope is doubled and the y-intercept remains constant?



### 9-Objective 3

AC2(A) The student develops the concept of slope as rate of change and determines slopes from graphs, tables, and algebraic representations.

39 In the distance formula  $d = rt$ ,  $r$  represents the rate of change, or slope. Which ray on the graph best represents a slope of 55 mph?



- A W
- B X
- C Y
- D Z

### 9-Objective 3

**A(c)(1) Linear functions.** The student understands that linear functions can be represented in different ways and translates among their various representations.

**(C) The student translates among and uses algebraic, tabular, graphical, or verbal descriptions of linear functions.**

**41** A math club decided to buy T-shirts for its members. A clothing company quoted the following prices for the T-shirts.

Math Club T-Shirts

Number of T-Shirts	Total Cost (dollars)
10	75
15	105
20	135

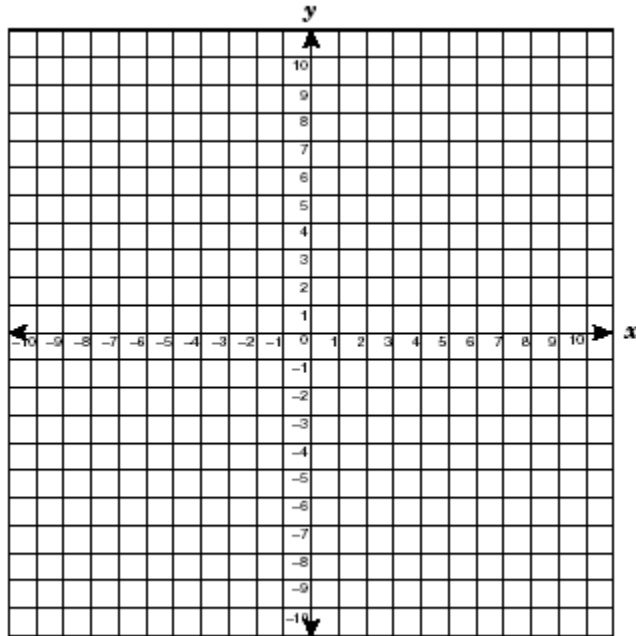
Which equation best describes the relationship between the total cost,  $c$ , and the number of T-shirts,  $s$ ?

- A**  $c = 6.75s$
- B**  $c = 7.00s$
- C**  $c = 2s - 20$
- D**  $c = 15 + 6s$

## 9-Objective 3

AC2(D) The student graphs and writes equations of lines given characteristics such as two points, a point and a slope, or a slope and y-intercept.

44 Which linear function includes the points  $(-3, 1)$  and  $(-2, 4)$ ?



**F**  $f(x) = 3x + 10$

**G**  $f(x) = \frac{1}{3}x + 2$

**H**  $f(x) = 3x - 6$

**J**  $f(x) = -3x + 1$

**9-Objective 4:** The student will formulate and use linear equations and inequalities.

**A(c)(3) Linear functions.** The student formulates equations and inequalities based on linear functions, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation.

**(B) The student investigates methods for solving linear equations and inequalities using [concrete] models, graphs, and the properties of equality, selects a method, and solves the equations and inequalities.**

**8** Auto-Check Motors charged Mr. Jones \$84.00 for an automotive part plus \$68.00 per hour that a mechanic worked to install the part. The total charge was \$353.00. For about how long did the mechanic work to install the part on Mr. Jones's car?

**F** 6 h

**G** 5 h

**H** 4 h

**J** 3 h

**A(c)(4) The student formulates systems of linear equations from problem situations, uses a variety of methods to solve them, and analyzes the solutions in terms of the situation. Linear functions.**

**(A) The student analyzes situations and formulates systems of linear equations to solve problems.**

**13** Ms. Kitts works at a music store. Last week she sold 6 more than 3 times the number of CDs that she sold this week. Ms. Kitts sold a total of 108 CDs over the 2 weeks. Which system of equations can be used to find  $l$ , the number of CDs she sold last week, and  $t$ , the number of CDs she sold this week?

**A**  $l + t = 108$   
 $t = 3l + 6$

**B**  $l + t = 108$   
 $t = 3l - 6$

**C**  $l + t = 108$   
 $l = 3t - 6$

**D**  $l + t = 108$   
 $l = 3t + 6$

## 9-Objective 4

**AC3(A) The student analyzes situations involving linear functions and formulates linear equations or inequalities to solve problems.**

**30** The number of hours Abe practices golf each week,  $g$ , is 2 more than the number of hours he runs,  $r$ . Which equation represents the number of hours he runs each week?

**F**  $r = g - 2$

**G**  $g = r - 2$

**H**  $g = 2r$

**J**  $r = g + 2$

**AC3(C) For given contexts, the student interprets and determines the reasonableness of solutions to linear equations and inequalities.**

**40** The cost of renting a DVD at a certain store is described by the function

$$f(x) = 4x + 3$$

in which  $f(x)$  is the cost and  $x$  is the time in days. If Lupe has \$12 to spend, what is the maximum number of days that she can rent a single DVD if tax is not considered?

**F** 1

**G** 2

**H** 3

**J** 7

**AC3(A) The student analyzes situations involving linear functions and formulates linear equations or inequalities to solve problems.**

**50** Passengers on many commercial flights may make calls from a telephone provided by the airline. On a certain airline a call costs \$3 to connect plus \$2 for each minute. Which equation best represents  $c$ , the total cost for a call that lasts  $m$  minutes?

**F**  $m = 3 + 2c$

**G**  $c = 3 + 2m$

**H**  $m = 2 + 3c$

**J**  $c = 2 + 3m$

**9-Objective 5:** The student will demonstrate an understanding of quadratic and other nonlinear functions.

**A(d)(1) Quadratic and other nonlinear functions.** The student understands that the graphs of quadratic functions are affected by the parameters of the function and can interpret and describe the effects of changes in the parameters of quadratic functions.

**(C) The student investigates, describes, and predicts the effects of changes in  $c$  on the graph of  $y = x^2 + c$ .**

9 In the graph of the function  $y = x^2 + 5$ , which describes the shift in the vertex of the parabola if, in the function, 5 is changed to  $-2$ ?

- A 3 units up
- B 7 units up
- C 3 units down
- D 7 units down

**A(d)(3) Quadratic and other nonlinear functions.** The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations.

**(A) The student uses [patterns to generate] the laws of exponents and applies them in problem solving situations.**

10 Which expression describes the area in square units of a rectangle that has a width of  $4x^3y^2$  and a length of  $3x^2y^3$ ?

- F  $12x^6y^6$
- G  $12x^5y^5$
- H  $7x^6y^6$
- J  $7x^5y^5$

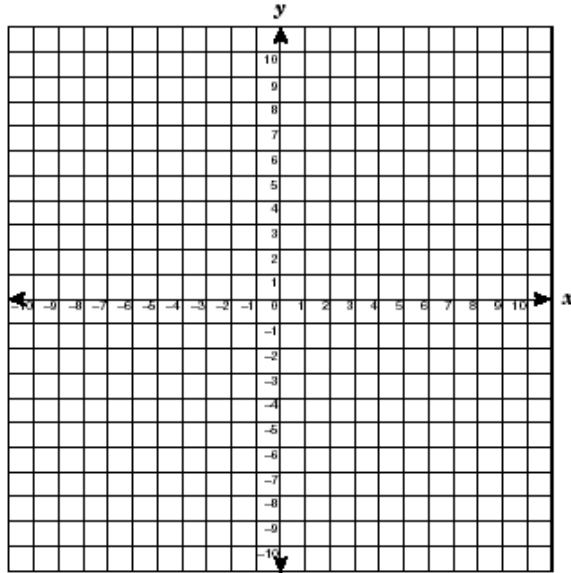
27 The area of a rectangle is  $30m^{11}n^5$  square units. If the length of the rectangle is  $6m^4n^2$  units, how many units wide is the rectangle? ( $m \neq 0$  and  $n \neq 0$ )

- A  $5m^7n^3$  units
- B  $24m^7n^3$  units
- C  $36m^{15}n^7$  units
- D  $180m^{15}n^7$  units

## 9-Objective 5

AD1(C) The student investigates, describes, and predicts the effects of changes in  $c$  on the graph of  $y = x^2 + c$ .

52 When graphed, which function would appear to be shifted 2 units up from the graph of  $f(x) = x^2 + 1$ ?



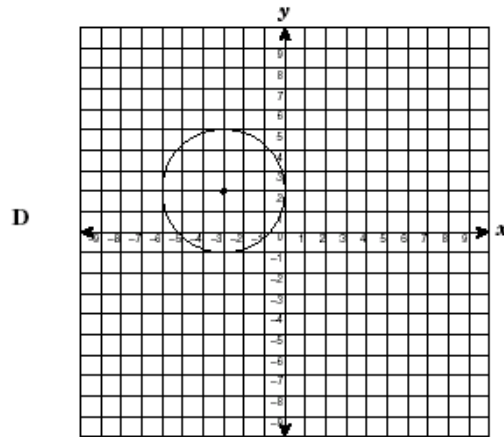
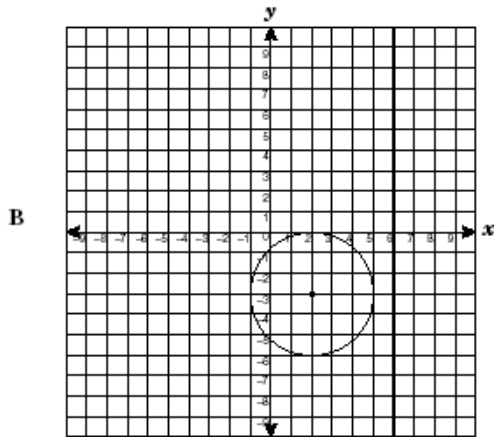
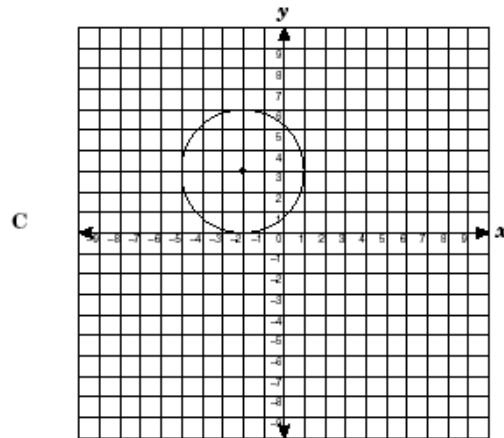
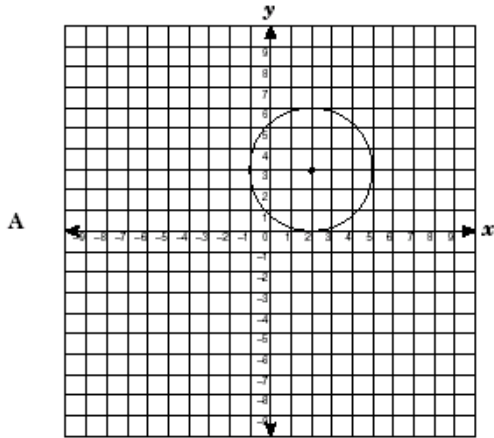
- F**  $g(x) = x^2 - 1$
- G**  $g(x) = x^2 + 3$
- H**  $g(x) = x^2 - 2$
- J**  $g(x) = x^2 + 2$

**9-Objective 6:** The student will demonstrate an understanding of geometric relationships and spatial reasoning.

(8.7) Geometry and spatial reasoning. The student uses geometry to model and describe the physical world. The student is expected to

(D) locate and name points on a coordinate plane using ordered pairs of rational numbers.

3 Which circle has a center located at coordinates  $(-3, 2)$ ?

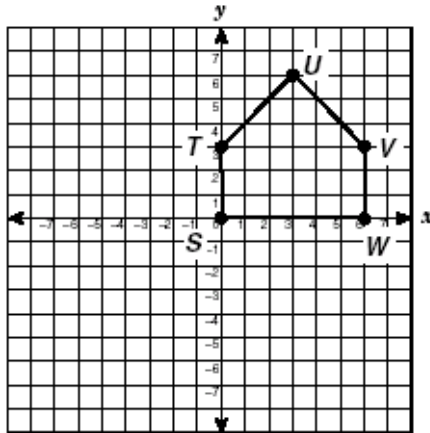


## 9-Objective 6

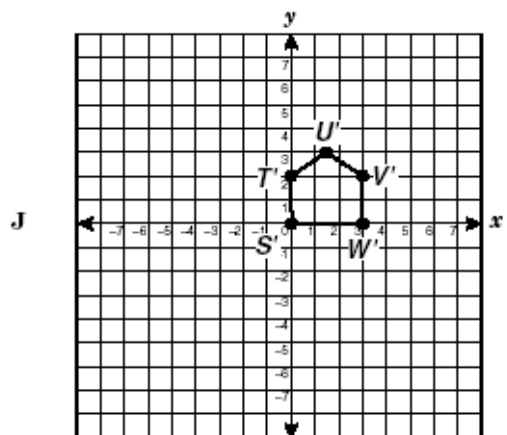
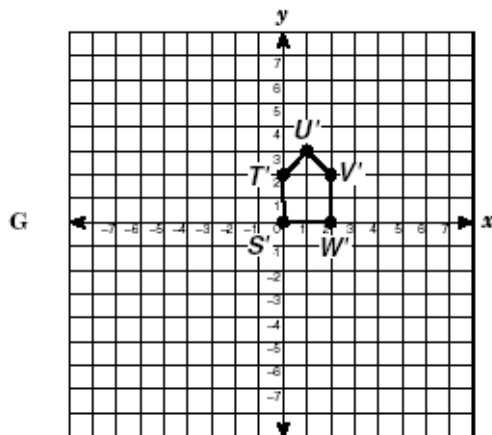
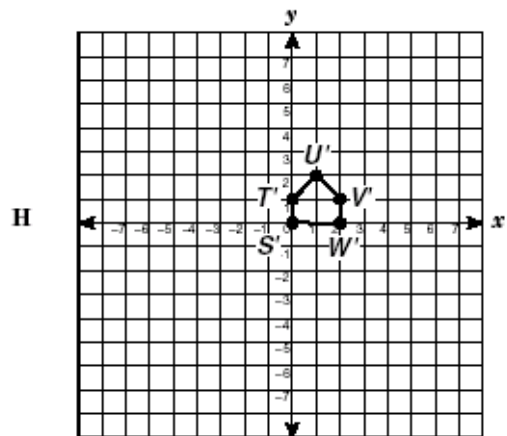
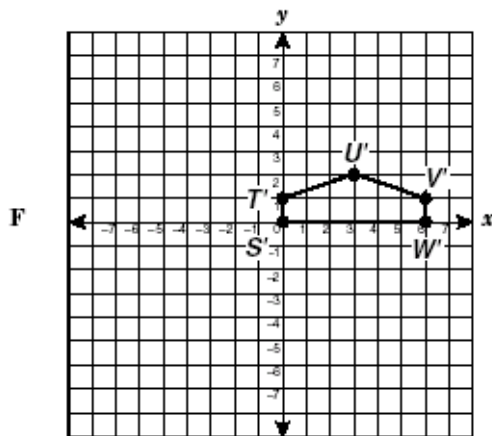
(8.6) Geometry and spatial reasoning. The student uses transformational geometry to develop spatial sense. The student is expected to

(A) generate similar shapes using dilations including enlargements and reductions;

- 32 The pentagon in the graph below is to be dilated by a scale factor of  $\frac{1}{3}$ .



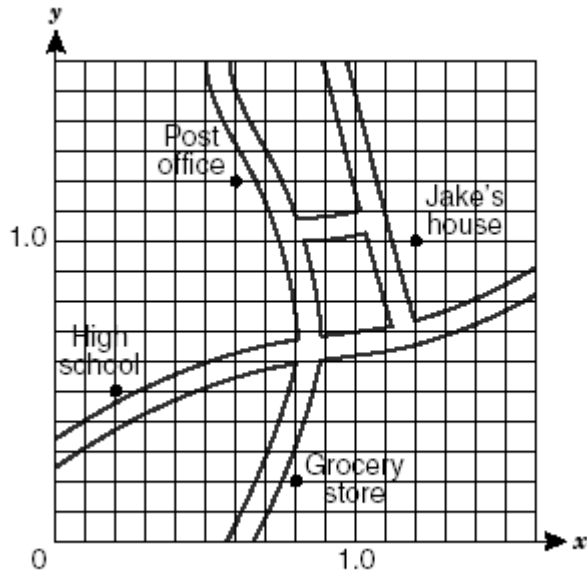
Which graph shows this transformation?



## 9-Objective 6

8.7(D) locate and name points on a coordinate plane using ordered pairs of rational numbers.

43 Jake made a map of his neighborhood for a school project. He placed a grid over the map.



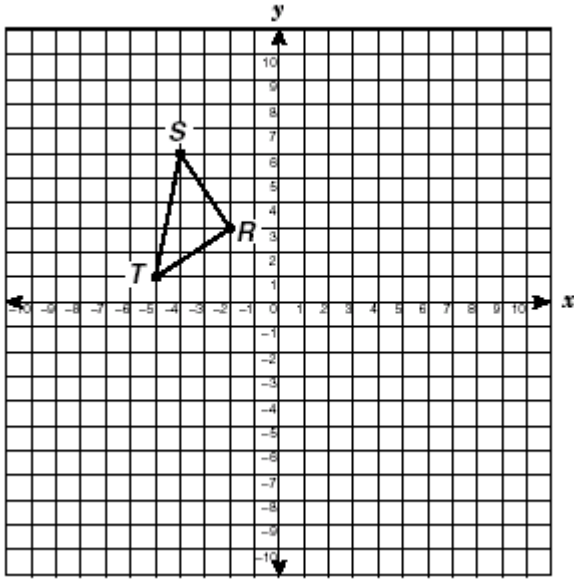
Which coordinate point best represents the post office?

- A (6, 12)
- B (12, 6)
- C (1.2, 0.6)
- D (0.6, 1.2)

## 9-Objective 6

8.6(B) graph dilations, reflections, and translations on a coordinate plane.

47  $\triangle RST$  is shown on the coordinate plane below.



Find the coordinates of the vertices of the image of  $\triangle RST$  reflected across the  $y$ -axis.

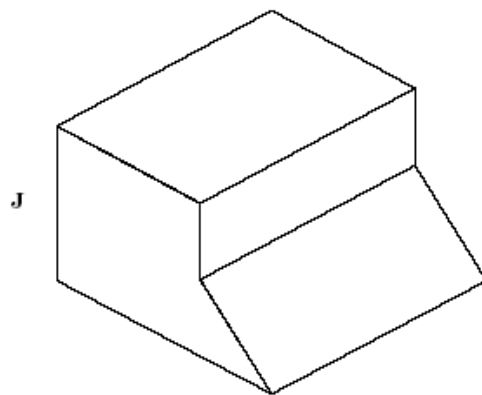
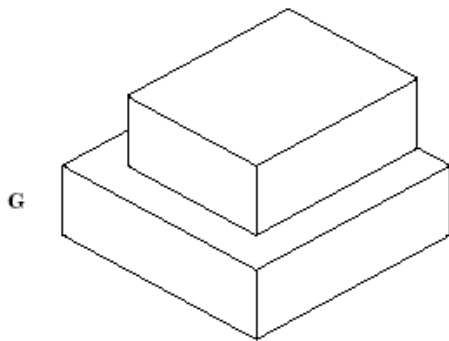
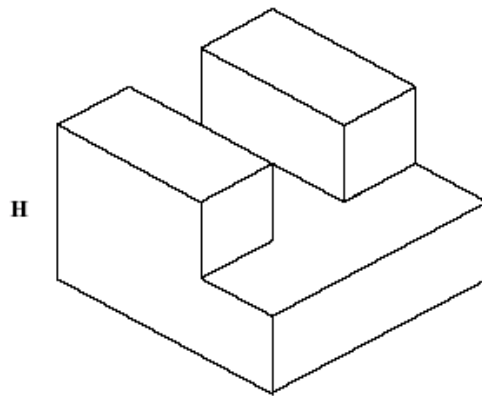
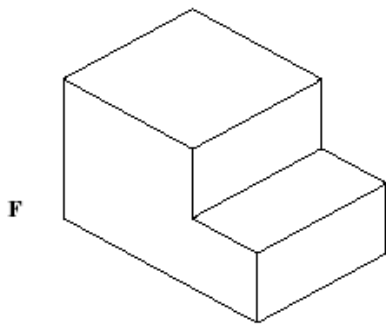
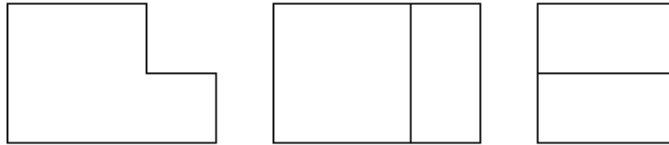
- A  $(-2, -3), (-4, -6), (-5, -1)$
- B  $(2, 3), (4, 6), (5, 1)$
- C  $(0, 3), (-2, 6), (-3, 1)$
- D  $(2, -3), (4, -6), (5, -1)$

**9-Objective 7:** The student will demonstrate an understanding of two- and three-dimensional representations of geometric relationships and shapes.

(8.7) Geometry and spatial reasoning. The student uses geometry to model and describe the physical world. The student is expected to

(A) draw solids from different perspectives;

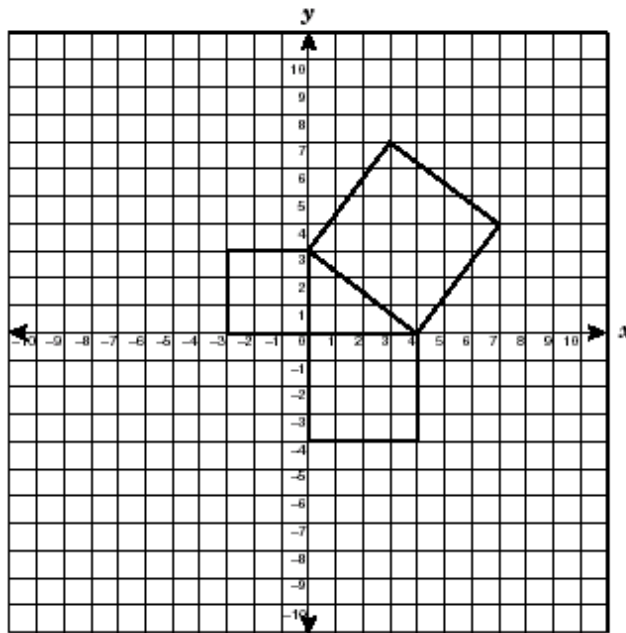
12 Match the three views of this solid to its 3-dimensional sketch.



## 9-Objective 7

8.7(C) use pictures or models to demonstrate the Pythagorean Theorem.

14 What is the area of the largest square in the diagram?



- F 5 units<sup>2</sup>
- G 9 units<sup>2</sup>
- H 16 units<sup>2</sup>
- J 25 units<sup>2</sup>

8.7(B) use geometric concepts and properties to solve problems in fields such as art and architecture;

## Objective 7

21 A lawn is shaped like a parallelogram with a base of 32 feet and a height of 15 feet. Covering the lawn with grass will cost \$2.60 per square foot. How much money will it cost to cover the lawn with grass?

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

## 9-Objective 7

**31** A 12- by 16-foot rectangular floor will be covered by square tiles that measure 2 feet on each side. If the tiles are not cut, how many of them will be needed to cover the floor?

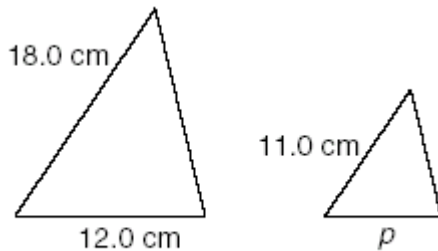
- A** 192
- B** 96
- C** 48
- D** 14

**9-Objective 8:** The student will demonstrate an understanding of the concepts and uses of measurement and similarity.

**8.9) Measurement.** The student uses indirect measurement to solve problems. The student is expected to

**(B) use proportional relationships in similar shapes to find missing measurements.**

**6** Kate has 2 similar triangular pieces of paper, as shown below.



Using the dimensions given, find the approximate length of the side labeled  $p$ .

- F** 2.4 centimeters
- G** 7.3 centimeters
- H** 16.5 centimeters
- J** 19.6 centimeters

**(8.10) Measurement.** The student describes how changes in dimensions affect linear, area, and volume measures. The student is expected to

**A) describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally;**

**16** Describe the effect on the area of a circle when the radius is doubled.

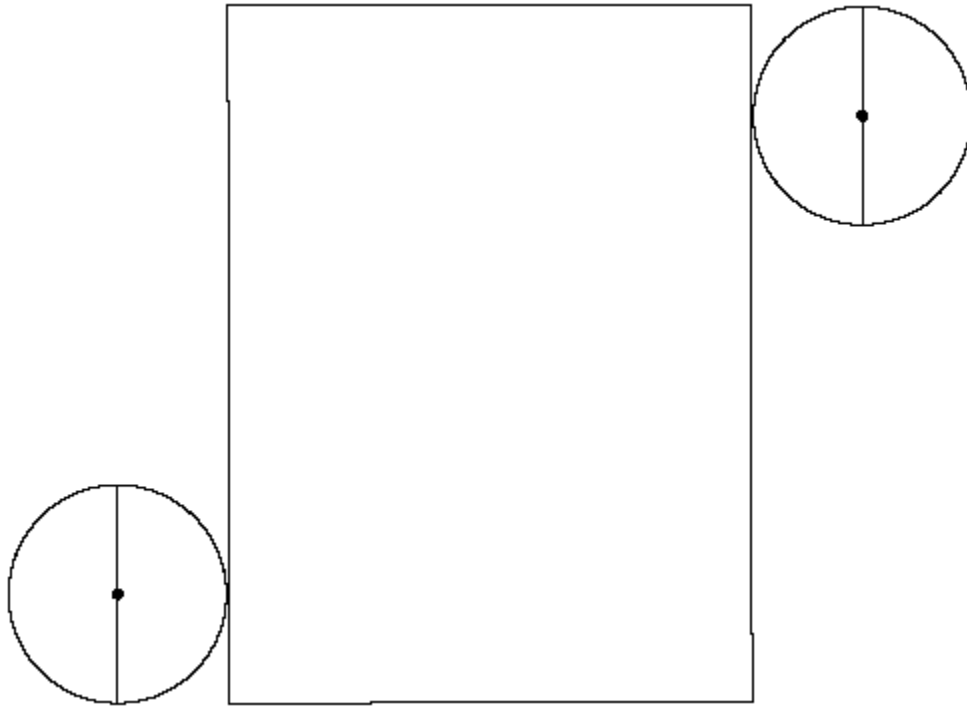
- F** The area is reduced by  $1/2$ .
- G** The area remains constant.
- H** The area is doubled.
- J** The area is increased four times.

## 9-Objective 8

(8.8) Measurement. The student uses procedures to determine measures of solids. The student is expected to

(A) find surface area of prisms and cylinders using [concrete] models and nets (two-dimensional models);

26 The net of a cylinder is shown below. Use the ruler on the Mathematics Chart to measure the dimensions of the cylinder to the nearest  $\frac{1}{8}$  inch.



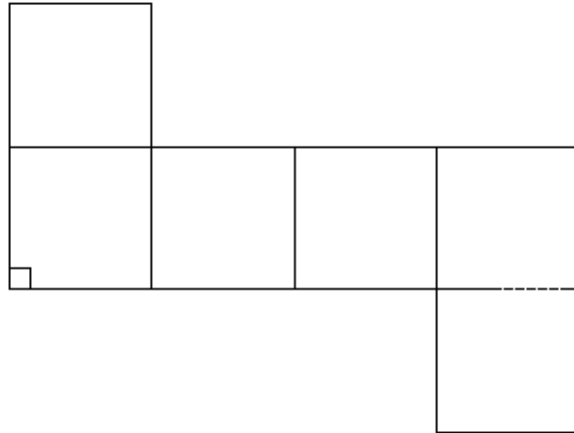
Which is closest to the total surface area of this cylinder?

- F 4 in.<sup>2</sup>
- G 11 in.<sup>2</sup>
- H 14 in.<sup>2</sup>
- J 25 in.<sup>2</sup>

## 9-Objective 8

8.8(B) connect models to formulas for volume of prisms, cylinders, pyramids, and cones;

29 The net of a cube is shown below.



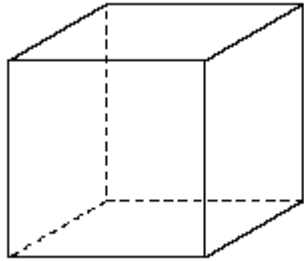
Use the ruler on the Mathematics Chart to measure the dimensions of the cube to the nearest tenth of a centimeter. Which best represents the volume of this cube to the nearest cubic centimeter?

- A  $11 \text{ cm}^3$
- B  $13 \text{ cm}^3$
- C  $30 \text{ cm}^3$
- D  $42 \text{ cm}^3$

## 9-Objective 8

8.8(C) estimate answers and use formulas to solve application problems involving surface area and volume.

37 A 72-inch piece of wire was cut into equal segments, which were then soldered at the ends to form the edges of a cube.



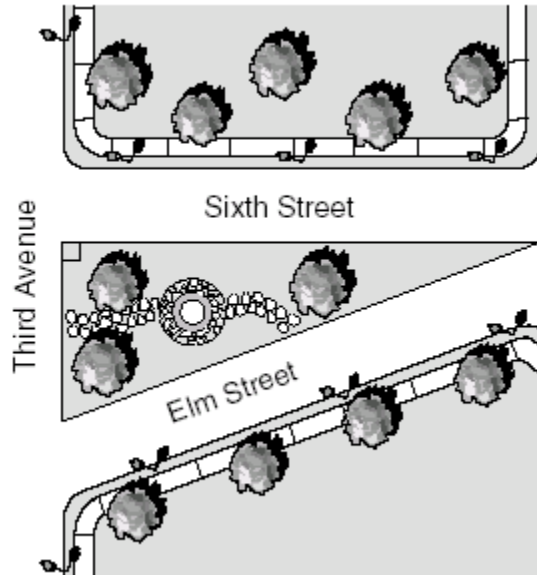
What is the volume of the cube?

- A 216 in.<sup>3</sup>
- B 576 in.<sup>3</sup>
- C 729 in.<sup>3</sup>
- D 1728 in.<sup>3</sup>

## 9-Objective 8

8.9(A) use the Pythagorean Theorem to solve real-life problems;

38. In a town, there is a small garden shaped like a triangle, as shown below. The side of the garden that faces Sixth Street is 80 feet in length. The side of the garden that faces Third Avenue is 30 feet in length.



What is the approximate length of the side of the garden that faces Elm Street?

- F 35 ft
- G 40 ft
- H 85 ft
- J 110 ft

**9-Objective 9:** The student will demonstrate an understanding of percents, proportional relationships, probability, and statistics in application problems.

**(8.11) Probability and statistics.** The student applies concepts of theoretical and experimental probability to make predictions. The student is expected to]

**(B) use theoretical probabilities and experimental results to make predictions and decisions.**

4 Last basketball season Ricky made 58% of the free throws he attempted. In the first game this season, Ricky went to the free-throw line 10 times. About how many free throws did Ricky make if his success rate from last season continued?

- F 58
- G 10
- H 6
- J 4

**(8.3) Patterns, relationships, and algebraic thinking.** The student identifies proportional relationships in problem situations and solves problems. The student is expected to

**(B) estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.**

17 A couple bought a house and calculated that they would pay 30% of their combined monthly income of \$5,569.75 toward the monthly mortgage payment on the house. Approximately how much will the couple pay for their monthly mortgage payment?

- A \$186
- B \$1,671
- C \$3,899
- D \$18,566

## 9-Objective 9

**8.3(B) estimate and find solutions to application problems involving percents and proportional relationships such as similarity and rates.**

**35** A watch loses 3 minutes every 24 hours. How much time will it lose in 2 hours?

- A** 1.6 seconds
- B** 5 seconds
- C** 15 seconds
- D** 22.5 seconds

**8.11(A) find the probabilities of compound events (dependent and independent);**

**36** At Reyna High School 50% of the students eat lunch in the school cafeteria. In the same school 10% of the students participate in sports. What is the probability that a student selected at random eats in the school cafeteria and participates in sports?

**F**  $\frac{1}{2}$

**G**  $\frac{1}{10}$

**H**  $\frac{1}{20}$

**J**  $\frac{1}{60}$

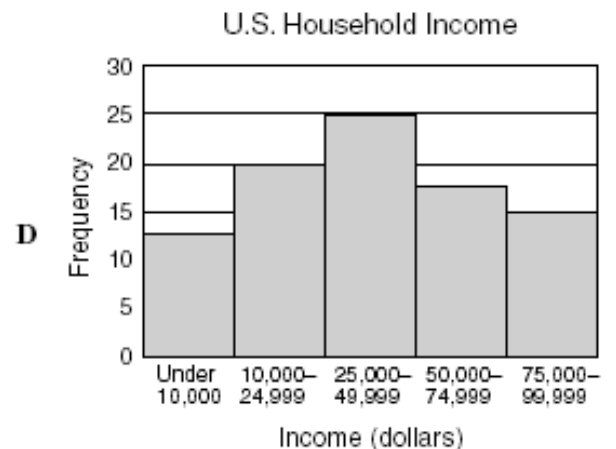
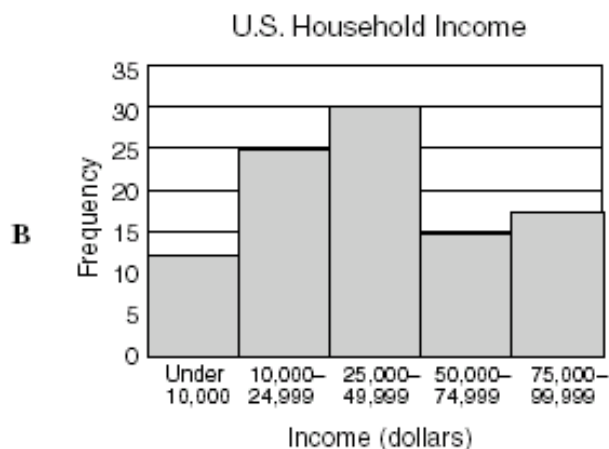
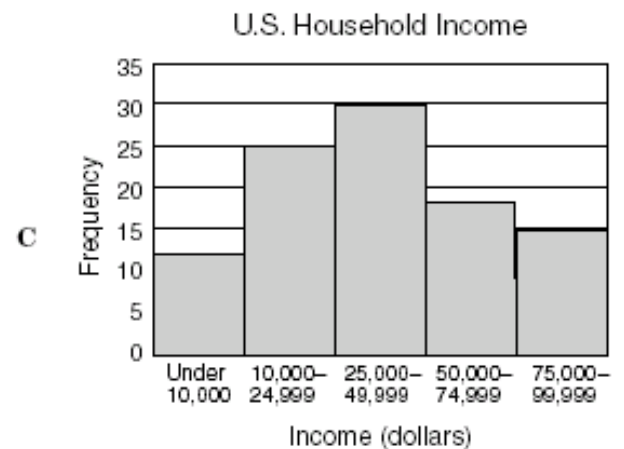
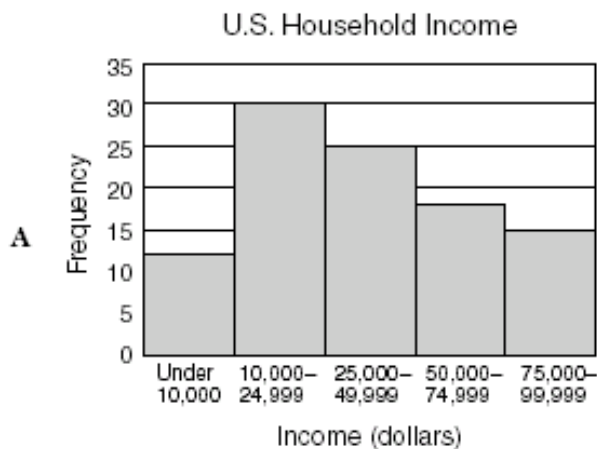
## 9-Objective 9

(8.12) Probability and statistics. The student uses statistical procedures to describe data. The student is expected to

(C) construct circle graphs, bar graphs, and histograms, with and without technology.

51 Which histogram best reflects the data shown in the table?

Income Range	Frequency
Under \$10,000	
\$10,000–24,999	
\$25,000–49,999	
\$50,000–74,999	
\$75,000–99,999	
Total	100 Households



**9-Objective 10:** The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

**(8.14) Underlying processes and mathematical tools.** The student applies Grade 8 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to

**(C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.**

1 Which of the equations below represents the second step of the solution process?

4,000 pesos was made that day, what was the approximate value of the exchange in dollars?

Step 1.  $5(6x + 4) + 1 = -39$

Step 2.

Step 3.  $30x + 21 = -39$

Step 4.  $30x = -60$

Step 5.  $x = -2$

- A  $5(6x + 1) + 4 = -39$
- B  $5(6x + 5) = -39$
- C  $30x + 4 + 1 = -39$
- D  $30x + 20 + 1 = -39$

**8.14(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;**

5 Alonso's family rented a car when they flew to Orlando for a 4-day vacation. They paid \$39 per day and \$0.09 for each mile driven. How much did it cost to rent the car for 4 days and drive 350 miles, not including tax?

- A \$70.50
- B \$124.50
- C \$156.00
- D \$187.50

**8.15(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.**

15 The function  $g(x) = 1.25 + 0.70(x - 1)$  represents the charge for parking in the mall garage for  $x$  number of hours. Which statement best represents the formula for this charge?

- A The charge consists of a set fee of \$1.25 plus \$0.70 for every hour parked.
- B The charge consists of a flat rate of \$0.70 for every hour parked.
- C The charge consists of \$1.25 for the first hour parked and \$0.70 for each additional hour.
- D The charge consists of \$1.25 for every hour parked plus a set fee of \$0.70.

## 9-Objective 10

**8.14(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;**

**20** A newspaper reported that the mean height of waves in the Norwegian Sea increased by 4 inches per year from 1955 to 1994. What additional information is needed to calculate the mean wave height in 1994?

- F** The mean height of waves in 1955
- G** The range of wave heights from 1955 to 1994
- H** The projection of the mean height of waves for the next year
- J** The distance from land to where the wave measurements were taken

**8.15(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.**

**22** Which problem is best represented by the number sentence  $19 + 3(12 - x) = 40$ ?

- |   |  |
|---|--|
| <b>F</b> Ricardo spent \$19, and Lydia spent 3 times \$12 less than Ricardo. Together they spent \$40. How much did Lydia spend?            | <b>H</b> Juan earned \$19 baby-sitting and sold 3 boxes of apples for \$12 each. Now he has \$40. How much did he earn?  |
| <b>G</b> Gail earned \$19 baby-sitting and mowed 3 lawns in less than 12 hours. She earned a total of \$40. How much did she earn per lawn? | <b>J</b> Denise paid \$19 for 1 regularly priced item and bought 3 items on sale that were regularly priced at \$12. She spent \$40. What was the price reduction on the 3 sale items? |

## 9-Objective 10

8.14(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;

23 Trina was recording the calorie content of the food she ate. For lunch she had 3 ounces of chicken, 2 slices of cheese, 2 slices of wheat bread, one-half tablespoon of mayonnaise, a 16-ounce glass of lemonade, and an apple for dessert. According to the chart below, which equation best represents the total number of calories she consumed during lunch?

Calorie Content

Food	Calories
Apple (medium)	70
Wheat bread (1 slice)	55
Cheese (1 slice)	45
Chicken (3 oz)	115
Lemonade (8 oz)	110
Mayonnaise (1 tbsp)	100

A  $\text{Calories} = 3(115) + 2(45) + 2(55) + \frac{1}{2}(100) + 16(110) + 70$

B  $\text{Calories} = 115 + 45 + 55 + 100 + 110 + 70$

C  $\text{Calories} = 115 + 2(45) + 2(55) + \frac{1}{2}(100) + 2(110) + 70$

D  $\text{Calories} = 115 + \frac{45}{2} + \frac{55}{2} + 2(100) + \frac{110}{2} + 70$

## 9-Objective 10

**(8.16) Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to

**(B) validate his/her conclusions using mathematical properties and relationships.**

**28** If the variables  $x$  and  $y$  are related so that  $x - y > x + y$ , which statement must be true?

- F** The variable  $x$  is greater than the variable  $y$ .
- G** The variable  $x$  is a negative number.
- H** The variable  $y$  is a negative number.
- J** The variable  $y$  is a positive number.

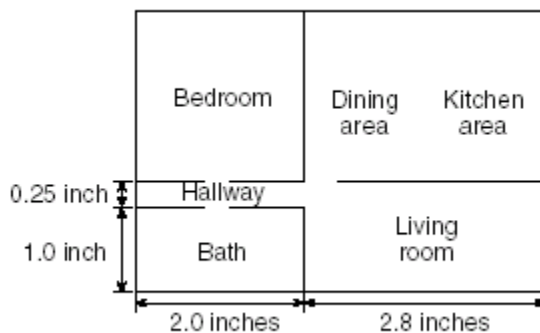
**8.15(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.**

**33** A store sells milk in two different containers. The first container is a rectangular prism that has a height of 8 inches and a square base with a side length of 2 inches. The other container is a cylinder with a radius of 1.75 inches and a height of 8 inches. Which best describes the relationship between the two containers?

- A** The prism has the greater volume.
- B** The cylinder has the greater volume.
- C** The volumes are equivalent.
- D** The volumes cannot be determined.

**8.14(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;**

**34** Mr. McGregor wanted to cover the floor in his living room with carpet that cost \$12 per square yard. The blueprint below shows the area of the living room relative to the area of the house.



What information must be provided in order to find the total cost of the carpet?

- F** The lengths and widths of the adjoining rooms in the blueprint
- G** The scale of yards to inches in the blueprint
- H** The total area of the house in the blueprint
- J** The thickness of the carpeting in inches

## Texas Assessment of Knowledge and Skills - Answer Key

Grade: 09  
 Subject: Mathematics  
 Administration: Spring 2003

Item Number	Correct Answer	Objective Measured	Student Expectations
01	D	10	8.14 (C)
02	G	03	A.C2 (G)
03	D	06	8.7 (D)
04	H	09	8.11 (B)
05	D	10	8.14 (B)
06	G	08	8.9 (B)
07	B	02	A.B2 (A)
08	H	04	A.C3 (B)
09	D	05	A.D1 (C)
10	G	05	A.D3 (A)
11	C	02	A.B2 (D)
12	F	07	8.7 (A)
13	D	04	A.C4 (A)
14	J	07	8.7 (C)
15	C	10	8.15 (A)
16	J	08	8.10 (A)
17	B	09	8.3 (B)
18	G	03	A.C2 (C)
19	D	02	A.B3 (A)
20	F	10	8.14 (A)
21	1248	07	8.7 (B)
22	J	10	8.15 (A)
23	C	10	8.14 (A)
24	G	01	A.B1 (D)
25	C	01	A.B1 (E)
26	H	08	8.8 (A)
27	A	05	A.D3 (A)
28	H	10	8.16 (B)
29	A	08	8.8 (B)
30	F	04	A.C3 (A)
31	C	07	8.7 (B)
32	H	06	8.6 (A)
33	B	10	8.15 (A)
34	G	10	8.14 (A)
35	C	09	8.3 (B)
36	H	09	8.11 (A)
37	A	08	8.8 (C)
38	H	08	8.9 (A)
39	A	03	A.C2 (A)
40	G	04	A.C3 (C)
41	D	03	A.C1 (C)
42	G	01	A.B1 (A)
43	D	06	8.7 (D)
44	F	03	A.C2 (D)
45	A	01	A.B1 (C)
46	H	02	A.B4 (A)
47	B	06	8.6 (B)
48	F	02	A.B2 (C)
49	D	01	A.B1 (B)
50	G	04	A.C3 (A)
51	C	09	8.12 (C)
52	G	05	A.D1 (C)