

Name Key

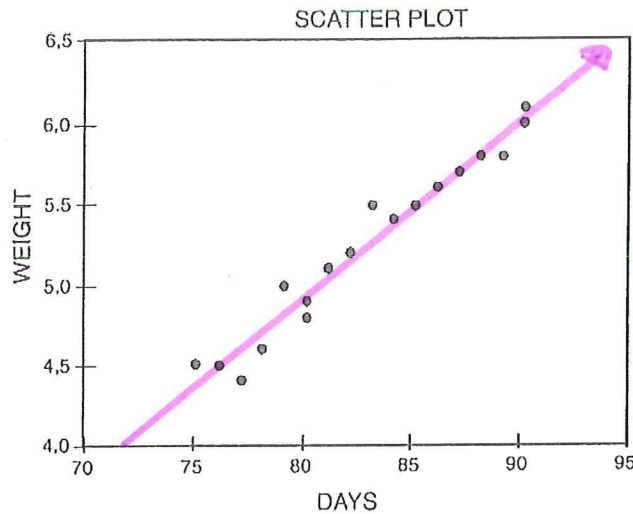
Date _____

Period _____

Second Semester 8th Grade Exam

Review

1. A doctor made the scatterplot below to show the number of pounds an infant gains in relation to the number of days.



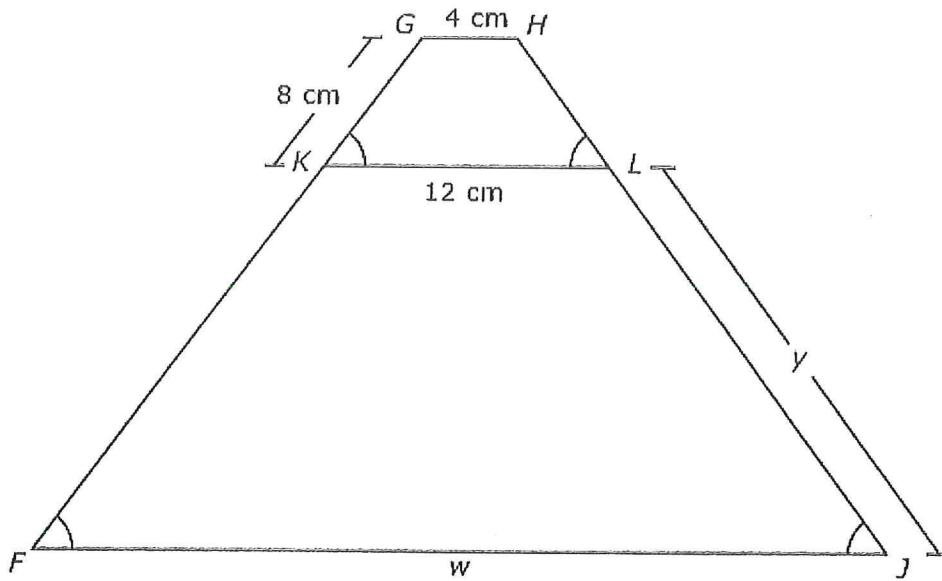
Which of the following best describes the correlation for the data?

- A Positive correlation
- B Nonlinear correlation
- C Negative correlation
- D No correlation

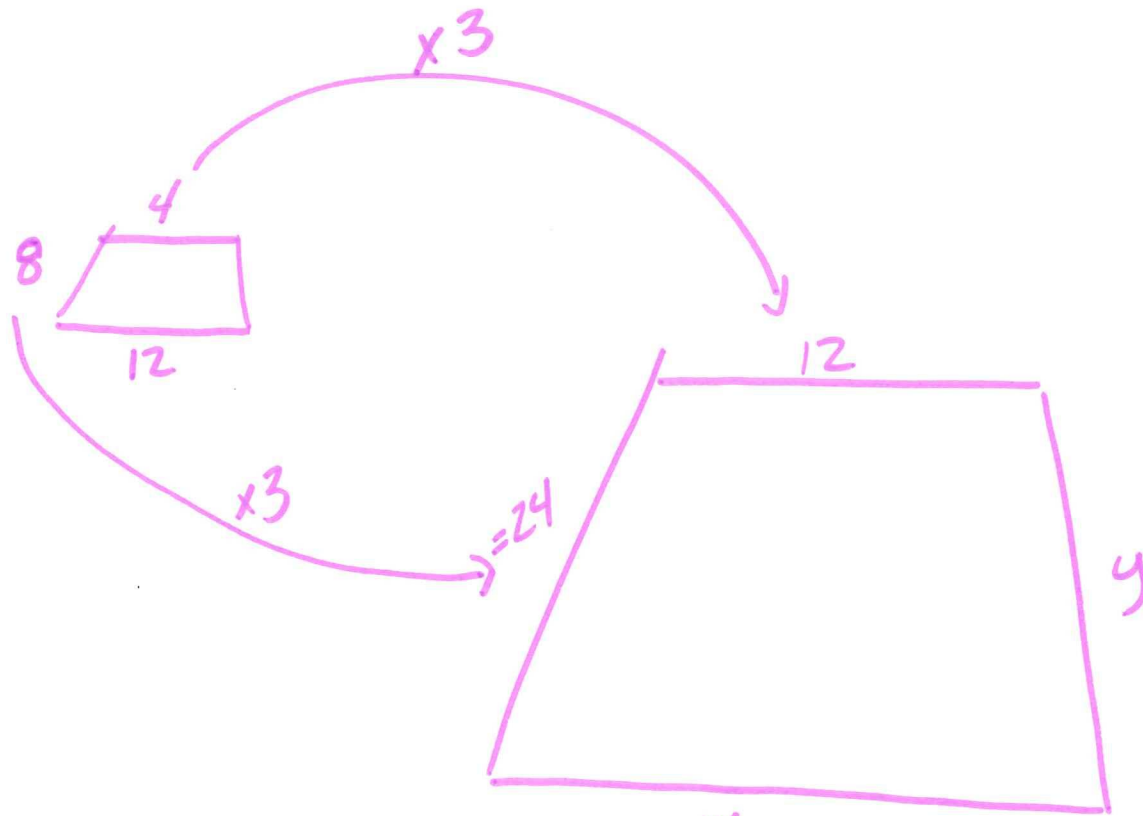
2. A family will travel 250 miles from their house in order to reach Dallas, TX. Write an inequality can be used to find all possible values of t , the time it will take this family to reach Dallas in hours, if they travel at an average speed of at least r miles per hour?

$$t \leq \frac{250}{r}$$

3. Janelle drew \overline{KL} in isosceles trapezoid $FGHJ$ to create similar trapezoids $FKLJ$ and $KGHL$.



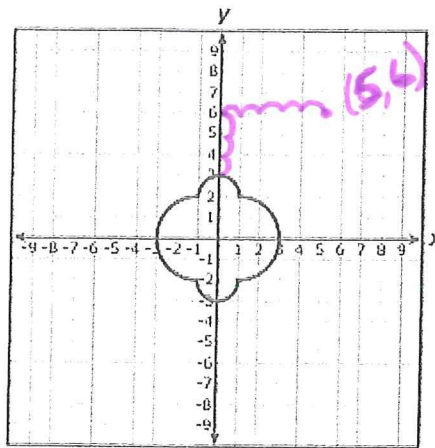
Based on the given information, what are the values of y and w in centimeters?



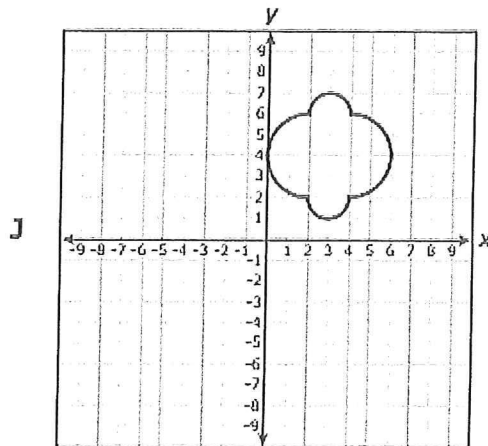
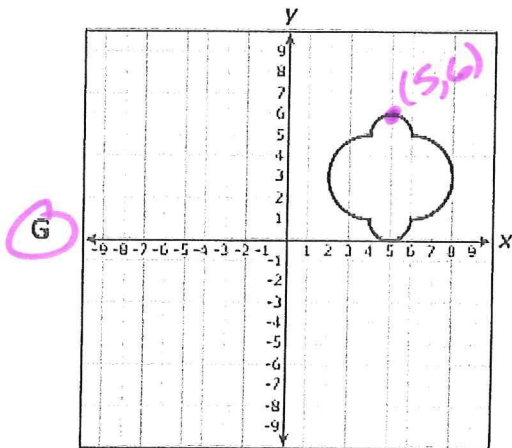
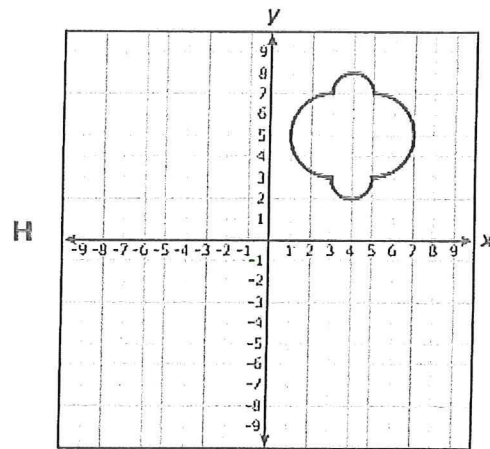
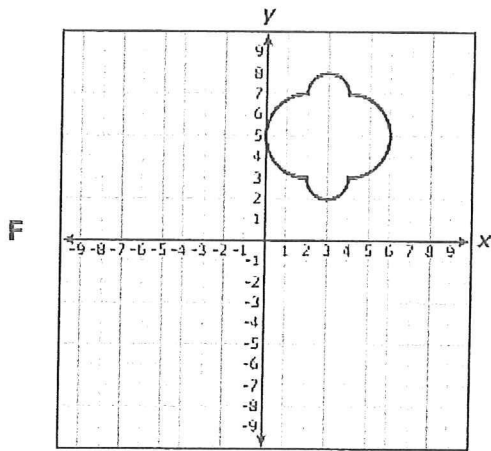
$$y = 24$$
$$w = 36$$

$$12 \times 3 = 36$$

4. A figure is shown on the grid below.



Which graph best represents this figure after it has been translated 3 units up and 5 units to the right?



5. An electrician charges \$65 for the first hour of labor and \$60 for each additional hour of labor. A customer calculates that the electrician charges \$215 a total of $3\frac{1}{2}$ hours of labor. Write an equation for the statement from above.

$$65 + (60 \cdot 2.5) = 215$$

6. The perimeter of a rectangle is 42 centimeters. The length of the rectangle can be represented by $(X+6)$, and its width can be represented by $(3X+4)$. What are the dimensions of this rectangle in centimeters?

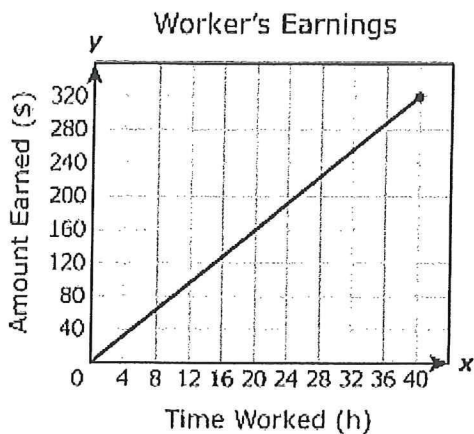
Perimeter all sides added together

$3(2.75) + 4 = 17.25$
 $3X + 4$
 $X + 6$
 $2.75 + 6 = 8.75$

$$\begin{array}{r} 3x + 4 \\ + 3x + 4 \\ + 1x + 6 \\ + 1x + 6 \\ \hline 8x + 20 \end{array}$$

$$\begin{array}{r} 8x + 20 = 42 \\ -20 \quad | \quad -20 \\ \hline 8x \quad \quad 22 \\ \hline \frac{8x}{8} \quad \quad \frac{22}{8} \\ x = 2.75 \end{array}$$

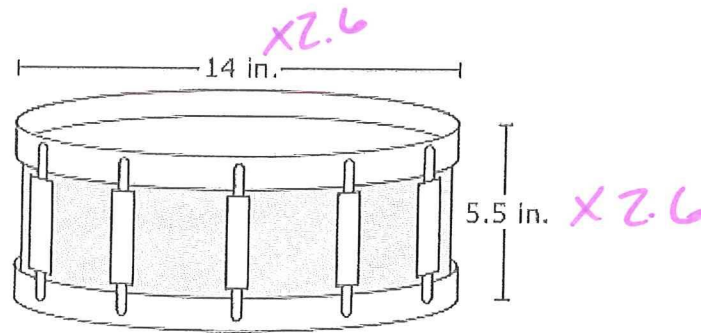
7. The graph below shows the relationship between the number of dollars a worker earns and the number of hours worked.



What does the slope of the graph represent?

Amount Earned per hour

8. Regina owns a drum that has a diameter of 14 inches and a height of 5.5 inches, as shown below. She wants to design a new drum by dilating the dimensions of the original drum by a scale factor of 2.6.



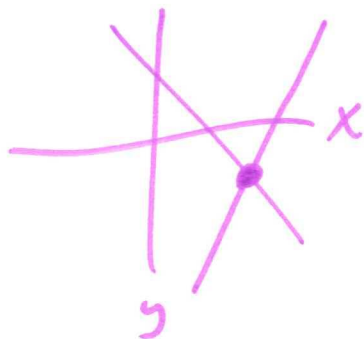
What will be the diameter, d , and the height, h , of the new drum?

$$14 \times 2.6 = 36.4$$

$$5.5 \times 2.6 = 14.3$$

9. How will a system of equations be represented on a graph?

System of equation on a graph is where two slopes intersect



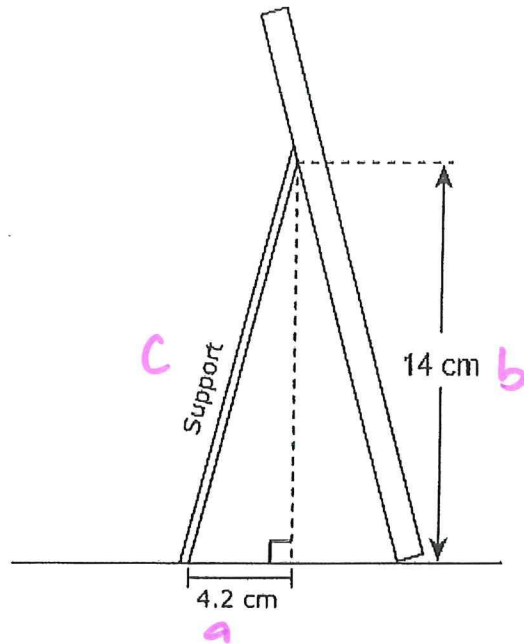
10. A paper drinking cup in the shape of a cone has a height of 12 centimeters and a diameter of 8 centimeters. What is closest to the volume of the cup in cubic centimeters?

$$V = \frac{1}{3}(\pi r^2)h$$

$$V = \frac{1}{3}Bh$$

$$\rightarrow \frac{1}{3}(\pi 4^2)12 = 201.062 \text{ cm}^3$$

11. The drawing below shows a side view of a picture frame on Mary's desk.



What is closest to the length of the frame support?

$$a^2 + b^2 = c^2$$

$$4.2^2 + 14^2 = c^2$$

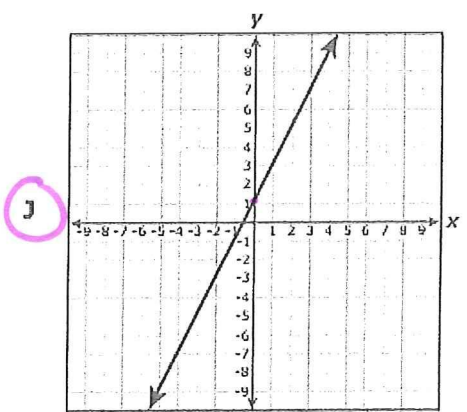
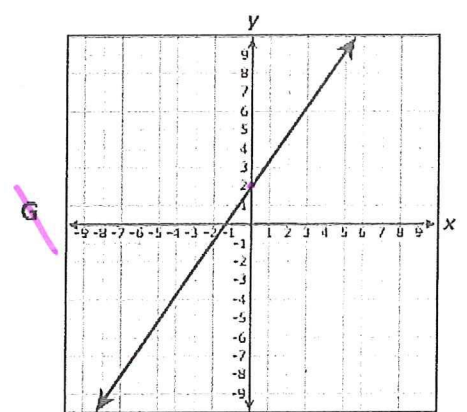
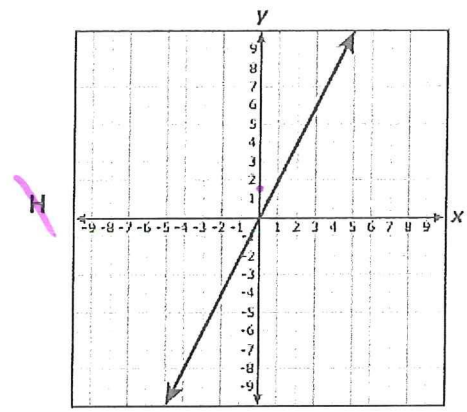
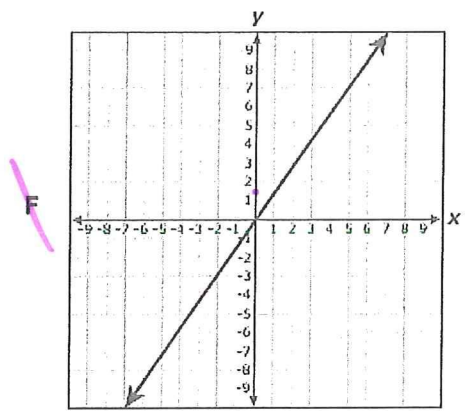
$$17.64 + 196 = c^2$$

$$213.64 = c^2$$

$$\sqrt{213.64} = 14.619 \text{ cm}$$

y intercept

12. Which graph best represents the equation $y = 2x + 1.1$?



13. An architect is designing an office building with n floors that will have an FM radio antenna 15.85 m tall on its roof. Each floor of the building will be 4.1m high. Which function can be used to find the total height of the building in meters, including the FM antenna?

- A $h(n) = 15.85n + 4.1$
- B $h(n) = 4.1n + 15.85$**
- C $h(n) = 4.1n - 15.85$
- D $h(n) = 19.75n$

14. The table shows the amount of water used daily to water the fairways at Fairlawn Golf Course. To the nearest tenth, determine the mean absolute deviation of the data.

Daily Amount of Water Used							
Day	1	2	3	4	5	6	7
Gallons	9	12	12	0	9	8	5

$$9 + 12 + 12 + 0 + 9 + 8 + 5 = \frac{55}{7}$$

$$\frac{55}{7} = 7.8$$

$$9 - 7.8 = 1.2$$

$$12 - 7.8 = 4.2$$

$$12 - 7.8 = 4.2 \text{ add}$$

$$0 - 7.8 = 7.8 \text{ together}$$

$$9 - 7.8 = 1.2 = 21.6$$

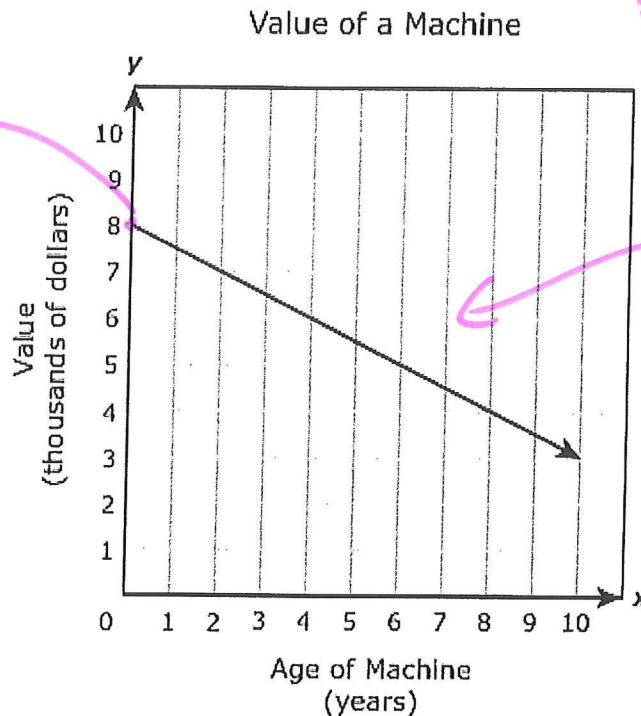
$$8 - 7.8 = .2 \quad 21.6 / 7 = 3.08$$

$$5 - 7.8 = 2.8$$

Mean Absolute Deviation is 3.08

15. The graph models the value of a machine over a 10-year period.

Row = y intercept



negative slope

Which equation best represents the relationship between x , the age of the machine in years, and y , the value of the machine in dollars over this 10-year period?

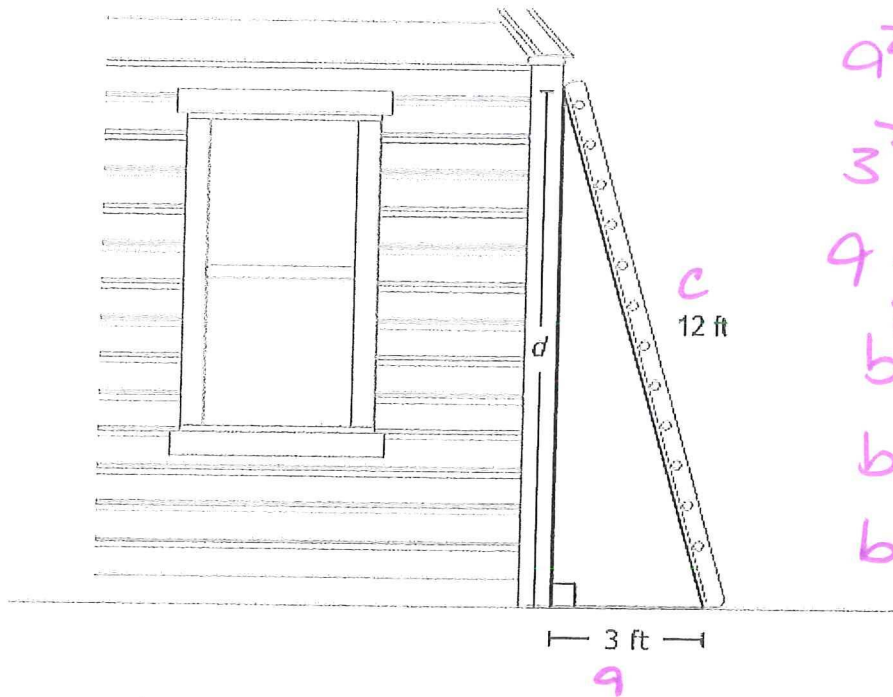
A $y = -0.002x + 2,500$

B $y = -500x + 8,000$

C $y = 500x + 8,000$

D $y = 0.002x + 2,500$

16. Gwendolyn placed a ¹² 10-foot ladder against the side of her house so that the base of the ladder was 3 feet from the base of the house, as shown in the diagram below.



$$a^2 + b^2 = c^2$$

$$3^2 + b^2 = 12^2$$

$$9 + b^2 = 144$$

$$b^2 = 135$$

$$b = \sqrt{135}$$

$$b = 11.619$$

What measurement in feet is closest to d , the distance from the top of the ladder to the ground?

11.619 about 12

17. During one month, four trees at a nursery increased in height at the rates shown below.

$$8\%, \frac{1}{12}, 16\%, \frac{1}{20}$$

Which list shows these rates in order from least to greatest?

8%	$\frac{1}{12}$	16%	$\frac{1}{20}$
↓	↓	↓	↓
.08	.08 $\bar{3}$.16	.05

$$\frac{1}{20}, 8\%, \frac{1}{12}, 16\%$$

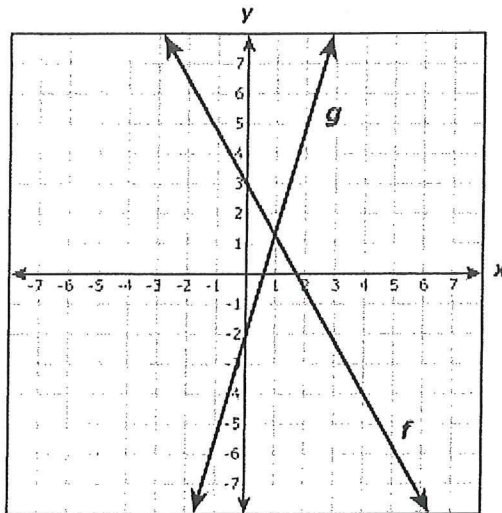
18. A painter charges \$35 per hour for labor plus \$40 for a ladder rental when he paints a house. The customer provides the paint. The total charge to paint a customer's house was \$ 1160. How many hours did the painter spend painting this house?

$$35h + 40 = 1160$$

$$\frac{35h}{35} = \frac{1120}{35}$$

$$h = 32$$

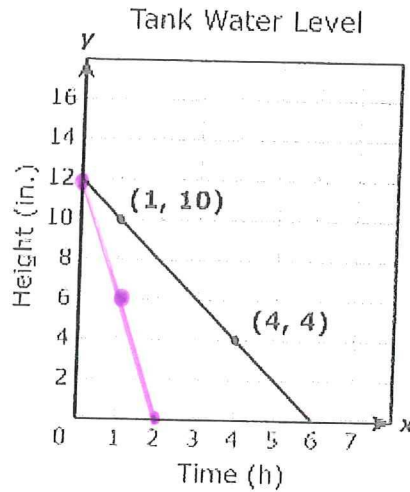
19. The slope and y -intercept of the graph of f were changed to make the graph of g , as shown below.



Which statement describes the changes that were made to the graph of f to make the graph of g ?

- A The slope was multiplied by 2, and the y -intercept was decreased by 5 to make the graph of g .
- B The slope was multiplied by $-\frac{1}{2}$, and the y -intercept was increased by 5 to make the graph of g .
- C The slope was multiplied by -2 , and the y -intercept was decreased by 5 to make the graph of g .
- D The slope was multiplied by $\frac{1}{2}$, and the y -intercept was increased by 5 to make the graph of g .

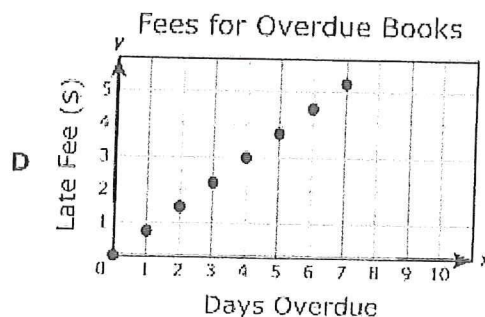
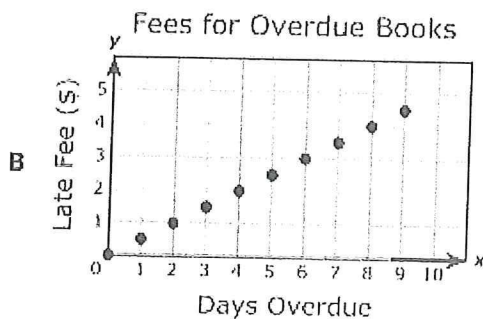
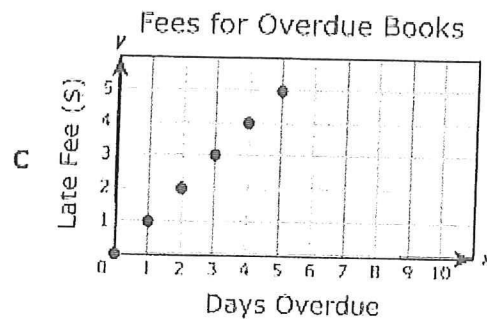
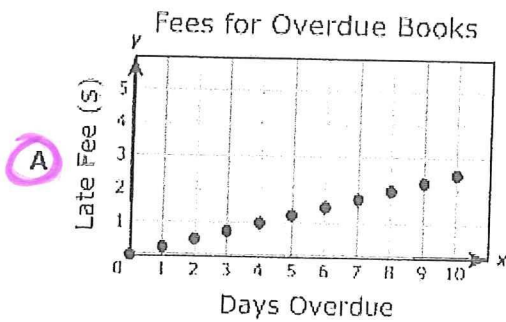
20. The graph below shows the water level in a tank being drained at a constant rate.



If the rate at which the tank is drained is changed to 6 inches per hour and the initial water level stays the same, how would the time it takes to empty the tank be affected?

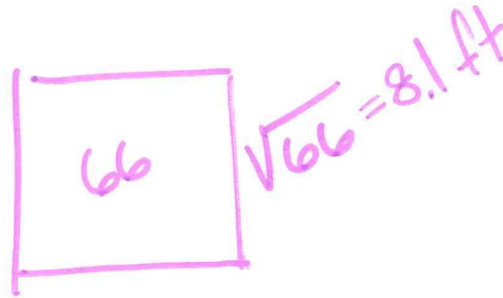
- F It would take 4 fewer hours.
- G It would take 1.5 more hours.
- H It would take 2 fewer hours.
- J It would take 2 more hours.

21. The late fee for overdue books at a library is \$0.25 per day per book, with a maximum late fee of \$5.00 per book. Which graph models the total late fee for a book that was checked and are overdue?



22. Carlos has a square tablecloth with a total area of 66 square feet. Which measurement is closest to the length of each side of the tablecloth in feet?

- ~~F 9.8 ft~~
~~G 5.0 ft~~
~~H 12.0 ft~~
~~J 6.9 ft~~



23. A store manager begins each shift with the same total amount of money. She keeps \$200 in a safe and distributes the rest equally to the 5 cashiers in the store. Write an equation to represent this.

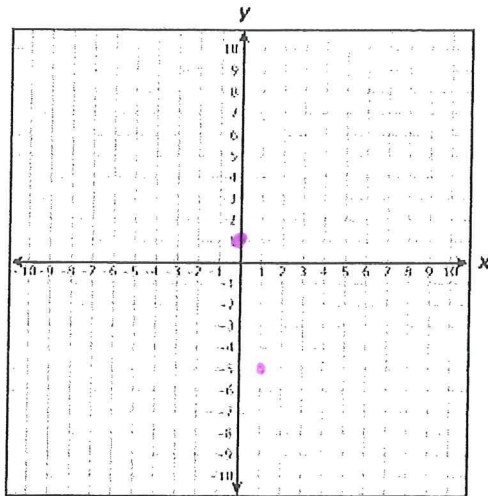
$$y = \frac{x - 200}{5}$$

24. Leonard had t tickets for the rides at a county fair. He kept 9 of the tickets and gave an equal number of the remaining tickets to 6 of his friends. There were no tickets left over. Write an equation that can be used to find f , the number of tickets Leonard gave to each of his friends?

~~$$t = \frac{t}{6} - 9$$~~

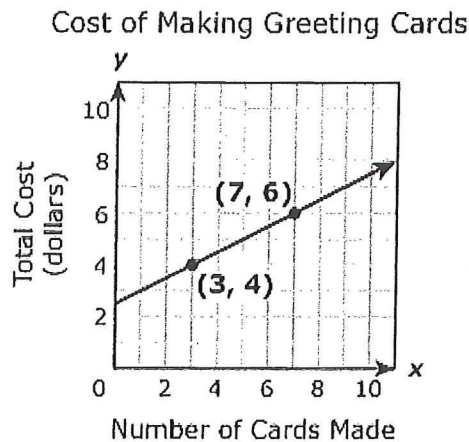
$$f = \frac{t - 9}{6}$$

25. Which coordinate pair is in the solution set for $y = 1 - 6x$?



- ~~A~~ (1, 0)
- B (1, -1)
- C** (0, 1)
- D (-1, 1)

26. Sal purchased some art supplies and card stock in order to make greeting cards. The graph below shows the relationship between the number of cards Sal makes and the total cost of the materials used to make the cards.

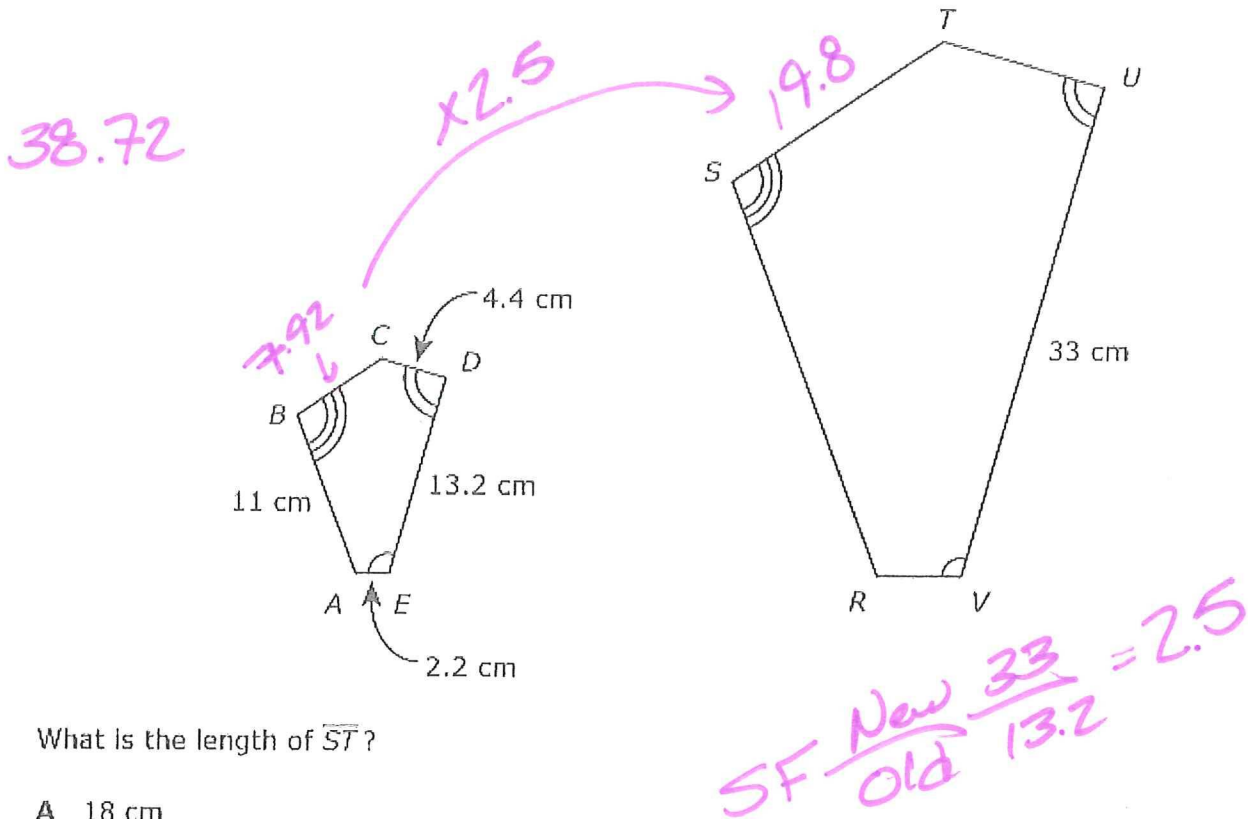


$$\begin{array}{r}
 7.50 \text{ for } 10 \\
 \times 2 \\
 \hline
 15.00
 \end{array}$$

Based on the graph, what will be the total cost of making 20 greeting cards?

- F \$12.50
- G \$50.00
- H \$52.50
- J** \$15.00

27. Pentagon $ABCDE$ is similar to pentagon $RSTUV$. The perimeter of pentagon $ABCDE$ is 38.72 centimeters.

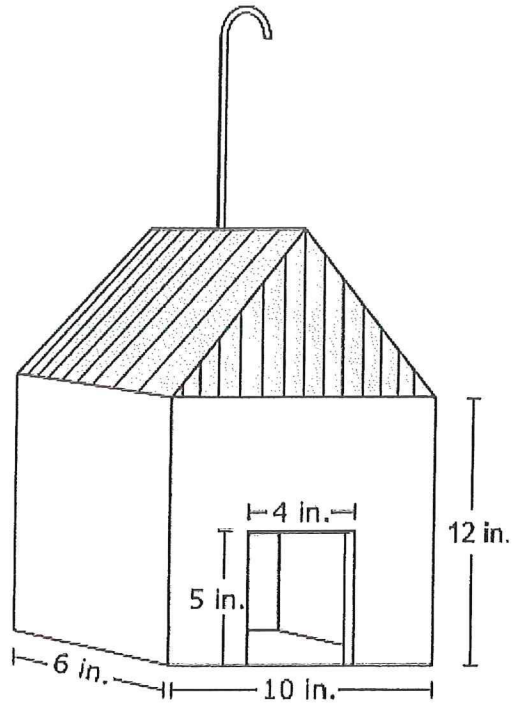


What is the length of \overline{ST} ?

- A 18 cm
 - B 25.8 cm
 - C 15 cm
 - D 19.8 cm
28. A ball shaped like a sphere has a radius of approximately $2\frac{1}{8}$ inches. Which of the following is the best estimate of the volume of the ball?

$$V = \frac{4}{3} \pi \left(2\frac{1}{8}\right)^3 = 40.19$$

29. Sakura has a birdhouse with rectangular walls, a rectangular bottom, and a rectangular entry, like the one modeled below.



She will paint the four outside walls but not the bottom or the roof of the birdhouse. What is the area that Sakura will paint?

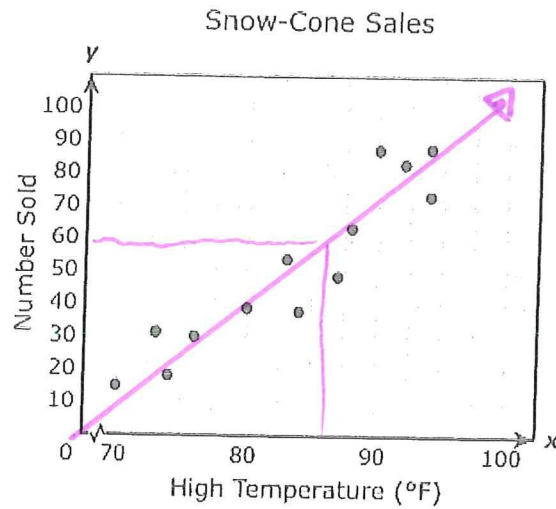
Later

$$S = Ph$$
$$S = 32(12)$$
$$384$$

$$384 - 20 = 364$$

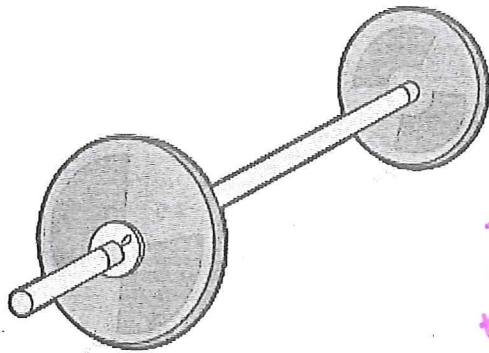
↑
door

30. The scatterplot below shows the relationship between the daily high temperature and the number of snow cones sold at a concession stand on that day.



Based on the scatterplot, approximately how many snow cones will be sold on a day when the high temperature is 87°F?

- F 63
 G 46
 H 29
 J 33
31. A weightlifter is adding plates of equal weight to a bar. The table below shows the total weight, including the bar, that he will lift depending on the total number of plates on the bar.



Number of Plates	Total Weight (lb)
2	115
4	185
6	255
8	325

+20
+20
+20

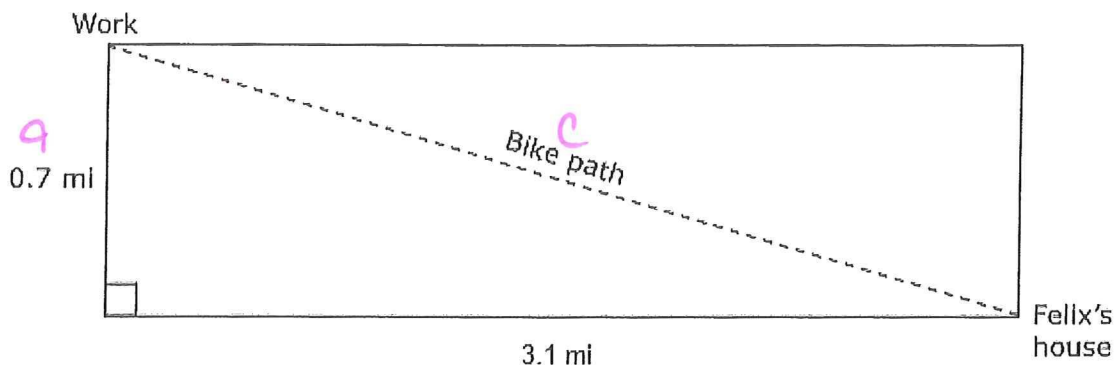
+70
+70
+70

What is the total weight for 11 plates and the bar?

$$45 + 11(35) = 430 \text{ lbs}$$

Each Plate $\frac{70}{2} = 35 \text{ lbs}$
 $115 - 70 = 45 \text{ bar}$

32. To get from home to work, Felix can either take a bike path through the rectangular park or ride his bike along two sides of the park.



How much farther would Felix travel by riding along two sides of the park than he would by taking the path through the park?

$$a^2 + b^2 = c^2$$

$$0.7^2 + 3.1^2 = c^2$$

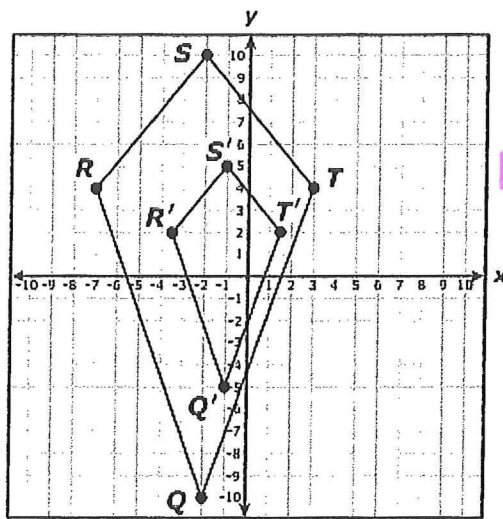
$$.49 + 9.61 = c^2$$

$$10.1 = c^2$$

$$\sqrt{10.1} = c$$

$$c = 3.17$$

33. Quadrilateral $Q'R'S'T'$ is a dilation of quadrilateral $QRST$, with the origin as the center of dilation.



Old 3, 4
New 1.5, 2

$$SF = \frac{\text{New}}{\text{Old}} = \frac{2}{4} = \frac{1}{2}$$

What appears to be the scale factor used to create this dilation?

$$SF = \frac{1}{2}$$

34. If $y = -\frac{4}{5}x - 2$, what is the value of x when $y = -13$?

F $-\frac{35}{4}$

G $-\frac{55}{4}$

H $\frac{35}{4}$

J $\frac{55}{4}$

$$\begin{aligned} -13 &= -\frac{4}{5}x - 2 \\ +2 & \quad +2 \\ \hline -11 &= -\frac{4}{5}x \\ \cdot -\frac{5}{4} & \quad \cdot -\frac{5}{4} \\ \frac{55}{4} &= x \end{aligned}$$

35. Dominic used the equation below to find d , the amount in dollars he would spend on gasoline to drive a distance of m miles.

$$d = \frac{m}{25}(3.5)$$

Based on this equation, how much would Dominic spend on gasoline to drive a distance of 175 miles?

A \$25.20

B \$21.00

C \$24.50

D \$28.00

$$d = \frac{175}{25}(3.5)$$

$$d = 7(3.5)$$

$$d = 24.5$$

36. The dishwasher at a restaurant is loaded with the same number of dishes every time it is used. The table below shows the total number of dishes washed as a function of the number of times the dishwasher is used.

Restaurant Dishwasher

Number of Times Used	Total Number of Dishes Washed
2	52
4	104
6	156
8	208

Handwritten notes: +26 (next to 2, 4, 6, 8), +52 (next to 52, 104, 156, 208)

Based on the data in the table, what is the total number of dishes that will have been washed when the dishwasher is used 11 times?

$$\frac{52 \times 2}{2} = 26 \text{ each time}$$

$$11 \times 26 = 286$$

286

+	0	0	0	0	.	0	0		
-	1	1	1	1		1	1		
	2	2	2	2		2	2		
	3	3	3	3		3	3		
	4	4	4	4		4	4		
	5	5	5	5		5	5		
	6	6	6	6		6	6		
	7	7	7	7		7	7		
	8	8	8	8		8	8		
	9	9	9	9		9	9		

37. Anita has a collection of postage stamps from different countries. She has one book that contains 35 stamps. She has a second book that has 7 stamps on each page. The equation below can be used to find t , the total number of postage stamps Anita has if the second book has p pages.

$$t = 35 + 7p$$

How many postage stamps does Anita have in all if the second book has 25 pages?

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

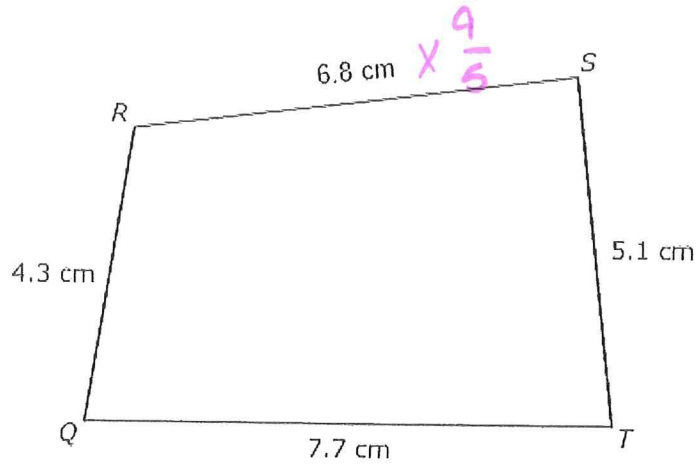
$$t = 35 + 7(25)$$

$$210$$

210

+	0	0	0	0	.	0	0		
-	1	1	1	1		1	1		
	2	2	2	2		2	2		
	3	3	3	3		3	3		
	4	4	4	4		4	4		
	5	5	5	5		5	5		
	6	6	6	6		6	6		
	7	7	7	7		7	7		
	8	8	8	8		8	8		
	9	9	9	9		9	9		

38. Polygon $QRST$ below was dilated by a scale factor of $\frac{9}{5}$ to create polygon $Q'R'S'T'$.



What is the length in centimeters of $\overline{R'S'}$?

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

$$6.8 \times \frac{9}{5} = 12.24$$

					12	.	24
+	0	0	0	0			0
-	1	1	1	1			1
	2	2	2	2			2
	3	3	3	3			3
	4	4	4	4			4
	5	5	5	5			5
	6	6	6	6			6
	7	7	7	7			7
	8	8	8	8			8
	9	9	9	9			9

39. Calculate the interest you would earn on a \$2200 deposit at 5.5% interest compounded annually if you make no withdrawals or deposits for 10 years.

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

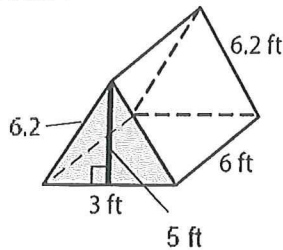
$$A = P(1 + r)^t$$

$$A = 2200(1 + .055)^{10}$$

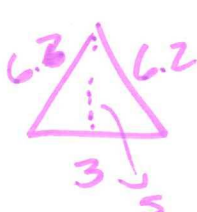
$$\begin{array}{r} 3757.92 \\ - 2200 \\ \hline 1557.92 \end{array} \leftarrow \text{interest earned}$$

								3757.92
+	0	0	0	0				0
-	1	1	1	1				1
	2	2	2	2				2
	3	3	3	3				3
	4	4	4	4				4
	5	5	5	5				5
	6	6	6	6				6
	7	7	7	7				7
	8	8	8	8				8
	9	9	9	9				9

40. Mia wants to make a canvas tent with the dimensions shown, including the floor. The ends of the tent are isosceles triangles. The canvas costs \$2.25 per square foot. How much will Mia spend on canvas?



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



$$P = 6.2 + 6.2 + 3 = 15.4$$

$$B = \frac{1}{2}(3 \cdot 5) = 7.5$$

+	0	0	0	0	.	0	0		
-	1	1	1	1		1	1		
	2	2	2	2		2	2		
	3	3	3	3		3	3		
	4	4	4	4		4	4		
	5	5	5	5		5	5		
	6	6	6	6		6	6		
	7	7	7	7		7	7		
	8	8	8	8		8	8		
	9	9	9	9		9	9		

Total SA

$$S = Ph + 2B$$

$$S = 15.4(6) + 2(7.5)$$

$$S = 107.4 \text{ ft}^2 \text{ of canvas}$$

$$\begin{array}{r} 107.4 \\ \times 2.25 \\ \hline 241.65 \end{array}$$

