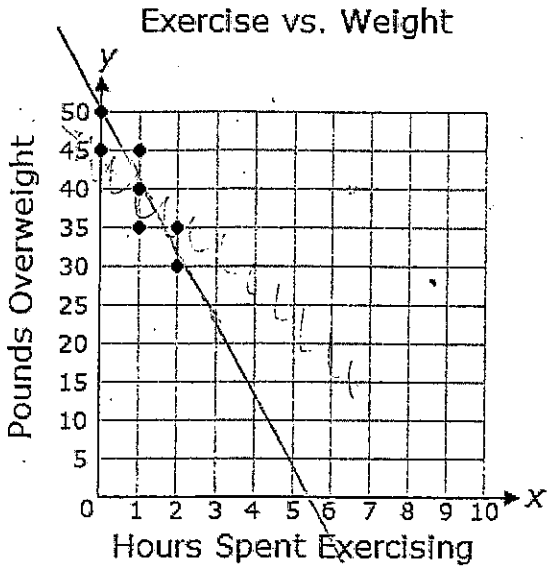
1. A researcher made the following graph showing the number of hours per week that people exercise versus the number of pounds that they are overweight.



Predict the number of pounds overweight someone would be if they spend 3 hours per week exercising.

A. 30 **B.** 25 **C.** 20 **D.** 10

2. The table below shows how the amount remaining to pay on a bank loan is changing over time.

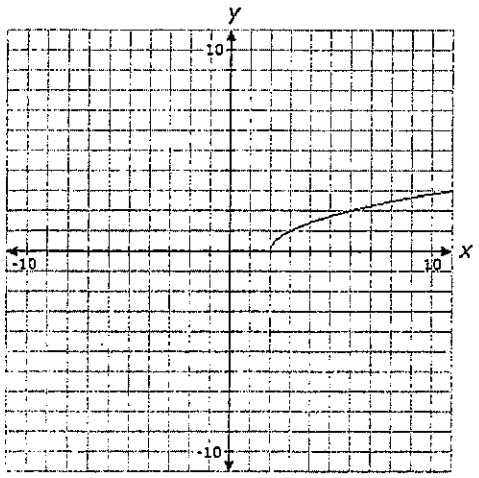
Time (months)	Amount Remaining (dollars)
0	5,000
1	4,800
2	4,600
3	4,400
4	4,200

Let x represent the time in months, and let y represent the amount in dollars remaining to pay. Which equation describes the relationship between x and y?

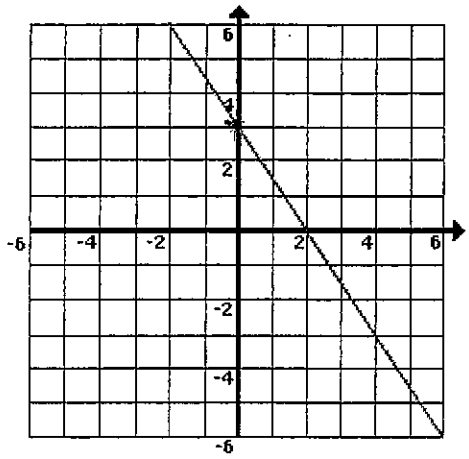
A. $y = -800x + 5{,}000$ **B.** $y = -200x + 5{,}000$ **C.** $y = 200x - 5{,}000$ **D.** $y = 800x - 5{,}000$

3. Find the domain of the radical function graphed below.

A. $x \geq 0$ **B.** all real numbers **C.** $x > 1$ **D.** $x \geq 2$



4.



Which of the following functions matches the graph above?

A. $f(x) = -\frac{3}{2}x + 3$

B. $f(x) = -\frac{2}{3}x + 2$

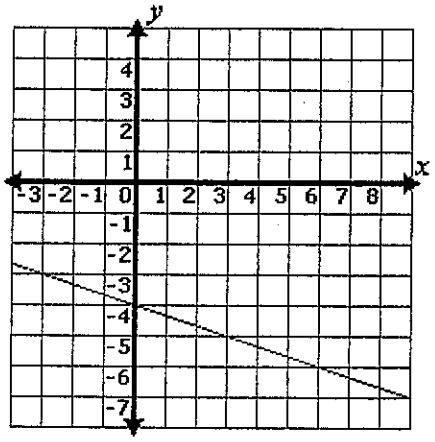
C. $f(x) = \frac{2}{3}x - 2$

D. $f(x) = \frac{3}{2}x - 3$

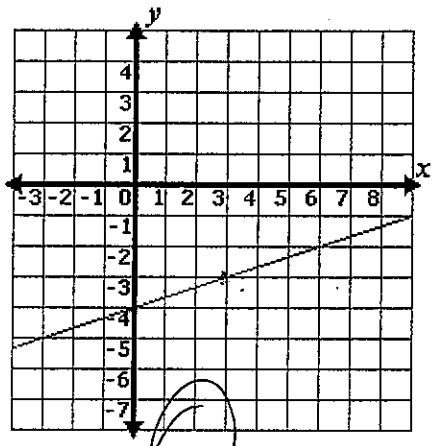
5. Which graph corresponds to the table below?

x	0	1	2	3	4
y	-4	$-11/3$	$-10/3$	-3	$-8/3$

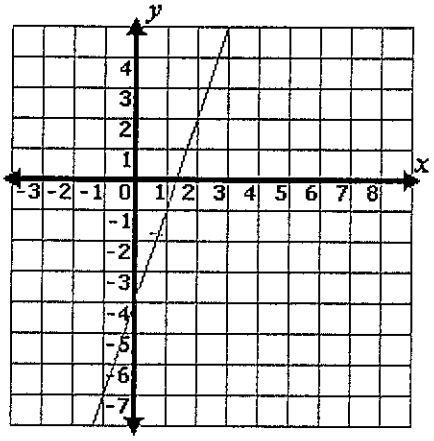
-3.67 -3.33



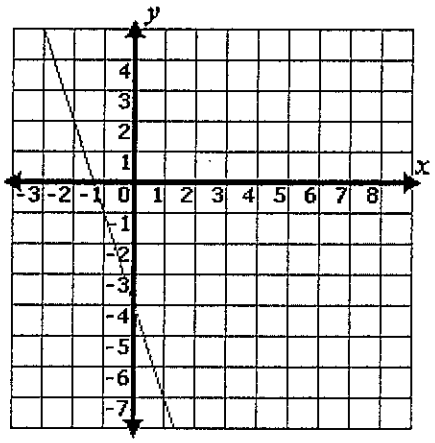
W.



X.



Y.

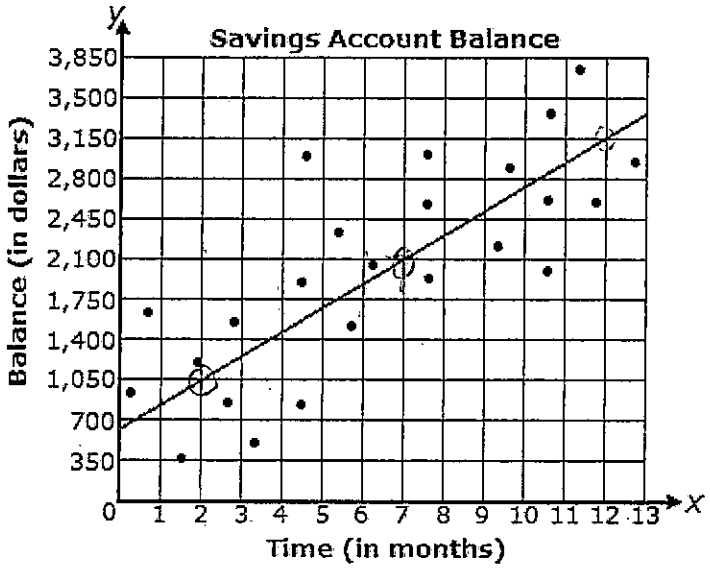


Z.

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

#6 — 19 Friday

6.



$\frac{1050}{5} = 210$

The graph above shows a line of best fit for data collected on the saving account balances of several students in relation to the time money has been put into the accounts. What is the equation of the line of best fit?

$x_1\ y_1 \quad x_2\ y_2$
$(2, 1050)(7, 2100)$

$\frac{2100-1050}{7-2} = \frac{1050}{5}$ $\quad \frac{y_2-y_1}{x_2-x_1}$

210

A. $y = -\frac{3}{5}x + 630$

B. $y = 210x + 630$

C. $y = -210x + 630$

D. $y = \frac{3}{5}x + 630$

7. In P.E. class, the students recorded their number of heartbeats after exercising. Below is a chart with the number of heartbeats recorded after 30, 50, and 70 seconds of exercise.

What is the rate of change of the data in heartbeats per minute?

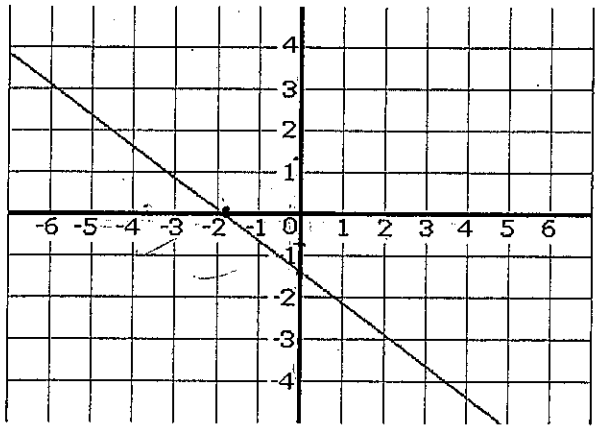
Seconds Passed	No. Heartbeats
30	69
50	115
70	161

$m = \frac{y_2-y_1}{x_2-x_1}$

$\frac{161-115}{70-50} = \frac{46}{20} \cdot \frac{3}{3} = \frac{138}{60}$

A. 138 **B.** 230 **C.** 92 **D.** 115

8. Which equation is graphed below.



$3x - 4y = -5$
$3(0) - 4y = -5$
$\frac{-4y}{-4} = \frac{-5}{-4}$
$y = \frac{5}{4} = 1\frac{1}{4}$

$3x + 4y = -5$
$3(0) + 4y = -5$
$\frac{4y}{4} = \frac{-5}{4}$
$y = -\frac{5}{4} = -1\frac{1}{4}$

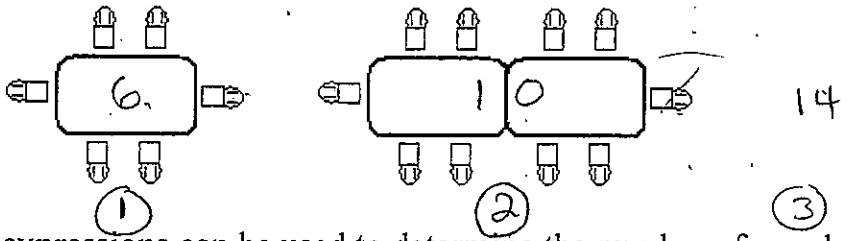
$3x + 4(0) = -5$
$\frac{3x}{3} = \frac{-5}{3}$
$x = -\frac{5}{3}$

A. $4x + 3y = 2$
B. $4x + 3y = -2$
C. $3x - 4y = -5$
D. $3x + 4y = -5$

$4x + 3y = 2$
$4(0) + 3y = 2$
$\frac{3y}{3} = \frac{2}{3}$
$y = \frac{2}{3}$

$4x + 3y = -2$
$4(0) + 3y = -2$
$\frac{3y}{3} = \frac{-2}{3}$
$y = -\frac{2}{3}$

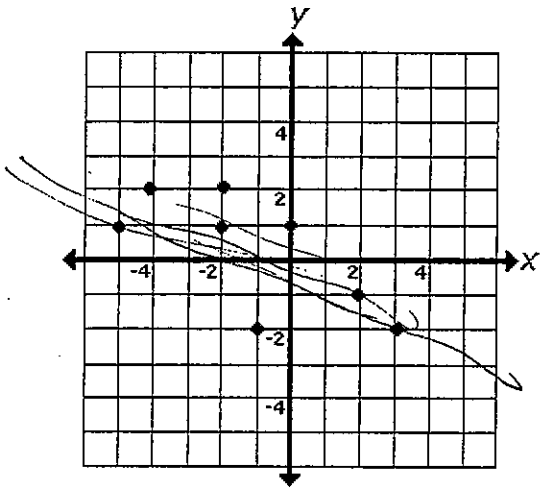
9. Sylvester's Pizzeria has a party room to accommodate pizza parties. They have rectangular tables that can be placed together end-to-end to sit large groups of people together. Some sample seating arrangements are shown below.



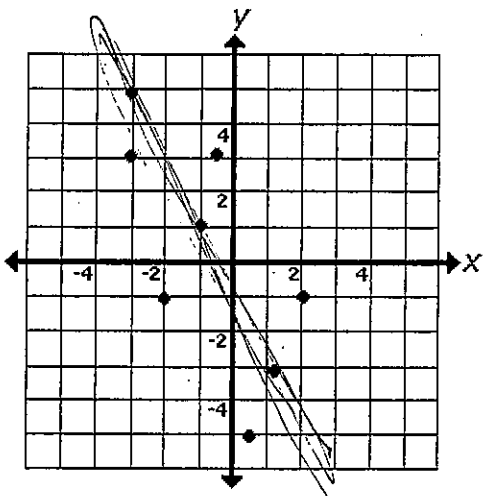
Which of the following expressions can be used to determine the number of people who can sit as a group if t tables are joined together?

A. $4(t + 1)$ → $4(1+1) = 8$
B. $3(t + 1)$ → $3(1+1) = 6$ ✓ $3(2+1) =$ ✗
C. $2(2t - 1)$ → $2(2(1)-1) =$ ✗
D. $2(2t + 1)$ → $2(2(1)+1) = 6$ ✓ $2(2(2)+1) = 10$ ✓

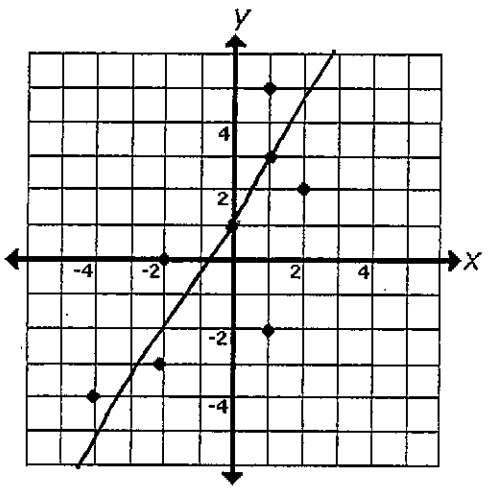
10. Which scatterplot most likely has a line of best fit represented by $y = 2x + 1$?



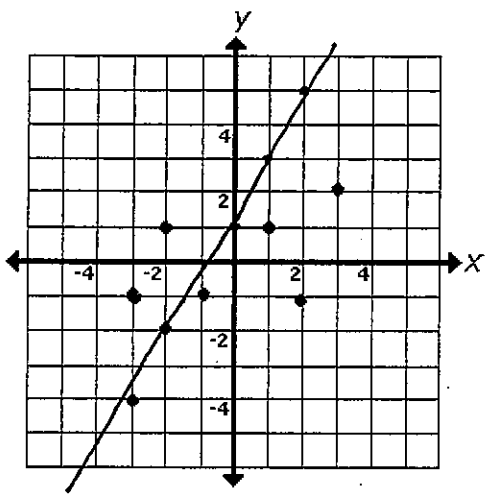
W.



X.



Y.



Z.

A. X **B.** Y **C.** Z **D.** W

11. Which of the following relations is a function?

A. (1, 4), (-4, 6), (1, 3), (-8, 2)

B. (1, 4), (-4, 2), (6, 1), (-8, 2)

C. (1, 0), (-4, 3), (6, 1), (-4, 5)

D. (6, 1), (-4, 4), (1, 1), (6, 2)

$y - y_1 = m(x - x_1)$

12. A line with a slope of $^1/_3$ and passes through (-4,-5). What is the equation of the line?

A. $x + 3y = 11$

B. $y = {}^1/_3(x + 4)$

D. $y = {}^1/_3x - {}^{11}/_3$

$-4 + -15 = -19$ (x y)

$ax + by = c$

$y = mx + b$

$-5 = \frac{1}{3}(-4) + b$

$-5 = -1.33333 + b$

$+1.333 \quad +1.3333$

$x + 3y = 9$

$y + 5 = \frac{1}{3}(x+4)$ $\quad 3y = 9 - x$

$y = \frac{1}{3}x + \frac{4}{3} - \frac{15}{3}$ $\quad y = 3 - \frac{x}{3}$

TJ type of w

13. A university completed a study to determine what effect drinking coffee had on hours of sleep. After studying 1000 people, they concluded that, for every three cups of coffee, a person sleeps two hours less.

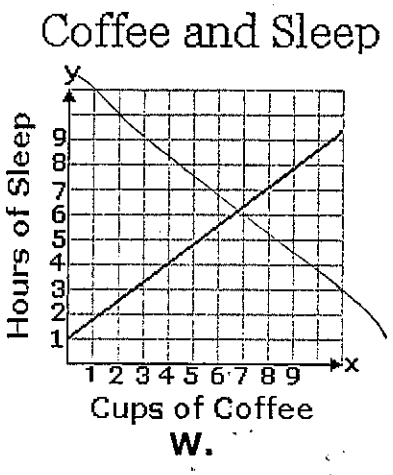
Which of the following graphs shows this linear relationship?

$y = mx + b$

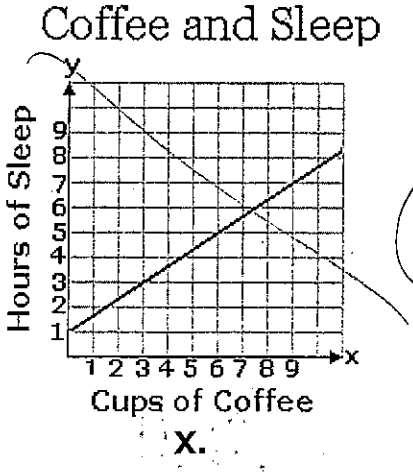
slope — y-int

rate of change

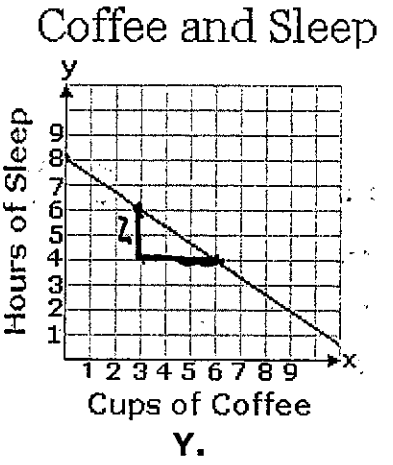
$\frac{y_2 - y_1}{x_2 - x_1} = \frac{-2}{3}$



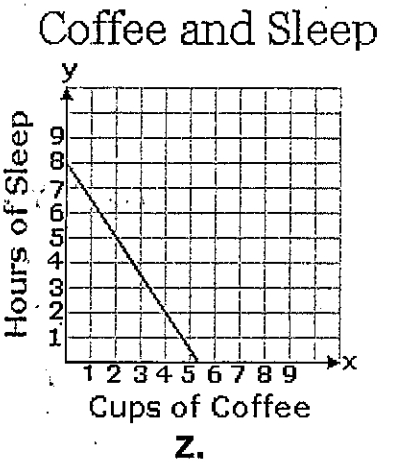
W.



X.



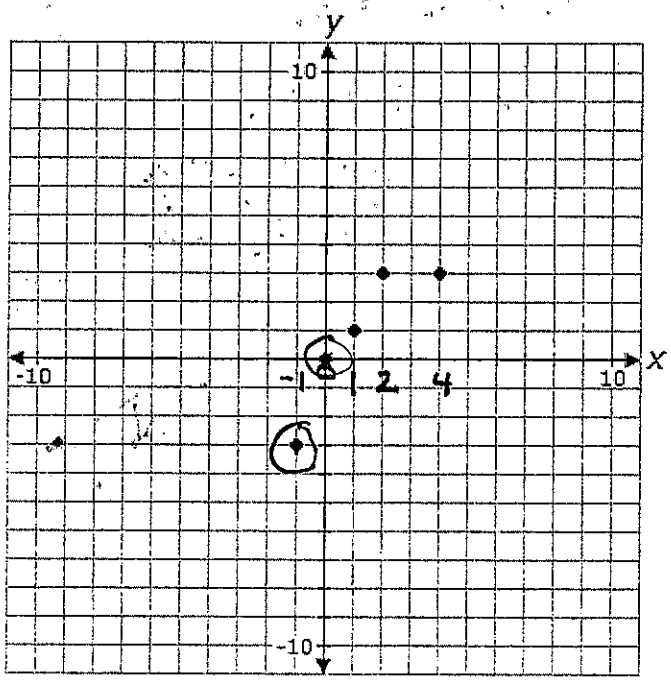
Y.



Z.

A. Y **B.** Z **C.** X **D.** W

14. What is the domain of the relation plotted on the graph below?



A. {-3, 0, 1, 3}

B. {all real numbers between and including -1 and 4}

C. {all real numbers between and including -3 and 3}

D. {-1, 0, 1, 2, 4}

x_1 y_1
(100, 1000) (120, 800)

15. A company noticed a linear relationship between the price of a luggage set and the number of luggage sets sold. At \$100, the company sold 1,000 sets. When the company raised the price to \$120, they sold 800 sets. Which equation relates the price of the luggage sets to the total number of luggage sets sold?

$m = \frac{y_2 - y_1}{x_2 - x_1}$ $y - y_1 = m(x - x_1)$

$\frac{1000 - 800}{100 - 120} = \frac{200}{-20} = -10$

A. $y - 100 = 10\,(x - 1000)$

B. $y - 1000 = 10\,(x - 100)$

C. $y - 100 = -10\,(x - 1000)$

D. $y - 1000 = -10\,(x - 100)$

16. According to the table below, what is the range of the data?

input	output
20	26
21	27
22	28
23	29
24	30

A. 27, 29, 31, 33, 35
B. 20, 21, 22, 23, 24
C. 26, 27, 28, 29, 30
D. 20, 19, 18, 17, 16

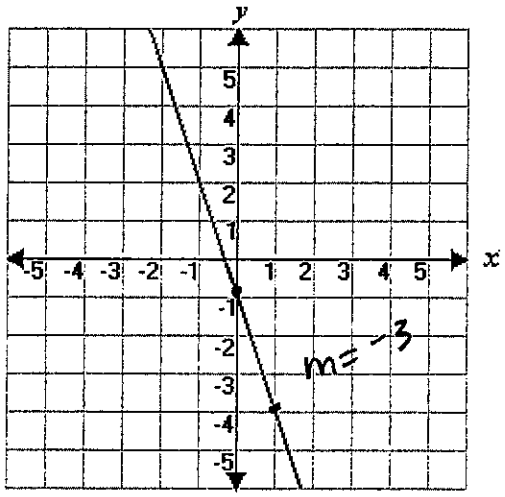
17. The first five terms of a sequence are given below.

15, 24, 33, 42, 51, ...

Determine which of the following formulas gives the n^{th} term of this sequence.

A. $7 + 8n$
B. $24 - 9n$
C. $23 - 8n$
D. $6 + 9n$

18. Which of the following equations matches the graph below?



A. $y = -\frac{1}{3}x - 1$

B. $y = -3x - 1$

C. $y = 3x + 1$

D. $y = \frac{1}{3}x + 1$

I spoke

19. Megan is going on a long distance road trip. She drives for 19 miles before being able to travel at a constant speed using cruise control. The equation $y = 68x + 19$ can be used to find her total distance traveled. If y is the total number of miles driven, and x is the number of hours driven after reaching 19 miles, which statement best describes the rate of change in the distance traveled?

$y = mx + b$

Slope . . y-int

Constant

A. For every hour, she will drive 87 miles.

B. For every hour, she will drive 68 miles.

C. For every two hours, she will drive 68 miles.

D. For every 19 hours, she will drive 87 miles.

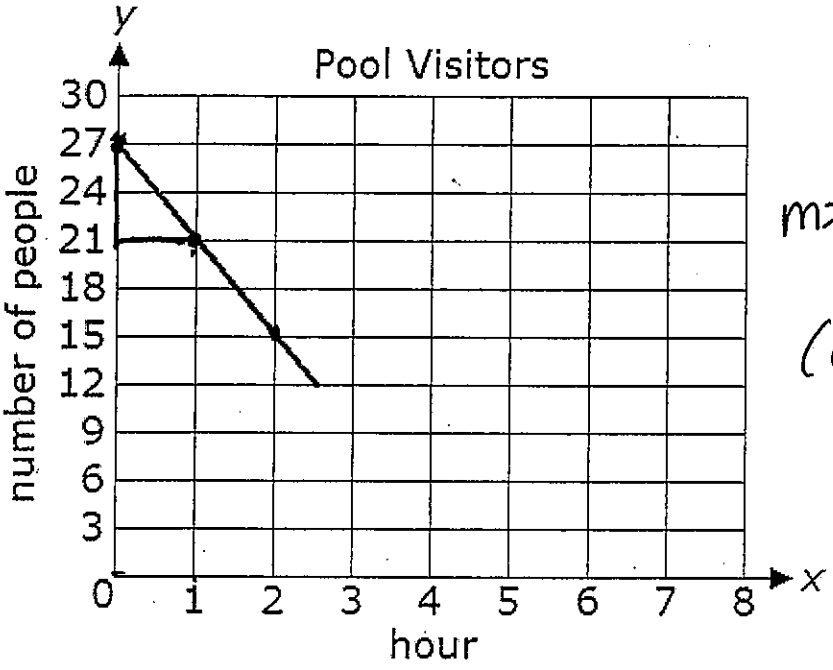
$y = 68(1) + 19$

$y = 87$

$y = 68(5) + 19$

$y = 359$

20. Tom recorded how many people were at the community pool over a few hours and displayed some of the data on the graph below. Assume the pattern continues.



$m = \frac{\text{Rise}}{\text{Run}}$ $\frac{-6}{1} = -6$

(0,27) (1,21) (2,15)

$\frac{6}{-1}$ $\frac{-6 \text{ y's}}{1 \text{ x's}}$

A. Write an equation to find how many people were at the pool (y) based on the hour (x).

$y = \frac{-6}{1}x + 27$

B. Use the equation found in **part A** to determine after how many hours there will be zero people at the pool. Show all your work. Explain why you did each step.

x

$y = -6x + 27$

$0 = -6x + 27$

$x = 4.5$ hours

Since y represents how many people are at the pool, plug in zero for y. Since x represents hours, solve for x.

C. Explain what the slope of the graph means in the situation.

The slope is −6, the number at the pool is going down by 6 people every hour.