

$$3x - 0.6 = 1.8$$

What value of  $x$  satisfies the equation above?

A sports store had 60 backpacks in stock, some with wheels and some without wheels, before a new shipment of backpacks arrived. The number of wheeled backpacks in the new shipment was twice the number of wheeled backpacks already in stock, and the number of backpacks without wheels in the new shipment was five times the number of backpacks without wheels already in stock. After the new shipment arrived, there were 330 backpacks in the store. Before the shipment, there were  $x$  wheeled backpacks and  $y$  backpacks without wheels. Which of the following equations can be used with  $x + y = 60$  to solve for  $x$  and  $y$ ?

- A)  $2x + 5y = 330$
- B)  $2x + 5y = 270$
- C)  $5x + 2y = 270$
- D)  $5x + 2y = 330$

$$5(x - 3)(x + 1) = 0$$

What positive value of  $x$  satisfies the equation above?

If  $s = 4$ , what is the value of  $20s - 15s$  ?

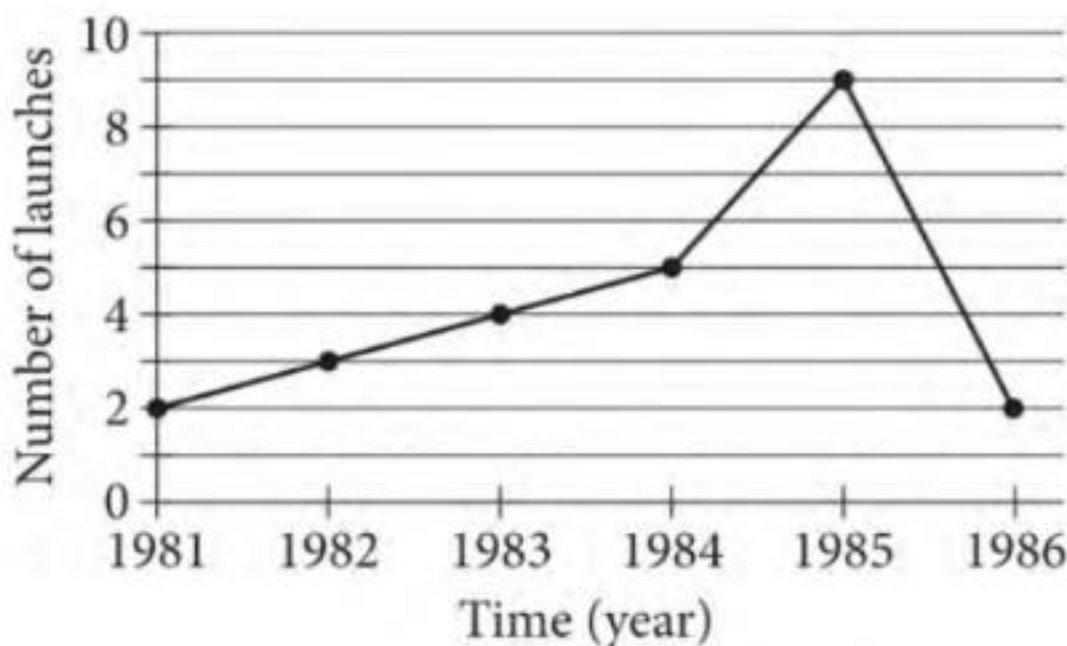
A) 4

B) 5

C) 15

D) 20

The line graph shows the number of space shuttle launches by the United States from 1981 through 1986.



During which year of this time period was the number of space shuttle launches the greatest?

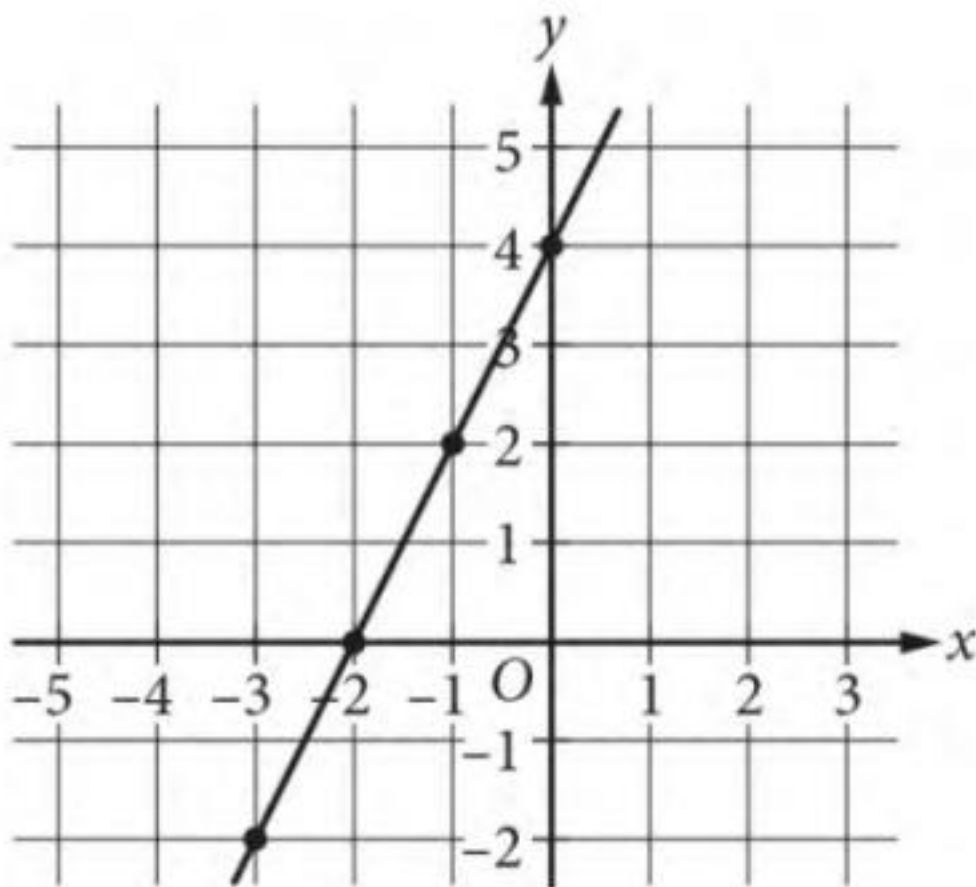
- A) 1982
- B) 1983
- C) 1984
- D) 1985

$$x + y = 5$$

$$2x = 5$$

If  $(x, y)$  is the solution to the given system of equations, what is the value of  $y$ ?

The graph of  $y = mx + b$ , where  $m$  and  $b$  are constants, is shown in the  $xy$ -plane.



What is the value of  $m$  ?

What is the  $y$ -intercept of the graph of  $y = 4^x$  in the  $xy$ -plane?

- A) (1, 4)
- B) (1, 0)
- C) (0, 1)
- D) (4, 1)



$$x^2 - 14x + 40 = 2x + 1$$

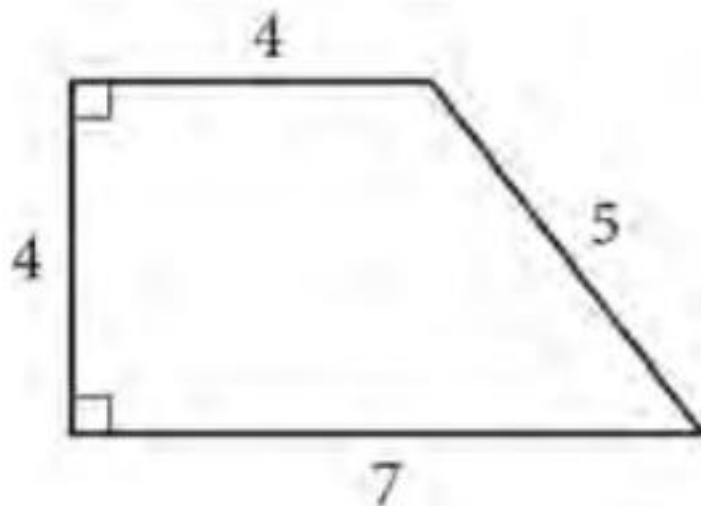
What is the sum of the solutions to the given equation?

- A) -16
- B) -14
- C) 14
- D) 16

$$\frac{4x + b}{2} = 2x + 8$$

In the given equation,  $b$  is a constant. If the equation has infinitely many solutions, what is the value of  $b$ ?

- A) 2
- B) 4
- C) 8
- D) 16



What is the area, in square units, of the figure shown?

- A) 20
- B) 22
- C) 24
- D) 28

The function  $f$  is defined by  $f(x) = x^2 - 5x + 6$ .  
What is the value of  $f(4)$ ?

- A) 0
- B) 2
- C) 12
- D) 30

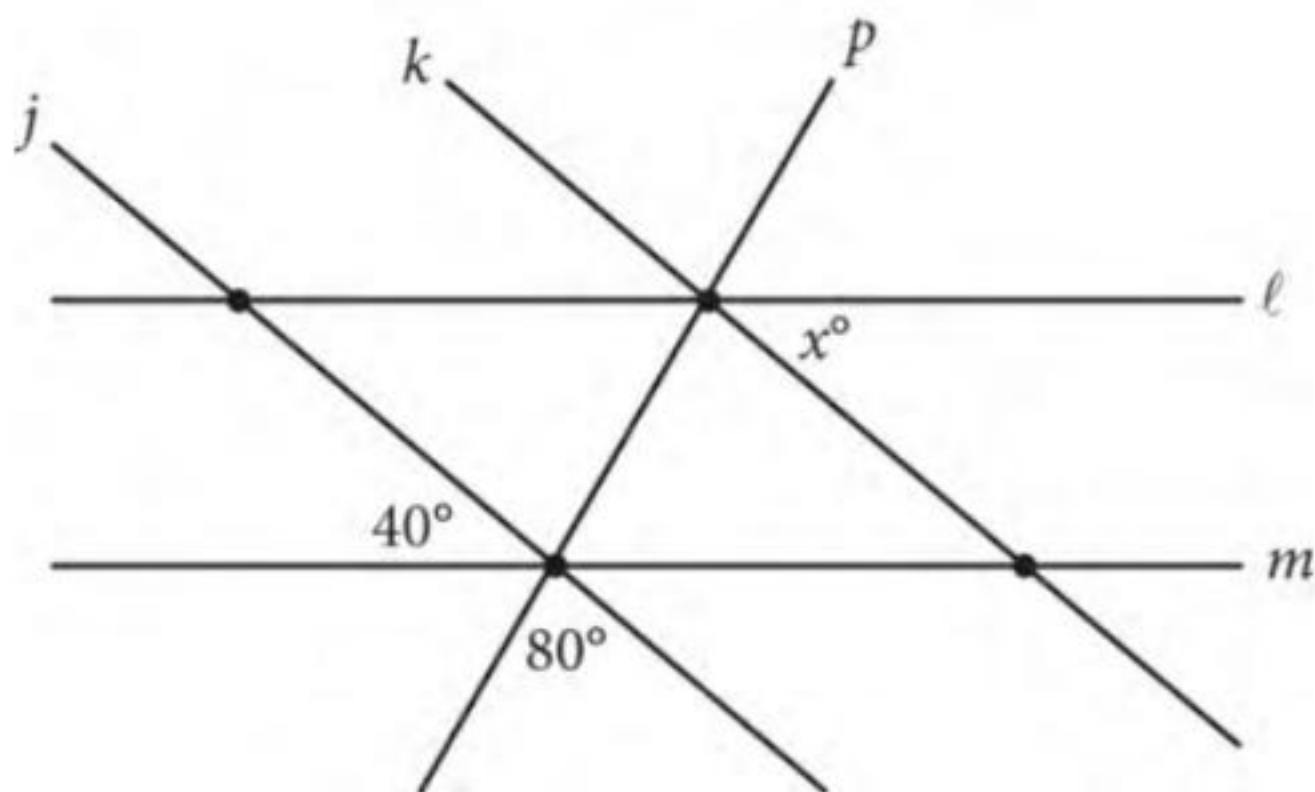
Aracely can spend up to a total of \$20 on streamers and balloons for a party. Streamers cost \$1.49 per pack, and balloons cost \$4.39 per pack. Which of the following inequalities represents this situation, where  $s$  is the number of packs of streamers Aracely can buy, and  $b$  is the number of pack of balloons Aracely can buy? (Assume there is no sales tax.)

A)  $1.49s - 4.39b \leq 20$

B)  $1.49s + 4.39b \leq 20$

C)  $1.49s - 4.39b \geq 20$

D)  $1.49s + 4.39b \geq 20$



In the figure shown, line  $j$  is parallel to line  $k$  and line  $\ell$  is parallel to line  $m$ . What is the value of  $x$ ?

- A) 40
- B) 60
- C) 80
- D) 100

$x$	-1	0	1	2	3
$y$	1	2	3	4	5

The table above shows some values of  $x$  and their corresponding values of  $y$ . Which of the following equations shows a possible relationship between  $x$  and  $y$ ?

A)  $y = x + 2$

B)  $y = x - 2$

C)  $y = 2x + 3$

D)  $y = 3x - 2$

Bill is planning to drive 1,000 miles to visit his family. If he plans to drive 250 miles per day, which of the following represents the remaining distance  $d$ , in miles, that Bill will have to drive to reach his family after driving for  $n$  days?

A)  $d = 1,000 + 250n$

B)  $d = 1,000n - 250$

C)  $d = 250n - 1,000$

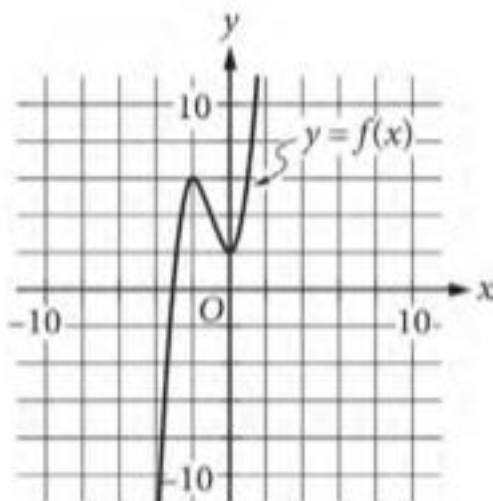
D)  $d = 1,000 - 250n$



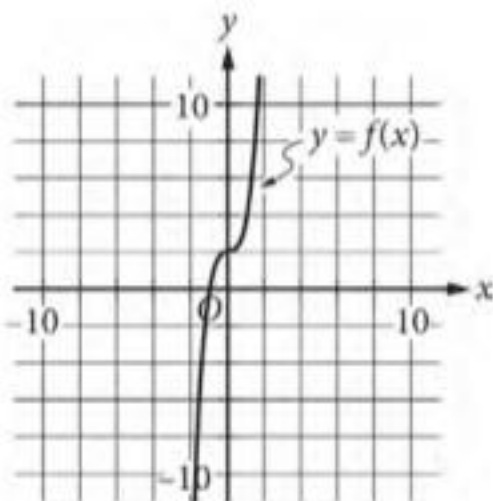
$x$	$f(x)$
-2	-2
-1	3
0	2
1	7
2	30

The table gives some values of  $x$  and the corresponding values of  $f(x)$  for polynomial function  $f$ . Which of the following could be the graph of  $f$  in the  $xy$ -plane, where  $y = f(x)$ ?

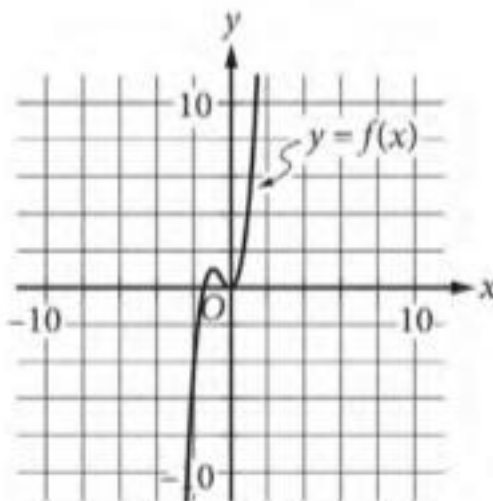
A)



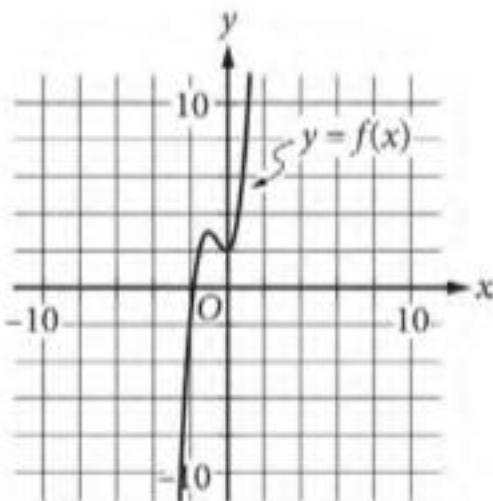
B)



C)



D)



Which of the following is an equation of the line in the  $xy$ -plane that contains the points  $(1, 3)$  and  $(5, 15)$ ?

A)  $y = 3x$

B)  $y = 2x + 5$

C)  $y = x + 2$

D)  $y = \frac{1}{3}x$

$$\frac{x+2}{(x+2)^2}$$

Which of the following expressions is equivalent to the given expression, where  $x \neq -2$ ?

A)  $x+2$

B)  $\frac{1}{x+2}$

C)  $x^2 + 2x + 4$

D)  $\frac{1}{x^2 + 2x + 4}$

What is 120% of 2,000?

- A) 240
- B) 400
- C) 2,400
- D) 4,000

A field has a perimeter of 960 feet. Of the following, which is closest to the perimeter of the field, in meters? (1 foot = 0.3048 meter)

- A) 89
- B) 290
- C) 3,200
- D) 10,000

Based on the 2010 US census, the population of Milwaukee, Wisconsin, was about 96% of the population of Baltimore, Maryland. In 2010, if Milwaukee's population was about 595,000, which of the following is the best approximation of Baltimore's population?

- A) 620,000
- B) 570,000
- C) 300,000
- D) 95,000

Speed (km/h)	Pulse (bpm)
4	77
6	87
8	97

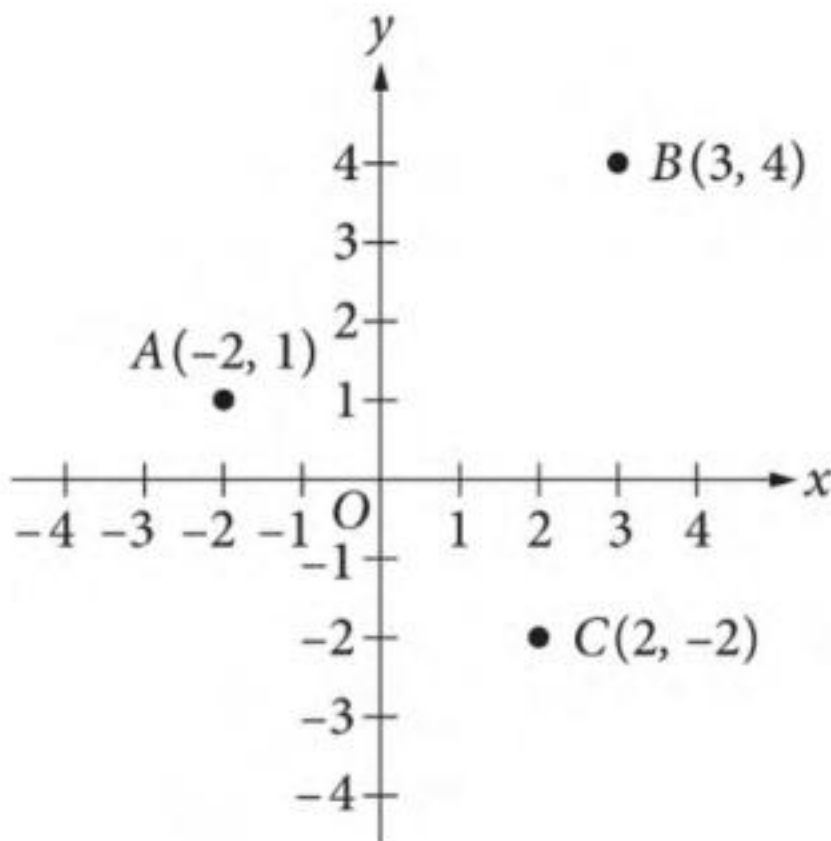
The table lists selected values of Sam's walking speed, in kilometers per hour (km/h), and his corresponding pulse, in beats per minute (bpm). There is a linear relationship between Sam's speed,  $x$ , and his pulse,  $f(x)$ . Which of the following equations describes  $f(x)$ ?

- A)  $f(x) = x + 57$
- B)  $f(x) = -x + 97$
- C)  $f(x) = 5x + 57$
- D)  $f(x) = -5x + 97$

In the  $xy$ -plane, what is the  $y$ -coordinate of the  $y$ -intercept of the graph of the equation  $y = \frac{3x - 12}{x + 2}$ ?

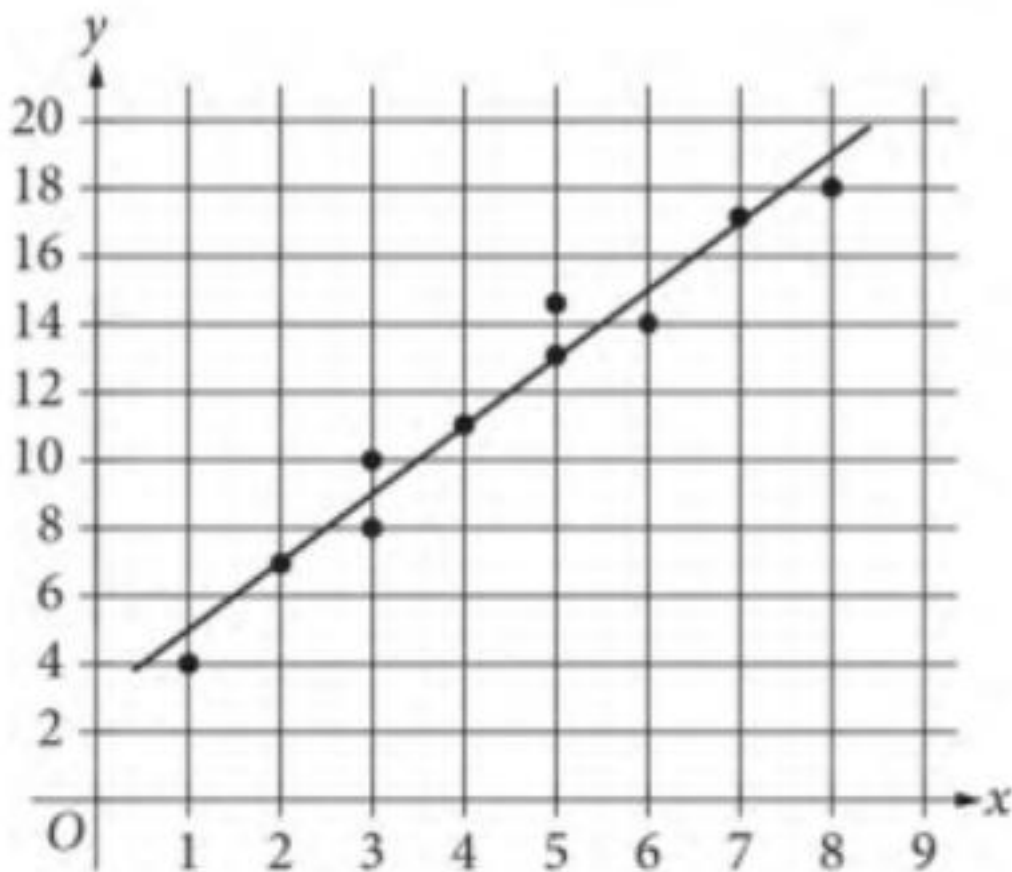
- A) -6
- B) -2
- C) 3
- D) 4





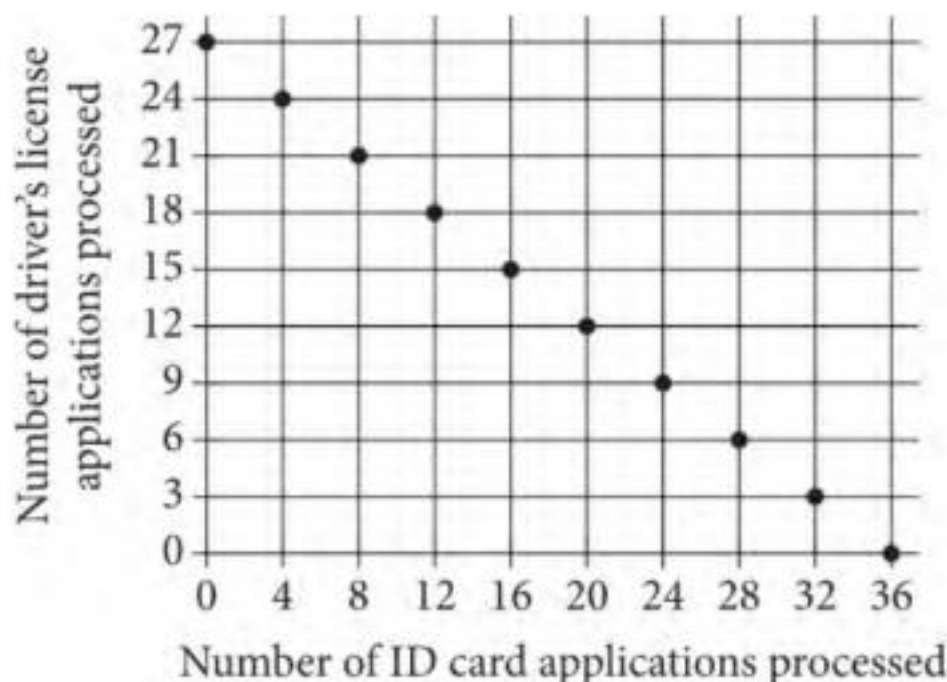
The coordinates of points  $A$ ,  $B$ , and  $C$  are shown in the  $xy$ -plane above. For which of the following inequalities will each of the points  $A$ ,  $B$ , and  $C$  be contained in the solution region?

- A)  $y > -x - 2$
- B)  $y \geq -x$
- C)  $y < x + 3$
- D)  $x < 3$



Ten data points are in the scatterplot shown, along with a line of best fit. Which of the following best estimates the predicted value of  $y$  when  $x = 6.5$ ?

- A) 2
- B) 8
- C) 13
- D) 16



For her job, Natasha spent a total of  $n$  minutes processing ID card applications and driver's license applications. It takes Natasha 15 minutes to process an ID card application and 20 minutes to process a driver's license application. The graph above represents all possible combinations for the number of ID card applications and the number of driver's license applications that Natasha could have processed in the  $n$  minutes. What is the value of  $n$ ?

- A) 720
- B) 540
- C) 420
- D) 360

In 1855, Louis Remme traveled from Sacramento, California, to Portland, Oregon, stopping to rest for only 10 hours of the 143 hours it took him to reach Portland. If his average speed while traveling without resting was 5 miles per hour, how many miles did Louis Remme travel?

- A) 665
- B) 705
- C) 715
- D) 765

American marsupials and Australian marsupials are two primary groups of marsupials. The table shows the number of species in each order of living marsupial, by group.

Group	Order	Number of species
American	Didelphimorphia	93
	Paucituberculata	6
Australian	Microbiotheria	1
	Dasyuromorphia	71
	Peramelemorphia	24
	Notoryctemorphia	2
	Diprotodontia	137

Based on the table, what fraction of the Australian marsupial species are from the order Peramelemorphia?

A)  $\frac{24}{211}$

B)  $\frac{24}{235}$

C)  $\frac{24}{334}$

D)  $\frac{235}{334}$