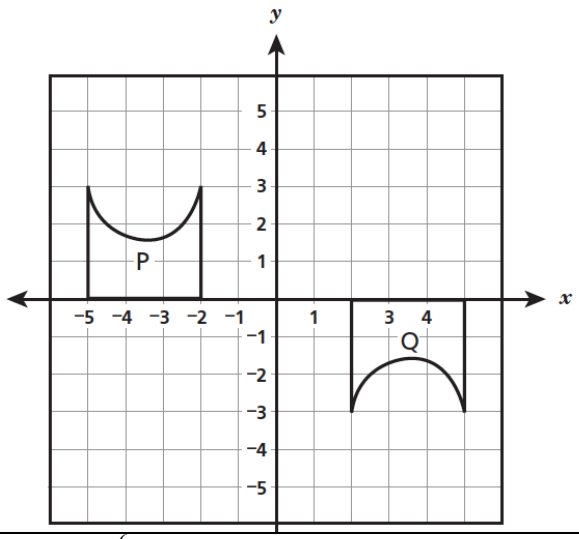
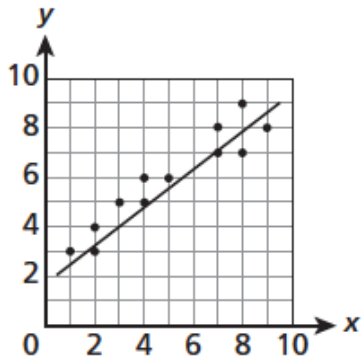
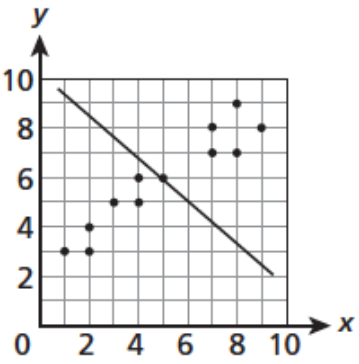
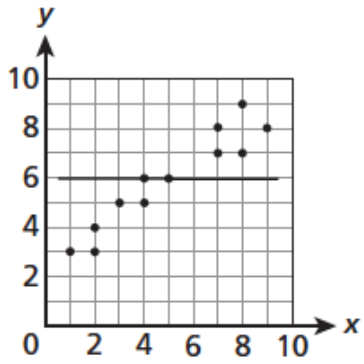
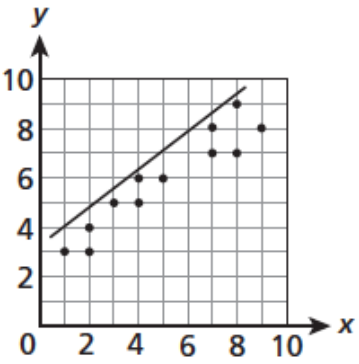
Name: _____ Date: _____

1.	134080011_2 Which number is equivalent to $\frac{3^4}{3^2}$?
2.	A sequence of transformations was applied to an equilateral triangle in a coordinate plane. The transformations used were rotations, reflections, and translations. Which statement about the resulting figure is true? **A** It must be an equilateral triangle with the same side lengths as the original triangle. **B** It must be an equilateral triangle, but the side lengths may differ from the original triangle. **C** It may be a scalene triangle, and all the side lengths may differ from the original triangle. **D** It may be an obtuse triangle with at least one side the same length as the original triangle.
3.	Figure Q was the result of a sequence of transformations on figure P, both shown below. 
4.	Determine the product of $800.5 \times (2 \times 10^6)$

Name: _____ Date: _____

5.	Which line represents the best fit for the scatter plot data? **A**  **C**  **B**  **D** 
6.	At a given time, Saturn was 9.1×10^8 miles from the Sun and Earth was 9.3×10^7 miles from the Sun. By what distance is one planet closer to the Sun than the other planet?
7.	The combined volume of all the tanks at an aquarium is 1.25×10^6 gallons. The aquarium plans to install a new dolphin tank with a volume of 250,000 gallons. What will be the total volume of all of the tanks at the aquarium after the new dolphin tank is installed?
8.	Rectangle *R* undergoes a dilation with scale factor 0.5 and then a reflection over the *y*-axis. The resulting image is Rectangle *S*. Which statement about Rectangles *R* and *S* is true?

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9. 124080031_1

The table below shows the cost of different numbers of goldfish at a pet store.

COST OF GOLDFISH

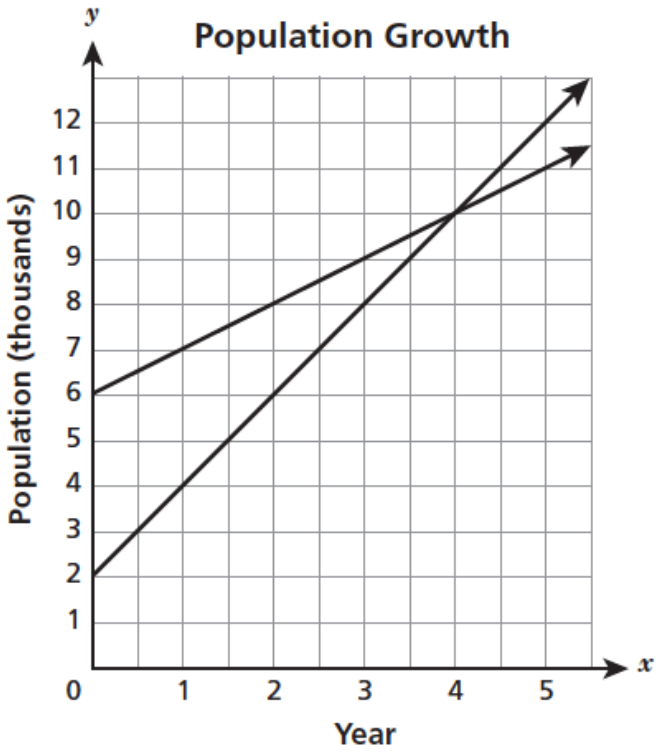
Number of Goldfish	Cost
5	$1.50
10	$3.00
15	$4.50
20	$6.00

The cost is a linear function of the number of goldfish. Which statement describes the rate of change of this function?

10. The population growth of two towns over a period of five years is represented by the system of equations below, both algebraically and graphically.

$y = x + 6$

$y = 2x + 2$



Which ordered pair is the solution to the system of equations?

Name: _____ Date: _____

11. The four tables below show relationships in which the x values represent inputs and the y values represent the corresponding outputs.

Q

x	y
–2	–3
1	3
3	–3
5	3

R

x	y
–1	–5
2	4
3	7
4	10

S

x	y
–2	3
1	3
3	3
5	3

T

x	y
3	4
4	5
3	–4
4	–5

Which table represents a relationship that is **not** a function?

12. Madison created two functions.
For Function A, the value of y is two less than four times the value of x.
The table below represents Function B.

Function B

x	y
–3	–9
–1	–5
1	–1
3	3

In comparing the rates of change, which statement about Function A and Function B is true?

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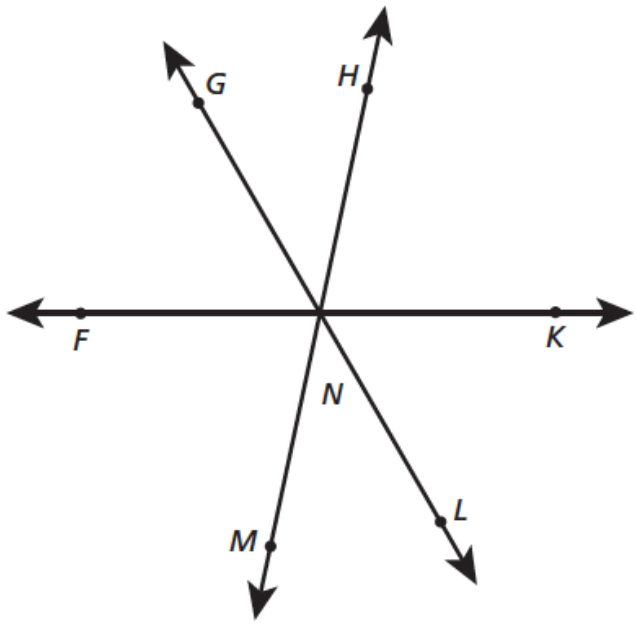
13. In the diagram below, three lines intersect at N. The measure of $\angle GNF$ is 60°, and the measure of $\angle MNL$ is 47°.

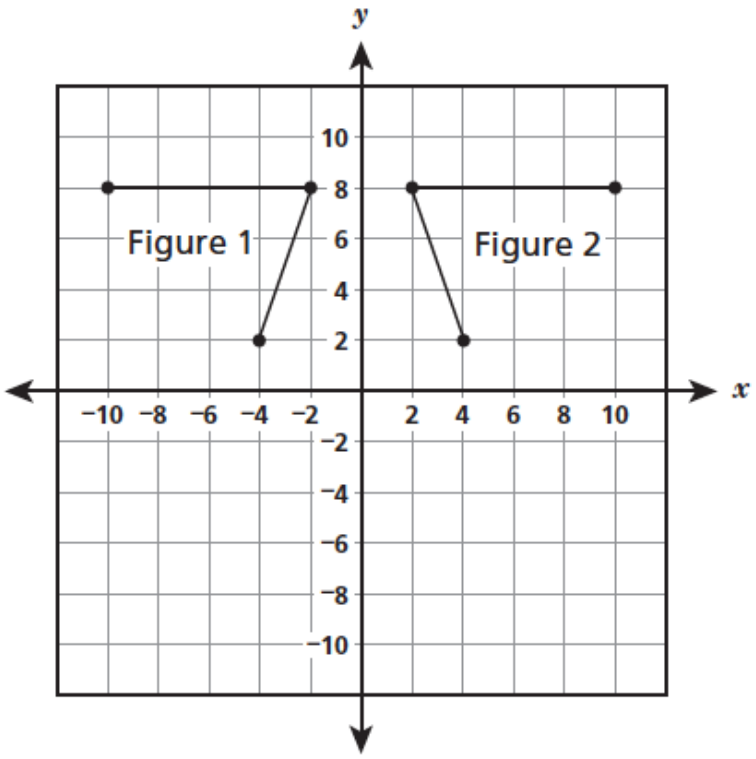


What is the measure of $\angle HNK$?

14. Which expression is equivalent to $4^7 \times 4^{-5}$?

Name: _____ Date: _____

15. Figure 1 can be transformed to create Figure 2 using a single transformation.



Which transformation can be used to accomplish this?

16. What is the solution to the system of equations below?

$$\begin{cases} 3x + 4y = -2 \\ 2x - 4y = -8 \end{cases}$$

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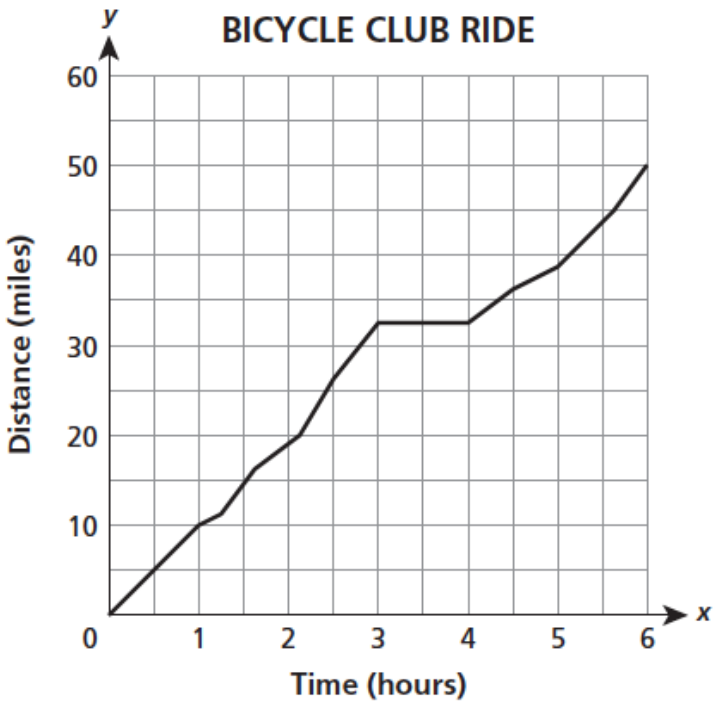
17. A bicycle club went on a six-hour ride. The graph below shows the relationship between the number of hours spent on the trails and the number of miles traveled.



Which statement best interprets information provided by the graph?

A The club members rode at a constant speed for the entire ride.

B The club members stopped for a rest during their ride.

C The number of miles traveled increased continuously throughout the ride.

D The number of miles traveled increased some of the time and decreased some of the time.

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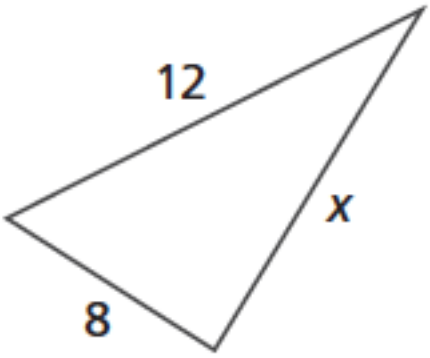
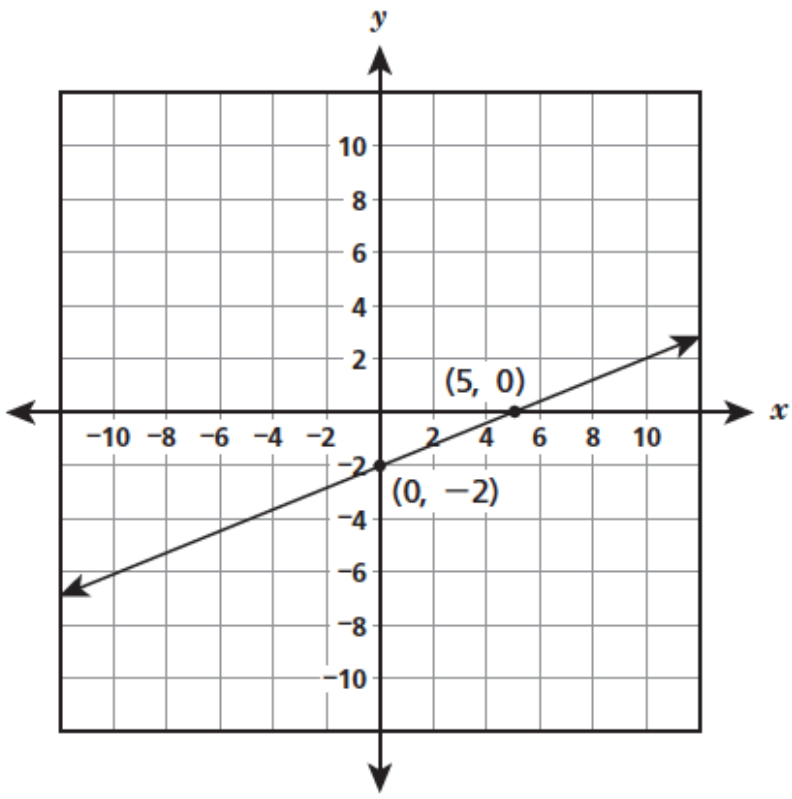
18. Which number could **not** be a value of x?



[not drawn to scale]

19. Which equation represents the line shown on the coordinate grid below?



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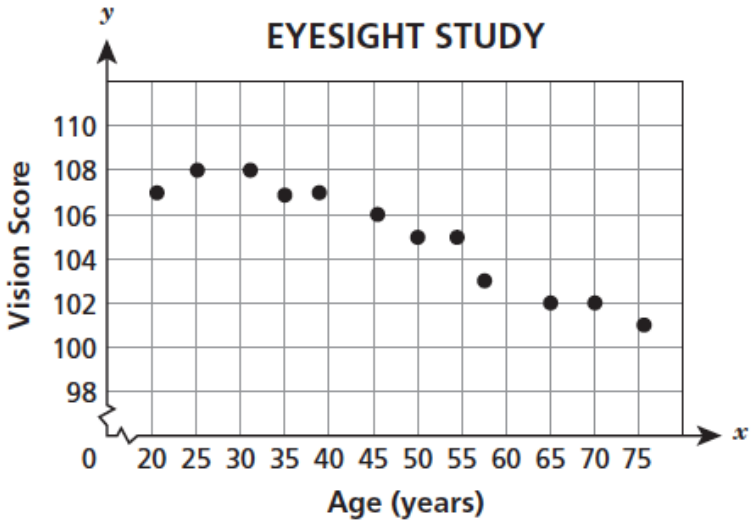
20. A researcher studied the eyesight of people at different ages. She calculated a vision score for each person in the study and plotted the data on the graph below.



The researcher used the line $y = -0.1x + 110$ to model the data. When she substituted the value $x = 65$ into this equation, what did the result tell her?

A the exact value for the vision score of a 65-year-old

B the predicted value for the vision score of a 65-year-old

C the minimum possible value for the vision score of a 65-year-old

D the maximum possible value for the vision score of a 65-year-old

Name: _____ *Date:* _____

21. The table below represents a linear function.

x	y
–1	5
1	9
3	13
5	17

Which function has a greater slope and a greater y-intercept than the linear function represented in the table?

A $y = 2x + 8.5$

B $y = 3x + 7.5$

C $y = 5x + 6.5$

D $y = 10x + 5.5$

22. Which phrase describes a nonlinear function?

A the area of a circle as a function of the radius

B the perimeter of a square as a function of the side length

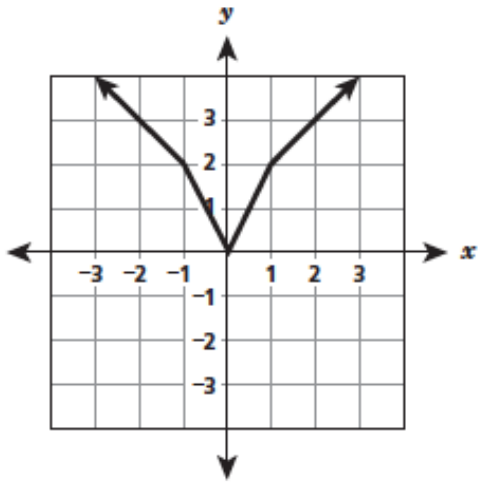
C the cost of gasoline as a function of the number of gallons purchased

D the distance traveled by a car moving at constant speed as a function of time

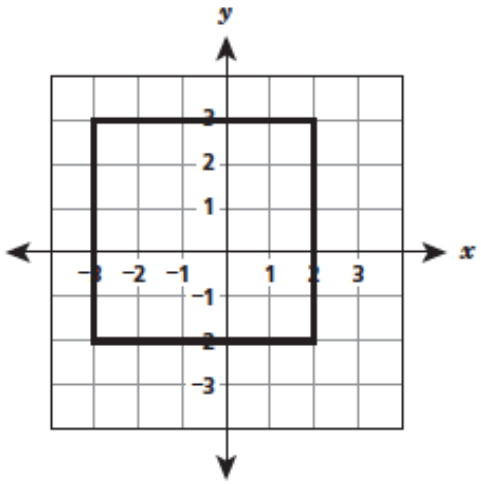
Name: _____ Date: _____

23. Which graph represents a function?

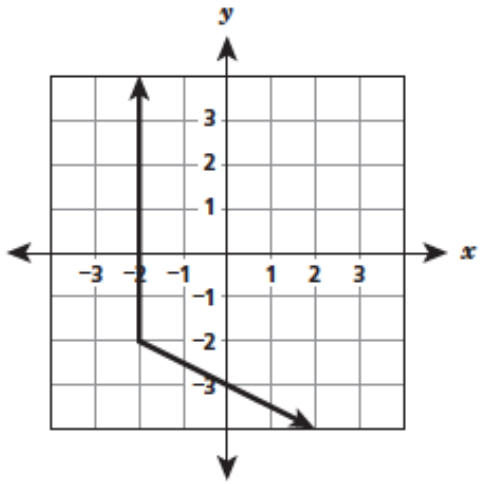
A



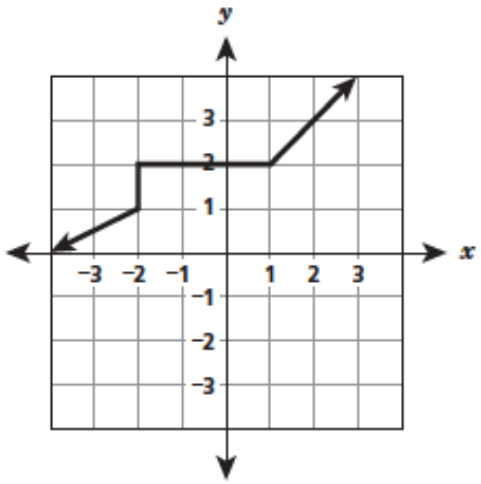
C



B



D



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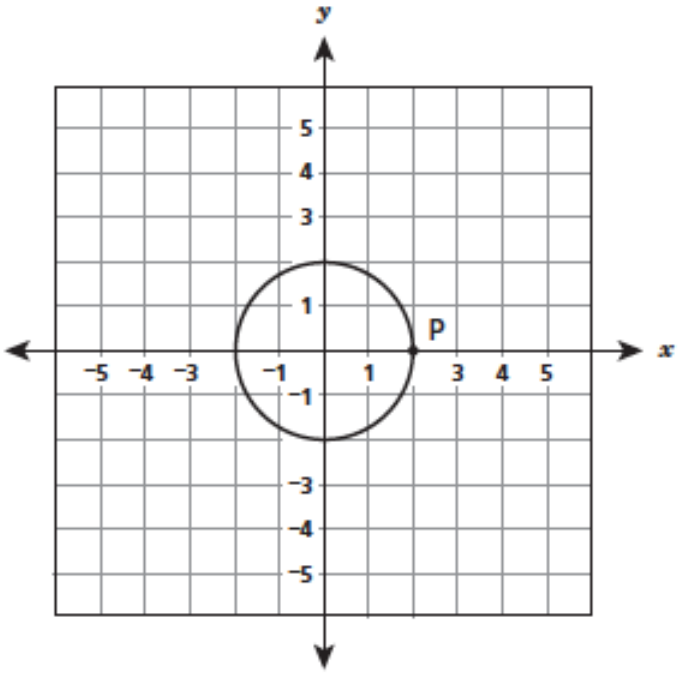
24. The circle shown below is centered at (0, 0) and passes through point P located at (2, 0).



The circle is dilated with the center of dilation at the origin and a scale factor of 0.5 and then translated up 3 units. What are the coordinates of the image of point P after this transformation?

A (4, 3)

B (1, 3)

C (1, 1.5)

D (0.5, 3)

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25.	Which equation represents a linear function? **A** $y = \frac{4}{x} + 1$ **B** $y = x^2 + 2$ **C** $y = \sqrt[3]{x + 1}$ **D** $y = -\frac{2}{3}x - \frac{1}{2}$
26.	Annette plans to visit an amusement park where she must pay for admission and purchase tickets to go on the rides. Annette wants to find the total cost for a day at the amusement park. She wrote the equation $c = 1.50x + 12$ to predict c, the total cost for a day at the amusement park. What could the number 12 represent in Annette's equation? **A** the number of rides **B** the cost of admission **C** the cost of each ticket **D** the number of tickets

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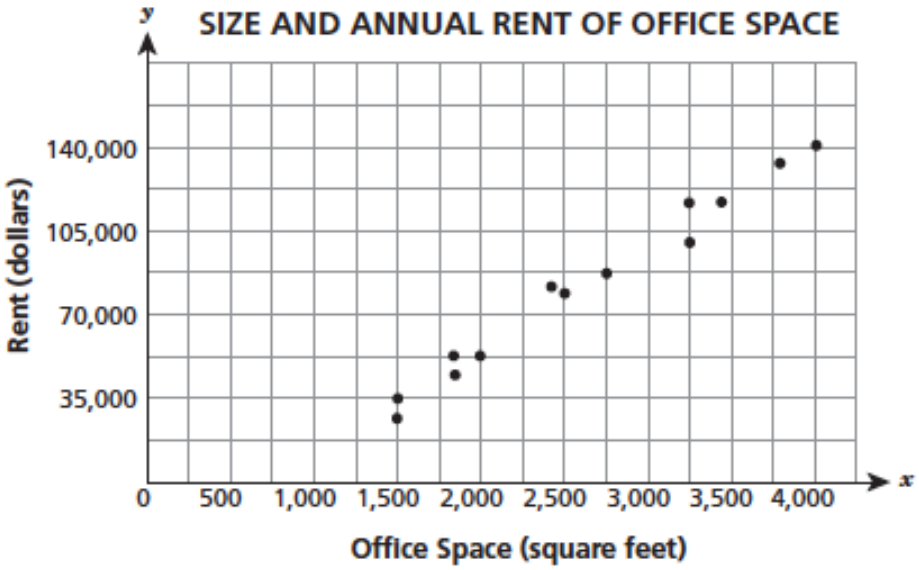
27. The scatter plot shows the sizes and annual rents of some office spaces in the downtown area of a city.



What would the line of best fit reveal about these data?

A There is a strong negative relationship between the cost of rent and the size of the office space.

B There is a strong positive relationship between the cost of rent and the size of the office space.

C There is a weak positive relationship between the cost of rent and the size of the office space.

D There is a weak negative relationship between the cost of rent and the size of the office space.

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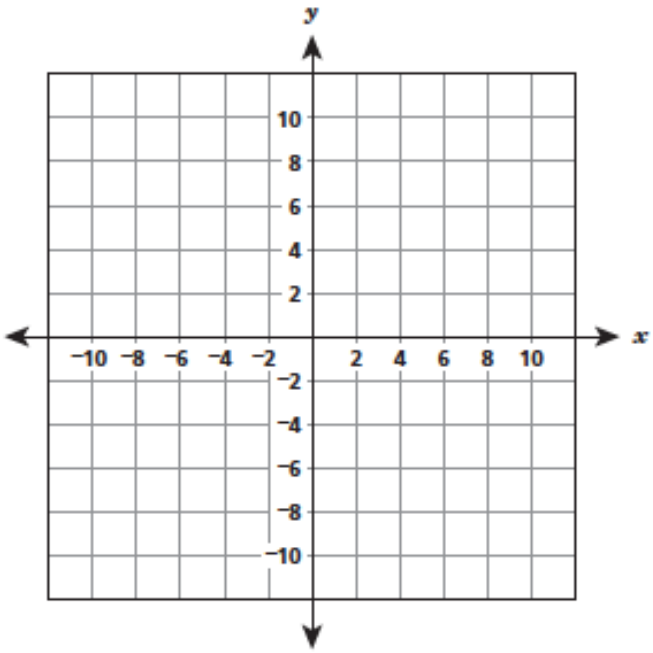
28. Graph and label the given system of equations on the coordinate grid shown below.

$$y = \frac{1}{2}x + 2$$
$$y = x - 1$$



What is the solution to the system of equations?