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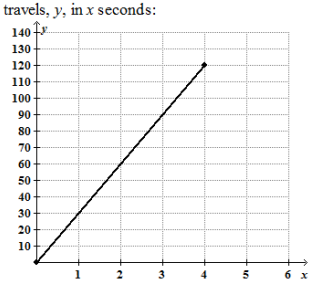
The graph below shows the height in feet above ground which an elevator travels, y, in x seconds:



What is the rate of change for the relationship represented in the graph?

a. 29
b. 27
c. 36
d. 30

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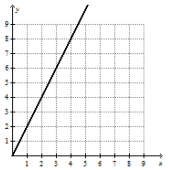
The table and the graph below each show a different relationship between the same two variables, x and y.

x	y
5	15
6	18
7	21
8	24



How much less would the value of y be on the graph than its value in the table when $x = 12$?

a. 12
b. 8
c. 7
d. 14

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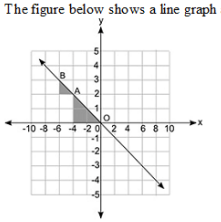
The figure below shows a line graph and two shaded triangles that are similar:



Which statement about the slope of the line is true?

a. It is $-\frac{1}{2}$ throughout the line.
b. The slope from point O to point A is $\frac{1}{2}$ times the slope of the line from point A to point B.
c. It is -2 throughout the line.
d. The slope from point O to point A is two times the slope of the line from point A to point B.

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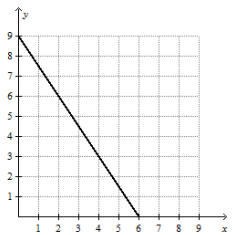
Based on the graph, what is the initial value of the linear relationship?



a. 10
b. 4
c. 5
d. 9

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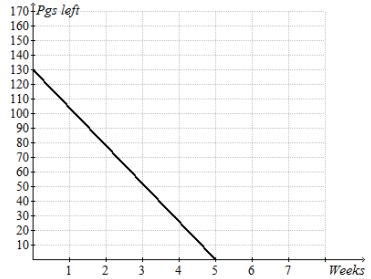
Heidi reads an equal number of pages of a book every week. The graph below shows the number of pages of the book left to read, y, after x weeks:



Which equation best shows the relationship between x and y?

a. $y = -26x + 120$
b. $y = -5x + 130$
c. $y = -5x - 26$
d. $y = -26x + 130$

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Rent-All rents gym equipment for a fixed amount plus a fee based on the number of days for which the equipment is rented. The table shows the total charges, y, in dollars, of renting gym equipment for x number of days:

Equipment Rental

Number of days (x)	Rent in dollars (y)
0	17
1	30
2	43
3	56
4	69

What is the fixed amount charged?

a. $4
b. $13
c. $30
d. $17

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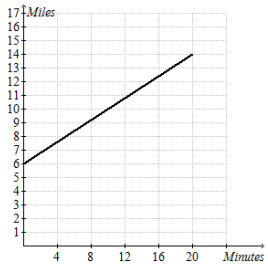
The graph below shows the distance, y, in miles, of a bee from its hive, for a certain amount of time, x, in minutes:



Based on the graph, what is the initial value of the graph and what does it represent?

a. 6 miles; it represents the original distance of the bee from its hive
b. 0.6 mile per minute; it represents the speed of the bee
c. 0.6 mile; it represents the original distance of the bee from its hive
d. 6 miles per minute; it represents the speed of the bee

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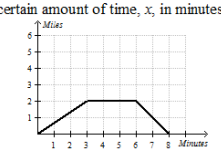
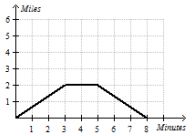
A truck travels from a factory to a gas station in 2 minutes. It stops at the gas station for 4 minutes. The truck then returns to the factory in 2 minutes. Which graph **best** represents the distance, y, in miles, of the truck from the factory after a certain amount of time, x, in minutes?

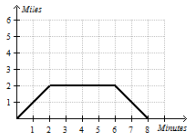
a.



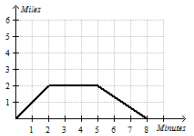
c.



b.



d.



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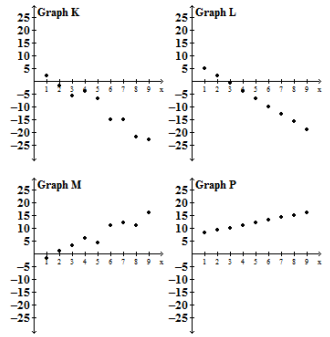
Which graph represents a **positive nonlinear** association between x and y?



a. **Graph P**
b. **Graph M**
c. **Graph K**
d. **Graph L**

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For which set of data will the scatter plot represent a **negative nonlinear** association between x and y?

Set K

x	1	2	3	4	5	6	7	8	9
y	−18	−19	−24	−27	−24	−27	−33	−31	−36

Set L

x	1	2	3	4	5	6	7	8	9
y	−5	−7	−9	−11	−13	−15	−17	−19	−21

Set M

x	1	2	3	4	5	6	7	8	9
y	−6	−1	−4	−3	−1	6	5	5	11

Set P

x	1	2	3	4	5	6	7	8	9
y	−9	−7	−5	−3	−1	1	3	5	7

a. **Set M**
b. **Set K**
c. **Set L**
d. **Set P**

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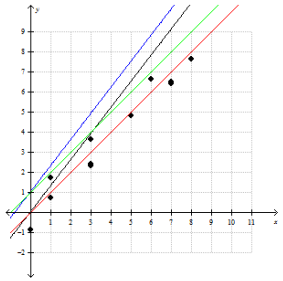

A scatter plot is shown. What is the the color of the line of best fit?

a. Black
b. Blue
c. Green
d. Red

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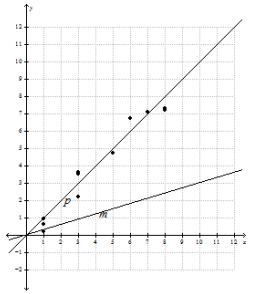
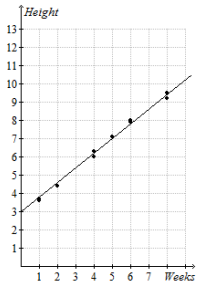


Which line **best** represents the line of best fit? The labels for each line is written to the right of the line.

a. Line m, because it is closest to most data points
b. Line m, because it shows a negative association
c. Line p, because it shows a positive association
d. Line p, because it is closest to most data points



The graph shows the heights, y (in centimeters), of plants after a certain number of weeks, x. Jason drew the line of best fit on the graph. What would **most** likely be the approximate height of the plants after 9 weeks?

a. 10.2
b. 12.6
c. 8.5
d. 8.7

	Have Allergies	Don't Have Allergies	Total
Have Asthma	48	43	91
Don't Have Asthma	44	???	120
Total	92	119	211

The table shows the number of students in a school who have allergies and/or have asthma. What is the missing number in the table?

a. 76
b. 73
c. 60
d. 70

The table shows the number of students in a school who like dodgeball and/or ping pong. What is the relative frequency, by row, of students who like both dodgeball and ping pong?

	Like Dodgeball	Don't Like Dodgeball	Total
Like Ping-Pong	50	53	103
Don't Like Ping-Pong	40	51	91
Total	90	104	194

a. 45.5%
b. 49.5%
c. 48.5%
d. 50.5%

Steve solved an equation incorrectly, as shown below:

Step 1: $30 + k = 65$?

Step 2: $k = 65 + 30$

Step 3: $k = 35$

Which statement **best** explains why Step 2 is incorrect in Steve's solution?

a. He did not add 30 to 65.
b. He did not multiply 65 by 30.
c. He did not subtract 30 from 65.
d. He did not divide 65 by 30.

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How many solutions can be found in the equation $27 + 13k = 27 + 13k$?

a. Two
b. Zero
c. One
d. Infinitely many

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What is the value of x in the equation $3(2x - 5) + 5 = 128$

a. 23
b. 29
c. 24
d. 26

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How many solutions can be found in the equation $-4k + 4 = 4(k - 2k) + 4$?

a. Zero
b. Infinitely many
c. Two
d. One

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An equation is shown below:

$4(8k - 7) = 132$

Which of the following correctly shows the beginning steps to solve this equation?

a. Step 1: $32k - 7 = 132$
   Step 2: $32k = 139$
b. Step 1: $32k - 28 = 132$
   Step 2: $32k = 160$
c. Step 1: $32k - 7 = 132$
   Step 2: $12k = 139$
d. Step 1: $8k - 3 = 132$
   Step 2: $8k = 135$

How many solutions can be found in the equation $-35n + 6 = 5(n - 8n) + 6$?

a. Infinitely many
b. One
c. Zero
d. Two

The steps below show the incomplete solution to find the value of x in the equation.

$5x - 2x - 9 = -6 + 11$

Step 1: $5x - 2x - 9 = -6 + 11$

Step 2: $5x - 2x - 9 = 7$

Step 3: $3x - 9 = 5$

Step 4: $3x = 14$

In which step did the student first make an error?

a. Step 1
b. Step 2
c. Step 4
d. Step 3

How many solutions can be found in the equation $-22.8n + 8.5 = 5.7(n - 5n) + 8.5$?

a. Zero
b. Infinitely many
c. One
d. Two

What is the solution to the equation?

$\frac{3}{7}t - \frac{14}{7} = \frac{4}{7}t$

a. -16
b. -20
c. -17
d. -14

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Two lines, M and N, are represented by the following equations:

Line M: $x - y = 17$

Line N: $2x - y = 25$

Which of the following options shows the solution to the system of equations and explains why?

a. (8, –9), because the point lies between the two axes
b. (8, –9), because one of the lines passes through this point
c. (8, –9), because the point does not lie on any axis
d. (8, –9), because both lines pass through this point

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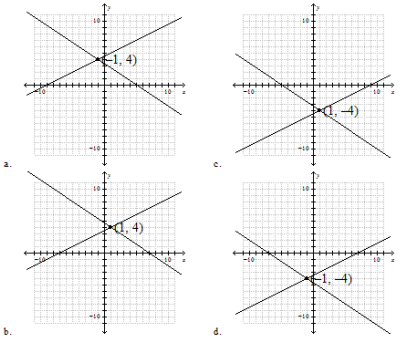
Which graph shows the solution for the following?

$\begin{cases} y = (1/2)x + 9/2 \\ y = (-2/3)x + 10/3 \end{cases}$



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A set of equations is given below:

$y = -4x - 6$

$-3y + 4 = -8x$

Which of the following steps can be used to find the solution to the set of equations?

a. $-3(-4x - 6) + 4 = -8x$
b. $-3(y = -4x - 6) + 4 = -8x$
c. $-3(y = -4x - 6)$
d. $-4x - 6 = -3y + 4$

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$a - 2b = -2$

$-2a + b = -8$

Which of the following ordered pairs, written as (a, b), represents the solution to the system given above?

a. (–6, –4)
b. (–6, 4)
c. (6, –4)
d. (6, 4)

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A student is trying to solve the system of two equations given below:

$a + b = -1$

$6a + 4b = -16$

Which of the following steps can be used to eliminate the **a term** by adding the equations?

a. $-6(6a + 4b = -16)$
b. $6(a + b = -1)$
c. $-6(a + b = -1)$
d. $6(6a + 4b = -16)$

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Variable x is 6 more than variable y. Variable x is also 12 less than y. Which of the following pairs of equations best models the relationship between x and y?

Which of the following statements is a correct step to find x and y?

a. $x = y - 6$
$x = y - 12$
b. $x = y - 6$
$x = y + 12$
c. $x = y + 6$
$x = y - 12$
d. $x = y + 6$
$x = y + 12$