

**1**

A faucet is used to add water to a large bottle that already contained some water. After it has been filling for 3 seconds, the gauge on the bottle indicates that it contains 19 ounces of water. After it has been filling for 10 seconds, the gauge indicates the bottle contains 54 ounces of water. Let  $y$  be the amount of water in the bottle  $x$  seconds after the faucet was turned on. Write a linear equation that models the amount of water in the bottle in terms of  $x$ .

A  $y = 5x + 44$   
 B  $y = 5x + 4$   
 C  $y = \frac{1}{5}x + \frac{92}{5}$   
 D  $y = -5x + 34$   
 E Help!

x sec	y oz.
3	19
10	54


$$m = \frac{54 - 19}{10 - 3} = \frac{35}{7} = 5$$

point-slope

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

$$y - 19 = 5(x - 3)$$

$$y - 19 = 5x - 15$$

$$y = 5x + 4$$


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**2**

In 1995 the United States recovered 27% of its municipal wastes through recycling, up from 17% in 1990. Find a linear equation that fits this data. Use this equation to predict the percentage recycled in 2005.

cause  $\rightarrow$ 

x year	y %
1995	27
1990	17
2005	?

 $\leftarrow$  effect

A 45.1%  
 B 48.7%  
 C 43.4%  
 D 47%  
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$$m = \frac{27 - 17}{1995 - 1990} = \frac{10}{5} = 2$$

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


$$y - 27 = 2(x - 1995)$$

$$y - 27 = 2x - 3990$$

$$y = 2x - 3963$$

$$y = 2(2005) - 3963$$

$$y = 4010 - 3963$$

$$y = 47$$


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Find an equation of the line.

- 3 Through  $(3, -4)$ , perpendicular to the  $y$ -axis

- A  $3x + y = -4$   
B  $y = -4$   
C  $3x - 4y = 0$   
D  $x = 3$   
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Find an equation of the line.

- 4 With undefined slope, through  $\left(-\frac{2}{9}, -2\right)$

- A  $-\frac{2}{9}x - 2y = 0$   
B  $y = -2$   
C  $-\frac{2}{9}x + y = -2$   
D  $x = -\frac{2}{9}$   
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Find an equation of the line.

5 With slope 0, through  $\left(-\frac{4}{7}, -9\right)$

A  $-\frac{4}{7}x - 9y = 0$

B  $x = -\frac{4}{7}$

C  $y = -9$

D  $-\frac{4}{7}x + y = -9$

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