

Review 5.4-5.8, 6.2, 6.3

Write the point-slope form of the equation of the line through the given point with the given slope.

1) through:  $(-4, -3)$ , slope  $= -\frac{1}{2}$

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

$$y - (-3) = -\frac{1}{2}(x - (-4))$$

$$y + 3 = -\frac{1}{2}(x + 4)$$

Write the point-slope form of the equation of the line through the given points.

2) through:  $(0, -5)$  and  $(2, -3)$

$$m = \frac{-3 - (-5)}{2 - 0} = \frac{-8}{2} = -4$$

$$\begin{aligned} & \rightarrow y - (-5) = -4(x - 0) \quad \text{OR} \quad \rightarrow y - (-3) = -4(x - 2) \\ & \left\{ \begin{array}{l} y + 5 = -4x \\ \text{using } (0, -5) \end{array} \right. \quad \left\{ \begin{array}{l} y + 3 = -4(x - 2) \\ \text{Using } (2, -3) \end{array} \right. \end{aligned}$$

Write the slope-intercept form of the equation of each line.

3)  $y + 2 = \frac{3}{2}(x + 4)$  ① Distribute

② Subtract 2

$$\frac{3}{2} \cdot \frac{4}{1} = 6$$

$$y + 2 = \frac{3}{2}x + 6$$

$$\quad \quad \quad -2 \quad \quad \quad -2$$

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

Write the slope-intercept form of the equation of the line through the given points.

4) through:  $(-5, 5)$  and  $(0, -1)$

$$m = \frac{-1 - 5}{0 - (-5)} = \frac{-6}{5} = -\frac{6}{5}$$

① Find slope

$$(-5, 5) \quad y - 5 = -\frac{6}{5}(x + 5)$$

$$y - 5 = -\frac{6}{5}x - 6$$

$$\quad \quad \quad +5 \quad \quad \quad +5$$

$$y = -\frac{6}{5}x - 1$$

$$y = mx + b$$

$$\text{OR } 5 = (-\frac{6}{5})(-5) + b$$

$$5 = 6 + b$$

$$\quad \quad \quad -6 \quad -6$$

$$-1 = b$$

$$y = -\frac{6}{5}x - 1$$

Write the slope-intercept form of the equation of each line.

5)  $10x - 7y = 35$

$$\frac{-7y = -10x + 35}{-7} \quad \frac{-10x}{-7} \quad \frac{35}{-7}$$

$$y = \frac{10}{7}x - 5$$

$$(0, -1) \quad y - (-1) = -\frac{6}{5}(x - 0)$$

$$y + 1 = -\frac{6}{5}x$$

$$\quad \quad \quad -1 \quad \quad \quad -1$$

$$y = -\frac{6}{5}x - 1$$

Write the standard form of the equation of each line.

6)  $y = 2x - 2$

$$-2x \quad -2x$$

$$-2x + y = -2$$

$$Ax + By = C$$

$$y = mx + b$$

$$-1 = -\frac{6}{5}(0) + b$$

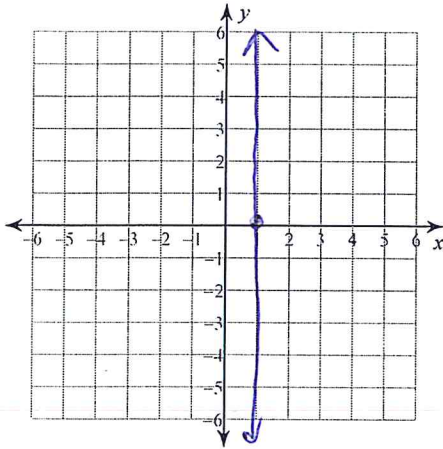
$$-1 = b$$

$$y = -\frac{6}{5}x - 1$$

Sketch the graph of each line.

7)  $x = 1$

Vux



Find the x- and y- intercepts. Sketch the graph of each line.

8)  $2x + y = 4$

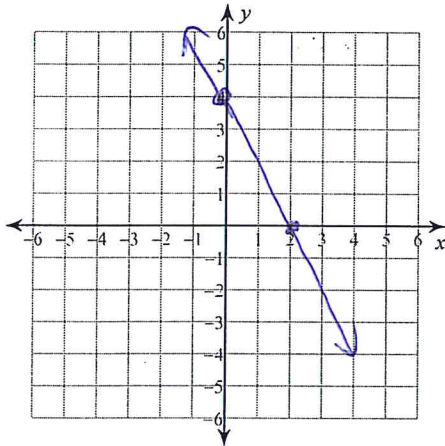
$$2x + 0 = 4$$

$$2x = 4$$

$$\boxed{x = 2}$$

$$2(0) + y = 4$$

$$\boxed{y = 4}$$



Solve each system by substitution.

9)  $y = x - 4$   
 $-3x + 8y = 8$

$$-3x + 8(x - 4) = 8$$

$$-3x + 8x - 32 = 8$$

$$5x - 32 = 8$$

$$+32 \quad +32$$

$$\underline{5x = 40}$$

$$\underline{\quad \quad 5}$$

$$x = 8$$

$y = 8 - 4 = 4$

$$\boxed{(8, 4)}$$

10)  $x + y = -2$   
 $-x - 5y = -10$

$$\begin{array}{r} x + y = -2 \\ -x - 5y = -10 \\ \hline 5 - 2 = 3 \\ y = -x - 2 = -(-5) - 2 \end{array}$$

$$-x - 5(-x - 2) = -10$$

$$-x + 5x + 10 = -10$$

$$4x + 10 = -10$$

$$\underline{\quad \quad -10}$$

$$4x = -20$$

$$\underline{\quad \quad 4}$$

$$x = -5$$

$$\boxed{(-5, 3)}$$

Solve each system by elimination.

11)  $-6x - 3y = 27$   
 $3x + 3y = 0$

$$\begin{array}{r} -6x - 3y = 27 \\ 3x + 3y = 0 \\ \hline -3x = 27 \\ \underline{\quad \quad -3} \\ x = -9 \end{array}$$

$$3(-9) + 3y = 0$$

$$-27 + 3y = 0$$

$$\underline{\quad \quad +27}$$

$$3y = 27$$

$$\underline{\quad \quad 3}$$

$$y = 9$$

$$\boxed{(-9, 9)}$$

12)  $-10x + 10y = 0$   
 $-10(-6x + y = 10)$

$$\begin{array}{r} -10x + 10y = 0 \\ 60x - 10y = -100 \\ \hline 50x = -100 \\ \underline{\quad \quad 50} \\ x = -2 \end{array}$$

$$\boxed{(-2, -2)}$$

Write the slope-intercept form of the equation of the line described.

13) through:  $(4, -2)$ , parallel to  $y = -3x + 3$

$m = -3$  ←  $m = -3$

$$y - (-2) = -3(x - 4)$$

$$y + 2 = -3x + 12$$

$$\underline{\quad \quad -2} \quad \underline{\quad \quad -2}$$

$$y = -3x + 10$$

$$\boxed{y = -3x + 10}$$

OR

$$y = mx + b$$

$$-2 = -3(4) + b$$

$$-2 = -12 + b$$

$$\underline{\quad \quad +12} \quad \underline{\quad \quad +12}$$

$$10 = b$$

$$y = -3x + 10$$

$$-6(-2) + y = 10$$

$$12 + y = 10$$

$$\underline{\quad \quad -12} \quad \underline{\quad \quad -12}$$

$$y = -2$$

14) through:  $(-1, -4)$ , perp. to  $y = \frac{1}{2}x + 5$

$m = -2$

$m = \frac{1}{2}$

$y = mx + b$   
 $-4 = (-2)(-1) + b$   
 $-4 = 2 + b$   
 $-6 = b$

$y = -2x - 6$

Construct a scatter plot. State if there appears to be a positive correlation, negative correlation, or no correlation. When there is a correlation, find the slope-intercept form of the equation of the line that best fits the data. Where rounding is necessary, round to the nearest tenth.

X	Y	X	Y	X	Y
0.6	200	6.3	800	2.8	500
3.1	500	9.2	800	9.8	700

positive correlation

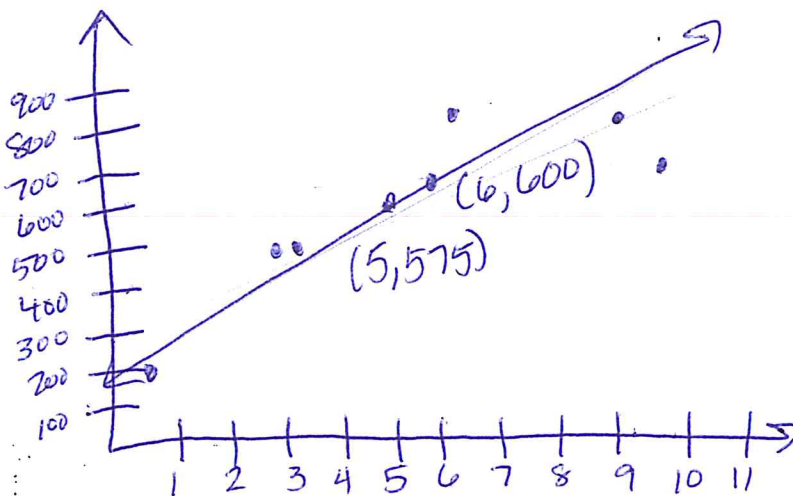
$m = \frac{600 - 575}{6 - 5} = \frac{25}{1} = 25$

Use  $(6, 600)$

$y - 600 = 25(x - 6)$

$y - 600 = 25x - 150$   
 $+600$   $+600$

$y = 25x + 450 \rightarrow$  Answers vary greatly



16) Match the correlation coefficients to their correct graphs.

$-0.85$  D

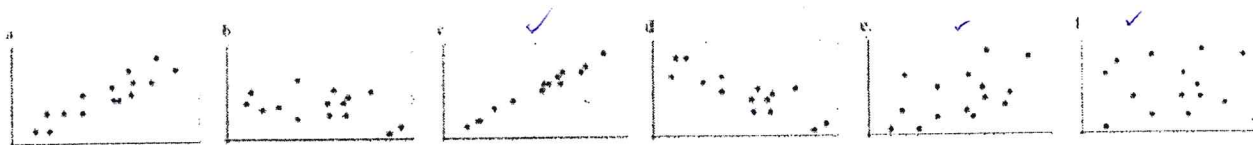
$-0.40$  B

$0$  F

$0.33$  E

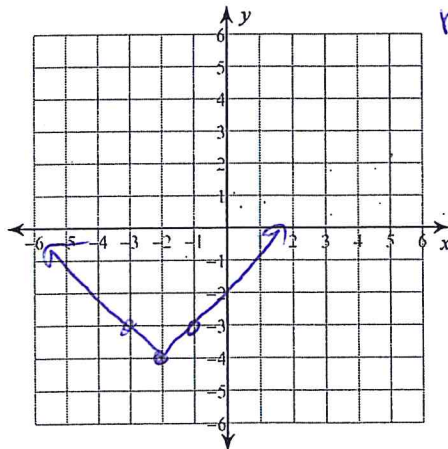
$0.87$  A

$0.99$  C



Graph each equation.

17)  $y = |x + 2| - 4$   $v: (-2, -4)$   
 $m_R = 1$



18)  $y = -|x + 2| + 3$   $v: (-2, 3)$   
 $m_R = -1$

