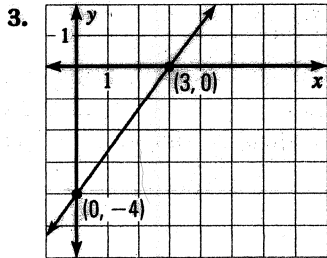


Geometry, Ch 3-5 Exercises, pg 176 #3-8 (all), #10-44 (evens)

Write equation of the line shown.

$$[y = mx + b]$$

↑ slope  
↑ y-intercept



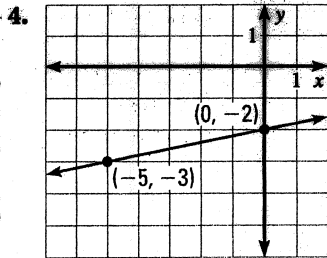
$$\text{Slope: } \frac{-4-0}{0-3} = \frac{-4}{-3} = \frac{4}{3}$$

$$\text{y-int: } 0 = \frac{4}{3}(3) + b$$

$$0 = 4 + b$$

$$-4 = b$$

$$y = \frac{4}{3}x - 4$$

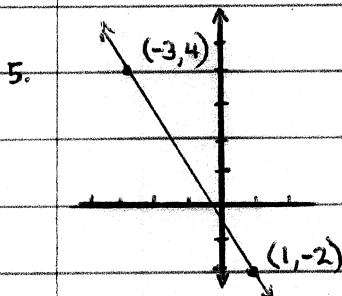


$$\text{Slope: } \frac{-2-(-3)}{0-(-5)} = \frac{1}{5}$$

$$\text{y-int: } -2 = \frac{1}{5}(0) + b$$

$$-2 = b$$

$$y = \frac{1}{5}x - 2$$



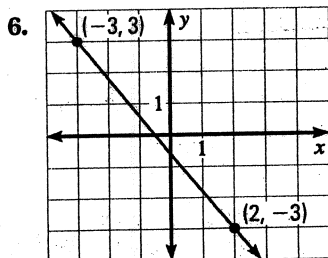
$$\text{slope: } \frac{-2-4}{1-(-3)} = \frac{-6}{4} = -\frac{3}{2}$$

$$\text{y-int: } 4 = -\frac{3}{2}(-3) + b$$

$$4 = \frac{9}{2} + b$$

$$-\frac{1}{2} = b$$

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



$$\text{Slope: } \frac{-3-3}{2-(-3)} = -\frac{6}{5}$$

$$\text{y-int: } -3 = -\frac{6}{5}(2) + b$$

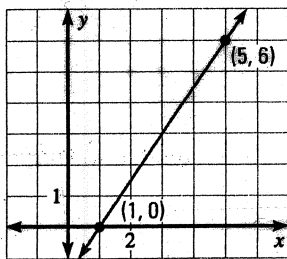
$$-3 = -\frac{12}{5} + b$$

$$-\frac{15}{5} = -\frac{12}{5} + b$$

$$-\frac{3}{5} = b$$

$$y = -\frac{6}{5}x - \frac{3}{5}$$

7.



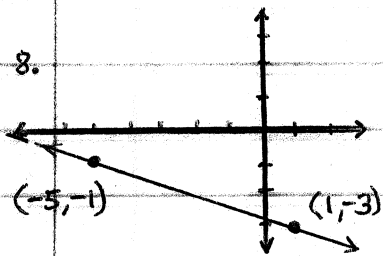
$$\text{Slope} = \frac{6-0}{5-1} = \frac{6}{4} = \frac{3}{2}$$

$$\text{y-int: } 0 = \frac{3}{2}(1) + b$$

$$-\frac{3}{2} = b$$

$$y = \frac{3}{2}x - \frac{3}{2}$$

8.



$$\text{Slope} = \frac{-3 - (-1)}{1 - (-5)} = \frac{-2}{6} = -\frac{1}{3}$$

$$\text{y-int: } -3 = -\frac{1}{3}(1) + b$$

$$-3 = -\frac{1}{3} + b$$

$$-\frac{9}{3} = -\frac{1}{3} + b$$

$$-\frac{8}{3} = b$$

$$y = -\frac{1}{3}x - \frac{8}{3}$$

Write an equation of the line with given slope  $m$ , and y-intercept,  $b$ .

10.  $m = -2$ ,  $b = -12$        $y = -2x - 12$

12.  $m = 4$ ,  $b = -6$        $y = 4x - 6$

14.  $m = \frac{4}{9}$ ,  $b = -\frac{2}{9}$        $y = \frac{4}{9}x - \frac{2}{9}$

Write the equation of the line that passes through the given point  $P$  and the given slope  $m$ .

16.  $P(-1, 0)$ ,  $m = -1$

$$y = mx + b$$

$$0 = -1(-1) + b$$

$$0 = 1 + b$$

$$-1 = b$$

$$y = -x - 1$$

18.  $P(6, -2)$ ,  $m = 3$

$$y = mx + b$$

$$-2 = 3(6) + b$$

$$-2 = 18 + b$$

$$-20 = b$$

$$y = 3x - 20$$

20.  $P(0, -3), m = -\frac{1}{6}$

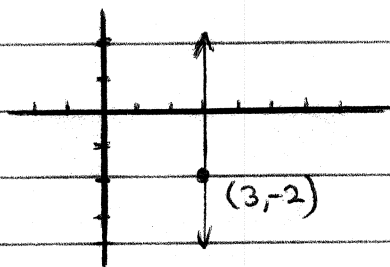
$$y = mx + b$$

$$-3 = -\frac{1}{6}(0) + b$$

$$-3 = b$$

$$y = -\frac{1}{6}x - 3$$

22. Write an equation of a line with an undefined slope that passes through the point  $(3, -2)$



Undefined slope means a Vertical line.  
 Thru  $(3, -2)$ , the equation is  $x = 3$   
 Thru  $(3, -2)$ , the horizontal line equation is  $y = -2$ .

Write equation of line that passes thru point  $P$ , and is parallel to the line with the given equation.

24.  $P(-7, -4), y = 16$   $y = 16$  is a horizontal line. Use the y-coordinate of point  $P$ .  $y = -4$

26.  $P(-2, 6), x = 5$   $x = 5$  is a vertical line. Use the x-coordinate of point  $P$ .  $x = -2$

28.  $P(4, 0), -x + 2y = 12$

$$2y = x + 12$$

$$y = \frac{1}{2}x + 6 \quad \text{slope} = \frac{1}{2}$$

Re-write equation into Slope-Intercept form, so you can determine slope

$$0 = \frac{1}{2}(4) + b$$

$$0 = 2 + b$$

$$-2 = b$$

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

Write equation of line that passes thru point P, and is perpendicular to the line with the given equation.

30.  $P(0,0)$ ,  $y = -9x + 1$   
 $m = -9$   
 $\perp m = +\frac{1}{9}$

$$0 = \frac{1}{9}(0) + b$$

$$0 = b$$

$\perp$  line:  $y = \frac{1}{9}x$

32.  $P(4,-6)$ ,  $y = -3$   $y = -3$  is a horizontal line. The perpendicular would be a vertical line.

For a vertical line, use x-coordinate of point P.

$$x = 4$$

34.  $P(0,-5)$ ,  $x = 20$   $x = 20$  is a vertical line. The perpendicular would be a horizontal line.

For a horizontal line, use y-coordinate of point P.

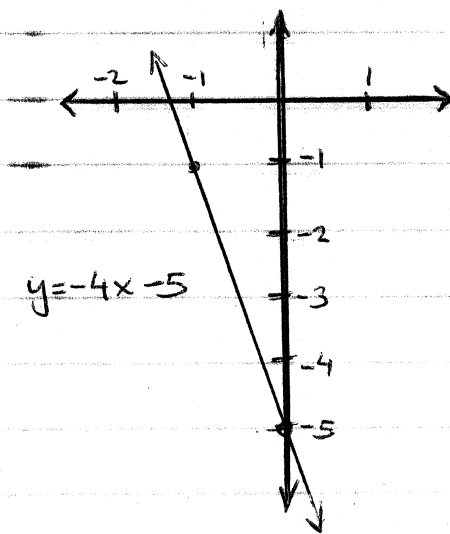
$$y = -5$$

Graph the equation. [convert into Slope-Int form,  $y = mx + b$ ]

36.  $8x + 2y = -10$   
 $2y = -8x - 10$   
 $y = -4x - 5$

slope =  $-4$

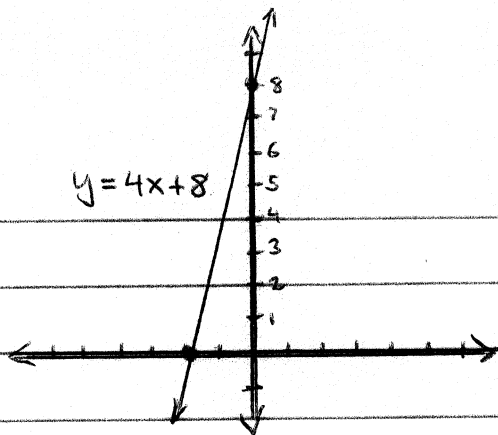
y-int =  $-5$



38.  $4x - y = -8$

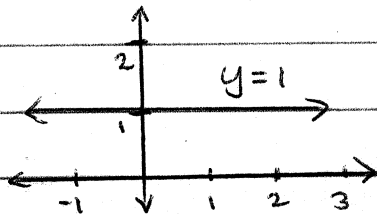
$$-y = -4x - 8$$

$$y = 4x + 8$$



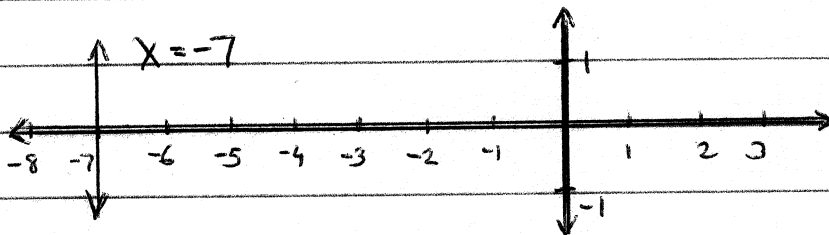
40.  $y - 2 = -1$

$$y = 1$$



42.  $x + 3 = -4$

$$x = -7$$



44.  $3(x - 2) = -y - 4$

$$3x - 6 = -y - 4$$

$$3x = -y + 2$$

$$y + 3x = 2$$

$$y = -3x + 2$$

