## 6-5a Writing Linear Equations and Point-Slope Form

will also be asked to write linear equations from information other than a picture of the graph. To do this we will use both slope-intercept form (y = mx + b) and point-slope form.

- When you are given the **slope** and the y **intercept** you simply use y = mx + b.
- 1. Write the equation of the line with a slope of -3 and a y intercept of 6.

$$V = -3x + 6$$

2. Write the equation of the line with a slope of  $\frac{4}{5}$  and a y – intercept of -3.

$$V = \frac{4}{5} \times -3$$

• When you are given the **slope** and a **point**, you will use the point-slope form.

The point-slope form of an equation that passes through the point  $(x_1, y_1)$  and has a slope m is:

$$y - \widehat{y_1} = m(x - \widehat{x_1})$$

Example:

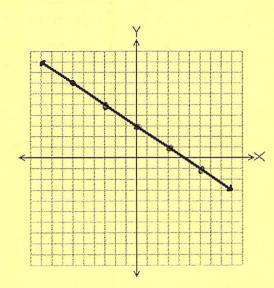
3. Write the equation of a line with a slope of  $-\frac{2}{3}$  and that passes through the point ( -6, 7 ).

$$y-7 = -\frac{2}{3}(x+6)$$

$$y-7 = -\frac{2}{3}x - 4$$

$$+7$$

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



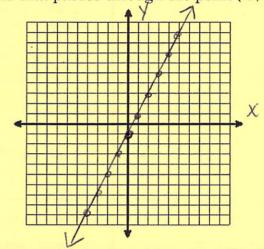
4. Write the equation of a line with a slope of  $\frac{4}{5}$  and that passes through the point (-15, 9).  $\sqrt{-\sqrt{\phantom{0}}} = m\left(\chi - \chi\right)$ 

$$Y-9=\frac{4}{5}(X-(-15)) \rightarrow Y-9=\frac{4}{5}(X+15)$$

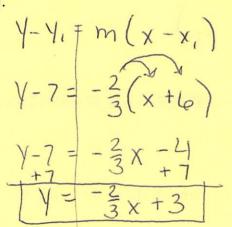
5. Write and graph the equation of a line with a slope of 2 and that passes through the point (3, 5).

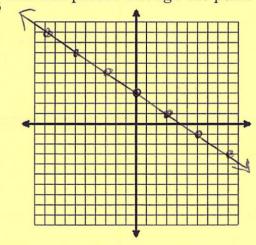
$$V-V_1=m(X-X_1)$$

$$\frac{y-5=2x-6}{(y=2x-1)}$$

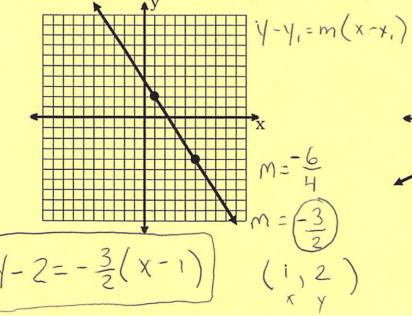


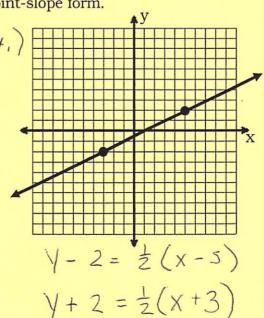
6. Write and graph the equation of a line with a slope of  $-\frac{2}{3}$  and that passes through the point (-6, 7).





Write the equation of the lines in the graphs below in point-slope form.



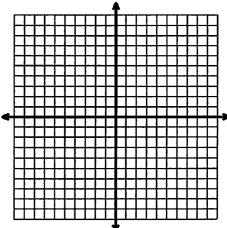


1 What is the y – intercept of the line y+3=4(x+3)?

2. Is the point (4, 11) on the line of the equation y-5=2(x-1)?

3. Write the equation in *slope-intercept form* ( y = mx + b ) of a line that passes through the point (-3, -5) and has the same slope as y + 2 = 7(x+3).

4. Write the equation of a line with a slope of and that passes through the point



5. Write the equation of the line in the graph below in point-slope form and slope-intercept form.

