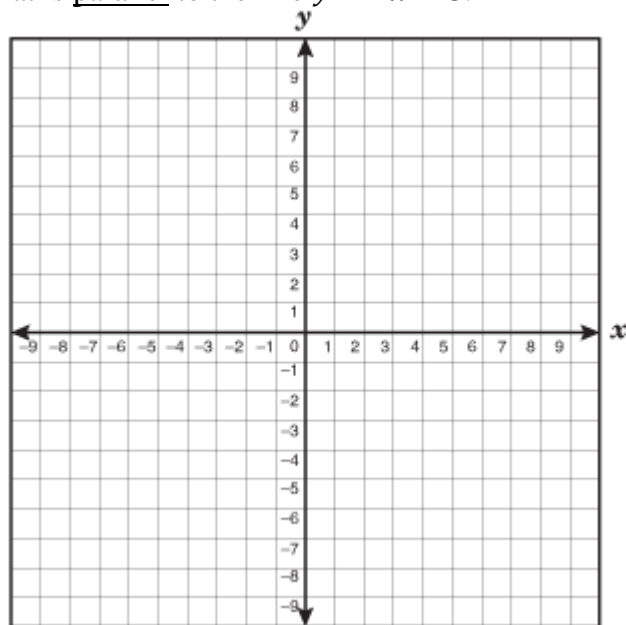
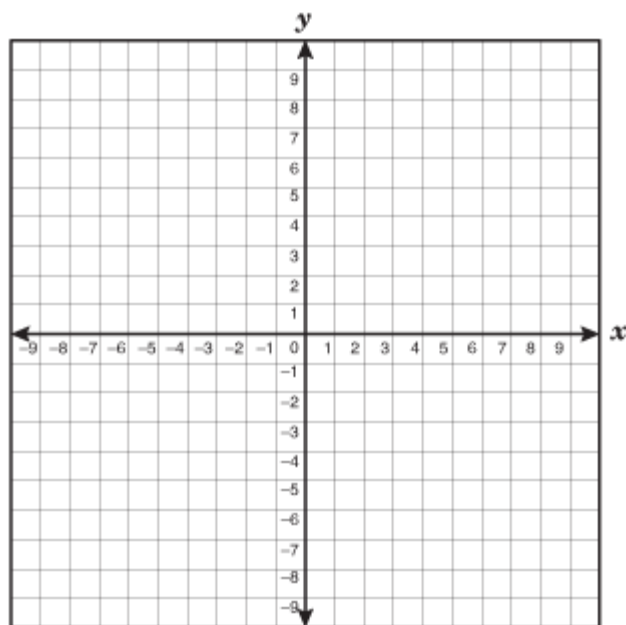


**Writing Equations of Parallel and Perpendicular Lines***Lesson Objective*Using Slope-Intercept Form**Step 1:** Find the slope ( $m$ ) of the parallel (or perpendicular) line**Step 2:** Find the y-intercept ( $b$ ) by using ( $m$ ) from Step 1, and the given point ( $x, y$ )**Step 3:** Write the equation of the line using the slope ( $m$ ) and y-intercept ( $b$ ) from Steps 1 and 2.*Examples:*

1. Write an equation of the line passing through point  $(-1, 1)$  that is parallel to the line  $y = 2x - 3$ .



2. Write an equation of the line passing through  $(2, 3)$  that is perpendicular to the line  $2x + y = 2$



## Using Point-Slope Form

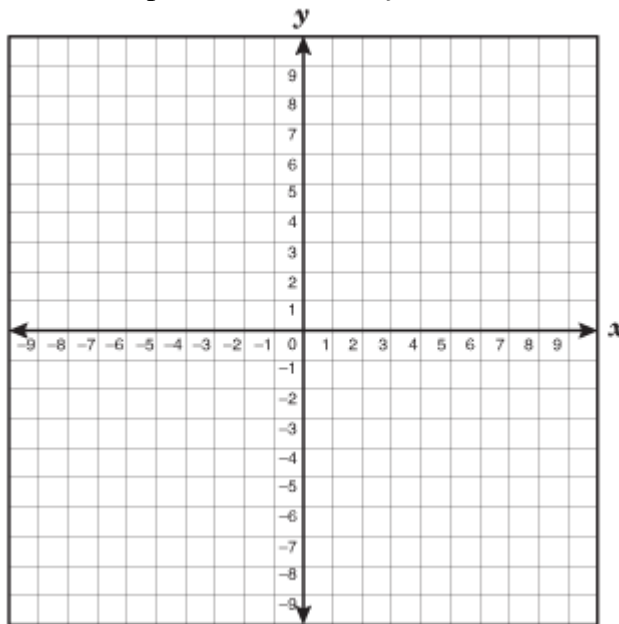
**Step 1:** Find the slope ( $m$ ) of the parallel (or perpendicular) line

**Step 2:** Plug in the slope ( $m$ ) from above and the given point ( $x, y$ ) to the point-slope form equation of a line.

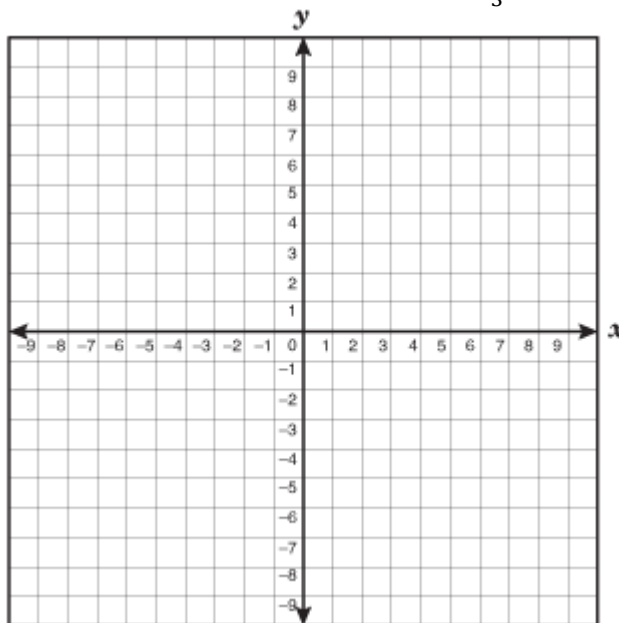
**Step 3:** Solve for  $y$  to get the equation into slope-intercept form.

*Examples:*

3. Write an equation of the line that passes through the point  $(1, 5)$  and is parallel to the line  $y = 3x - 5$



4. Write an equation of the line passing through the point  $(-6, -6)$  that is perpendicular to line  $y = -\frac{2}{3}x - 10$



5. How do you know that the line  $x = 4$  and  $y = 2$  are perpendicular?