NAME _____ CLASS _____ DATE _____

Reteaching

1.2 Slopes and Intercepts

◆ Skill A Graphing a linear equation using the slope and y-intercept

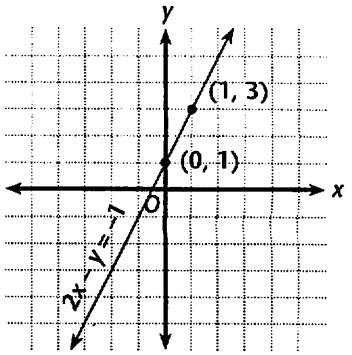
Recall The slope-intercept form of a line is $y = mx + b$, where m is the slope and b is the y-intercept.

◆ Example
Graph the line with the equation $2x - y = -1$.

◆ Solution
Solve for y. Write the equation in the form $y = 2x + 1$.
When $x = 0$, then $y = 1$; the y-intercept is 1.
Graph the point (0, 1).

The slope of 2 indicates that $\frac{\text{rise}}{\text{run}} = \frac{2}{1}$.

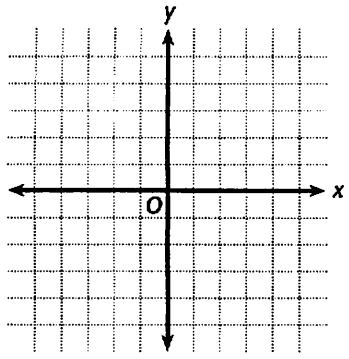
From the point (0, 1) "rise" 2 units and "run" to the right 1 unit to locate the point (1, 3).



Find the slope, m, and y-intercept, b, for each line. Then graph.

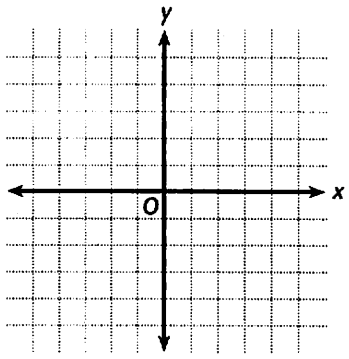
1. $y = x + 2$

m: _____ b: _____



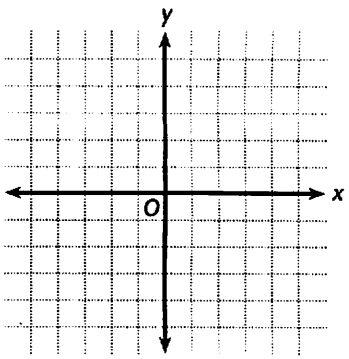
2. $y = 2x$

m: _____ b: _____



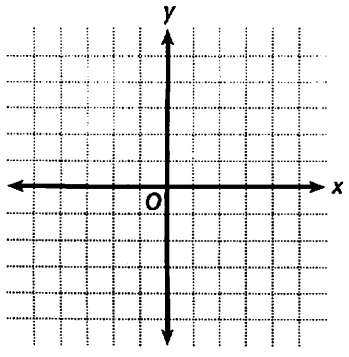
3. $x + y = 4$

m: _____ b: _____



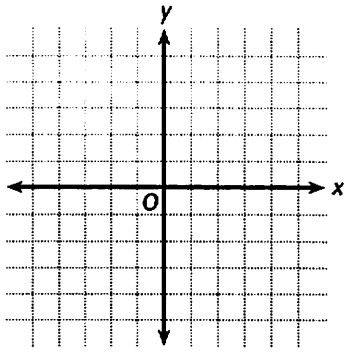
4. $x + 2y = 6$

m: _____ b: _____



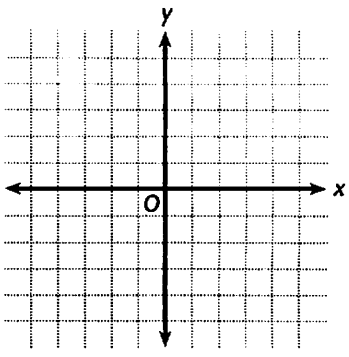
5. $x - y = 1$

m: _____ b: _____



6. $2x + y = -1$

m: _____ b: _____



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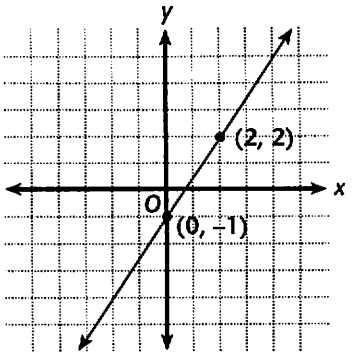
◆Skill B Writing the equation of a graphed line in the slope-intercept form

Recall The slope of the line containing (x_1, y_1) and (x_2, y_2) is given by $\frac{y_2 - y_1}{x_2 - x_1}$.

◆ **Example**

Write an equation for the line shown at right.



◆ **Solution**

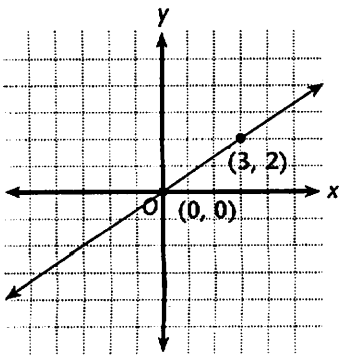
The line crosses the y-axis at $(0, -1)$. Therefore, the y-intercept is -1.

The slope is $\frac{2 - (-1)}{2 - 0} = \frac{3}{2}$.

The equation is $y = \frac{3}{2}x - 1$.

Write an equation in slope-intercept form for each line.

7.



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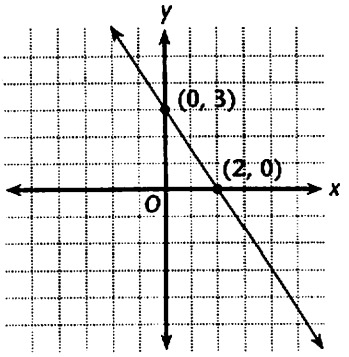

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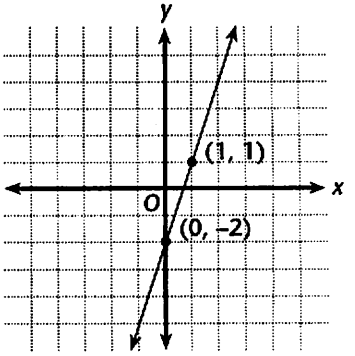

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◆Skill C Finding the x- and y-intercepts of the graph of a linear equation

Recall A line crosses the x-axis when $y = 0$; a line crosses the y-axis when $x = 0$.

◆ **Example**

Find the x- and y-intercepts for the line given by $2x + y = 6$.

◆ **Solution**

Let $x = 0$.	Let $y = 0$.
$2(0) + y = 6$	$2x + 0 = 6$
$y = 6$	$x = 3$

The x-intercept is 6 and the y-intercept is 3.

Find the x- and y-intercepts.

10. $x - 2y = 8$ _____

11. $-x + y = 5$ _____

12. $2x + 3y = 12$ _____

13. $3x - 2y = 0$ _____

14. $y = \frac{1}{2}x + 4$ _____

15. $y = -2$ _____

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