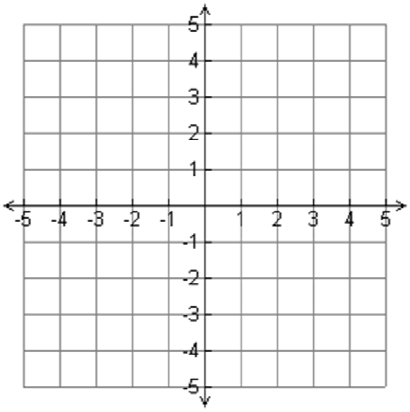
# 5.1 Write Linear Equations in Slope-Intercept Form

Recall that the graph of an equation in slope-intercept form, $y = mx + b$, is a line with a slope of $m$ and a $y$-intercept of $b$. You can use this form to write an equation of a line if you know its slope and $y$-intercept.




**Skill #1**: Write an equation of the line given a slope and a y-intercept.

**EXAMPLE 1** **Use slope and $y$-intercept to write an equation**

**Write an equation of the line with a slope of $-2$ and a $y$-intercept of 5.**

## Your Turn !

**You Try:** Skill #1

**Write an equation of the line with the given slope and *y*-intercept.**

Slope is $\frac{3}{4}$; *y*-intercept is $-3$.

Don't forget to show your work and write down your answer !

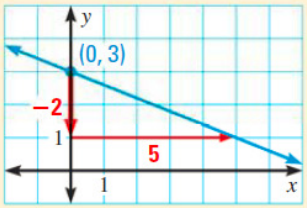
**Skill #2**: Write an equation of the line given a graph with a clear slope and a y-intercept.

**EXAMPLE 2** **Standardized Test Practice**

**Which equation represents the line shown?**

Ⓐ $y = -\frac{2}{5}x + 3$ Ⓑ $y = -\frac{5}{2}x + 3$

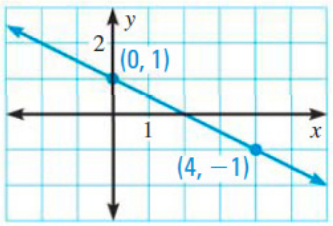
Ⓒ $y = -\frac{2}{5}x + 1$ Ⓓ $y = 3x + \frac{2}{5}$



## Your Turn !

**You Try:** Skill #2

Write an equation of the line shown.

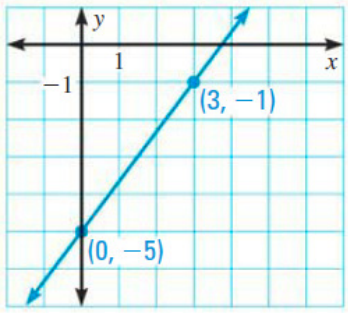



Don't forget to show your work and write down your answer !

**Skill #3**: Write an equation of the line given two points with one of them being a y-intercept.

**EXAMPLE 3** **Write an equation of a line given two points**

**Write an equation of the line shown.**



## Your Turn !

**You Try:** Skill #3

**Write an equation of the line that passes through the given points.**

$$(2, -4), (0, -4)$$

Don't forget to show your work and write down your answer !

**Skill #4**: Write an equation of the line given two points in function notation with one of them being a y-intercept.

**EXAMPLE 4** **Write a linear function**

**Write an equation for the linear function $f$ with the values $f(0) = 5$ and $f(4) = 17$.**

## Your Turn !

**You Try:** Skill #4

**Write an equation for the linear function $f$ with the given values.** $f(-3) = 6, f(0) = 5$

Don't forget to show your work and write down your answer !

**Skill #5:** Apply concept of rate and initial condition in a word problem to an equation.

**We will come back to work with word problems !**

**Please Don't Forget to Enter Your Answers for the "You Try" examples in the form below!**