

## 5.2: Writing Linear Equations

“I WILL

...write an equation of a line using points on the line.”

### I. Steps from a graph to write an equation

- A. Calculate the slope of the equation
- B. Identify the y-intercept
- C. Apply to the slope-intercept equation
- D. Simplify

### II. Writing an equation in Slope-Intercept form

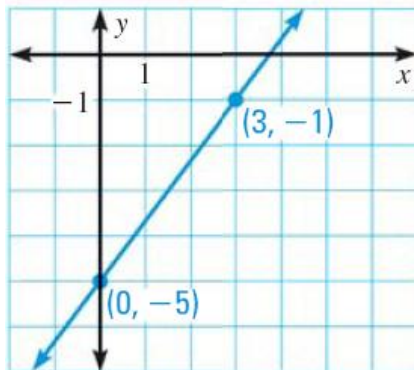
- A. Calculate the slope
- B. Plug into the equation,  $y = mx + b$  for the  $x$  and  $y$ -coordinates
- C. Solve for the y-intercept
- D. Write the equation of the line in simplified form

### III. Model Problems

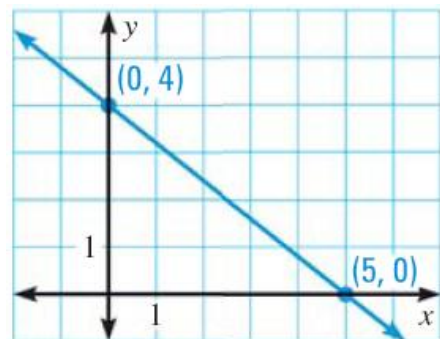
Ex 1: Write an equation of the line that passes through the point of  $(0, 5)$  and the slope of  $-2$ .

Your Turn: Write an equation of the line that passes through the point of  $(0, -3)$  and the slope of  $3/4$ .

Ex 2: Use the graph to calculate the equation:



Ex 3: Use the graph to calculate the equation:



<p>Ex 4: Write an equation for the function where the values of <math>(0, 5)</math> and <math>(4, 17)</math>.</p>	<p>Ex 5: Write an equation for the function where the values of <math>(0, -2)</math> and <math>(8, 4)</math></p>	<p>Your Turn: Write an equation for the function where the values of <math>(-3, 6)</math> and <math>(0, 5)</math></p>
<p>Ex 6: Write an equation for the function where the values of <math>(-1, 3)</math> and the slope of <math>-4</math>.</p>	<p>Ex 7: Write an equation for the function where the values of <math>(6, 3)</math> and the slope of <math>2</math>.</p>	<p>Your Turn: Write an equation for the function where the values of <math>(6, 3)</math> and the slope of <math>-2</math>.</p>
<p>Ex 8: J.J. has saved \$135 in 4 weeks. If he continues to save \$30 per week, write a linear equation that represents the total amount saved as a function of the number of weeks he's been saving.</p>	<p>Ex 9: Frodo and Sam are saving up to buy the Harry Potter series on Blu-ray. Gandolf is helping them figure out how long it will take to save up. They currently have \$15 and saves \$30 a week doing garden work for other houses in the Shire. Write an equation representing the following situation and then determine how many money will they have if they work for 10 weeks?</p>	<p>Your Turn: 24-Hour Fitness charges \$33 per month after an initial membership fee. You paid a total of \$228 after 6 months. Write an equation gives the total cost as a function of the length of the gym membership (in months). Then, determine how many months would he been a member if he had paid a total of \$327?</p>