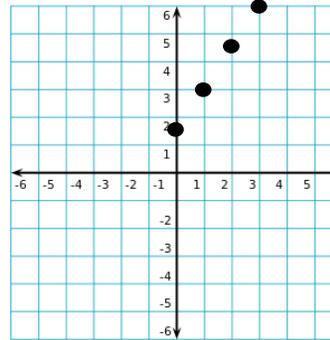




Interpret	the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	<p><u>Example (for an equation):</u>  <math>y = -3x + 9</math>  slope: -3  y-intercept: (0,9)</p> <p><u>Example (from a situation):</u>  “Bobby joined a gym that charges an initial \$50 membership fee with a \$25 monthly fee.”  slope: 25  y-intercept: (0,50)</p> <p><u>Example (from two points):</u>  The following two points satisfy the same linear equation:  (0, -9) and (4,7)  slope: 4  y-intercept: (0,9)</p> <p>To figure out the meaning of <math>y = mx + b</math>, students should “see” <math>m</math> and <math>b</math> in graphs, tables, and equations. They should interpret those values in contexts.</p> <p>Determine when a function represents a proportional relationship based on whether the function intersects the y-intercept at (0,0) or not.</p> <p>Use slope and y-intercept to write an equation in either <math>y = mx + b</math> or <math>y = b + mx</math></p> <p><u>Examples:</u>  Create a problem situation in words to match the function <math>y = 4x</math>.  “Jill makes \$4.00 an hour babysitting.”  “Sam collects 4 seashells each day he is at the beach.”</p> <p>Create a problem situation in words to match the function <math>y = 10 + 2.5x</math>.  “Martin starts a race with a 10 meter head start. He runs 2.5 meters per second.”</p>
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Example:

The following graph represents the monthly cost of an online book club.



slope: 1.5

*"This means there is a \$1.50 monthly membership fee."*

y-intercept: (0,1.5)

*"The y-intercept indicates there must be a \$1.50 initial sign-up fee."*

equation:  $y = \$1.50 + \$1.50x$

Does the graph represent a proportional relationship?

*"No, since the graph does not intersect at the origin."*

**Big Idea(s) in student language:** Students will construct linear functions, and identify and interpret the rate of change (slope) and initial values (y-intercept) from multiple representations (situations, tables, graphs, equations, pairs of coordinates).