Key Features of Linear Functions (Graphs)

There are certain features that are important for you to recognize when looking at graphs of linear functions.

They are:

Slope - Look for 2 clean (whole number) intersections and determine the change in y over the change in x

Y-intercept - Look at where the line intersects the y-axis

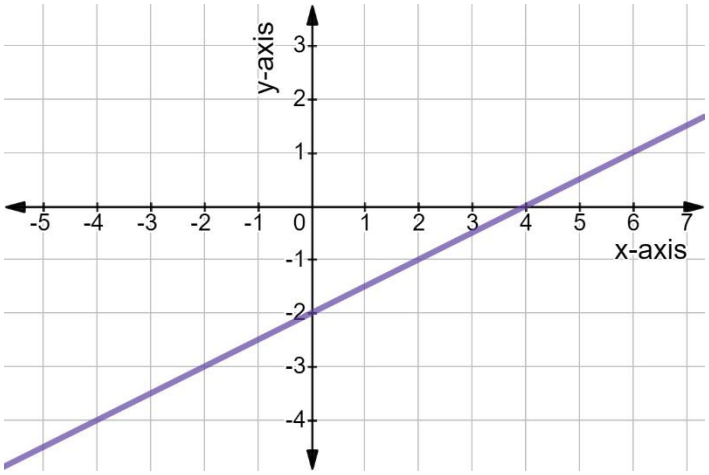
X-intercept - Look at where the line intersects the x-axis

Sign of Slope - If the line goes from the bottom left to the top right of the graph, it is positive (if it goes from top left to bottom right, it is negative)

Let's practice finding these features from graphs of linear functions.

Examples:

There are 2 example graphs that will be used in this lesson. Try to look at the graph to find the slope, y-intercept, x-intercept and the sign of the slope based on the graph alone before looking at the work that comes after each graph. Try your best - you got this!



Credit: expii.com

For slope, try to pick the 2 closest intersections if possible.

For instance, I would pick (0, -2) and (2, -1) for the line above.

By doing this, we can just look at the graph and find the change in y over the change in x.

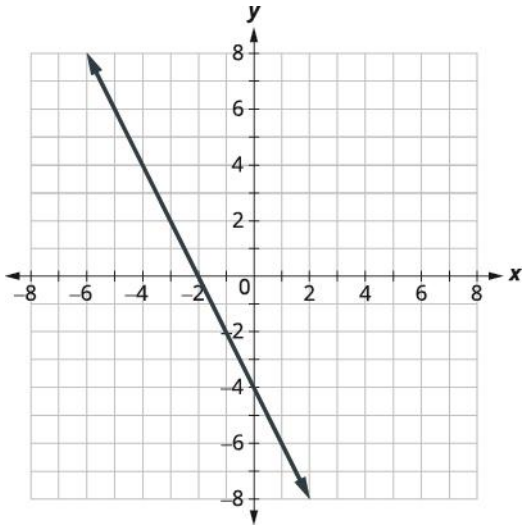
Change in y = 1 and Change in x = 2

So, the slope is: $\frac{1}{2}$

X-intercept is (4, 0)

Y-intercept is (0, -2)

Direction of the slope is positive (bottom left to the top right of the graph)



Credit: pressbooks.nscc.ca

Slope - Pick 2 clean whole number intersections and look at the graph to determine change in y over change in x

For instance, pick (0, -4) and (-1, -2) to find the slope

Change in y = 2 and Change in x = -1

So, the slope is: -2

X-intercept is (-2, 0)

Y-intercept is (0, -4)

Direction of slope is negative (top left to the bottom right of the graph)

Tips for Solving Problems:

1. Try to think outside the box when finding a slope! Find the 2 closest clean whole number intersections and then determine the change in y over the change in x.

2. A NEGATIVE slope is represented by a positive change in y and a negative change in x OR a negative change in y and a positive change in x. A POSITIVE slope is represented by a positive change in y and a positive change in x OR a negative change in y and a negative change in x.

3. Use the directions of slope to help you determine if you are going in the right direction with a change in y over a change in x. Remember POSITIVE slopes go from bottom left to top right and NEGATIVE slopes go from top left to bottom right.