INTERPRETING CHANGES IN SLOPE AND INTERCEPTS – DAY 1

Recall: What is the equation of the linear PARENT function? _____

<div style="text-align:center">
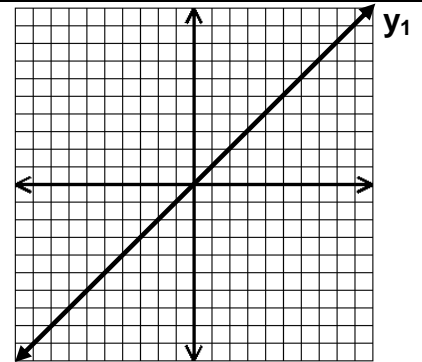
m: _____   x-intercept: _____

b: _____   y-intercept: _____

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Changing the parameters (the slope and the y-intercept) of the linear parent function affects the graph in various ways. Let's see how changing the slope changes the graph…

What would happen to the graph if we made the slope larger?

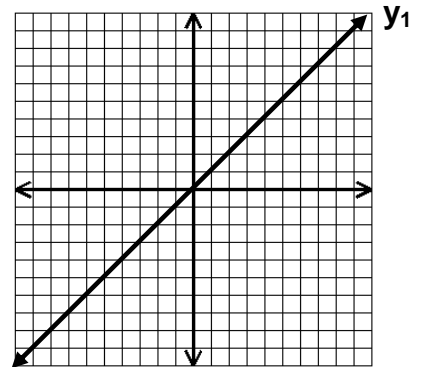Graph: $y_1 = x$, $y_2 = 2x$, $y_3 = 3x$, $y_4 = 6x$

Conclusion:

What would happen to the graph if we made the slope smaller?

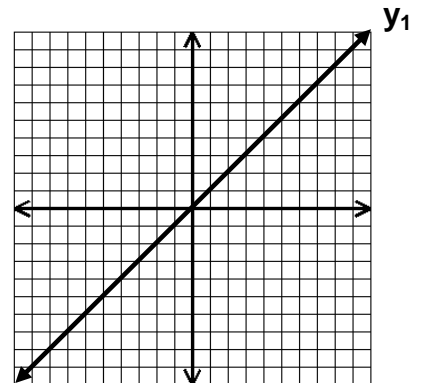Graph: $y_1 = x$, $y_2 = \frac{1}{2}x$, $y_3 = \frac{1}{3}x$, $y_4 = \frac{1}{6}x$

Conclusion:

What would happen to the graph if the slope is negative?

Graph: $y_1 = x$ and $y_2 = -x$

Conclusion:

Summary:

The **STEEPNESS** of the line is affected by the _____.

A **LARGER SLOPE** makes the line _____.

A **SMALLER SLOPE** makes the line_____.

**NEGATIVE** slopes _____ change the **STEEPNESS**.

1. Compare the steepness of the following lines:

Y1	Y2	Which line is steeper?
y = 4x + 3	y = 6x - 2	
y = -2x	y = x + 1	
y = 2x + 2	y = -2x + 1	
$y = \frac{1}{2}x + 3$	$y = \frac{4}{3}x$	

2. The original function y = $\frac{3}{4}$x – 5 is graphed on the same grid as the new function y = $\frac{4}{3}$x – 5.

   **Which of the following statements about these graphs is true?**

   A. The graph of the original function is steeper than the
       graph of the new function.

   B. The graph of the original function is parallel to the
       graph of the new function.

   C. The graphs intersect at (-5, 0).

   D. The graphs intersect at (0, -5).
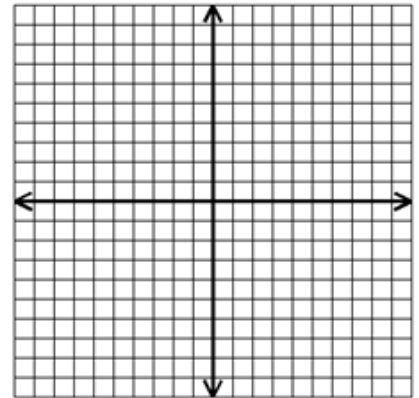
3. If the slope of the function y = -4.5x + 3.2 is changed to 1.5, which of the following best describes the graph of the new function?

   A. The graph of the new function intercepts the y-axis at the
       same point as the original function.

   B. The graph of the new function intercepts the x-axis at the
       same point as the original function.

   C. The graph of the new function has a negative slope.

   D. The graph of the new function has a positive x-intercept.
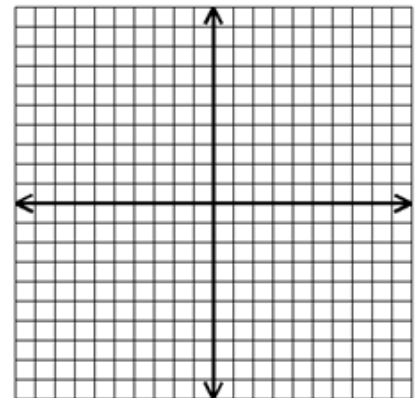
**4. Which best describes the effect on the graph of f(x) = -3x + 7
    if the y-intercept is changed to -5?**

   A. The slope decreases.

   B. The new line passes through the origin.

   C. The x-intercept increases.

   D. The y-intercept decreases.