

Name \_\_\_\_\_

## INTERPRETING CHANGES IN SLOPE AND INTERCEPTS – DAY 1

**Recall:** What is the equation of the linear PARENT function? \_\_\_\_\_

m: \_\_\_\_\_ x-intercept: \_\_\_\_\_

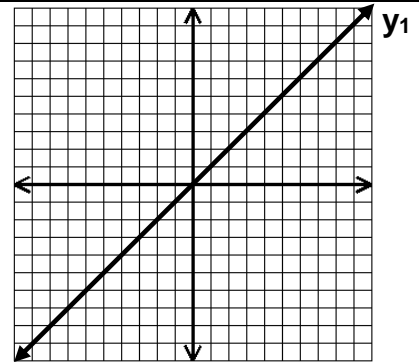
b: \_\_\_\_\_ y-intercept: \_\_\_\_\_

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

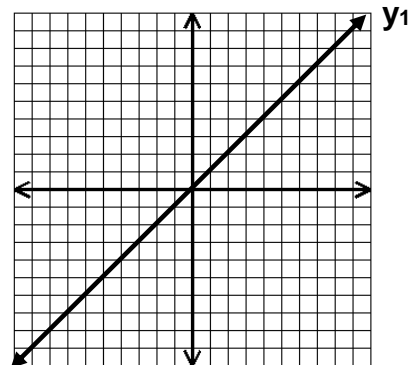
**Conclusion:**



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

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

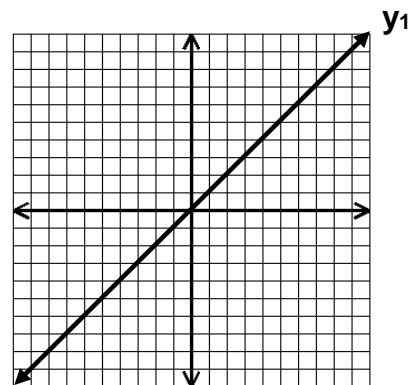
**Conclusion:**



**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**.

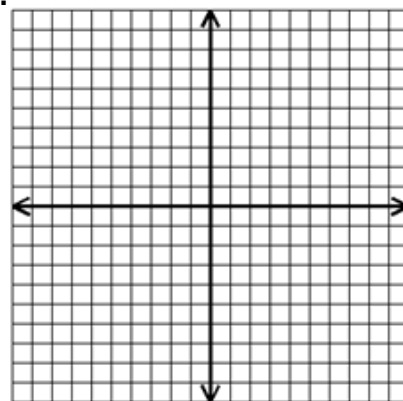
**1. Compare the steepness of the following lines:**

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  $y = \frac{4}{3}x - 5$ .**

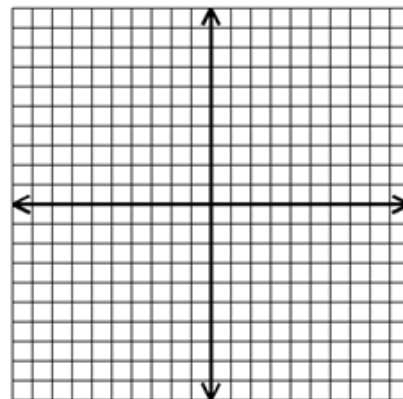
**Which of the following statements about these graphs is true?**

- 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. 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.



**4. 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 is steeper and has the same y-intercept as the original function.
- B. The graph of the new function is steeper and has the same x-intercept as the original function.
- C. The graph of the new function is less steep and has a negative x-intercept.
- D. The graph of the new function is less steep and has the same x-intercept as the original function.

