

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Day 3: Average Rate of Change

7/8A

❖ Finding the **average rate of change** is the same as finding the \_\_\_\_\_ of a line.

To calculate the slope of any line (also known as the **average rate of change**), you will need two points that are on the line. Simply substitute the coordinates of the points into the slope formula:

$$m =$$

**\*In the slope formula the 1's and 2's are NOT exponents. They are called subscripts.\***

**Example #1:** Determine the slope of the line that contains the points (2, 5) and (8, 9).

Steps for Calculating Average Rate of Change (Slope):

Step 1: Subtract the y-values

Step 2: Subtract the x-values (*order matters*)

Step 3: If you can, **reduce the fraction**.

All slope answers must be in lowest terms.

No mixed numbers.

**Example #2:** Determine the slope of the line that contains the points (-2, 12) and (10, 8).

**Example #3:** The linear function,  $f(x)$ , is given in the table below. Find the average rate of change.

$x$	$f(x)$
0	5
1	1
2	-3
3	-7
4	-11

**Example #4:** The function  $h(x)$  is given in the table below. Which of the following gives its average rate of change over the interval  $2 \leq x \leq 6$ ? Show the calculation that lead to your answer.

(1)  $-\frac{3}{2}$

(2)  $\frac{6}{4}$

(3)  $-\frac{7}{6}$

(4)  $-1$

$x$	$h(x)$
0	10
2	9
4	6
6	3

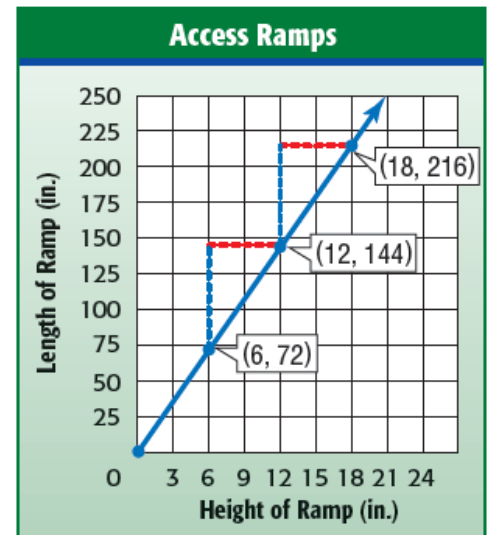
**Practice:**

- Determine the average rate of change of the line that contains the points  $(6, 18)$  and  $(-2, 18)$ .
- Find the slope of a line passing through the following two points.
  - $(5, 2)$  and  $(5, 6)$
  - $(1, 4)$  and  $(-8, -11)$

3. The table shows the amount of money a Booster Club made washing cars for a fundraiser. Use the information to find the rate of change in dollars per car.

Cars Washed	
Number	Money (\$)
5	40
10	80
15	120
20	160

4. Find the rate of change for the graph below. Show all work!



***On your own!***

- 1) Find the slope of a line passing through the following two points. Show work.

a.  $(-6, 10)$  and  $(-2, 7)$

b.  $(-4, 5)$  and  $(-4, 12)$

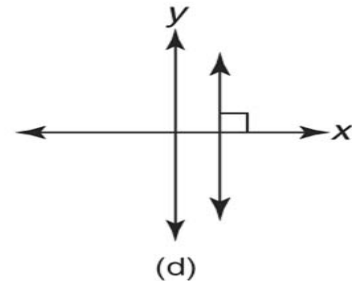
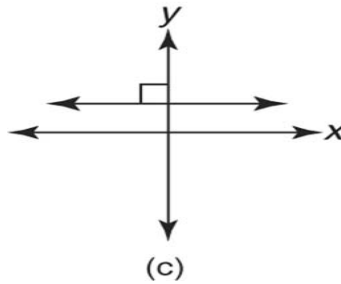
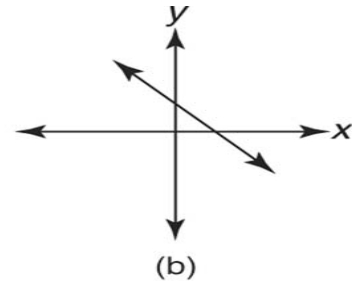
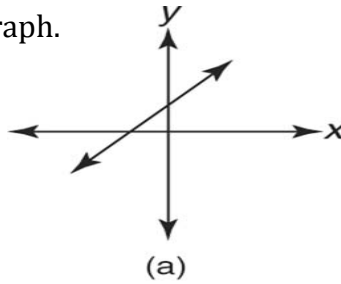
- 2) Match the types of slopes to the correct graph.  
Write the letter on the line:

Zero slope: \_\_\_\_\_

Undefined slope: \_\_\_\_\_

Negative slope: \_\_\_\_\_

Positive slope: \_\_\_\_\_



- 3) A line passes through the origin and the point  $(-8, -5)$ . What is the slope of the line? Show work!

- 4) The graph shows the rate at which water is leaking from a tank. The slope of the line gives the leaking rate in gallons per minute.

a) Find the slope of the line using the graph (rise/run).

b) Find the slope of the graph using the slope formula.  
*Hint: What are the two coordinate points on the graph?*

