Name: _____          Date: _____          Period: _____

We have looked at several ways to represent the rate of change.  We will now compare the different models to determine the greater rate of change.  Complete the following for your notes.

Rate of Change is just another way of asking you to find the _____.

When asked to find the unit rate, we are finding how much per _____.  To do this we _____.

To compare rates of change, the slope must be written as a unit rate.

| As a review, if the information is provided as: | | We must use: |
|---|---|---|
| • A Table | <table><tr><td>x</td><td>3</td><td>6</td><td>9</td><td>12</td></tr><tr><td>y</td><td>10</td><td>25</td><td>40</td><td>65</td></tr></table> | |
| • Ordered Pairs | {(2, 5), (3, 7), (4, 9), (5, 11)} | |
| • A Graph | | |
| • An Equation | y = 3x - 4 | |
| • A Verbal Description (Scenario) | A repairman charges $50 for a visit and $15 per hour for repairs.  Write an equation to show the cost for x hours of repairs. | |

When comparing rates of change, look at the coefficient of x.  The **greater** the absolute value, the steeper the line/the greater the rate of change. **Sign does NOT matter.**

<u>For example:</u>  Given the equations y = -4x + 1 and y = 2x + 3, which line is steeper?

**Take the absolute value of each slope.**          **y = -4x + 1**          **y = 2x + 3**
                                                     **|-4| = 4**            **|2| = 2**

**y = -4x + 1 is steeper because the 4 > 2. It does not matter that the 4 is negative.**

1. Which is the equation of the steepest line?

   (a)  y = 4x + 1          (b)  y = 3x + 1

   (c)  y = 2x + 1          (d)  $y = \frac{1}{4}x + 1$

2. What # could replace the coefficient of x in the linear equation y = 2x + 5 to get a line that is **less** steep?

   (a)  1          (b)  3

   (c)  5          (d)  7

3. What # could you substitute for the coefficient of x in the linear equation $y = \frac{3}{4}x + 3$ to get a line that is **more** steep?

   (a)  $-\frac{1}{3}$          (b)  $-\frac{1}{4}$          (c)  -1          (d)  $-\frac{1}{2}$