****CC Algebra1 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ per: \_\_\_\_

**Mastery Checkpoint 2: Multiple Representations with Graphs, Tables, Rules Toolkit**

|  |  |
| --- | --- |
| **Introduction to Slope** | **Equation from a Line** |
| The **slope** of a line is the ratio of the vertical distance to the horizontal distance of a slope triangle formed by two points on a line.  The vertical part of the triangle is called  y (**Δy**) (read “change in y”), while the horizontal part of the triangle is called  x (**Δx**) (read “change inx”).  It indicates both how steep the line is and its direction, upward or downward, left to right.  Note that:  lines pointing upward from left to right have \_\_\_\_\_\_\_\_ slope,  lines pointing downward from left to right have \_\_\_\_\_\_\_\_\_\_ slope.  A horizontal line has \_\_\_\_\_\_ slope,  A vertical line has \_\_\_\_\_\_\_\_\_ slope.  graph    Note that “Δ ” is the Greek letter “delta” that is often used to represent a **difference** (subtract) or a change. | One of the ways to write the equation of a line directly from a graph is to find the slope of the line (*m*) and the *y*-intercept (*b*).  3  1  Slope is *m* =  *y*-intercept (*b*) =  Substitute the values into    *m* = 0  slope  *y*-intercept |
| **Equation from a slope and a point**  http://textbooks.cpm.org/images/cca/chap03/cca_ch3_less_3.3.2_MN1.pngFind the equation of the line with slope of  and goes through point (3,7) and (9,9). Substitute these values in formula |
| ***x-* and *y-* Intercepts** | **Parallel Line and Perpendicular Lines** |
| The *x*-intercept of a graph is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  The *y*-intercept of a graph is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  To find the *x-*intercept, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(*x*, 0)  To find the *y-*intercept, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(0, *y*)  The graph of  is a line, as shown above.  Calculate the *x*‑intercept Calculate the *y*‑intercept let *y* = 0: let *x* = 0:  *y*-intercept (0, 2)  *x*-intercept (3, 0) | graph  same slope reciprocal opposites |

|  |
| --- |
| A Complete Graph |
| Make a complete graph of y = -2x + 4  Complete the table below   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | x | -2 | -1 | 0 | 1 | 2 | | y |  |  |  |  |  | |

|  |  |
| --- | --- |
| Multiple Representations | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Fig # |  |  |  |  |  | | # of Tiles |  |  |  |  |  |         \_\_\_\_\_\_\_\_\_\_\_          Slope-  growth  *y*-intercept-  starting figure | |
| Complete the table for the function *y* = *x*2 – 8.   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | x | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | | y |  |  |  |  |  |  |  |  |  |   b. Plot the points and connect them on a complete graph.  c. What does your graph look like? Why does it take this shape? |  |