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

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

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| **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*). 31Slope is *m* = *y*-intercept (*b*) = Substitute the values into  *m* = 0slope*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*‑interceptlet *y* = 0: let *x* = 0: *y*-intercept(0, 2)*x*-intercept(3, 0) | graphsame slope reciprocal opposites |

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | -2 | -1 | 0 | 1 | 2 |
| y |  |  |  |  |  |

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|  Multiple Representations |
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| --- | --- | --- | --- | --- | --- |
| 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? |  |