**Slope-Intercept Form of a Line**

1. Fill in the table for each function. Plot the points from the tables on the coordinate planes. Use a ruler or straightedge to draw a line through the points.

 (a)  (b) 

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

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

 

1. Calculate the slope (*m*) of each function in problem 1. You may either find the rise and run directly from the graph or use the slope formula to get your answer. Leave your answer as a fraction in simplest form. *Hint: Pick 2 easy points from each line to work with.*

Line (a) *m=* Line (b) *m=*

1. Do the slopes you just calculated appear anywhere in the functions from problem 1? If so, where do they appear?
2. Find the *y*-intercept of each function. *Remember*: the *y*-intercept is the point where the line crosses the y-axis.

Line (a) *y*-intercept: Line (b) *y*-intercept:

1. Do the *y*-intercepts you just found appear anywhere in the functions from problem 1? If so, where do they appear?
2. Using what you’ve just discovered, can you think of an easier way to graph the lines from problem 1 on the first page ***without*** making an *x-y* table? For example, explain how you would graph the function?

The linear functions on the first page are written in a special form called ***slope-intercept*** ***form***. When a linear function is in the form $y=mx+b$ the slope of the line is *m* and the *y*-intercept is *b*.

The number in front of the *x* variable, *m*, is the coefficient of *x* and is the slope.

The constant term is the *y*-intercept.

*x* and *y* are the **variables**. For any given example, *x* and *y* can vary. You can choose any real number for *x* and find the corresponding y value.

*m* and *b* are **parameters**. For any given example, the specific numbers for *m* and *b* are fixed. The given values for *m* and *b* will not change for that particular equation.

1. For each function, find the slope (*m*) and *y*-intercept (*b*), and then graph each function.

(a) : *m=\_\_\_\_\_\_\_\_b=\_\_\_\_\_\_\_\_* (b) : *m=\_\_\_\_\_\_\_\_b=\_\_\_\_\_\_\_\_*

 

(c) : *m=\_\_\_\_\_\_\_\_b=\_\_\_\_\_\_\_\_* (d) : *m=\_\_\_\_\_\_\_\_b=\_\_\_\_\_\_\_\_*



1. For each line, find the slope (*m*) and *y*-intercept (*b*), and then write the equation of the line in slope-intercept () form.



Slope (*m*):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Slope (*m*):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*y*-intercept (*b*):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *y*-intercept (*b*):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_