**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_**

**U6 CW #1** *Writing Linear Equations From a Graph and a Table*

You and your friends go to the state fair. It costs $6 to get into the fair and $2 each time you go on a ride. Consider the relationship between number of rides and total cost. Below are the table, graph, and equation that model this linear relationship.

|  |  |
| --- | --- |
| **Number of Rides****(*x)*** | **Total Cost**Total Cost**(*y*)** |
| 0 | 6 |
| 1 | 8 |
| 2 | 10 |
| 3 | 12 |
| 4 | 14 |
| 5 | 16Number of Rides |

You modeled this situation with the equation $y=2x+6$

Discuss the following questions with a partner. Highlight your answers on the table, graph and equation above.

What is the slope of the graph? Where do you see the slope in the equation? What does the slope represent in the context?

What is the *y*-intercept of the graph? Where do you see the *y*-intercept in the equation? What does the *y*-intercept represent in the context?

By looking at the problems done in the previous chapter, you can see that one way to represent a linear equation is in slope-intercept form. In the previous chapter you also derived the equation$ y=mx+b$.

**Slope-intercept form** of a linear equation is

$$y=mx+b$$

where *m* represents the slope (rate of change)

and *b* represents the *y*-intercept (initial value or starting point)

**If you are given a representation of a linear relationship, you can write the equation for the relationship in slope-intercept form by finding the slope (*m*) and *y*-intercept (*b*) and substituting them into the slope-intercept form of a linear equation shown above.**

**Directions:** Write the equation of each line in slope-intercept form.

1. The slope of the line is $3$. The *y*-intercept is (0, 4).
2. The slope of the line is $-2$. The *y*-intercept is (0, 0).
3. The slope of the line is $\frac{1}{2}$. The *y*-intercept is (0, $-$2).

1. The slope of the line is $-\frac{4}{3}$. The *y*-intercept is (0, $-$1).
2. The slope of the line is $0$. The *y*-intercept is (0, 2).

**Directions:** Find the slope and *y*-intercept from the graph, table, or story below. Then write the equation of each line in slope-intercept form. If you have a hard time determining where the line intersects a point be sure to check at least three points.

|  |  |
| --- | --- |
| 1.

*m*: \_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_\_Equation: | 1.

*m*: \_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_\_Equation:  |

|  |  |
| --- | --- |
| 1.

*m*: \_\_\_\_\_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_\_Equation:  | 1.

*m*: \_\_\_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_\_Equation:  |
| 10.*m:\_\_\_\_\_\_\_\_ b:\_\_\_\_\_\_\_\_\_* Equation: | 11. *m:\_\_\_\_\_\_\_\_ b:\_\_\_\_\_\_\_\_\_* Equation: |
| 12.

|  |  |
| --- | --- |
| *x* | *y* |
| 0 | 4 |
| 1 | 6 |
| 2 | 8 |
| 3 | 10 |

*m*: \_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_\_Equation:   | 13.

|  |  |
| --- | --- |
| *x* | *y* |
| -1 | -1 |
| 0 | -2 |
| 1 | -3 |
| 2 | -4 |

*m*: \_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_Equation:  |

|  |  |
| --- | --- |
| *x* | *y* |
| -2 | -1 |
| 0 | 0 |
| 2 | 1 |
| 4 | 2 |

 14. *m*: \_\_\_\_\_\_ *b*: \_\_\_\_\_\_\_\_Equation:   |

**Find, Fix, and Justify**: In each of the following problems, a common mistake of writing the equation of a line has been made. **Describe** the error and **write** the correct equation.

|  |  |
| --- | --- |
| 1. Incorrect Equation: $y=3x+2$

Mistake: Correct Equation:  | 1. Incorrect Equation: $y=2x-1 $

Mistake:Correct Equation:  |
| 1. Incorrect Equation: $y=\frac{3}{4}x+4 $

Mistake: Correct Equation:  | 1. Incorrect Equation: $y=x+2$

Mistake: Correct Equation:  |