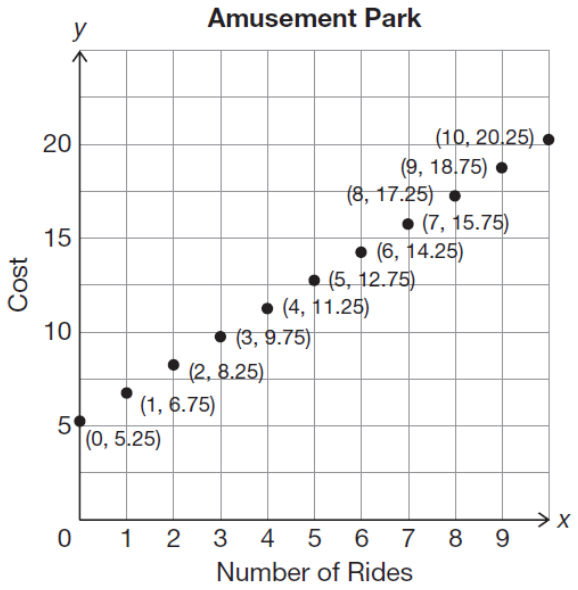
Name: _____

2.2.D2 – Linear Functions

Past due on: _____ Period: _____

Use the graph to answer each question.



1. Identify the independent and dependent quantities and their unit of measure in this problem situation.

2. What is the rate of change of the function? (Include units.)

3. Identify the y-intercept. What is its contextual meaning?

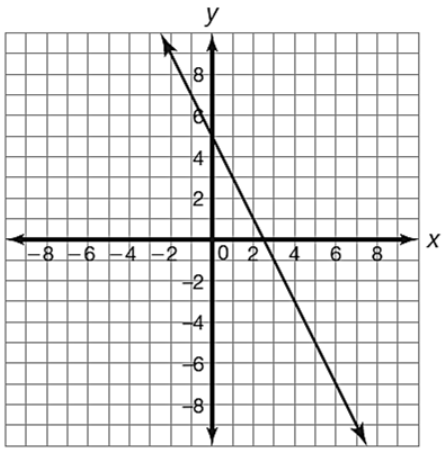
4. Write a function $f(x)$ that represents the total cost of going to the amusement park as a function of the number of rides, x.

5. Use your function to calculate the number of rides if the total amount of money spent in the amusement park is \$32.25.

Problems 6 & 7: *Refer to the 2.2 example "Comparing Tables, Equations, and Graphs to Model and Solve Linear Situations" in the Chapter 2 Summary.*

Sketch the line for the dependent value to <u>estimate</u> each intersection point.

6. $f(x) = -2x + 5$ when $f(x) = -7$



Substitute and solve for x to determine the <u>exact</u> value of each intersection point.

7. $f(x) = 6x + 15$ when $f(x) = 75$

Identify the expression representing the input value, the output value, the y-intercept, and the rate of change for each function. *Refer to the 2.2 example "Identifying & Describing the Parts of a Linear Function" in the Chapter 2 Summary.*

8. A hot air balloon at 130 feet begins to ascend. It ascends at a rate of 160.5 feet per minute. The function $f(t) = 160.5t + 130$ represents the height of the balloon as it ascends.

   Input value: _____ *Output value:* _____

   y-intercept: _____ *Rate of change:* _____

9. A bathtub contains 5 gallons of water. The faucet is turned on and water is added to the tub at a rate of 4.25 gallons per minute. The function $f(t) = 4.25t + 5$ represents the volume of water in the bathtub as it is filled.

   Input value: _____ *Output value:* _____

   y-intercept: _____ *Rate of change:* _____

Complete the table to represent each problem situation. Identify the y-intercept and its contextual meaning. *Refer to the 2.2 example "Comparing Tables, Equations, and Graphs to Model and Solve Linear Situations" in the Chapter 2 Summary.*

10. A helicopter flying at 4125 feet begins its descent. It descends at a rate of 550 feet per minute.

    Identify the y-intercept. What is its contextual meaning?

	INDEPENDENT QUANTITY	DEPENDENT QUANTITY
QUANTITY		
UNITS		
	0	
	1	
	2	
		2475
		1925
EXPRESSION		

11. A hot air balloon cruising at 1000 feet begins to ascend. It ascends at a rate of 200 feet per minute.

    Identify the y-intercept. What is its contextual meaning?

	INDEPENDENT QUANTITY	DEPENDENT QUANTITY
QUANTITY		
UNITS		
	0	
	2	
	4	
		2200
		2600
EXPRESSION		