

**Algebra 1: 2.1 Homework**  
**Modeling Linear Situations**

Name \_\_\_\_\_ Period \_\_\_\_\_

The E & W Light Company charges their customers \$0.14 per kilowatt-hour used. The E & W Company sends the customers their bills monthly.

1. Use the scenario to complete the following questions.

- a. Identify the independent and dependent quantities and their units for this problem situation. Explain your reasoning.

- b. Write the independent and dependent quantities and their units in the table. Then calculate the total cost for each of the given kilowatt-hours used. In the last row of the table, write an expression to represent the dependent quantity.

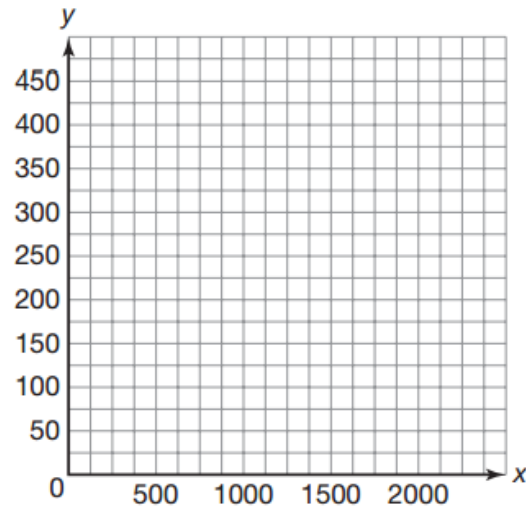
	Independent Quantity	Dependent Quantity
<b>Quantity</b>		
<b>Units</b>		
	0	
	1000	
	1200	
	1400	
	1600	
	1800	
	2000	
<b>Expression</b>	$x$	

- c. Calculate the unit rate of change between three different pairs of points. What do you notice about the rates?

2. Consider the function in the form  $c(x)$  to describe the cost after using  $x$  kilowatt-hours of electricity.

- a. Write the function. What function family does this represent?

- b. Use the function to create a graph representing the change in the cost as a function of electricity usage. Be sure to label your axes with the correct units and write the function.



- c. What is the slope of this graph? Describe the slope in terms of the problem situation.

- d. Identify and describe the x- and y-intercepts in terms of the problem situation.

3. Determine the cost of a monthly electric bill when 1550 kilowatt-hours are used. Explain your answer in terms of the problem situation.

4. Determine the amount of electricity used for an electricity bill that is \$300.02. Explain your answer in terms of the problem situation.