

**Algebra I**  
**Lesson 2.1 Homework**

**Modeling Linear Situations**

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.

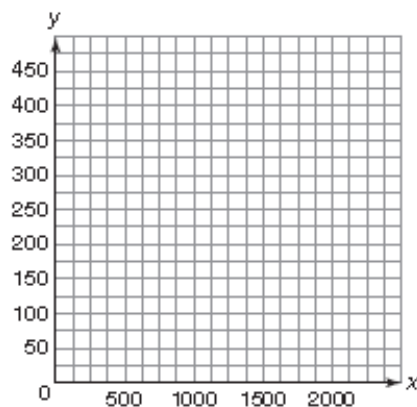
	Independent Quantity	Dependent Quantity
Quantity		
Units		
	0	
	1000	
	1200	
	1400	
	1600	
	1800	
	2000	
Expression	$x$	

- 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.