

NAME: _____

UNIT 3 • LINEAR AND EXPONENTIAL FUNCTIONS

Lesson 3: Interpreting Graphs of Functions

Problem-Based Task 3.3.2: Costing Up a Storm

After a recent storm, many homeowners reported damages to their insurance company in order to receive money for their losses. One insurance company has two different methods for calculating the current value of household items. Many household items lose value, or depreciate over time. For example, a desk originally purchased 4 years ago for \$487.65 will be worth a different amount now depending on the method used to calculate its worth. The table below illustrates the changing value of the desk over a 4-year period, based on the two different calculation methods.

Year	Option A, in dollars (\$)	Option B, in dollars (\$)
0	487.65	487.65
1	390.12	341.36
2	292.59	238.95
3	195.06	167.26
4	97.53	117.08

What is the rate of change over the interval $[0, 4]$ for both options described? Explain what this means in terms of the scenario. Are the rates of change constant over the 4-year period?

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Coaching

- a. What is the interval to be observed?
- b. What is the starting point of the interval for Option A?
- c. What is the ending point of the interval for Option A?
- d. What is the rate of change for Option A over the interval specified?
- e. What does the rate of change for Option A mean in terms of this scenario?
- f. What is the starting point of the interval for Option B?
- g. What is the ending point of the interval for Option B?
- h. What is the rate of change for Option B over the interval specified?
- i. What does the rate of change for Option B mean in terms of this scenario?
- j. How does the rate of change for Option A compare to the rate of change for Option B over the same interval?
- k. Is the rate of change for Option A constant over the 4-year period?
- l. Is the rate of change for Option B constant over the 4-year period?