

M104: Modeling with Functions of Exponential Type

Post-Badge Task

Name: _____

Teacher: _____

Reflecting on Badge Learning

Now that you have learned more about exponential functions and their characteristics, respond to the questions that follow. These are the same questions you responded to before the start of this badge.

The Task

You decide to purchase your first car. You decide on a Subaru Crosstrek, which is valued at \$21,500 at the time of purchase. The table below indicates the value of the car, in dollars, over the first 4 years that you own it.

Year	0	1	2	3
Value (dollars)	21,500	18,920	16,650	14,652

QUESTION 1 What do you notice about the data provided in the table above?



QUESTION 2 What is the approximate percentage that the value of the car is depreciating each year?



QUESTION 3 Write an equation that represents the value, y , (in dollars) of the car after x years.



QUESTION 4 Graph the curve represented by your equation. You can use graph paper or technology to create your graph.



[Attach a file with your work or describe how to find it if it is stored online.]

QUESTION 5 Why is the graph shaped this way? Explain your answer.



QUESTION 6 How many years will it take for your car to be worth less than \$6000? Explain how you determined this.



QUESTION 7 Does the car lose the same dollar amount each year? Explain your answer.



QUESTION 8 What else did you learn that was not reflected in Questions 1-7?



QUESTION 9 Compare your answers to these questions now to your answers from the earlier attempt. What do you notice about your progress?

