

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

### Exponential Functions Project – Car Depreciation

You are going to buy a car that will need to be financed. You will need to look at different options and decide which one will be the best choice for your situation. You will need to find car(s) on the internet that you want to purchase. Pick two cars of your choice to compare the best option in the end. You can look at any internet site, but you might consider <http://www.edmunds.com> to learn how the advertised prices compare with market prices for cars of the same make, model, and year.

Car 1 – Make \_\_\_\_\_ Model \_\_\_\_\_ Price \_\_\_\_\_

Car 2 – Make \_\_\_\_\_ Model \_\_\_\_\_ Price \_\_\_\_\_

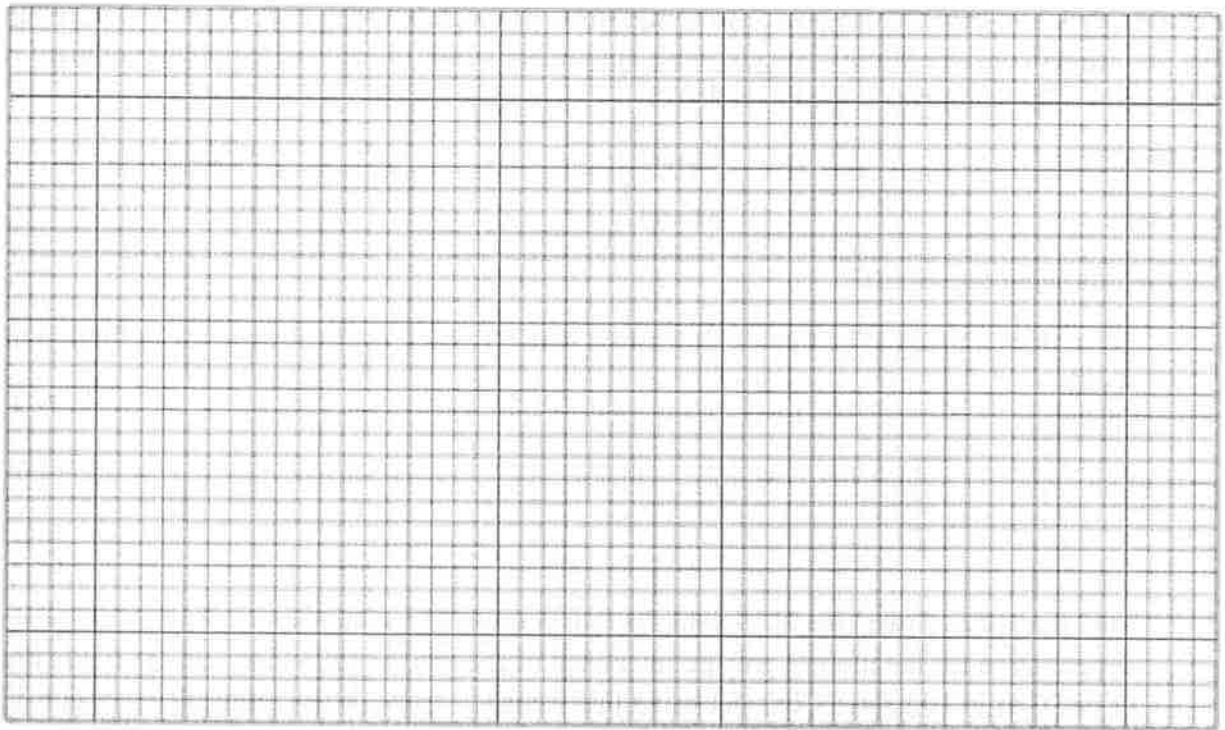
Answer the following questions:

1. What does it mean to be **upside down in a loan**? Look it up, then write the definition in your own words.
  
  
  
  
  
  
  
  
  
  
2. Find the price of two new 2019 vehicles that you would be interested in buying. Research the rate of depreciation for the models you are interested in and use the following table to figure out the value of each car in 10 years. Consider using this website: <https://www.omnicalculator.com/finance/Car-depreciation#how-fast-does-the-car-value-decrease>

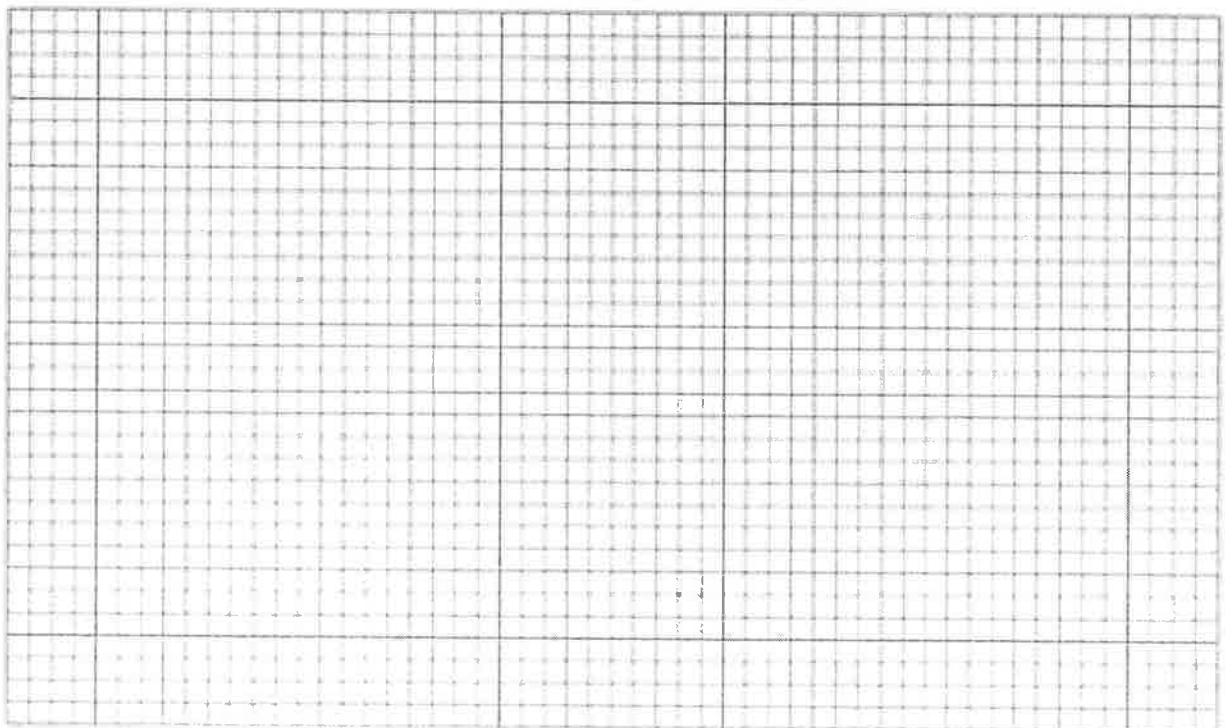
Year	Car 1 Reduced Value	Car 2 Reduced Value
0 (buying price)		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

3. Graph the models for the depreciation of each car in **BLUE**. Make sure that you connect the dots in a curve pattern.

Graph of Cost Depreciation for Car 1: \_\_\_\_\_



Graph of Cost Depreciation for Car 2: \_\_\_\_\_



4. Go to the following website to find an amortization sheet:  
<http://www.calculator.net/amortization-calculator.html>

Use 5.25% as the APR (yearly interest rate). Assume that you are NOT putting any money down and are financing the entire cost of the car. Determine the total dollar amount of loan payments that you would make for 3, 5, 7, and 10 years.

# of Loan Years	Total Payments (\$) for Car 1	Total Payments (\$) for Car 2
3		
5		
7		
10		

Compare these results. Why are some amounts higher than others of the same car?

5. Write the total amount of interest that you would pay for each of the loan terms from above.

# of Loan Years	Total Interest Paid for Car 1	Total Interest Paid for Car 2
3		
5		
7		
10		

6. Assume you will take a 10-year long loan on your car. Complete the following table with the amount of principal left after each year (look at the Ending Balance column in the amortization schedule).

Year	Principal Remaining (balance) Car 1	Principal Remaining (balance) Car 2
0		
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

7. On the same graphs from #2, graph the Principal Remaining from #6 for both cars in **RED**. Connect the dots in a curve pattern.
- In what years is the RED curve above the BLUE curve for Car 1?
  - In what years is the RED curve above the BLUE curve for Car 2?
8. What does it mean when the RED curve is above the BLUE curve?
9. Based on these two graphs, which car do you think is the best option to purchase? Write your explanation in a short paragraph.