

Know the deal on auto depreciation

By [Lucy Lazarony](#) • Bankrate.com

<http://www.bankrate.com/brm/news/auto/20011226a.asp>

Question: What 12-letter word would new-car buyers rather not think about? Answer: Depreciation.

Depreciation is the decline in a car's value over the course of its useful life. It's something new-car buyers dread. And it's something used-car shoppers need to have a handle on if they want to land a good deal on price. "It's going to take research if you're going to get the best value," says Lenny Simms, vice president at [NADAguides.com](#).

Depreciation for the non-business major.

Let's start with some basics. Here's a standard rule of thumb about used cars. A car loses 15 percent to 20 percent of its value each year. A 2-year-old car will be worth 80 to 85 percent of its 1-year-old value. A 3-year-old car will be worth roughly 80 to 85 percent of its 2-year-old value. Let's say you have a 1-year-old used car worth \$12,000 that loses 15 percent of its value each year. At 2 years old, the car would be worth \$10,200. At 3 years old, it would be worth \$8,670. The depreciation in a car's first year tends to be even steeper. A new-car owner feels the sting immediately. A new car loses a big chunk of its value as soon as you drive it off the lot. Here's why.

When purchasing the car, you paid a retail price -- the price a dealer charges for a car. As soon as you're off the lot, the car is worth its wholesale price, the amount a dealer would be willing to pay for a car should you turn around and head back. So a brand-spanking-new car or truck loses thousands of dollars of value as soon as you drive it home. Whatever money you spent on taxes and licensing is gone for good as well.

"Just the difference between wholesale and retail prices is a large amount of what goes away right away," says Charlie Vogelheim, editor of Kelley Blue Book.

Let's look at an example. The base price of a brand-new 2002 Ford Taurus is \$19,035, according to Kelley Blue Book. The wholesale price of a 2002 Ford Taurus with just 100 miles on it is \$15,390, a drop of \$3,645 from its transaction price. The wholesale price of a 2002 Ford Taurus with 13,000 miles, roughly a year's worth of driving, is \$14,665, nearly 23 percent less than its original transaction price.

Ch. 8 Written response *Due Date:* _____

- 1) Find an ad in the newspaper or on the Internet for a used or new car/truck of your choice. The ad needs to include the year, make, and model of the car and the price. Include the ad or a printed copy of the ad in your written response. <http://www.carsonlinefree.com/>
- 2) As the article states above, on average, automobiles lose 15 to 20 percent of their value each year. For this project we will use a depreciation value of $16\frac{3}{8}\%$ per year.
- 3) Write an exponential model for the value of your car over time (t). Identify the initial value of the car, the decay factor, and the decay rate.
- 4) Use geogebra.org to graph the decay function from part 3 for the next 10 years. Make sure to adjust the scale to show the value of your car over the next 10 years and to label your axis. If you

choose not to use Geogebra you can do your graphs by hand but they need to be on graph paper, very, very accurate and detailed, and clearly labeled with adequate scales.

- 5) Find the value of the car after 2 & 8 years using your model from question #3. Label these points on your graph.
- 6) After how many years has your car lost half of its original value? Show this point on your graph by graphing a horizontal line representing 50% of its original value and finding the intersection point as you did in part 5.
- 7) According to your model what is the value of your car after 30 years? Will the value of your car ever reach \$0.00? Is this realistic? Explain your reasoning using complete sentences.
- 8) Take 5-10 minutes to explain the following problem to a parent or guardian. Make sure and include each point of the grading rubric in your explanation and acquire their signature with comments or questions at the completion of the explanation.

Grading Rubric:

| | 0 Points | 1 Point | 2 Points |
|----------------------------------|--|--|--|
| Found and included a car ad. | No ad or ad was not included in project. | Ad is included but not all points are listed. | Ad with all points included. |
| Exponential Model. | Model is incorrect. | Model is partially correct with errors. | Model is correct, all pts. listed. |
| Geogebra Graph. | No Graph | Graph done by hand and/or graph is incomplete. | Graph is nicely done with labels and accurate scale. |
| Value @ 2 & 8 years w/ graph. | No values. | Pts. are incorrect or not labeled on the graph, no algebraic method given. | Pts. are correct and labeled on the graph. Pts. are shown algebraically as well. |
| Half of its value w/ graph. | No answer. | Incorrect answer or not shown graphically. | Answer is correct and graphed accurately. |
| Value explanation. | No explanation. | Explanation is incomplete or not accurate. | Explanation is complete and accurate, showing knowledge of the subject. |
| Parent Explanation w/ signature. | No signature. | Signature with no comments or signs of parent involvement. | Signature with comments or questions. Obvious parental participation. |

Final Grade: Total x 2: _____