

Automotive
Depreciation Worksheet

Name

Key

1. A car costs \$8,500 and decreases in value by 10% per year. How much will the car be worth after 5 years?

$$b = 100\% - 10\% = 90\%$$

$$b = .9$$

$$y = 8500(.9)^5$$

$$y = 5019.17$$

\$5019.17

2. A \$28,900 new car depreciates at a rate of 12% per year. Write the exponential equation and find the value of the car after 8 years.

$$b = 100\% - 12\% = 88\%$$

$$b = .88$$

$$y = 28900(.88)^8$$

$$y = 10393.44$$

$y = 28900(.88)^x$ \$10,393.44

3. A new car is worth 86% of its original \$31,500 cost after one year. Find the rate of depreciation and the cost of the car after 6 years.

$$b = 100\% - r\%$$

$$86\% = 100\% - r\%$$

$$-14\% = -r\%$$

$$r = .14 = 14\%$$

$$y = 31500(.86)^6$$

$$y = 12743.87$$

14% \$12,743.87

4. Mary buys a three-year old used car for \$17,500. After 2 years she decides to sell it. The rate of depreciation for the car is 14%. What is the value of the car?

$$b = 100\% - 14\% = 86\%$$

$$b = .86$$

$$y = 17500(.86)^2$$

$$y = 12943$$

\$12,943

5. Austin buys a truck for \$35,999 new. After 6 years he decides to trade it in for a newer model. How much should he expect for a trade-in if the truck decreases in value by 13% each year?

$$b = 100\% - 13\% = 87\%$$

$$b = .87$$

$$y = 35999(.87)^6$$

$$y = 15610.11$$

\$15,610.11

6. Amy buys a new motorcycle for \$10,065. It depreciates at a rate of 11% per year. How much is the motorcycle worth after 7 years?

$$b = 100\% - 11\% = 89\%$$

$$b = .89$$

$$y = 10065(.89)^7$$

$$y = 4451.88$$

\$ 4,451.88

7. Sam wants to buy his dad's car, which is 5 years old. Sam's dad bought the car for \$33,599 new. Figuring a 15% depreciation rate, how much should Sam offer his dad for the car?

$$b = 100\% - 15\% = 85\%$$

$$b = .85$$

$$y = 33599(.85)^5$$

$$y = 14908.05$$

\$ 14,908.05

8. Julie is being offered \$10,652 for a trade-in value for her 5-year old car. She paid \$21,800 new for the car. What is the rate of depreciation? y

$$\frac{10652}{21800} = \frac{21800b^5}{21800}$$

$$\sqrt[5]{.488624} = \sqrt[5]{b^5}$$

$$b = .87 = 87\%$$

$$b = 100\% - r\%$$

$$87\% = 100\% - r\%$$

$$-13\% = -r\%$$

$$r = 13\%$$

13%

9. Tony wants to buy a Ram 1500 Crew Cab for \$35,710 new. He wants to trade in his F150 which he paid \$23,883 for 7 years ago. If he figures 15% depreciation, how much should he get for his trade-in? How much should he pay for his Ram 1500?

$$100\% - 15\% = 85\%$$

$$b = .85$$

$$y = 23883(.85)^7$$

$$y = 7656.34 \leftarrow \text{Trade-in}$$

Trade-in \$ 7656.34

$$35710 - 7656.34 = 28053.66$$

New Ram \$ 28,053.66

10. James bought a used truck for \$13,250 and now wants to buy a new truck 3 years later. If he figures a 13% rate of depreciation, how much should James get for a trade-in?

$$b = 100\% - 13\% = 87\%$$

$$b = .87$$

$$y = 13250(.87)^3$$

$$y = 8725.16$$

\$ 8,725.16