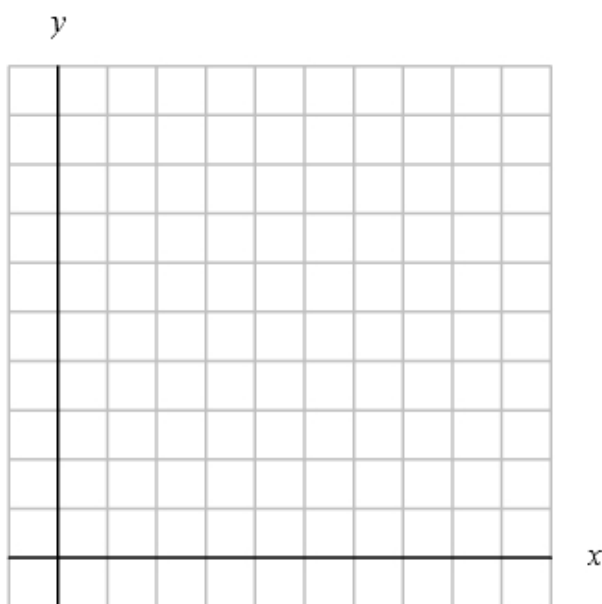


Depreciation Investigation

Name _____

The price for the 2010 Ford Truck you would like to buy is \$17,250. Suppose the car depreciates 12% each year. The table below models the relationship between the years the cars has depreciated and the value of the car.

Label your x and y-axis and choose an appropriate scale.



| <i>Years Old</i> | <i>Value</i> |
|------------------|--------------|
| 0 | \$17250 |
| 2 | \$13358 |
| 4 | \$10345 |
| 6 | \$8011 |
| 8 | \$6203 |
| 10 | \$4804 |
| 12 | \$3720 |
| 14 | \$2881 |
| 16 | \$2231 |

Write your answers in complete sentence!!

1. As the number of years the car has depreciated increases what happens to the value of the car?

2. How much did the value of the car decrease from year 0 to year 2? How much did the car decrease from year 2 to year 4? From year 4 to year 6?

Depreciation Investigation

3. What kind of rate is the car depreciating at?

4. What type of function would best model the depreciation of a vehicle? Linear, quadratic, or exponential? Explain your reasoning.

5. The **decay rate** is the percent at which the vehicle is decreasing by each year. What is the decay rate for the 2010 Ford Truck?

6. The **growth factor** is the percent left after you subtract the decay rate from 100%. What is the growth factor?

7. You can write an equation for the value of the car after x years $V(x) = a(b)^x$ where, a is the starting value and b is the growth factor. What is the equation for $V(x)$?
 - a.) How much is the car worth in 20 years? 30 years? 50 years? In the year 2110?

 - b.) Will the car ever reach a value of \$0? Explain how this is shown by looking at the graph, table, in real-life.