Name _____ Date _____

## Exponential Decay - Step-by-Step Lesson

Samuel bought a car in year 2004 for $25,000.

The value of this car depreciates by 3% every year.

What is the value of the car in year 2008?

**Explanation:**

Step 1) Look at the givens.

The initial value of car is $25,000. The decay rate is 3% or 0.03.

Step 2) Determine the appropriate formula.

The exponential equation is $y = a\,(1 - r)^t$

a = initial amount

r = decay rate

t = number of time intervals that have passed

Step 3) Put the values in equation and solve the equation.

$y = 25{,}000\,(1 - 0.03)^4$

$y = 25{,}000\,(0.97)^4$

$y = 25{,}000\,(0.88529281)$

$y = 22132.32$

So, the value of the car in year 2008 is $22,132.32.