Exponential growth/decay
Video Notes

$y = a \cdot b^{x}$ ← time

Name: _____ Key

initial amount ↗   ↑ factor Date: _____ Period: _____

As you watch the video, follow along working the problems as he does in the video.

Decay

2 · 12

1. Jaime plans to purchase a car that depreciates (loses value) at a rate of 12% per year. The initial cost of the car is $19,000. How much money will the car be worth after 3 years?
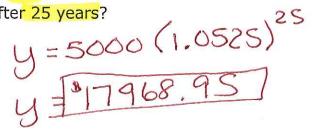
$a = 19,000$

$b = (1-r) = (.88)$

$1 - .12 = .88$

$x = 3$

$y = 19000 \, (0.88)^3$

$y = 12947.97$

$\boxed{\$12,947.97}$

Growth

2. Bethany is opening a savings account at her local bank. She invests an initial amount of $5000. Her bank gives $5\frac{1}{4}$ % interest on her account each year. How much money will Bethany have after 25 years?

$a = 5000$

$b = (1+r) = 1.0525$

$5.25 \rightarrow 0.0525$

$1 + 0.0525 = 1.0525$

$x = 25$

$y = 5000 \, (1.0525)^{25}$

$y = \boxed{\$17968.95}$

- How much interest has Bethany accumulated over that time?

$$\begin{array}{r} 17968.95 \\ -\ 5000.00 \\ \hline \boxed{\$12,968.95} \end{array}$$