Warmup 11/(XIX)

Tough Patterns Tuesday

The table below models the number of mold cells in a crawlspace *t* years after a homeowner buys the house. It is considered unsafe to have a mold cell count over 1,000.

t, years since purchase	0	1	2	3	4
Mold cell count	2	6	18		

1.) Complete the table by finding the pattern.
2.) Write an equation that models the table. Explain what each part of the equation represents.
3.) Use the equation to determine how many years it will take for the house to become unsafe due to the mold cell count.

Check Homework

Real Life Application!

Ms. Bolus purchased her car for $11600. It is ***depreciating*** at a rate of 12% per year. Mr. Lischwe purchased his car for $9700. It is ***depreciating*** at a rate of 7% per year. Write a function to model both situations.

Bolus	$f(x) = 11600(.88)^x$
Lischwe	$f(x) = 9700(.93)^x$

Real Life Application!

-How much is each car worth 2 years from now?

B: $8983.04 L: $8389.53

-In how many years will Mr. Lischwe's car be worth more than Ms. Bolus' car?

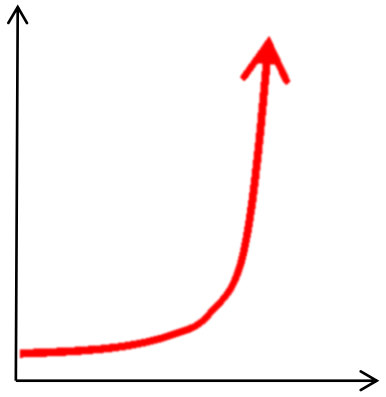
4 years

Bolus	$f(x) = 11600(.88)^x$
Lischwe	$f(x) = 9700(.93)^x$

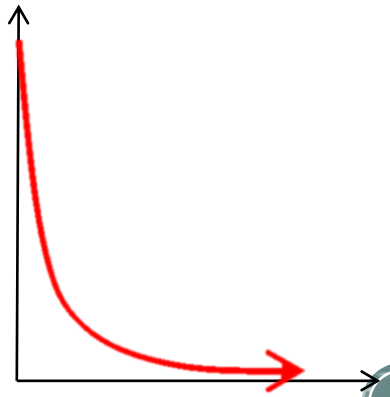
VOCAB

GROWTH VS. DECAY

- **Exponential GROWTH:**
  - **An <u>increasing</u> exponential function**
  - **The growth factor is greater than 1**



- **Exponential DECAY:**
  - **A <u>decreasing</u> exponential function**
  - **The growth factor is less than 1**



A Midwestern town had a population of 7500 in 2010. If the town is growing at a rate of 2% per year, then how many people did it have in 2002?

$$7500 = P(1.02)^{8}$$

P= about 6401 people

Nashville Population and Housing

Homework

- Worksheet