Review

Describe the end behavior using limits:

$$f(x) = 2^{-3x}$$

$$f(x) = .85^{-x}$$

3.2 Exponential Modeling

What is the initial value and percent of increase or decrease?

$$f(x) = 52 \bullet 1.15^{x}$$

$$f(x) = 5 \bullet .85^{x}$$

$$f(x) = a_0 \bullet b^x$$

$$f(x) = a_0 \bullet (1 \pm r)^x$$

When looking at percent increase or decrease - the base is expressed as 100% + or - the % change.

$$f(x) = 2 \bullet .73^x$$

Is this an increase or decrease?

By what %?

The initial value is 4 and the population is increasing by 3%. Write an exponential equation.

When will the population reach 10?

$$A = a_0 \bullet (b)^{\frac{t}{n}}$$

If you have the life cycle of a given behavior then use this formula.

A the amount after a given period of time

a_0 the initial amount

t time

n the life cycle of the behavior

b type of behavior (doubling, half life, etc.)

You have 5 grams of a substance that has a half life of 20 days.

$$A = a_0 \bullet (b)^{\frac{t}{n}}$$

How much do you have in 15 days?

When will you have less than 2 grams?

Exponential Regression

A process of fitting a set of data to an exponential equation.

1990	76.2
1910	92.2
1920	106
1930	123.2
1940	132.2
1950	151.3
1960	179.3
1970	203.3
1980	226.5
1990	248.7
2000	281.4
2003	290.8

Step 1:

Step 2:

Step 3:

Equation:

Compare the result with 2003.