Date: ______________________

Today's Learning Goal(s):

By the end of the class, I will be able to:

a) use exponential functions to model exponential growth and decay.

Last day's work: pp. 251-253 #(1,2)ab, 3, 4ab, 5ab, 9
(*Oponal Wkst 4.6 Extra Pracce*)

4.7 Applications Involving Exponential Functions

Date: ________________

Ex.1 You invest $1000 at 8% /a compounded annually.
How much will you have after 20 years?

# of years	0	1	2	3			n
Amount							

100(
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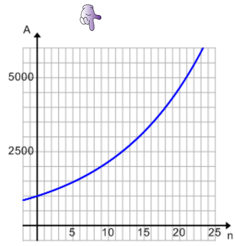

Initial Amount

Growth Rate

Growth Factor

Ex.2 A superball loses 10% of its height after each bounce.
It was dropped from 12 *m*.

Model the bounce height with a decay function.

Initial Amount

Decay Rate

Decay Factor

The function $f(x) = a(b^x)$ can be used as a model to solve problems involving exponential growth and decay.

$$f(x) = a\,(b^x)$$

Where a is the initial value,
b is the growth factor and
x is the number of compounding periods.

Ex.3 A hockey card is purchased in 1990 for $5.00.
The value increases by 6% each year.
Write an equation and determine it's value in 2011.

Ex.4 In 1980 the population of the town of St. Albert, Alberta was 20 000. If the town grows at a rate of 2% a year, what was the population in 2014?

There are growth and decay applications that involve doubling times or half-lives. The formula can be altered to:

$$N(t) = N_o (2)^{\frac{t}{d}}$$

← total time (t)
← doubling time (d)

$$N(t) = N_o \left(\frac{1}{2}\right)^{\frac{t}{d}}$$

← total time (t)
← amount of time to have **50%** left (d)
= **half-life**

Ex.5 A biology experiment starts with 1000 cells.
After 4 hours the count is estimated to be 256 000.
What is the doubling period for the cells?

Are there any Homework Questions you would like to see on the board?

Last day's work: pp. 251-253 #(1,2)ab, 3, 4ab, 5ab, 9
(*Oponal Wkst 4.6 Extra Pracce*)

Today's Homework Practice includes:
pp. 261-262 # 1 – 8
SWYK NEXT CLASS