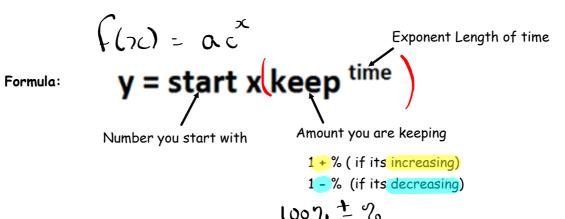
EXPONENTIAL FUNCTION

Remember BEDMAS

Do the EXPONENT 1st

Goal:

- calculate values that are depreciating and appreciating in an exponential function
- find the rule of an exponential function from a graph.



Dec 14-12:03 PM

When the value of y is INCREASING

Words that mean it is increasing; increasing, growing, appreciating, appreciation, interest

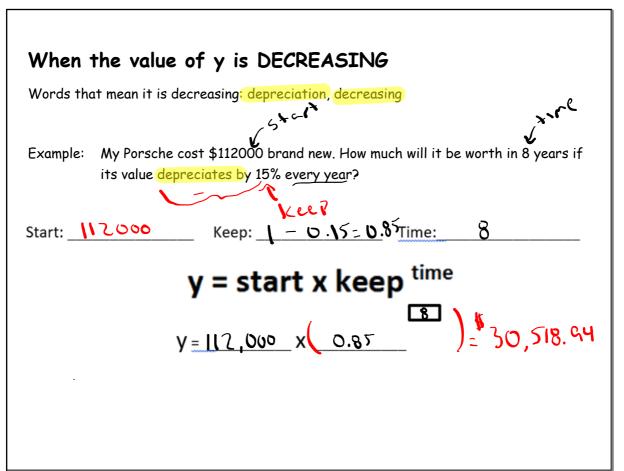
5ta(+

Example: St Hubert has a population of 50000 people. If the population is increasing at a rate of 2% per year, how many people will there be in 5 years.

start: 50 000 Keep: 1 + 2% = 1.07 Time: 5

y= 50,000 x (1.02) = 55,204. 1.104 030803

Dec 15-10:04 AM



Example: My PK Subban rookie card cost \$50 brand new. How much will it be worth in 8 years if its value depreciates by 15% every year?

Start: 50 Keep: $1-6.15 \div 0.95$ Time: 8

y = start x keep time

$$y = 50 x (0.85)$$

Dec 15-10:06 AM

Ex. Each year the frog population of a small wooded area declines by 5% in contrast to the previous year. If this wooded area how has 2000 frogs, how many frogs will be present in 10 years from now?

5: 7000

K: 1-0.05 = 095

1: 10

y= 2000 (0.95)°, 1197.

Ex. Among the options available to finance a purchase, credit cards are the ones that have the highest interest rates. If Diane makes a purchase worth \$1200 with a credit card that has an interest rate of 1.5% each month, how much will she pay in interest if she can only clear her card a year later?

Dec 15-10:23 AM

- Ex. Samuel is looking at making some investments to save for the future. His investment advisor has suggested a Mutual Fund that grows at an annual interest rate of 8% per year. If Samuel invested \$5000 in the fund,
 - a) How much would his investment be worth after 5 years?
 - b) How long would it take Samuel's investment to double in value?

- Ex. Farah purchased a new car five years ago for \$25 000 and the car has depreciated in value by 15% per year. She would like to sell the car today in order to purchase a used vehicle for \$10 000. The used car she is intending to purchase is anticipated to retain 90% of its previous year's value each year.
 - a) If Farah sells the original car, will she have the \$10,000 she needs to purchase the used car?
 - b) If Farah intends to sell the used car when it is worth \$6561, how long will she own it for?

Dec 15-10:38 AM

Ex. If the population of rabbits doubles every 4 months, when will there be 5000 rabbits if there were only 2 rabbits.

1. A community of 90 penguins increases in population by 4% per year. When will there be a population of 144?

Dec 16-4:27 PM

2. Jim bought a cottage a few years ago. He has been analyzing the water in the well every year.

$$f(x) = 16 (1.5)^{x}$$

In 2012, there were 54 bacteria. In what year will there be more than 200 bacteria for the first time?

3. A lab technician notes that the number of type A bacteria doubles every hour whereas the number of type B bacteria triples every hour. At the outset there are 1000 of type A bacteria and 500 of type B bacteria. Which of the two bacteria will be more numerous after five hours?

Dec 16-4:31 PM

4.
Dec 16-4:33 PM