You will be taking a new job for the entire month of June (all 30 days!) and have been given the choice of how you want to be paid. Below are the two options.

Option #1:

You will be paid $50,000 at the end of the 1st day then given $5000 at the end of each following day.

Option #2:

You will be given 2 pennies at the end of the 1st day then each following day you will be given enough pennies so that the total number of pennies you have is twice as much as you had the day before.

Option #1:

You will be paid $50,000 at the end of the 1st day then given $5000 at the end of each following day.

1. Write an equation for each option.

Option #1: x = # *days*

$y = 50{,}000 + 5000(x-1)$

Option #2:

You will be given 2 pennies at the end of the 1st day then each following day you will be given enough pennies so that the total number of pennies you have is twice as much as you had the day before.

Option #2: x = # *days*

$y = 2^x$

2. Find the amount of money that you would have earned at the end of the day on June 30th for each option.

Option #1:

$y = 50000 + 5000(29)$

$\$195{,}000$

Option #2:

$y = 2^{30}$

$\$10{,}737{,}418.24$

3. Which option would you choose?

Section 8-7: Exponential Functions

An equation that has a variable in the exponent is called and EXPONENTIAL FUNCTION

Form of an Exponential Functions:

$$y = a \cdot b^x$$

a: Can't be zero

b: Greater than zero but not equal to 1

x: Any real number

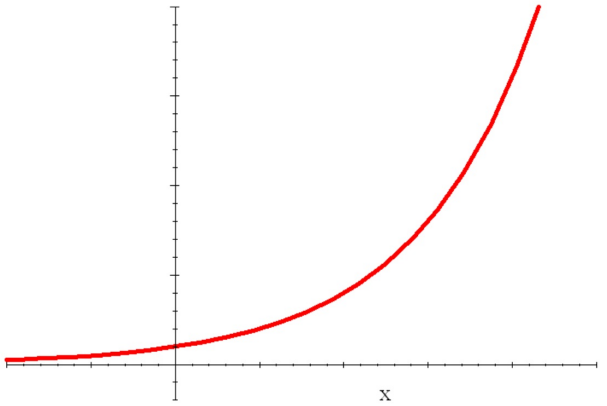
Graphs of an exponential function:

graph $y=2^x$

Use this window:

$X_{min}= -2$ $X_{max} = 5$

$Y_{min} = -2$ $Y_{max} = 20$



This graph is called Exponential Growth.