

Exponential Functions

Clear Learning Target

You will be able to identify patterns of exponential growth and decay.

Words Worth Knowing

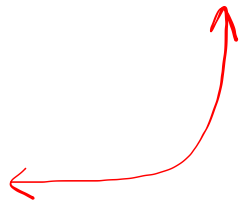
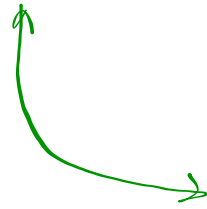
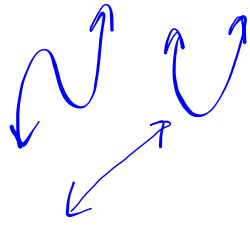
exponential function

A function where y is equal to a number raised to the power of x .

Examples: $y = 0.25^x$

$$y = 5^x + 1$$

$$y = (1/7)^x$$

what would look like...	... as a function?	... as a graph?
growth	base > 1 Ex: $y = 2^x$	
decay	base <u>between</u> 0 and 1 EX: $y = (\frac{1}{2})^x$	
<u>NOT</u> exponential	$y = x^2$ $y = x + 2$ $y = \frac{x}{2}$	

Example #2: Determine whether the set of data shown below displays *exponential behavior*. If yes, state the *common factor*.

* are x's counting by a common interval?

x	0	5	10	15	20	25
y	64	32	16	8	4	2

$$\frac{32}{64} = \left(\frac{1}{2}\right) \quad \frac{16}{32} = \left(\frac{1}{2}\right) \quad \frac{8}{16} = \left(\frac{1}{2}\right)$$

* YES! Decay
common factor: $\frac{1}{2}$