Exponential Functions

$$y = a\,b^{x}$$

x: exponent

b: base

a: initial value when $x = 0$

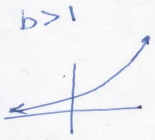
an initial amount (a) being multiplied by the same positive number (b)

the exponent, x, represents the number of times "b" is being multiplied

initial amount "a" has to be non zero $a \neq 0$

"b" has to be a positive number $(b > 0)$ and not equal to 1 $(b \neq 1)$

TWO CASES where r is the decimal value of % increase or decrease



growth

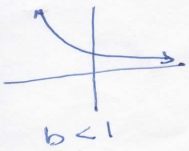
expressed as % increase

25% increase $\Rightarrow r = .25$

% increase is decimal value added to 1

ex) 30% increase $\rightarrow r = +.30$

$b = 1 + r = 1 + .30 = 1.3$



decay

expressed as % decrease

25% decrease $\Rightarrow r = -.25$

% decrease is decimal value subtracted from 1

$b = 1 + r = 1 - .25 = .75$