Exponential Functions

Intro to Exponential Functions

An exponential function is a form of a geometric sequence.

A function in which the variable is the exponent is called an **exponential function**.

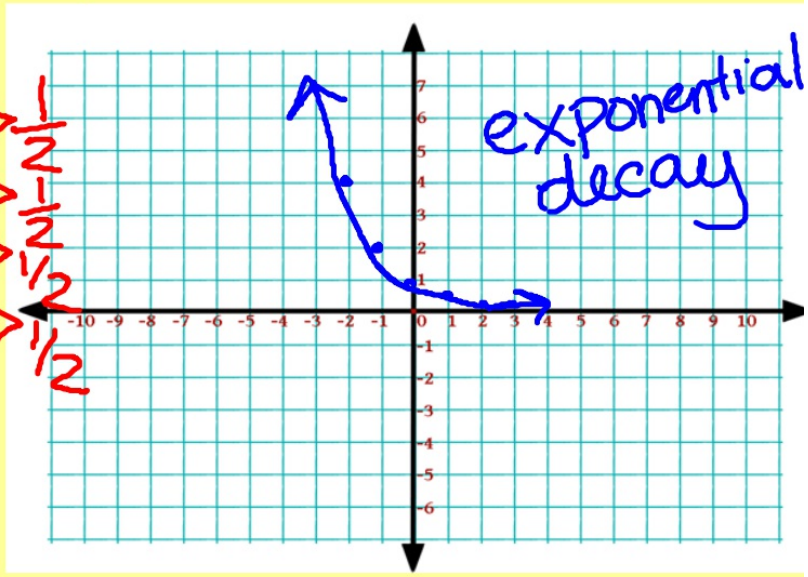
$$y = a \cdot b^x$$

a = y-intercept (when there is no shift)
b = common ratio, base

Make a graph using a table

$$y = (1/2)^x$$

x		y
-2	$\frac{1}{2}^{-2}$	4
-1	$1/2^{-1}$	2
0	$1/2^{0}$	1
1	$1/2^{1}$	1/2
2	$1/2^{2}$	1/4



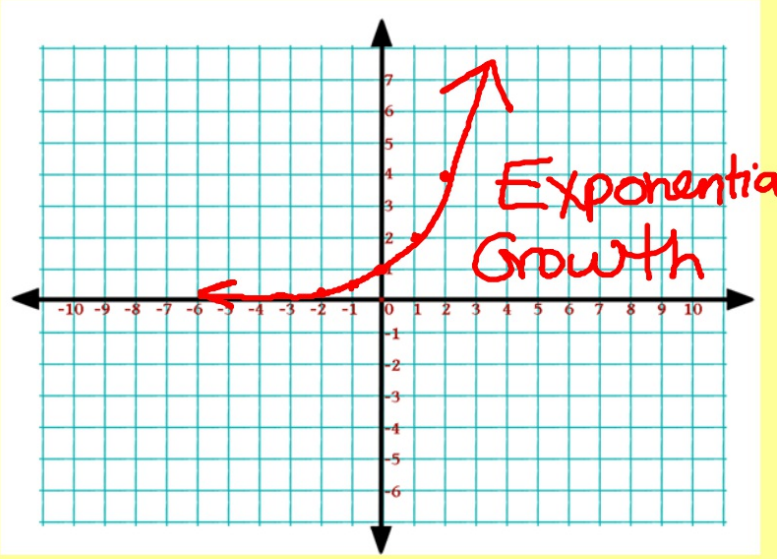
y-int: 1

base: 1/2

Make a graph using a table

$$y = 1(2)^x$$

x		y
-2	2^{-2}	1/4
-1	2^{-1}	1/2
0	2^0	1
1	2^1	2
2	2^2	4



y-int: 1

base: 2

Make a graph using a table

$$y = (3)2^x$$

x		y
-2	$3(2)^{-2}$	3/4
-1	$3(2)^{-1}$	3/2
0	$3(2)^{0}$	3
1	$3(2)^{1}$	6
2	$3(2)^{2}$	12

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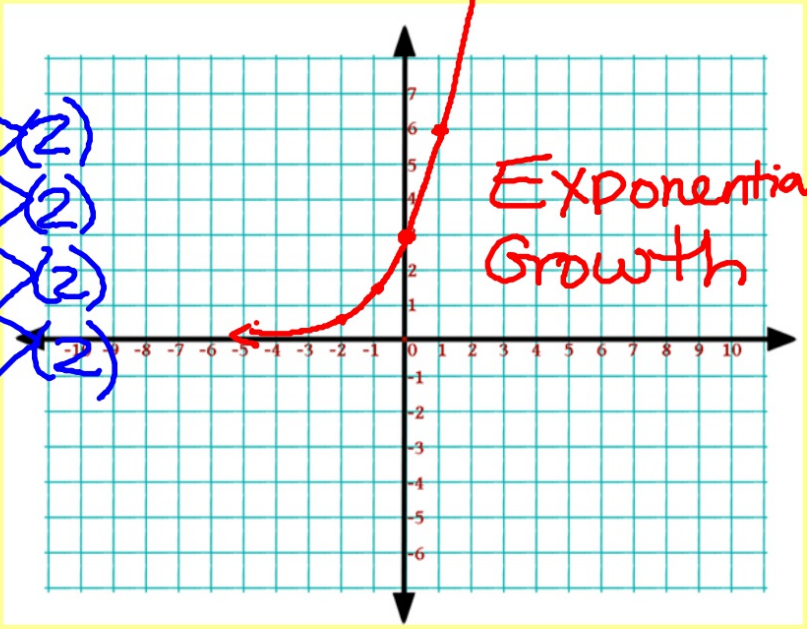

y-int: 3

base: 2

Find the y-intercept of the exponential functions.

A.) $y = 3(.75)^x$

3

B.) $y = 0.5(1.04)^x$

0.5

shift of -4

4

C.) $y = 2(1.05)^x - 4$

$2(1)-4$

$2-4$

-2

shift of -3

3

D.) $y = .80^x - 3$

$1-3$

-2

Hint: Exercises C and D have shifts.
Y-intercept is value of y when x =0