

8.5 Exponential Growth Functions

Exponential

$$y = ab^x$$

* is not a line,
but a curve.

Goes up or down by
a larger or smaller
rate. Not constant.

Linear

$$y = mx + b \text{ or } Ax + By = C$$

* is a line.
goes up/down at the
same rate (slope)

$$y = 2x$$

x	y
-2	-4
-1	-2
0	0
1	2
2	4

$$y = 2^x$$

x	y
-2	.25
-1	.5
0	1
1	2
2	4

$$2^{-2} = \frac{1}{2^2} = \frac{1}{4}$$

$$2^{-1} = \frac{1}{2^1} = \frac{1}{2}$$

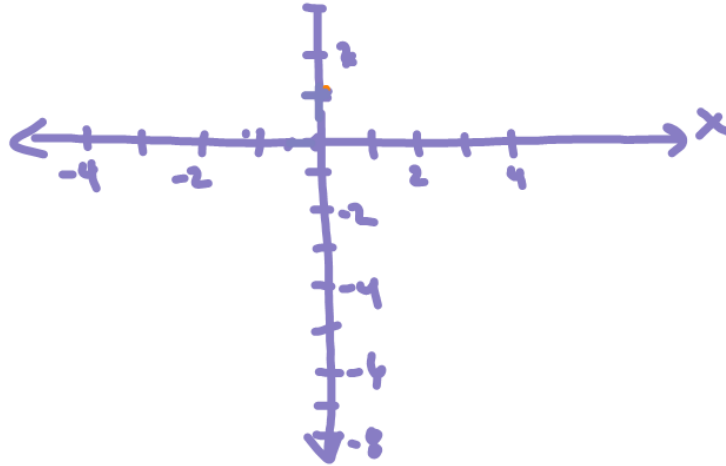
$$2^0 = 1$$

$$2^1 = 2$$

$$2^2 = 4$$

$$y = -2^x$$

x	y
-2	-0.25
-1	-0.5
0	-1
1	-2
2	-4



Exponential Growth Model

Amount You Start With

Rate of growth or decay

time

$$Y = a(1+r)^t$$

Amt at the end

Homework (good!)

① $Y = 3^x$

② $Y = -\frac{1}{2} \cdot 2^x$

③ You invest \$4000 at 8% and leave it for 30 yrs. How much \$ will you have?