

(33)

Exponential Functions

An exponential function is a function that is becoming more and more rapid (has a quicker change).

$$y = a(b)^x$$

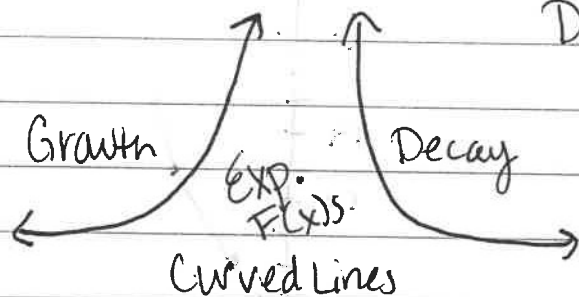
initial value (y-int) $\swarrow$ a

base (growth/decay rate) $\swarrow$ b

Power of "x" $\swarrow$ x

Growth: if $b > 1$

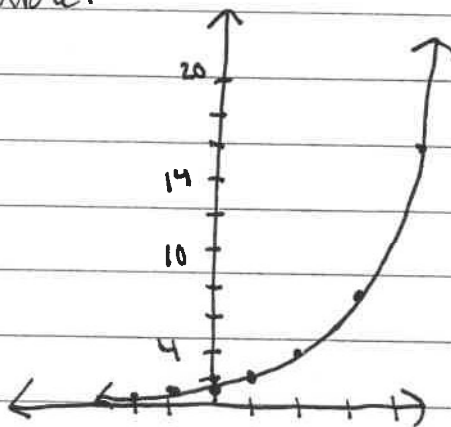
Decay: if $0 < b < 1$



Complete the table.

$y = 2^x$

x	y
-2	1/4
-1	1/2
0	1
2	4
3	8
4	16



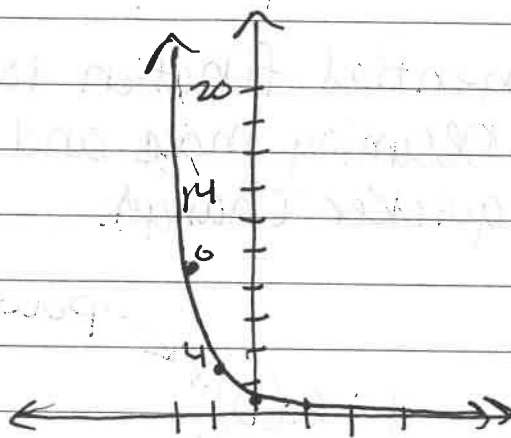
Growth or Decay

a = 1 b = 2

Complete the table.

$$y = \frac{1}{3}^x$$

x	y
-2	9
-1	3
0	1
1	$\frac{1}{3}$
2	$\frac{1}{9}$



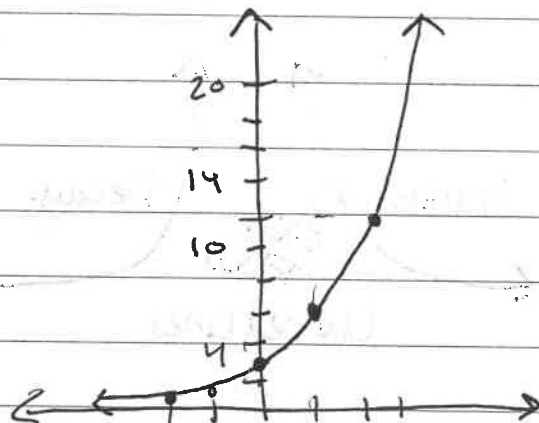
Growth or Decay

$$a = 1 \quad b = \frac{1}{3}$$

Complete the table.

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

x	y
-2	$\frac{3}{4}$
-1	$\frac{3}{2}$
0	3
1	6
2	12



Growth or Decay

$$a = 3 \quad b = 2$$