Cornell Notes	Topic/Objective:	Name:
AVID Decades of College Dream	EXPONENTIAL FUNCTIONS	Class/Period:
		Date:

Essential Question: How do I find the equations of exponential functions?

Questions:

Notes:

GENERAL FORM FOR EXPONENTIALS

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

a: Initial Value (Starting Pt. where $x=0$) b: Common Ratio (Divide Terms)

EXAMPLE #1)

$y = 3 \cdot 2^x$

a = 3, b = 2

X	y	Ratio
0	3	
1	6	2
2	12	2
3	24	2
4	48	2

EXAMPLE #2)

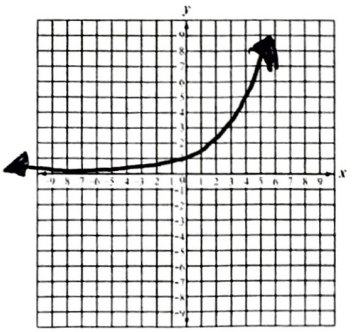
$y = 8(\frac{1}{2})^x$

a = 8, b = 1/2

X	y	Ratio
0	8	
1	4	1/2
2	2	1/2
3	1	1/2
4	1/2	1/2

EXPONENTIAL GROWTH

$b > 1$

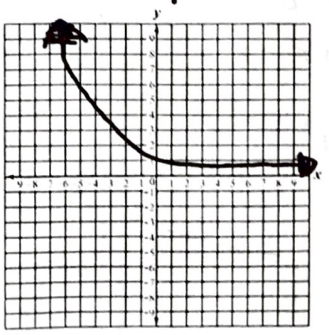


Domain: All Reals Range: $y \geq 0$

EXPONENTIAL DECAY

$0 < b < 1$

Fraction or Decimal < 1



Domain: All Reals Range: $y \geq 0$

USING A TABLE OF VALUES WE CAN WRITE EXPONENTIAL FUNCTIONS!

EXAMPLE #3)

$y = 5(4)^x$

x	y	Ratio
0	5	4
1	20	4
2	80	4
3	320	4
4	1280	

Exponential Growth

$a = 5$, $b = 4$

EXAMPLE #4)

$y = 500\left(\frac{2}{5}\right)^x$

x	y	Ratio
0	500	2/5
1	200	2/5
2	80	2/5
3	32	2/5
4	12.8	

Exp. Decay

$a = 500$, $b = \frac{2}{5}$

EXAMPLE #5)

$y = \frac{1}{5}(2)^x$

X	Y (Ratio)
0	$\frac{1}{5}$
2	$\frac{4}{5}$
4	$\frac{16}{5}$
6	$\frac{64}{5}$

$\frac{4}{5} \div \frac{1}{5} = \frac{4}{5} \cdot \frac{5}{1} = \frac{20}{5} = 4$ (KCF)

$= 2$

Exp. Growth

NOT BY ONES, TAKE ROOT $\sqrt{}$

$a = \frac{1}{5}$, $b = 2$