

NAME: *Key*

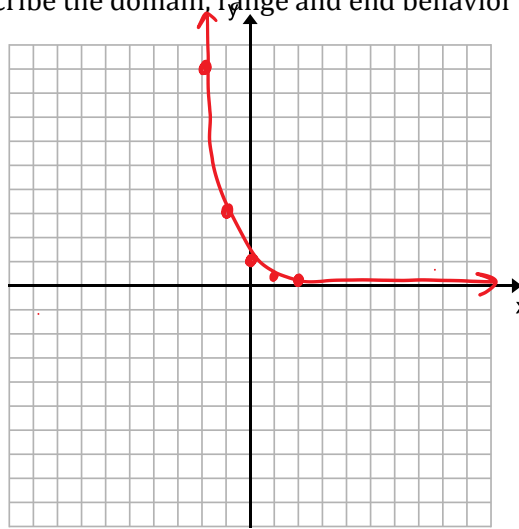


UNIT 6 DAY 10  
HOMEWORK

1. Graph the function and describe the domain, range and end behavior

$$y = \left(\frac{1}{3}\right)^x$$

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



**Domain:**  $\mathbb{R}$   
 $(-\infty, \infty)$

**Range:**  $(0, \infty)$   $y > 0$

**End Behavior:**  
As  $x \rightarrow -\infty$ ,  $y \rightarrow \infty$   
As  $x \rightarrow \infty$ ,  $y \rightarrow 0$

2. Assume you're the winner of the Powerball - \$1.5 billion is practically yours! You receive \$5 million the first year and that amount doubles every year until you've reached the total.

Does this represent a linear function or an exponential function? Why?

*exponential  
doubles (multiplies)*

3. State if the following table represents a linear or exponential function.

x	-2	-1	0	1	2
y	1	4	16	64	256

*x4 x4 x4 x4  
exponential*

4. State if the following table represents a linear or exponential function.

x	-2	-1	0	1	2
y	-15	-9	-3	3	9

*+6 +6 +6 +6  
linear*

5. Do you know the BASIC RULES? (Try to finish these in ONE minute) ☺

a.  $x^4 \cdot x^5 = x^9$

b.  $(x^4)^5 = x^{20}$

c.  $(x^2)^0 = 1$

d.  $x^{-8} = \frac{1}{x^8}$

e.  $\frac{1}{x^{-8}} = x^8$

f.  $\frac{x^9}{x^3} = x^6$

g.  $\frac{x^3}{x^9} = \frac{1}{x^6}$