

Date: _____

Name: _____

Review Exponential Graphs

1. Sketch.

a.

$$y = 0.5^{-x} + 6$$

b.

$$y = -4(0.8)^{2x-4}$$

c.

$$y = 0.5(2.5)^{\frac{2-x}{3}} - 4$$

2. Find the exponential equation for:

x	y
3	17.49783
6	71.6182
9	314.7336
12	1406.839
15	6312.711
18	28350.5

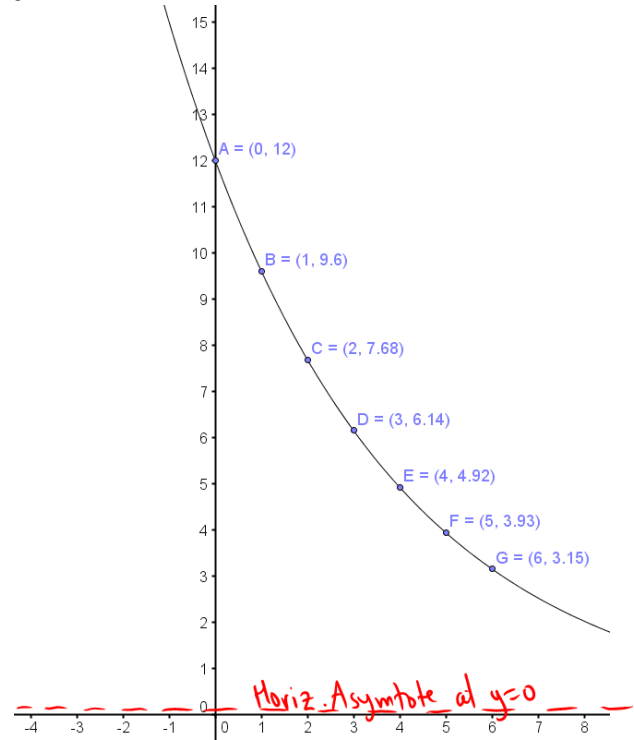
Horizontal asymptote at $y=2$.

3. Find the equations that will model each of the following
a.

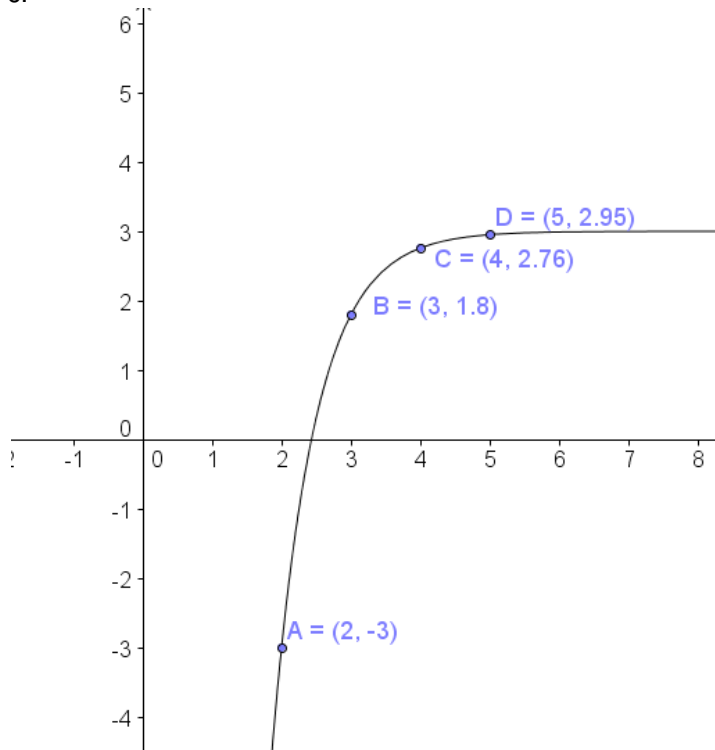
x	y
-1	168
0	84
1	42
2	21
3	10.5
4	5.25
5	2.625

Horizontal asymptote at $y=0$.

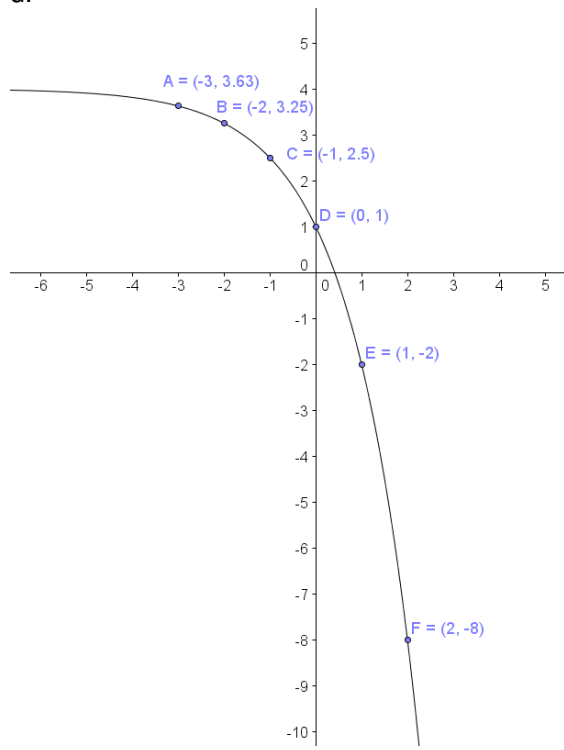
b.



c.



d.



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Review Exponential Graphs

1. Sketch.

a.

$$y = 0.5^{-x} + 6$$

$$y = (0.5^{-1})^x + 6$$

$$y = 2^x + 6$$

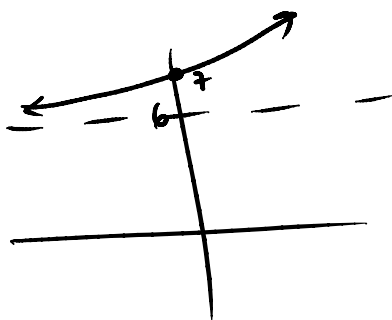
parent $y = 2^x$ 

$$a = 1$$

no reflection

distance from

HA to y-int is 1

 $c = 6$ shift up HA


b.

$$y = -4(0.8)^{2x-4}$$

$$y = -4(0.8^2)^x (0.8)^{-4}$$

$$y = -9.77(0.64)^x$$

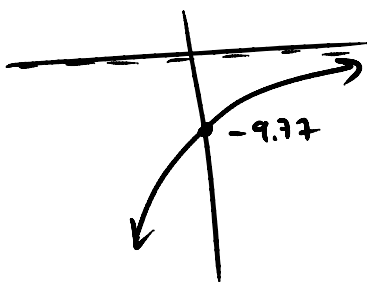
parent $y = 0.64^x$ decay 

$$a = -9.77$$
 reflect

distance to y-int

from HA is 9.77

$$c = 0$$
 HA



c.

$$y = 0.5(2.5)^{\frac{2-x}{3}} - 4$$

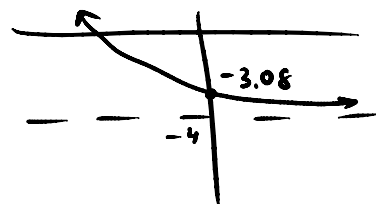
$$y = 0.5(2.5)^{\frac{2}{3}} (2.5)^{-\frac{1}{3}x} - 4$$

$$y = 0.92(0.74)^x - 4$$

parent $y = 0.74^x$ decay 

$$a = 0.92$$
 no reflection
dist. from HA to y-int is 0.92

$$c = -4$$
 shift down HA



4. Find the exponential equation for:

x	y
3	17.49783
6	71.6182
9	314.7336
12	1406.839
15	6312.711
18	28350.5

Horizontal asymptote at $y = 2$

b = 1st Ratios but only if HA = 0

if there is HA, 1st Ratios will not be constant

$$y = ab^x + c$$

$$y = ab^x + 2$$

sub pt. (3, 17.49783)

$$17.49783 = ab^3 + 2$$

$$\textcircled{1} \quad 15.49783 = ab^3$$

$$71.6182 = ab^6 + 2$$

$$69.6182 = ab^6$$

Divide to eliminate a

$$\frac{\textcircled{2}}{\textcircled{1}} \quad \frac{69.6182}{15.49783} = \frac{ab^6}{ab^3}$$

$$4.49 \approx b^3 \rightarrow \textcircled{b = 1.65}$$

sub pt. (6, 71.6182)

sub to find a

$$a = 3.45$$

$$\therefore y = 3.45(1.65)^x + 2$$

2. Find the equations that will model each of the following
a.

x	y
-1	168
0	84
1	42
2	21
3	10.5
4	5.25
5	2.625

$\times \frac{1}{2}$
 $\times \frac{1}{2}$

$b = 1^{st} \text{ ratios}$
if $HA = 0$

$$b = \frac{1}{2}$$

$$y = ab^x + c$$

$$y = a\left(\frac{1}{2}\right)^x + 0$$

Horizontal asymptote at $y=0 = c$

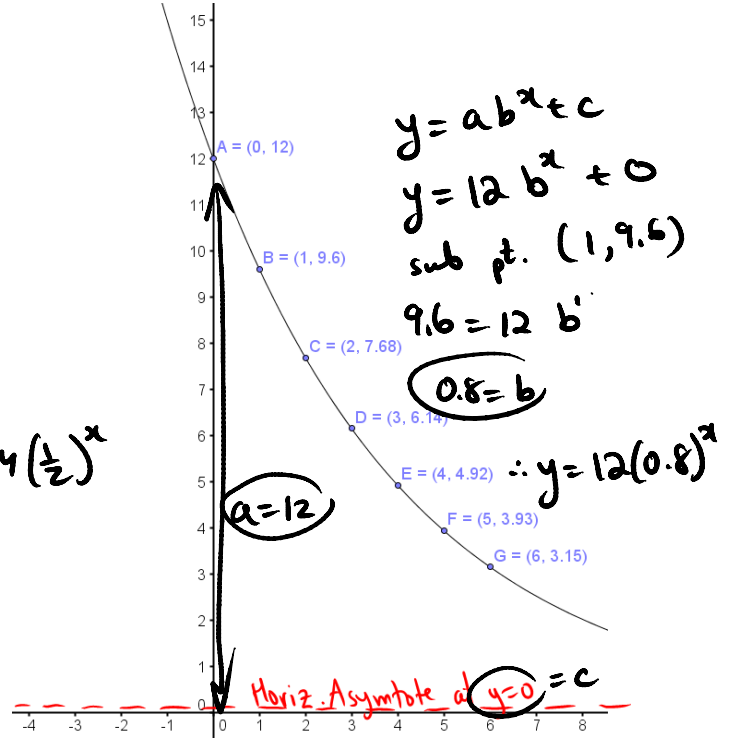
sub pt. $(0, 84)$

$$84 = a\left(\frac{1}{2}\right)^0$$

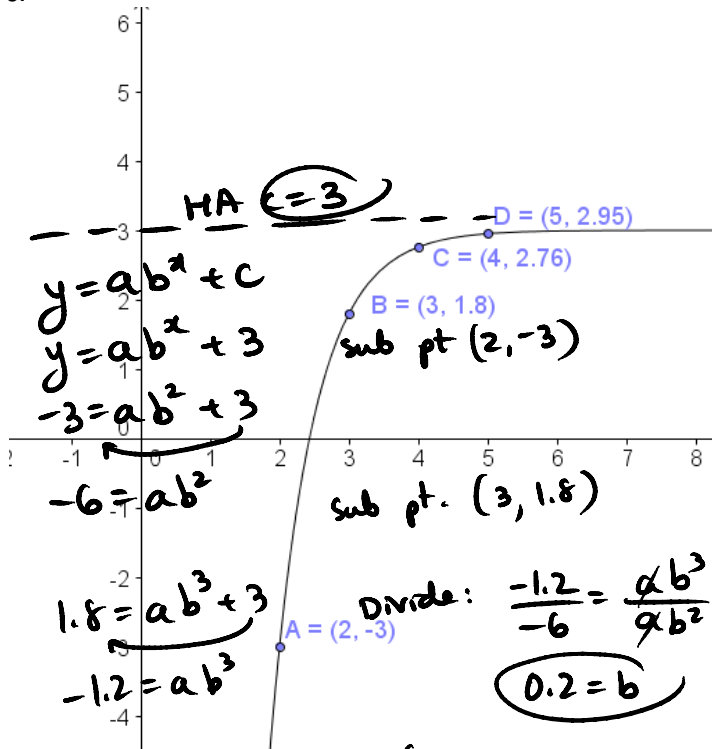
$$84 = a(1) \therefore y = 84\left(\frac{1}{2}\right)^x$$

$$84 = a$$

b.



c.



d.

