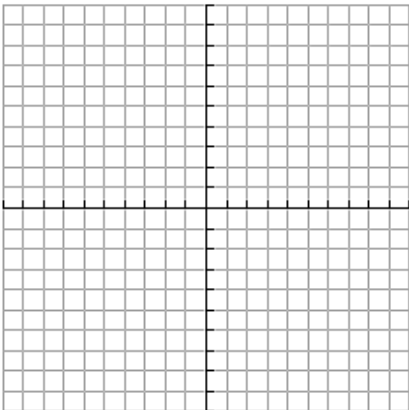
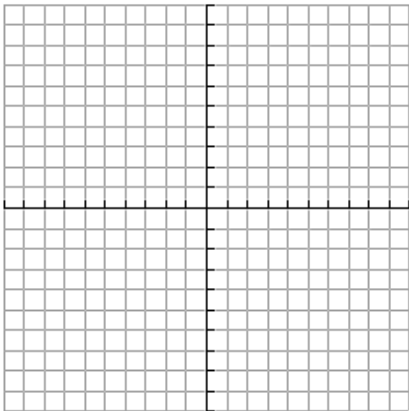
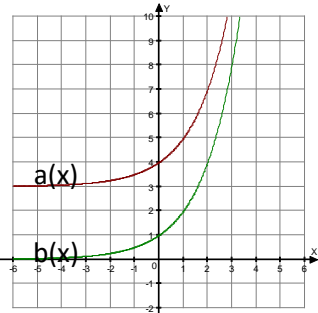


**Exponential Functions Unit Review**

Skill	Things to remember	Examples													
<p>1. Determine if representations are exponential. Explain why or why not</p>	<p>Exponential Functions: -Variable in exponent -Constant Ratios -Graph is a curve</p> <p>Linear Functions: -Constant differences -Graph is a line</p>	<p>a. Determine if the points are exponential or linear: a.</p> <table border="1" data-bbox="657 363 1089 428"> <tr> <td><b>x</b></td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td><b>y</b></td> <td>0.16</td> <td>0.8</td> <td>4</td> <td>20</td> <td>100</td> </tr> </table> <p>b. (-2, 5) (-1, 4) (0, 3) (1, 2) (2, 1)</p>	<b>x</b>	-3	-2	-1	0	1	<b>y</b>	0.16	0.8	4	20	100	<p>b. Determine if the equations are linear or exponential:</p> <p>a. <math>y = 3^x - 4</math></p> <p>b. <math>y = 2^2</math></p> <p>c. <math>y = 6^{2x}</math></p>
<b>x</b>	-3	-2	-1	0	1										
<b>y</b>	0.16	0.8	4	20	100										
<p>2. Determine if a function is exponential growth or decay and explain why.</p>	<p><math>0 &lt; b &lt; 1</math>: Decay <math>b &gt; 1</math>: Growth</p>	<p>a. <math>y = .75\left(\frac{3}{2}\right)^x</math></p> <p>c. What is the function growing by? <math>Y = 3(2)^x</math></p>	<p>b. <math>y = \left(\frac{1}{2}\right)^x</math></p> <p>d. What is constant ratio? <math>Y = 3(4.5)^x</math></p>												
<p>3. Graph an exponential function.</p>	<p><math>y = ab^x</math></p> <p>Create a table with values (5 points is a must)</p>	<p>a. Graph: <math>f(x) = \left(\frac{1}{2}\right)^x</math></p> 	<p>b. Graph: <math>f(x) = 3 \cdot 2^{x-1} + 1</math></p> 												
<p>4. Describe the transformations of an exponential function.</p>	<p><math>f(x) = a(b)^{x-h} + k</math></p> <p><b>a</b> stretches or shrinks AND/OR reflects</p> <p><b>k</b> moves the function up and down.</p> <p><b>h</b> moves the function left and right.</p> <p>The new asymptote is the line <math>y = k</math>.</p>	<p>a. Given the function <math>f(x) = 2^x</math> write a new equation after a transformation of left 7 and up 3.</p> <p>c. Describe the transformation <math>h(x) = 10^x</math> to <math>k(x) = 4(10)^{x+1} - 5</math>.</p>	<p>b. Given the function <math>g(x) = 2^x</math>, write a new equation after a transformation of right 9 and reflect across the x-axis.</p> <p>d. Describe the transformation from <math>a(x)</math> to <math>b(x)</math>.</p> 												

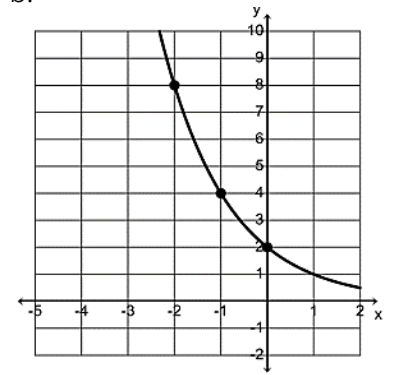
5. Create equations from a graph or table

$$y = y\text{-int}(\text{constant ratio})^x$$

a.

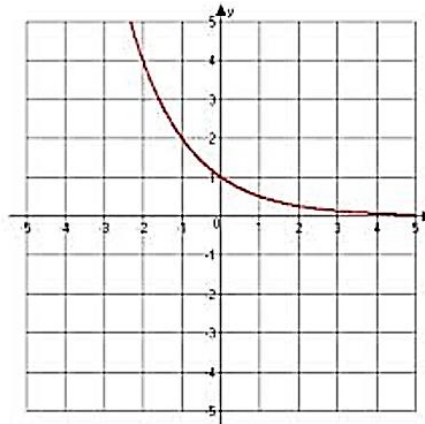
<b>x</b>	0	1	2	3	4	5
<b>y</b>	$\frac{1}{16}$	$\frac{1}{4}$	1	4	16	64

b.



6. Determine characteristics of exponential functions.

a.



Domain:

Range:

x-Intercept:

y-intercept:

Interval of Increase:

Interval of Decrease:

Asymptote:

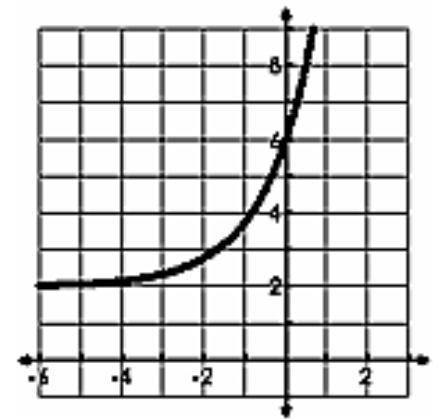
End Behavior:

$$\text{as } x \rightarrow -\infty, f(x) \rightarrow \underline{\hspace{2cm}}$$

$$\text{as } x \rightarrow \infty, f(x) \rightarrow \underline{\hspace{2cm}}$$

ROC from -2 to 0:

b.



Domain:

Range:

x-Intercept:

y-intercept:

Interval of Increase:

Interval of Decrease:

Asymptote:

End Behavior:

$$\text{as } x \rightarrow -\infty, f(x) \rightarrow \underline{\hspace{2cm}}$$

$$\text{as } x \rightarrow \infty, f(x) \rightarrow \underline{\hspace{2cm}}$$

ROC from -1 to 0: