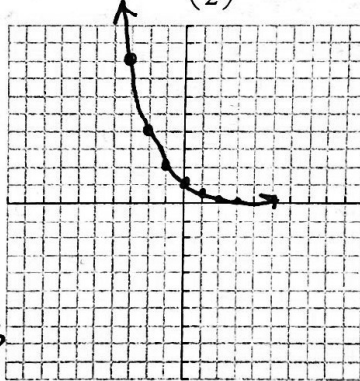
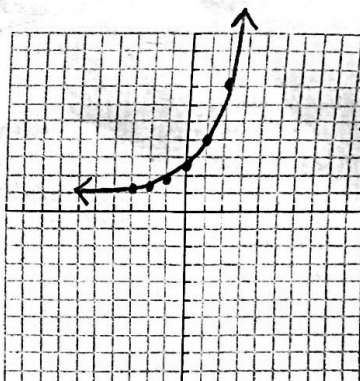


Exponential Functions Unit Review

Skill	Things to remember	Examples																													
1. Determine if representations are exponential. Explain why or why not	<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. <u>exponential</u></p> <table border="1"> <tr> <td>x</td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> </tr> <tr> <td>y</td> <td>0.16</td> <td>0.8</td> <td>4</td> <td>20</td> <td>100</td> </tr> </table> <p style="text-align: center;"><math>\times 5 \quad \times 5</math></p> <p>b. (-2, 5) (-1, 4) (0, 3) (1, 2) (2, 1) <u>linear</u></p> <p>b. Determine if the equations are linear or exponential: a. <math>y = 3^x - 4</math> <u>exponential</u> b. <math>y = 2^2</math> <u>linear</u> c. <math>y = 6^{2x}</math> <u>exponential</u></p>	x	-3	-2	-1	0	1	y	0.16	0.8	4	20	100																	
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y	0.16	0.8	4	20	100																										
2. Determine if a function is exponential growth or decay and explain why.	<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> <u>Growth (<math>\frac{3}{2} &gt; 1</math>)</u></p>	<p>b. <math>y = \left(\frac{1}{2}\right)^x</math> <u>Decay (<math>0 &lt; \frac{1}{2} &lt; 1</math>)</u></p>																												
		<p>c. What is the function growing by? <math>Y = 3(2)^x</math> <u>2</u></p>	<p>d. What is constant ratio? <math>Y = 3(4.5)^x</math> <u>4.5</u></p>																												
3. Graph an exponential function.	<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> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>y</td></tr> <tr><td>-3</td><td>8</td></tr> <tr><td>-2</td><td>4</td></tr> <tr><td>-1</td><td>2</td></tr> <tr><td>0</td><td>1</td></tr> <tr><td>1</td><td>0.5</td></tr> <tr><td>2</td><td>0.25</td></tr> </table> 	x	y	-3	8	-2	4	-1	2	0	1	1	0.5	2	0.25	<p>b. Graph: <math>f(x) = 3 \cdot 2^{x-1} + 1</math></p> <table border="1" style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>y</td></tr> <tr><td>-3</td><td>1.107</td></tr> <tr><td>-2</td><td>1.575</td></tr> <tr><td>-1</td><td>2.75</td></tr> <tr><td>0</td><td>2.5</td></tr> <tr><td>1</td><td>4</td></tr> <tr><td>2</td><td>7</td></tr> </table> 	x	y	-3	1.107	-2	1.575	-1	2.75	0	2.5	1	4	2	7
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4. Describe the transformations of an exponential function.	<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. <u><math>f(x) = 2^{x+7} + 3</math></u></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. <u><math>g(x) = -2^{x-9}</math></u></p>																												
		<p>c. Describe the transformation <math>h(x) = 10^x</math> to <math>k(x) = 4(10)^{x+1} - 5</math>. <u>Stretch by 4 left 1 down 5</u></p>	<p>d. Describe the transformation from <math>a(x)</math> to <math>b(x)</math>. <u>down 3</u></p> 