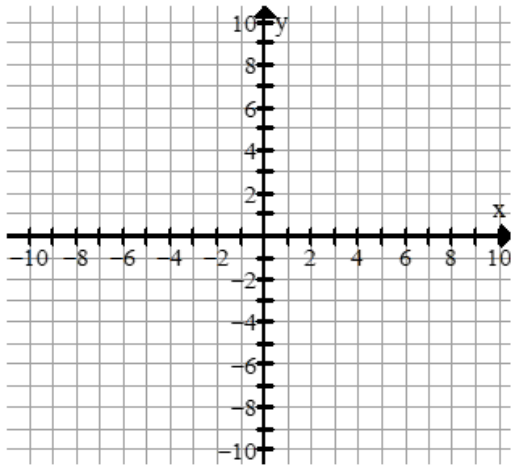
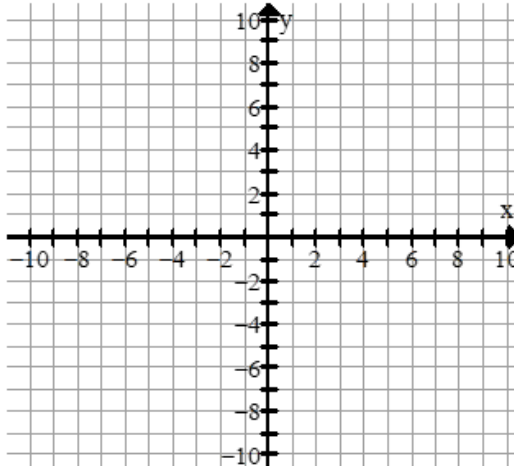


Investigating Exponential and Logarithmic Functions HOMEWORK

Directions: Please answer the questions in the boxes provided or on a separate sheet of paper. All work must be shown in order to receive full credit. Box or circle your final answers.

<p>1) On the coordinate axes below, sketch the graph of $f(x) = (2.5)^x$ and then sketch the graph of $f^{-1}(x)$ on the same plane.</p> 	<p>2) For the function, $f(x)$, in question 1, answer the following questions:</p> <p>What is the domain and range of $f(x)$?</p> <p>Does the graph represent exponential growth or exponential decay?</p> <p>What would be the equation of $f^{-1}(x)$?</p>		
<p>3) On the coordinate axes below, sketch the graph of $g(x) = \log_3(x - 1)$ and then sketch the graph of $g^{-1}(x)$ on the same plane.</p> 	<p>4) For the function, $g(x)$, in question 3, answer the following questions:</p> <p>What is the domain and range of $g(x)$?</p> <p>What is the equation of the vertical asymptote?</p> <p>What would be the equation of $g^{-1}(x)$?</p>		
<p>Evaluate the following logarithms. If necessary, round to 3 significant figures.</p>			
<p>5) $\log_3 \frac{1}{27}$</p>	<p>6) $\log_2 1$</p>	<p>7) $\log_7 49$</p>	<p>8) $\log_5 248$</p>
<p>Describe the relationship (transformation) between the pair of functions in each problem below.</p>			
<p>9) $f(x) = 3^x$ $g(x) = 3^x + 4$</p>	<p>10) $f(x) = 2^x$ $g(x) = 2^{x-3}$</p>		
<p>11) $f(x) = 4^x$ $g(x) = 4^{-x}$</p>	<p>12) $f(x) = \left(\frac{1}{2}\right)^x$ $g(x) = -\left(\frac{1}{2}\right)^x$</p>		