

**Day #52 Homework**

Complete the table for each of the exponential functions below. Be sure to give justification when asked to do so.

Function	Is the function a growth or a decay? Justify your answer.	What is the parent function? How is this function's graph different from that of the parent function?	What is the domain?	What is the range?	What is the equation of the horizontal asymptote?
1. $H(x) = -(0.25)^{-x+2} + 3$					
2. $G(x) = -2\left(\frac{1}{2}\right)^{x+3} - 1$					
3. $H(x) = 2(1.25)^{-x+2} + 3$					

Consider the two functions below to answer the questions that follow:

$$f(x) = -\left(\frac{3}{2}\right)^{-x-1} + 2$$

$$p(x) = (0.5)^{x-2}$$

4. One of the functions is a growth and one is a decay. Which is which and how do you know based on the equations?

5. What is the range of  $f(x)$ ? Explain how you know based on the equation of the function.

6. The point  $(-2, 4)$  is a point on the graph of  $y = (0.5)^x$ . What is the corresponding point on the graph of  $p(x)$ ? Explain your reasoning.

7. For what value(s) of  $x$  is  $f(x) = p(x)$ ? Round your answer(s) to the nearest thousandth and explain how you determined the value(s).

$$g(x) = \left(\frac{1}{2}\right)^{-x-2} - 2$$

8. Explain what changes would be made to the graph of  $y = \left(\frac{1}{2}\right)^x$  to obtain the graph of  $g(x)$ .

9. What  $(x, y)$  coordinate rule would transform points on the graph of  $y = \left(\frac{1}{2}\right)^x$  into points on the graph of  $g(x)$ ?

10. Complete the table of points below and then draw the graph of  $g(x)$ . Grids are located on the next page.

$x$	$\left(\frac{1}{2}\right)^x$	Coordinate Points of $g(x)$

$$f(x) = -(2)^{x-3} - 2$$

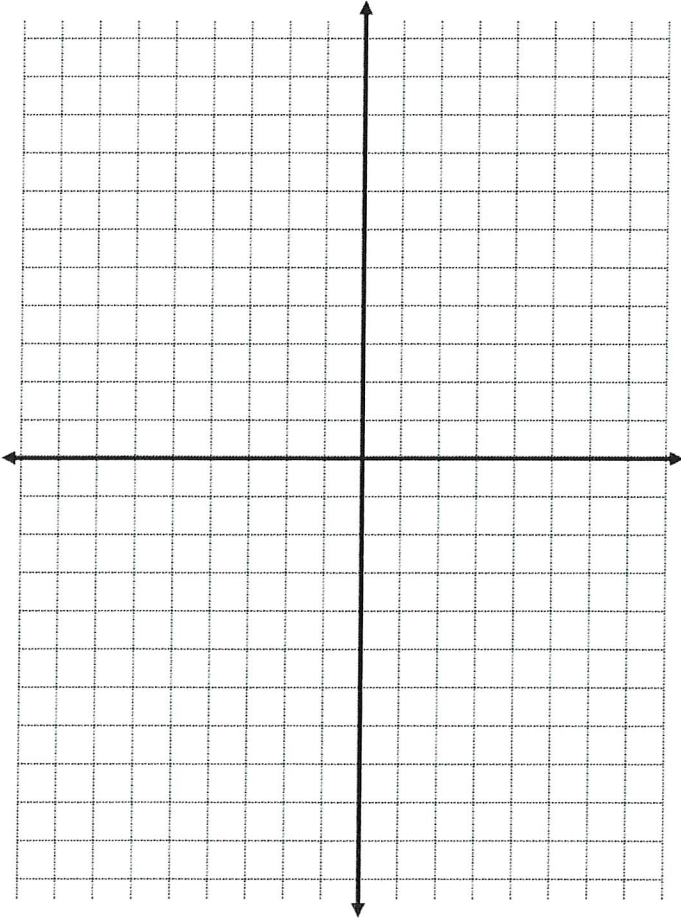
11. Explain what changes would be made to the graph of  $y = (2)^x$  to obtain the graph of  $f(x)$ .

12. What  $(x, y)$  coordinate rule would transform points on the graph of  $y = (2)^x$  into points on the graph of  $f(x)$ ?

13. Complete the table of points below and then draw the graph of  $g(x)$ . Grids are located on the next page.

$x$	$(2)^x$	Coordinate Points of $f(x)$

Graph of  $g(x)$



Graph of  $f(x)$

