Algebra 1

Name: _____

Transformations & Characteristics of Exponential Function

Date: _____ Block: _____

Part 1: Describe the transformations for each of the functions below:

1.) $f(x) = 2^{-x}$	2.) $b(x) = -(2)(2)^{x+1} - 2$
3.) $k(x) = -\left(\dfrac{1}{2}\right)^x + 3$	4.) $m(x) = \left(\dfrac{1}{2}\right)^{x+4}$
5.) $g(x) = 2^{x+5} - 1$	6.) $p(x) = \left(\dfrac{1}{3}\right)^{x-1} - 2$
7.) $t(x) = \left(\dfrac{1}{2}\right)(3)^{x-1} + 4$	8.) $h(x) = -2^{x-3}$
9.) $c(x) = -(2)^{2x}$	10.) $s(x) = -(3)(2)^{x+2} + 4$

Directions: Describe the transformations from the parent function to the transformed function:

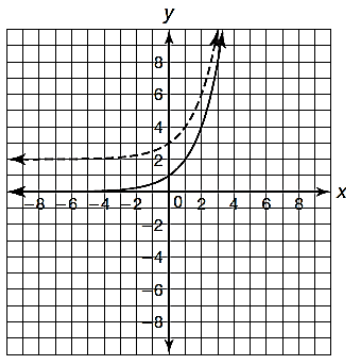1. $f(x) = 2^x \rightarrow f(x) = 2^{x-2}$

2. $y = \frac{1}{2}(8)^x \rightarrow y = \frac{1}{2}(8)^x + 6$
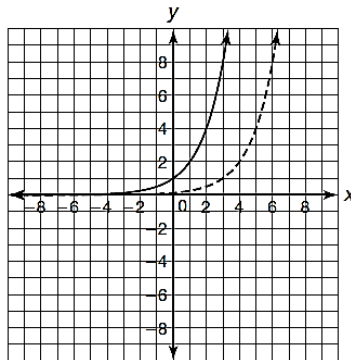
3. $y = 4(0.6)^x \rightarrow y = 4(0.6)^x - 3$

4. $f(x) = 4^x \rightarrow f(x) = 4^{x+3} - 8$

Directions: Using the graphs of f(x) and g(x), described the transformations from f(x) to g(x). F(x) is the solid line and g(x) is the dotted line.
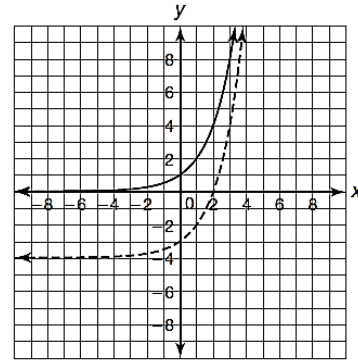
5.

6.

7.

Directions: Using the function $g(x) = 5^x$, create a new function h(x) given the following transformations:

8. down 3 units

9. right 8 units

10. up 4 units and left 2 units

Directions: Decide whether each of the following is an example of exponential growth (increase) or decay (decrease). Then state the y-intercept.

11. $y = 5^x$

12. $y = \left(\dfrac{1}{2}\right)^x$

13. $y = -3^x$

14. $y = 2\left(\dfrac{4}{3}\right)^{-x}$