

Name: \_\_\_\_\_

## Exponential Functions

**Exercise 1:** Graph each set of exponential functions on the same coordinate system:

1)  $f(x) = 6^x$ ,  $g(x) = 6^x - 4$ ,  $h(x) = 6^{x-3}$  and  $k(x) = 6^{x-3} - 4$

2)  $f(x) = 5^x$ ,  $g(x) = 5^x + 1$ ,  $h(x) = 5^{x-2}$  and  $k(x) = 5^{x-3} + 3$

3)  $f(x) = 3^x$ ,  $g(x) = 3^x + 2$ ,  $h(x) = 3^{x-1}$  and  $k(x) = 3^{x-1} + 2$

4)  $f(x) = 7^x$ ,  $g(x) = 7^x - 5$ ,  $h(x) = 7^{x-5}$  and  $k(x) = 7^{x-5} - 5$

**Exercise 2:** Graph and identify the horizontal asymptote

1)  $y = 24\left(\frac{1}{3}\right)^x$

2)  $y = 100(0.1)^x$

**Exercise 3:** Use the graph of  $f$  to describe the transformation that yields the graph of  $g$ .

1)  $f(x) = 0.3^x$ ,  $g(x) = -0.3^x + 5$

2)  $f(x) = 3^x$ ,  $g(x) = 3^{x-4}$

3)  $f(x) = 4^x$ ,  $g(x) = 4^x + 1$

4)  $f(x) = -2^x$ ,  $g(x) = 5 - 2^x$

5)  $f(x) = 10^x$ ,  $g(x) = 10^{-x+3}$

6)  $f(x) = \left(\frac{7}{2}\right)^x$ ,  $g(x) = -\left(\frac{7}{2}\right)^{-x+6}$

7)  $f(x) = 0.3^x$ ,  $g(x) = -0.3^x + 5$