

Day 3: Transformations of Functions

Name: _____

Practice Assignment

For the following functions, name all the transformations and then give the y-intercept, asymptote, and whether it is growth or decay:

Function	Transformations	Y-intercept	Asymptote	Growth/Decay
a. $y = 3(2)^x$				
b. $y = 5\left(\frac{1}{4}\right)^x - 4$				
c. $y = \frac{1}{2}(2)^x - 6$				
d. $y = -7\left(\frac{1}{3}\right)^x + 2$				
e. $y = 2\left(\frac{1}{4}\right)^x$				
f. $y = \frac{1}{4}\left(\frac{3}{2}\right)^x + 1$				
g. $y = -3(5)^x + 4$				
h. $y = 4(2)^{x+3} - 6$				
i. $y = 3\left(\frac{1}{2}\right)^{x-1} + 1$				

Directions: For each of the following transformations, create a function that would represent those transformations. The base function is given for each set.

1. Base Function: $y = 2^x$

a. Up 5 units

b. Left 2 units

c. Reflected over the x-axis and right 4 units

2. Base Function: $y = \frac{1}{2}^x$

a. Down 6 units

b. Shrunk by a factor of $\frac{1}{4}$

c. Reflected over x-axis and stretch by factor of 3

3. Base Function: $y = 0.4^x$

a. Right 2 units

b. Reflected over x axis

c. Up 4 units and left 7 units

Directions: For each of the following functions, describe the transformations:

a. $f(x) \rightarrow 2f(x)$

b. $f(x) \rightarrow f(x - 3)$

c. $f(x) \rightarrow f(x) - 2$

d. $f(x) \rightarrow -\frac{3}{4}f(x)$

e. $f(x) \rightarrow f(x + 3) - 5$

f. $f(x) \rightarrow \frac{1}{2}f(x + 2) + 1$

g. $f(x) \rightarrow -f(x) + 9$

h. $f(x) \rightarrow 3f(x - 6) + 4$