11.20 Exponential Growth and Decay Functions:

Identify whether the function represents exponential growth or decay:

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

2. $f(x) = \frac{1}{3}(\frac{5}{2})^x$

3. $f(x) = 4(\frac{5}{6})^x$

4. $f(x) = \frac{1}{2}(.75)^x$

5. $f(x) = \frac{5}{4}(8)^{-x}$

Identify the domain and range of the exponential function:

6. . $f(x) = (.75)^x - 8$

7. . $f(x) = \frac{1}{2}(4)^x + 2$

8. . $f(x) = \frac{5}{6}(.75)^{x-2}$

9. . $f(x) = 4(\frac{3}{4})^x + 5$

10. $f(x) = 5^x - 10$

Write an exponential function whose graph passes through the given points:

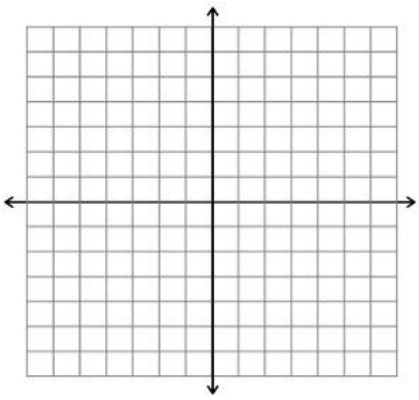
11. $(0,7) and\ (2,63)$

12. $(0,-2) and\ (-2,-32)$

13. $(2,2) and\ (3,4)$

14. $(0,3) and\ (1,15)$

Identify the transformations from the parent function to $f(x) = 3^x$ to the following:



15. $f(x) = 3^x - 2$

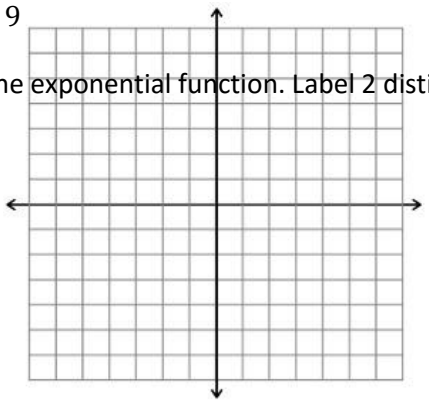
16. $f(x) = 3^{x+4}$

17. $f(x) = 3^{x-1} - 1$

18. $f(x) = 3^{x+4} + 9$

Sketch a graph of the exponential function. Label 2 distinct points. Identify growth or decay. Identify and label asymptote line.

19. $y = 2^x - 3$



20. $y = 0.5(4)^{x-1} + 2$