

Graph the following exponential functions. State whether each function is a growth or decay function. Be sure to plot at least 5 points (make a table of values and plug in for  $x = -2, -1, 0, 1, 2$ ).

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

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

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

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

Simplify the following expressions:

5.  $\frac{2(3x^2)y^3}{4xy}$

6.  $\frac{x^{-3}y^3x^2}{xyy^{-2}z^3}$

7.  $5(x^3)^{\frac{4}{3}}$

8.  $\frac{5x(2x - y^3)^4}{2y(2x - y^3)}$