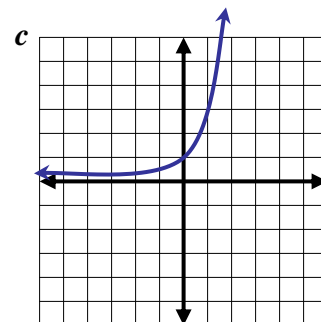
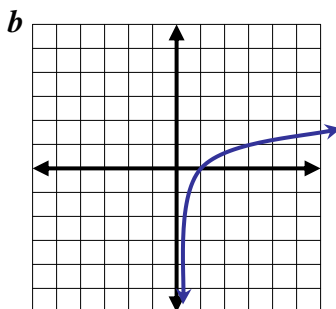
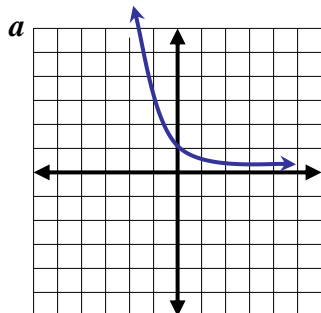


Match the graph with the proper equation, then name the domain and range for each.



1) $f(x) = 3^x$

match: _____

domain: _____

range: _____

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

match: _____

domain: _____

range: _____

3) $f(x) = \log_{10} x$

match: _____

domain: _____

range: _____

Identify which of the following functions represent exponential **growth**, and which ones show **decay**.

4) $f(x) = 3^x$

5) $f(x) = 4(3)^x$

6) $f(x) = 4(3.5)^x$

7) $f(x) = 4(0.5)^x$

Use the formula: $y_1 = y_0 r^{x_1 - x_0}$ to write an exponential function that passes through the given points.

8) (0, 3) & (-1, 6)

9) (0, 0.2) & (1, 1.6)

Rewrite the following exponential equations in **logarithmic** form.

10) $2^3 = 8$

11) $8^{-2} = \frac{1}{64}$

12) $\left(\frac{1}{3}\right)^2 = \frac{1}{9}$

Rewrite the logarithmic equations in **exponential** form.

13) $\log_4 64 = 3$

14) $\log_9 3 = \frac{1}{2}$

15) $\log_5 \frac{1}{25} = -2$

Solve each equation.

$$16) \log_{25} \frac{1}{625} = x$$

$$17) 7^{5x-12} = 343$$

$$18) \left(\frac{1}{8}\right)^k = \left(\frac{1}{16}\right)^{k-2}$$

$$19) \log_b 49 = 2$$

$$20) \log_7 (x^2 - 6) = \log_7 (2x + 2)$$

$$21) 3^{y+10} = 9^{2y}$$

Solve each inequality.

Exponential inequalities require no “extras”. No “and” to solve. No number line to graph. No solution set to derive. Just solve like normal!

$$22) 113^{4x+9} \leq 113^{2x-11}$$

$$23) \left(\frac{1}{6}\right) > 36^{n-5}$$

$$24) \log_9 x > 3$$

$$25) \log_5 (x + 4) < \log_5 (2x - 3)$$

$$26) \log_3 (2x - 1) \leq 2$$