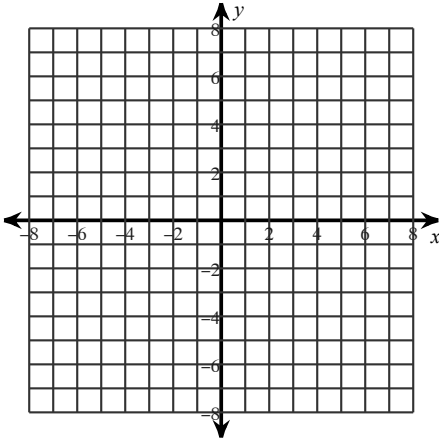


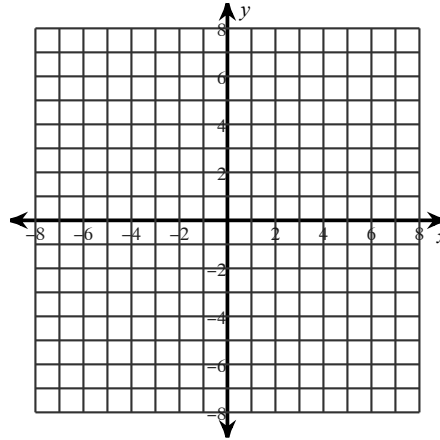
Log Review

Sketch the graph of each function.

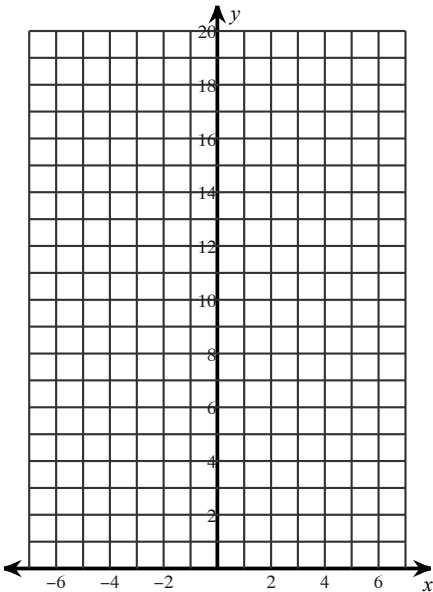
1) $y = \log_5(x + 4) + 2$



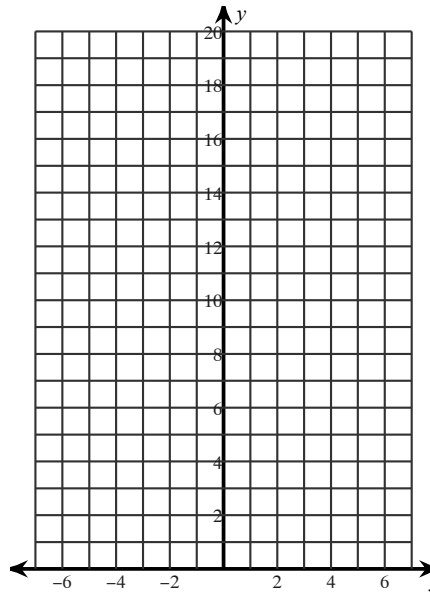
2) $y = \log_3(x + 2) + 1$



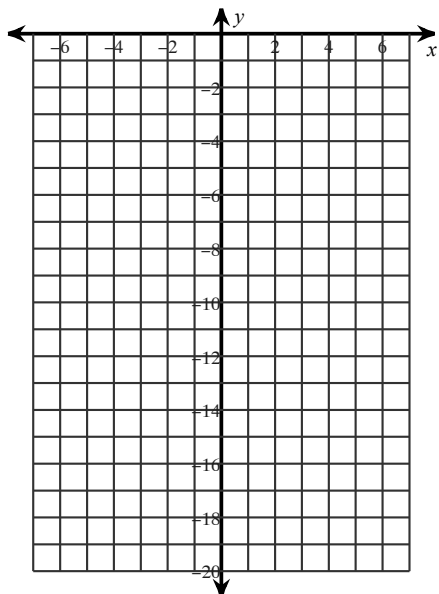
3) $y = 4 \cdot \left(\frac{1}{2}\right)^x$



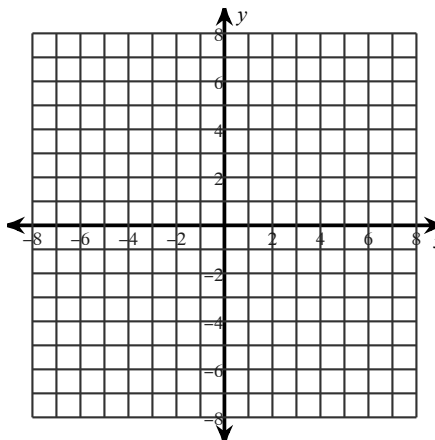
4) $y = 2 \cdot 2^x$



$$5) y = -5 \cdot \left(\frac{1}{2}\right)^x$$



$$6) y = \log_{\frac{1}{4}}(x + 5) - 3$$



Find the inverse of each function.

$$7) y = 7 \log_3 x$$

$$8) y = 2^{\frac{x}{5}}$$

Use the properties of logarithms and the values below to find the logarithm indicated. Do not use a calculator to evaluate the logs.

$$9) \log_7 6 \approx 0.9$$

$$\log_7 4 \approx 0.7$$

$$\log_7 9 \approx 1.1$$

$$\text{Find } \log_7 81$$

$$10) \log_5 4 \approx 0.9$$

$$\log_5 6 \approx 1.1$$

$$\log_5 7 \approx 1.2$$

$$\text{Find } \log_5 \frac{5}{7}$$

$$11) \log_7 10 \approx 1.2$$

$$\log_7 6 \approx 0.9$$

$$\log_7 9 \approx 1.1$$

$$\text{Find } \log_7 \frac{60}{7}$$

$$12) \log_7 12 \approx 1.3$$

$$\log_7 9 \approx 1.1$$

$$\log_7 11 \approx 1.2$$

$$\text{Find } \log_7 \frac{11}{81}$$

Solve each equation.

$$13) 20^{n+7} - 2 = 26$$

$$14) -5 \cdot 13^{3x} = -89$$

$$15) 8 \cdot 15^{n+5} + 7 = 18$$

$$16) -4 \cdot 4^{2-9x} - 4 = -29$$

$$17) \log_{19} (4x + 9) = \log_{19} (x + 3)$$

$$18) \log_{14} (r^2 + 6r) = \log_{14} (28 + 3r)$$

$$19) \log_2 (n + 9) - 2 = -3$$

$$20) 4 - 3\log_5 (r + 5) = 10$$

$$21) \log_6 x + \log_6 (x + 9) = 2$$

$$22) \log_4 -5x - \log_4 5 = 2$$

$$23) \log_6 (3x + 3) + \log_6 7 = 2$$

$$24) \log_2 (10 - x^2) - \log_2 3 = 1$$