Algebra 3

Name_____ ID: 1

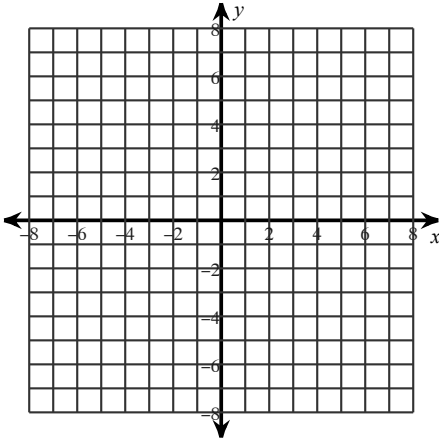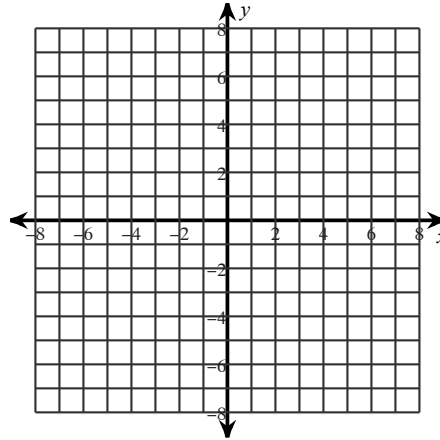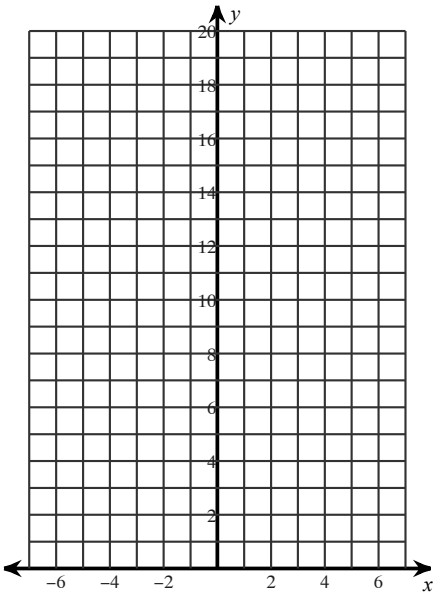# Log Review

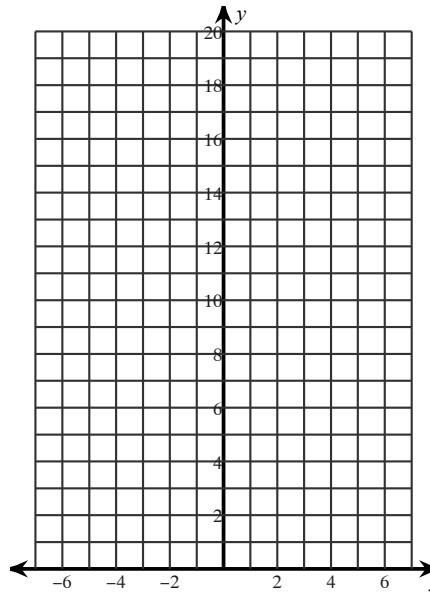**Sketch the graph of each function.**

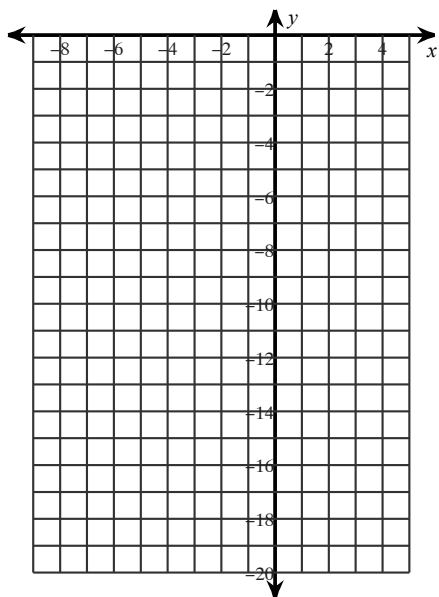1) $y = \log_4 (x + 6) - 3$

2) $y = \log_3 (x - 1) - 3$

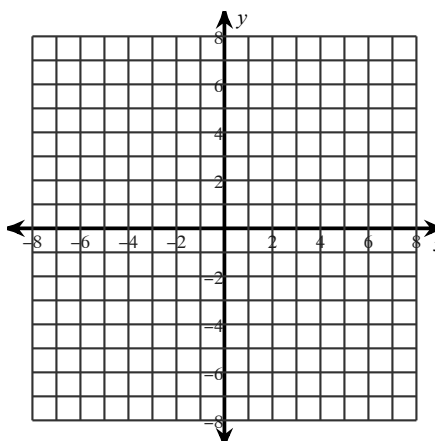3) $y = 3 \cdot \left(\dfrac{1}{2}\right)^x$

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

5) $y = -5 \cdot 2^{x+2} - 1$

6) $y = \log_{\frac{1}{4}} (x + 4) - 2$

Find the inverse of each function.

7) $y = 8 \log_4 x$

8) $y = 4^x - 3$

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

9) $\log_3 10 \approx 2.1$

   $\log_3 4 \approx 1.3$

   $\log_3 11 \approx 2.2$

   Find $\log_3 \dfrac{1}{121}$

10) $\log_7 3 \approx 0.6$

   $\log_7 8 \approx 1.1$

   $\log_7 10 \approx 1.2$

   Find $\log_7 \dfrac{1}{64}$

11) $\log_5 9 \approx 1.4$
   $\log_5 6 \approx 1.1$
   $\log_5 11 \approx 1.5$
   Find $\log_5 \dfrac{6}{25}$

12) $\log_3 11 \approx 2.2$
   $\log_3 10 \approx 2.1$
   $\log_3 4 \approx 1.3$
   Find $\log_3 \dfrac{2}{15}$

Solve each equation.

13) $6 \cdot 9^{r+10} = 77$

14) $15^{-2x} + 10 = 50$

15) $-2 \cdot 9^{9p} - 10 = -105$

16) $-10 \cdot 7^{6-10x} + 2 = 2$

17) $\log_{19}(3n + 10) = \log_{19}(5n - 4)$

18) $\log_{11}(15x - 1) = \log_{11}(x^2 + 49)$

19) $-6\log_4 4n = 12$

20) $5\log_7 (p - 5) + 1 = -4$

21) $\log_9 8 + \log_9 x^2 = 4$
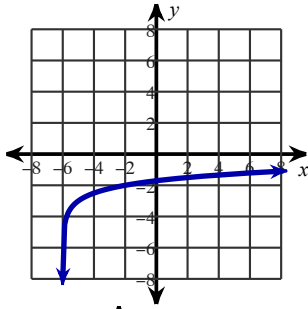
22) $\log_7 2x^2 + \log_7 3 = 1$

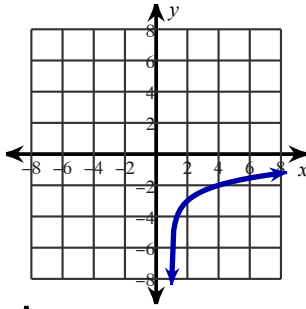23) $\log_6 (-x - 4) + \log_6 9 = \log_6 14$

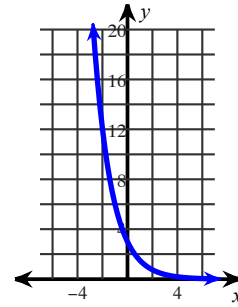24) $\log_7 5 + \log_7 (2x^2 + 4) = \log_7 30$
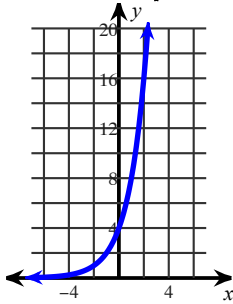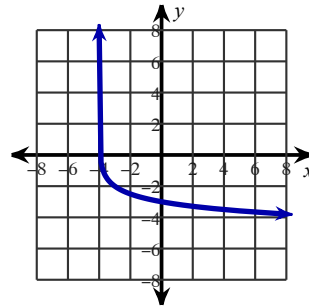
Answers to Log Review (ID: 1)

1)

2)

3)

4)

5)

6)

7) $y = 4^{\frac{x}{8}}$

8) $y = \log_4 (x + 3)$

9) -4.4

10) -2.2

11) -0.9

12) -1.8

13) -8.8385

14) -0.6811

15) 0.1952

16) No solution.

17) $\{7\}$

18) $\{10, 5\}$

19) $\left\{ \dfrac{1}{64} \right\}$

20) $\left\{ \dfrac{36}{7} \right\}$

21) $\left\{ \dfrac{81\sqrt{2}}{4}, -\dfrac{81\sqrt{2}}{4} \right\}$

22) $\left\{ \dfrac{\sqrt{42}}{6}, -\dfrac{\sqrt{42}}{6} \right\}$

23) $\left\{ -\dfrac{50}{9} \right\}$

24) $\{1, -1\}$