Algebra 3

Name_____ ID: 1

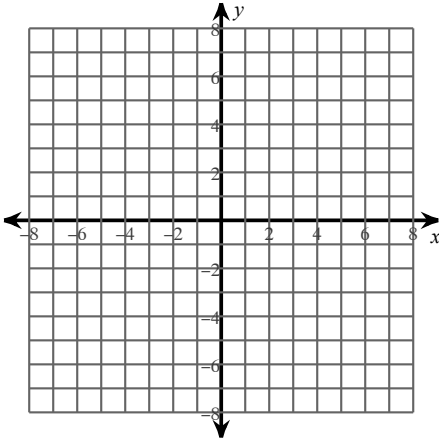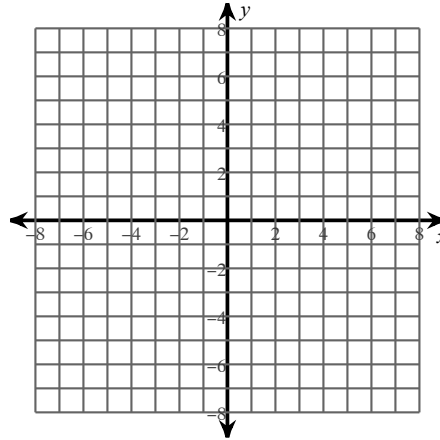# Log Review

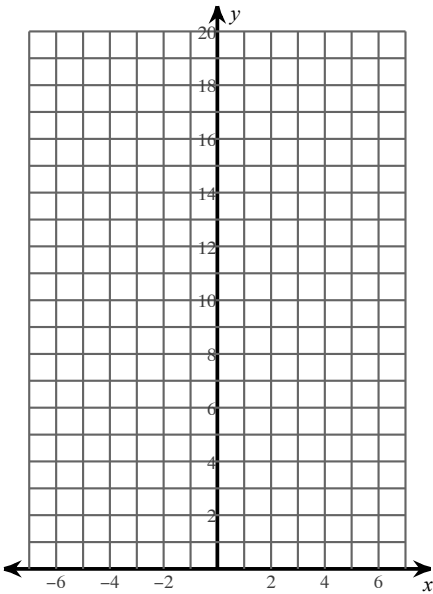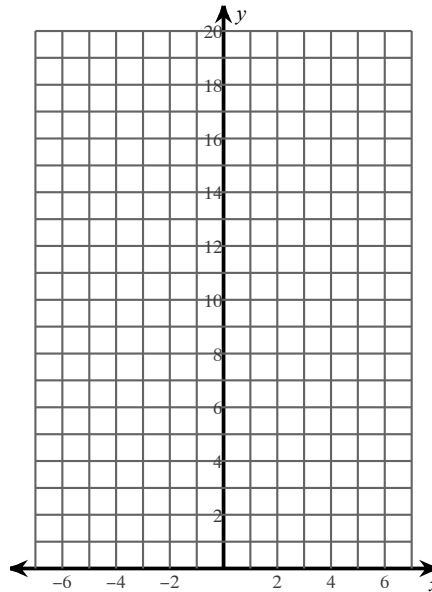**Sketch the graph of each function.**

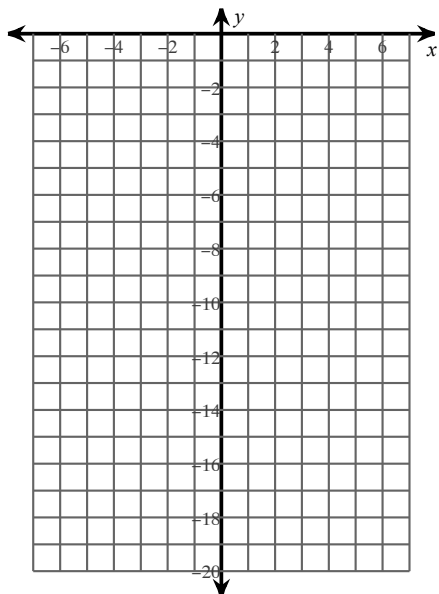1) $y = \log_2 (x + 3)$

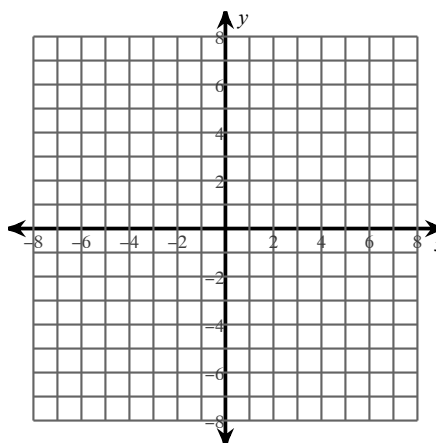2) $y = \log_4 (x - 1) - 2$

3) $y = 5 \cdot 2^x$

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

5) $y = -4 \cdot \left(\dfrac{1}{2}\right)^x$

6) $y = \log_2 (x + 3)$

Find the inverse of each function.

7) $y = \log_5 x - 4$

8) $y = 3^x + 5$

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

9) $\log_5 12 \approx 1.5$

$\log_5 7 \approx 1.2$

$\log_5 8 \approx 1.3$

Find $\log_5 \dfrac{1}{8}$

10) $\log_8 9 \approx 1.1$

$\log_8 12 \approx 1.2$

$\log_8 7 \approx 0.9$

Find $\log_8 \dfrac{9}{7}$

11) $\log 7 \approx 0.8$
$\log 12 \approx 1.1$
$\log 8 \approx 0.9$
Find $\log \dfrac{5}{32}$

12) $\log_4 6 \approx 1.3$
$\log_4 10 \approx 1.7$
$\log_4 9 \approx 1.6$
Find $\log_4 \dfrac{2}{27}$

Solve each equation.

13) $9^{10v} + 3 = 3$

14) $5^{x-1} + 5 = 93$

15) $5 \cdot 3^{-6p} + 9 = 78$

16) $-3 \cdot 12^{7-7x} - 9 = -75$

17) $\log_9 \left(-3n - 8\right) = \log_9 \left(-4n - 9\right)$

18) $\log_{12} \left(-2x - 2\right) = \log_{12} \left(x^2 - 37\right)$

19) $-2\log_3 8n = -4$

20) $-\log 3a - 1 = 1$

21) $\log_7 10 + \log_7 x = \log_7 22$

22) $\log_7 x + \log_7 (x + 13) = \log_7 30$

23) $\log_6 (x - 9) + \log_6 (x - 10) = 1$

24) $\log_9 (2x^2 - 5) + \log_9 8 = 2$