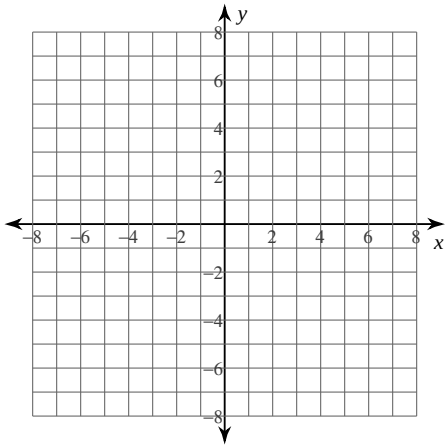
Algebra 2 Name_____

Assignment

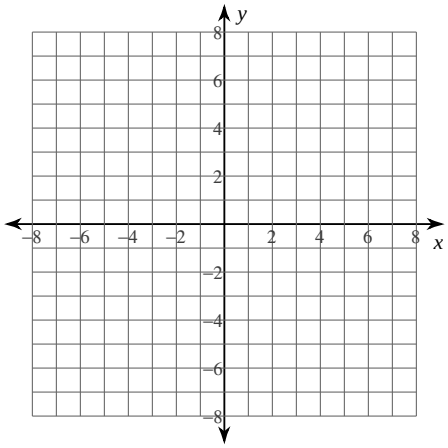
Date_____ Period____

Sketch the graph of each function.

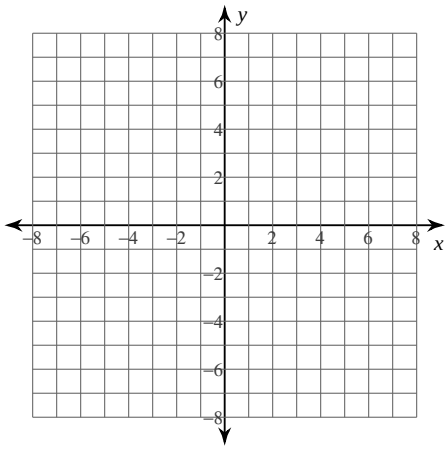
1) $y = \log_4 (x - 3) + 4$



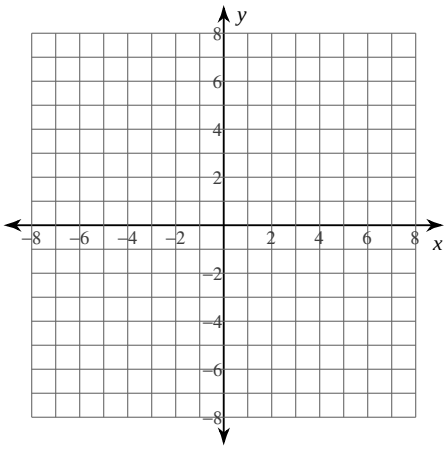
2) $y = \log_6 (x + 4)$



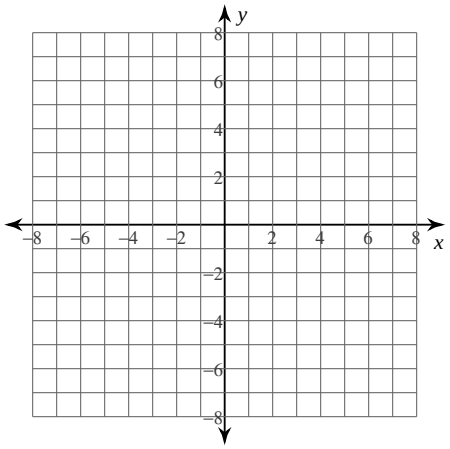
3) $y = \log_4 (x - 1) - 4$



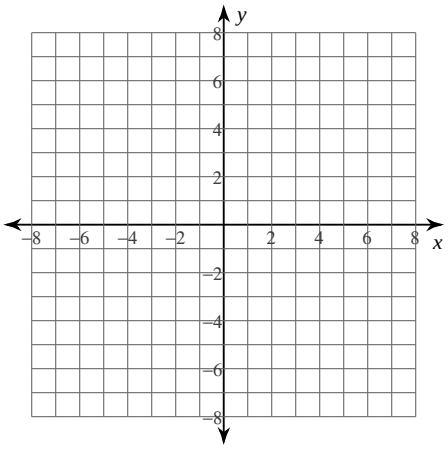
4) $y = \log_3 (x - 3) - 3$



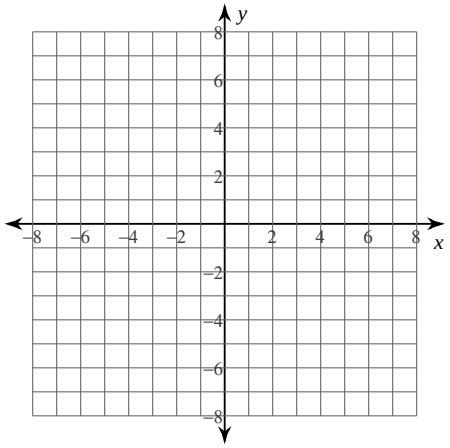
5) $y = \log_2 (x - 1) - 5$



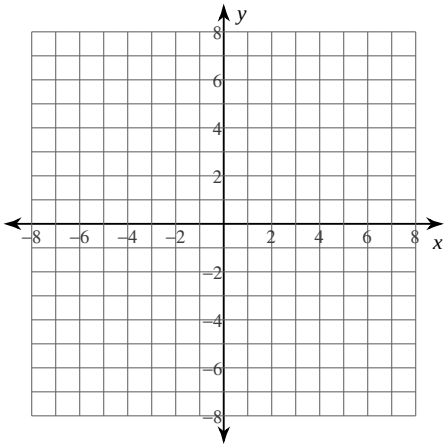
6) $y = \log_2 (x - 1) - 4$



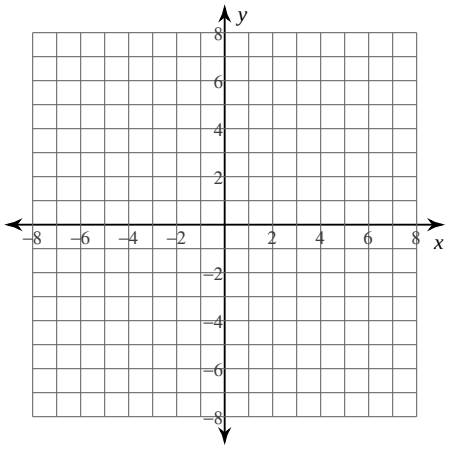
7) $y = \log_3 (x + 6) + 4$



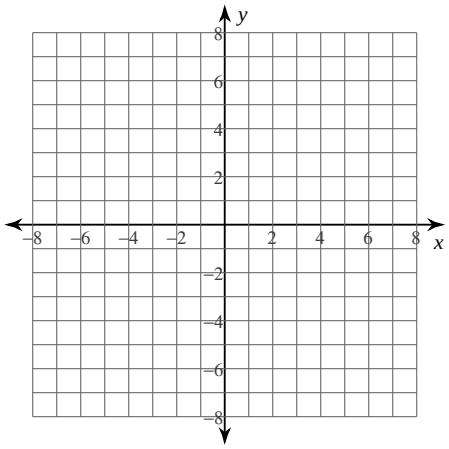
8) $y = \log_6 (x - 1) - 5$



9) $y = \log_3 (x - 1) - 4$



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



Use a calculator to approximate each to the nearest thousandth.

11) $\log_2 53$

12) $\log_7 5.2$

13) $\log_2 28$

14) $\log 6.57$

15) $\log_5 1.93$

16) $\log_5 2.9$

17) $\log_7 19$

18) $\log_2 5.6$

19) $\log_6 15$

20) $\log_3 44$

Condense each expression to a single logarithm.

21) $2\log_8 11 - 4\log_8 12$

22) $2\log_9 u - 2\log_9 v$

23) $\log_9 c + \frac{\log_9 a}{3} + \frac{\log_9 b}{3}$

24) $\log_7 5 + \frac{\log_7 12}{3} + \frac{\log_7 11}{3}$

25) $2\log_7 x - 4\log_7 y$

Expand each logarithm.

26) $\log_6 \left(xy^4\right)^6$

27) $\log \frac{12^3}{5^3}$

28) $\log_4 \left(3 \cdot 2^2\right)^2$

29) $\log_5 \left(7\sqrt[3]{10 \cdot 3}\right)$

30) $\log_3 \sqrt{a \cdot b \cdot c}$

Solve each equation.

31) $\log_6 5x - \log_6 4 = 2$

32) $\log_3 10 - \log_3 (x - 3) = \log_3 36$

33) $\log_6 4x^2 + \log_6 4 = 4$

34) $\log_9 (x + 1) - \log_9 7 = 1$

35) $\log_4 (x - 8) - \log_4 8 = 2$

36) $\log_2 9 - \log_2 (x + 10) = 4$

37) $\log_3 (x^2 + 2) - \log_3 2 = \log_3 33$

38) $\log_6 3 + \log_6 -4x = 1$

39) $\log_9 (x^2 + 6) - \log_9 5 = \log_9 35$

40) $\log_9 5 - \log_9 (x + 1) = \log_9 33$

Evaluate each expression.

41) $\log_2 8$

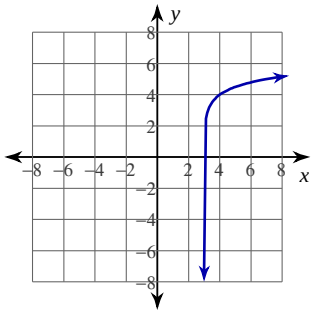
42) $\log_2 \frac{1}{64}$

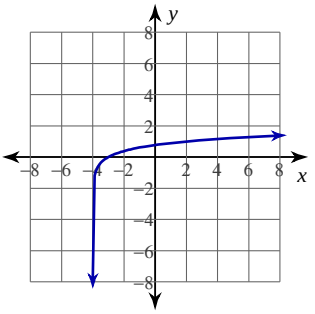
43) $\log_6 216$

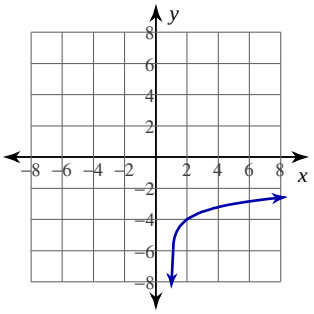
44) $\log_2 4$

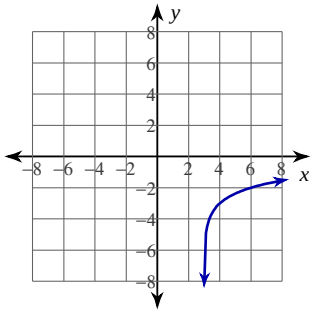
45) $\log_5 \frac{1}{125}$

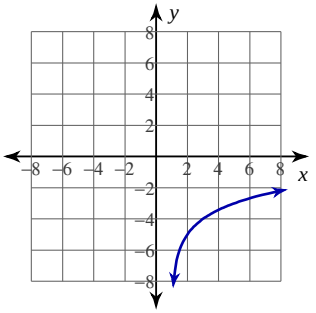
Answers to Assignment (ID: 1)

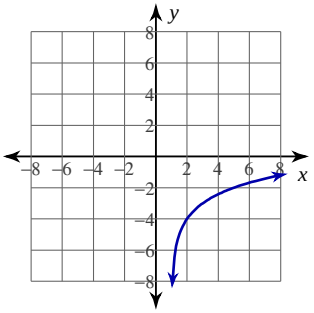
1) 

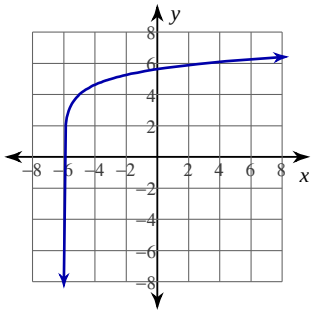
2) 

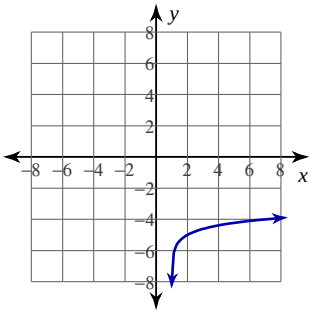
3) 

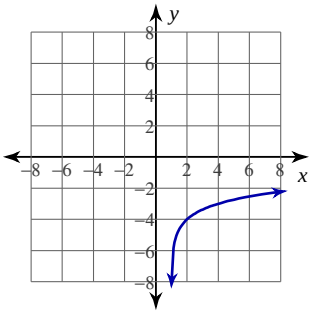
4) 

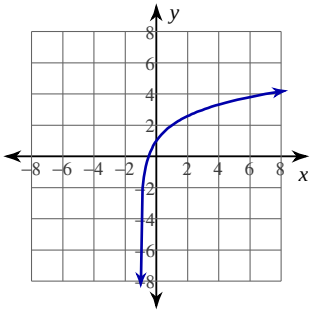
5) 

6) 

7) 

8) 

9) 

10) 

11) 5.728

12) 0.847

13) 4.807

14) 0.818

15) 0.409

16) 0.662

17) 1.513

18) 2.485

19) 1.511

20) 3.445

21) $\log_8 \frac{11^2}{12^4}$

22) $\log_9 \frac{u^2}{v^2}$

23) $\log_9 \left(c\sqrt[3]{ba}\right)$

24) $\log_7 \left(5\sqrt[3]{132}\right)$

25) $\log_7 \frac{x^2}{y^4}$

26) $6\log_6 x + 24\log_6 y$

27) $3\log 12 - 3\log 5$

28) $2\log_4 3 + 4\log_4 2$

29) $\log_5 7 + \frac{\log_5 10}{3} + \frac{\log_5 3}{3}$

30) $\frac{\log_3 a}{2} + \frac{\log_3 b}{2} + \frac{\log_3 c}{2}$

31) $\left\{\frac{144}{5}\right\}$

32) $\left\{\frac{59}{18}\right\}$

33) $\{9, -9\}$

34) $\{62\}$

35) $\{136\}$

36) $\left\{-\frac{151}{16}\right\}$

37) $\{8, -8\}$

38) $\left\{-\frac{1}{2}\right\}$

39) $\{13, -13\}$

40) $\left\{-\frac{28}{33}\right\}$

41) 3

42) –6

43) 3

44) 2

45) –3