

Chapter 8 - Logs Test Review

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Rewrite each equation in exponential form.

1) $\log_y x = -16$

2) $\log_{14} y = x$

3) $\log_m 13 = 7$

4) $\log_y 141 = x$

Rewrite each equation in logarithmic form.

5) $6^3 = 216$

6) $18^u = v$

7) $3^4 = 81$

8) $b^2 = a$

Use a calculator to approximate each to the nearest thousandth.

9) $\log_7 6.32$

10) $\log_4 41$

11) $\log_6 65$

12) $\log 5.5$

Solve each equation.

13) $-10 - 9\log_6 (n + 3) = -37$

14) $8 + 3\log_{12} (v - 1) = 11$

15) $-5\log_3 5a + 9 = 4$

16) $5 + 7\log_9 4x = 12$

Solve each equation. Round your answers to the nearest ten-thousandth.

17) $\log_9 3x - \log_9 3 = \log_9 80$

18) $\log (x - 3) + \log 3 = 2$

19) $\log_8 -5x - \log_8 4 = 1$

20) $\log_2 10 + \log_2 5x = \log_2 67$

Expand each logarithm.

21) $\log_8 (a \cdot b \cdot c)$

22) $\log_7 \frac{u^6}{v}$

23) $\log_4 \left(\frac{x}{y^6} \right)^3$

24) $\log_5 (x^5 \cdot y)^5$

Condense each expression to a single logarithm.

25) $\log_4 a - 3\log_4 b$

26) $\log_8 x + 5\log_8 y$

27) $2\log_5 u - 2\log_5 w - 4\log_5 v$

28) $\log_8 z + 3\log_8 x - 3\log_8 y$

Sketch the graph of each function.

29) $y = \log_6 (x + 1) + 2$

30) $y = \log_4 (x + 6) - 5$

31) $y = \log (x - 1) - 4$

32) $y = \log_2 (x - 3) + 2$

Solve each equation. Round your answers to the nearest ten-thousandth.

33) $4 \cdot 10^{r+7} + 6 = 46$

34) $-8 \cdot 3^{-n} - 1 = -85$

35) $-8 \cdot 20^{-2b} - 9 = -73$

36) $10 \cdot 6^{-7x} - 1 = 53$

Answers to Chapter 8 - Logs Test Review

1) $y^{-16} = x$

2) $14^x = y$

3) $m^7 = 13$

4) $y^x = 141$

5) $\log_6 216 = 3$

6) $\log_{18} v = u$

7) $\log_3 81 = 4$

8) $\log_b a = 2$

9) 0.947

10) 2.679

11) 2.33

12) 0.74

13) {213}

14) {13}

15) $\left\{\frac{3}{5}\right\}$

16) $\left\{\frac{9}{4}\right\}$

17) {80}

18) {36.3333}

19) {-6.4}

20) {1.34}

21) $\log_8 a + \log_8 b + \log_8 c$

22) $6\log_7 u - \log_7 v$

23) $3\log_4 x - 18\log_4 y$

24) $25\log_5 x + 5\log_5 y$

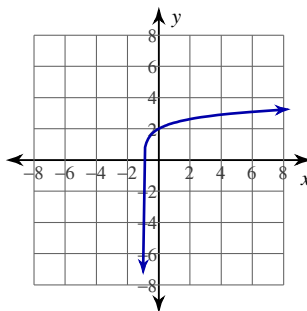
25) $\log_4 \frac{a}{b^3}$

26) $\log_8 (xy^5)$

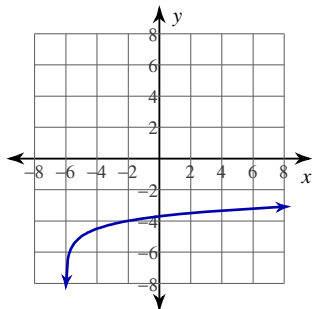
27) $\log_5 \frac{u^2}{w^2 v^4}$

28) $\log_8 \frac{zx^3}{y^3}$

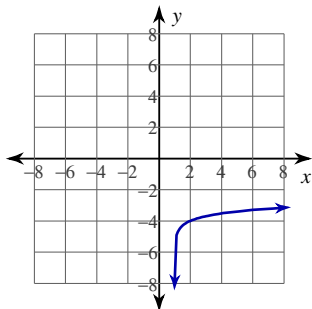
29)



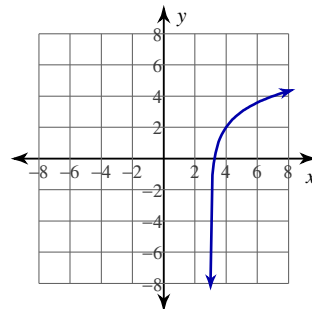
30)



31)



32)



33) -6

34) -2.1403

35) -0.3471

36) -0.1345