

## General Algebra 2 Review Unit 12 page 1

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Calculators are not to be used on this page of the review.

Find the exact value of each of the following.

1.  $\text{Log}_5 125 = \underline{\hspace{2cm}}$

2.  $\text{Log}_2 1024 = \underline{\hspace{2cm}}$

3.  $\text{Log}_5 0.04 = \underline{\hspace{2cm}}$

4.  $\text{Log}_4 2 = \underline{\hspace{2cm}}$

5.  $\text{Log}_8 0.5 = \underline{\hspace{2cm}}$

6.  $\text{Log}_5 \sqrt[3]{5} = \underline{\hspace{2cm}}$

7.  $\text{Log} 100 = \underline{\hspace{2cm}}$

8.  $\text{Log} 0.1 = \underline{\hspace{2cm}}$

9.  $\ln e^3 = \underline{\hspace{2cm}}$

Solve each of the equations. Show your work neatly organized.

10.  $5^{(3x-1)} = 25$

11.  $27^{(2x-3)} = 9$

12.  $9^{(2x+1)} = 3$

13.  $4^x = .25$

14.  $\text{Log}_7 x = 3$

15.  $\text{Log}_3 x = -1$

16.  $\text{Log}_4 x = 2.5$

17.  $\text{Log} x = 3$

18.  $\text{Log} x = -2$

Given:  $\text{Log}_N 2 = a$  ;  $\text{Log}_N 3 = b$  ;  $\text{Log}_N 5 = c$ .

Express each of the following logarithms as an algebraic expression in terms of a, b, and/or c.

19.  $\text{Log}_N 15 = \underline{\hspace{2cm}}$

20.  $\text{Log}_N 27 = \underline{\hspace{2cm}}$

21.  $\text{Log}_N 0.3 = \underline{\hspace{2cm}}$

22.  $\text{Log}_N 2.5 = \underline{\hspace{2cm}}$

23.  $\text{Log}_N \sqrt{15} = \underline{\hspace{2cm}}$

24.  $\text{Log}_N \left(\frac{N}{8}\right) = \underline{\hspace{2cm}}$

## General Algebra 2 Review Unit 12 page 2

Calculators are needed on this page of the review.

Solve each of the equations. Express your answers rounded to the nearest hundredth. Show your work neatly organized.

25.  $5^x = 35$

26.  $2^{(3x+2)} = 100$

27.  $e^{(2x-5)} = 100$

28.  $e^x = 6$

29.  $\text{Log}_3 x = 2.5$

30.  $\text{Log } x = 1.7$

31.  $\text{Log } x = -0.5$

32.  $\ln x = 3.5$

33.  $\ln x = -1.5$

Find the value of each of the following. Express your answers rounded to the nearest hundredth.

34.  $\text{Log}_5 30 = \underline{\hspace{2cm}}$

35.  $\text{Log}_2 0.2 = \underline{\hspace{2cm}}$

Answer the following questions. Express your answer rounded to the nearest tenth of a year. Show your work neatly organized.

36. Money is invested in an account that pays interest at an annual rate of 6% compounded quarterly. How long will it take for the value of the account to double?

## General Algebra 2 Review Unit 12 page 3

Calculators are needed on this page of the review.

Answer the following questions. Express your answer rounded to the nearest tenth of a year. Show your work neatly organized.

**37. \$800 is invested in an account that pays interest at an annual rate of 4% compounded monthly. How long will it take for the value of the account to reach \$1200?**

**38. Money is invested in an account that pays interest at an annual rate of 2.5% compounded continuously. How long will it take for the value of the account to double?**

**39. \$900 is invested in an account that pays interest at an annual rate of 5% compounded continuously. How long will it take for the value of the account to reach \$2500?**