

**Algebra II Worksheet #3 Unit 11 page 1** \_\_\_\_\_

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.

1.  $\text{Log}_N 30 =$  \_\_\_\_\_

2.  $\text{Log}_N 32 =$  \_\_\_\_\_

3.  $\text{Log}_N 45 =$  \_\_\_\_\_

4.  $\text{Log}_N 200 =$  \_\_\_\_\_

5.  $\text{Log}_N 0.8 =$  \_\_\_\_\_

6.  $\text{Log}_N 0.5 =$  \_\_\_\_\_

7.  $\text{Log}_N 0.3 =$  \_\_\_\_\_

8.  $\text{Log}_N 0.04 =$  \_\_\_\_\_

9.  $\text{Log}_N 2.5 =$  \_\_\_\_\_

10.  $\text{Log}_N 1.2 =$  \_\_\_\_\_

11.  $\text{Log}_N (6N) =$  \_\_\_\_\_

12.  $\text{Log}_N (2N^3) =$  \_\_\_\_\_

13.  $\text{Log}_N \sqrt{3} =$  \_\_\_\_\_

14.  $\text{Log}_N \sqrt{10} =$  \_\_\_\_\_

15.  $\text{Log}_N \left(\frac{3}{8}\right) =$  \_\_\_\_\_

16.  $\text{Log}_N \left(\frac{10}{9}\right) =$  \_\_\_\_\_

## Algebra II Worksheet #3 Unit 11 page 2

Evaluate each of the following.

17.  $\text{Log}_4 64 = \underline{\hspace{2cm}}$

18.  $\text{Log}_4 0.5 = \underline{\hspace{2cm}}$

19.  $\text{Log}_8 4 = \underline{\hspace{2cm}}$

20.  $\text{Log}_2 0.125 = \underline{\hspace{2cm}}$

21.  $\text{Log}_2 \left(\frac{1}{16}\right) = \underline{\hspace{2cm}}$

22.  $\text{Log}_3 \sqrt[3]{9} = \underline{\hspace{2cm}}$

Evaluate each of the following. Express irrational answers rounded to the nearest tenth.

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

24.  $\text{Log } 0.01 = \underline{\hspace{2cm}}$

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

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

27.  $\text{Log } 5000 = \underline{\hspace{2cm}}$

28.  $\text{Log } e = \underline{\hspace{2cm}}$

29.  $\ln e^4 = \underline{\hspace{2cm}}$

30.  $\ln e^{-2} = \underline{\hspace{2cm}}$

31.  $\ln 30 = \underline{\hspace{2cm}}$

32.  $\ln 0.5 = \underline{\hspace{2cm}}$

33.  $\ln 5000 = \underline{\hspace{2cm}}$

34.  $\ln 10 = \underline{\hspace{2cm}}$