

Algebra 2**Practice Test 7.3-6: Logarithms**

Name _____

Date _____ **A#5**

(Properties of Log _____)

Expand the expression.

1. $\log_3(27t)$

2. $\log \frac{a^3}{bc^2}$

Condense the expression.

5. $\log_3 17 + \log_3 x$

6. $3\log y - \log 11$

7. $2\log_3 x + 3\log_3 y - 5\log_3 z$

Use the properties of logarithms to rewrite the expression in terms of log 3 and log 4. Then use $\log 3 \approx 0.477$ and $\log 4 \approx 0.602$ to approximate the expression.

8. $\log 12$

9. $\log 16$

Use the change-of-base formula to rewrite the expression. Then use a calculator to evaluate the expression. Round your answer to three decimal places.

10. $\log_3 15$

11. $\log_5 \frac{1}{2}$

Algebra 2**Test 7.3-6b: Logarithms****A#5**

(Log Equations _____)

Solve each equation. Round your answer to three decimal places if necessary. Check for extraneous solutions.

1. $4^{3x} = 64$

2. $2 \log_5 x - \log_5 2 = \log_5 (x + 12)$

3. $3e^x - 2 = 7$

4. $2 \log 4 + \frac{1}{2} \log 9 = \log(7x - 3)$

5. $8^{4x-5} + 33 = 124$

6. $4 \ln(3x + 7) = 12$

7. You deposit \$15,000 into an account that compounds interest continuously at a rate of 7.5%. Using the formula $A = Pe^{rt}$, where A is the amount you have after t years at a rate of r , P is the principal (initial amount). When will you have \$22,000?