

## ALGEBRA 2 REVIEW 7.3-7.7 15-16 KR

**Rewrite in logarithmic form.**

1.  $16^{-1/2} = \frac{1}{4}$  \_\_\_\_\_

3. Condense  $6\log_m y - (8\log_m a + \log_m x)$

\_\_\_\_\_

**Rewrite in exponential form.**

2.  $\log_6 216 = 3$  \_\_\_\_\_

4. Expand  $\log_b \frac{a^9}{zy^5}$

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**Mental Math (no calculator).**

6.  $\log_1 8$

7.  $\log_3 \frac{1}{27}$

8.  $\log_9 1$

9.  $\ln e^7$

10.  $\log_3(-27)$

11.  $\log_{\frac{1}{4}} 64$

12.  $\log 10,000$

13.  $\log_6 6^4$

**Evaluate Round to three decimal places if necessary.**

14.  $\ln 50 - \ln 20$

15.  $\frac{\log 500}{2}$

16.  $\log_4 35$

17.  $\ln 15 - 3$

**Solve. Show all work. Round to three decimal places if necessary.**

18.  $\log_5 x = -2$

19.  $\log_a(3x+9) - \log_a(2x-8) = \log_a 3$

20.  $\log_3(x-2) = 4$

21.  $\log_3 x = 3\log_3 4 + \log_3 5$

22.  $64^{x-3} = 8^{x+4}$

23.  $2\log_2 x + 5 = 7$

**Solve. Show all work. Round to three decimal places if necessary.**

24.  $\log_3 54 - \log_3 x = \log_3 6$

25.  $\log x + \log(x-15) = 2$

26.  $7^x - 30 = 90$

27.  $9e^x = 63$

28.  $6 \ln x = 42$

29.  $10^x + 6 = 50$

Use the given formulas to solve the following problems. Round to the nearest thousandth if appropriate.

Compound Interest

Continuously Compounding

Growth Decay

$$A = P \left( 1 + \frac{r}{n} \right)^{nt}$$

Interest

$$A = Pe^{rt}$$

$$y = a(1 \pm r)^{\frac{t}{d}}$$

30. How long will it take \$1000 to be worth \$3000 if it is invested at an annual rate of 6% compounded continuously?

31. After winning the lottery, Socrates invested \$850 into an account that paid an annual rate of 3.25% compounded monthly. How long will it take the balance to reach \$1,500?

32. One isotope of chromium has a half-life of 23 hours. How long does it take 50 gm of chromium to decay to 40 gm?