

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

**Review****Solve each equation.**

1.  $3x - 7 = -5x + 9$

2.  $x^2 - 5x = 14$

3.  $3x^2 - 16x - 12 = 0$

4.  $\sqrt{x+9} - 13 = 21$

**Change each exponential statement into an equivalent statement involving a logarithm.**

5.  $7 = x^2$

6.  $2^{(-3)} = \frac{1}{8}$

7.  $5^x = 8.4$

**Change each logarithmic statement to an equivalent statement involving an exponent.**

9.  $\log_5 125 = 3$

10.  $\log_8 4 = \frac{2}{3}$

11.  $\log 6 = x$

12.  $\ln x = 9$

**Solve each equation. Leave answer as exact solutions. No calculators. Show work!**

13.  $\log_2(2x+1) = 3$

14.  $\ln e^x = 5$

$$15. \log_4 64 = x$$

$$16. \log_3 243 = 2x + 1$$

$$17. e^{2x+5} = 8$$

$$18. \log_2 8^x = -3$$

$$19. 2 \cdot 10^{2-x} = 5$$

$$20. 4 \cdot e^{x+1} = 5$$

$$21. \log_3 x = -5$$

$$22. \log_x 49 = 2$$

$$23. 3^{2x-5} = 7$$

$$24. 10^x = e$$

## Applications

**Compounded Interest:**  $A = P\left(1 + \frac{r}{n}\right)^{nt}$  **P = Initial amount or Principle, r = rate, n = number of times in a year, t = time in years, A = the total amount with interest**

**Compounded Continuously Equation:**  $A = Pe^{rt}$  **P = Initial amount or Principle, r = rate, t = time in years, A = the total amount with interest**

25. Jim places \$1000 in a bank account that pays 5.6% compounded continuously. After 1 year, will he have enough money to buy a computer system that costs \$1060? If another bank will pay Jim 5.9% compounded monthly, is this a better deal?

26. Jasmine deposits \$520 into a savings account that has a 3.5% interest rate compounded monthly. What will be the balance of Jasmine's savings account after two years?