

## 5-4 Assignment

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

**Solve each equation. Round your answers to the nearest ten-thousandth.**

1)  $343^{3-3n} = 49$

2)  $243^{3k+2} = 81^{3k+1}$

3)  $64^{-2x-3} \cdot 64 = \frac{1}{16}$

4)  $\frac{625}{5^{2-v}} = 5^4$

5)  $8^{m-2} + 4 = 7.1$

6)  $\log_9(3p+5) = \log_9(5-4p)$

7)  $\log_2(n+7) = \log_2(5n-9)$

8)  $\log_5 -x + \log_5 4 = \log_5 30$

9)  $\log_4(x^2-5) - \log_4 5 = 1$

10)  $1 + 9\log_{12}(n+9) = 19$

11) The first permanent English colony in America was established in Jamestown, Virginia, in 1607. From 1620 through 1780, the population  $P$  colonial America can be modeled by the equation  $P = 8863 \cdot 1.04^t$  where  $t$  is the number of years since 1620. When was the population of colonial America about 345,000?

12) If lime juice has a pH of 1.7, what is the concentration of hydrogen ions (in mol/L) in lime juice, to the nearest hundredth?

13) What is the monthly payment on a mortgage of \$75,000 with an 8% interest rate that runs for 20 years, 25 years, 30 years? How much interest is paid over 20 years, 25 years, 30 years?