Name: _____ Period: _____

PC-3 Review. Show work.

1. Solve for x. $$5^{x+9} = 625^{4x}$$	2. Solve for x. $$\log(2x) + \log(x+1) = \log(12)$$	3. Solve for x. $$\log_3(x-2) + \log_3(x+15) = 2$$
4. Solve for x. $$\log_5(x+3) = 1 - \log_5(x-1)$$	5. Solve for x. $$4^{5x-3} = 9^x$$	
6. Find the domain of the function. $$f(x) = \log_4(x+7)$$	7. Find the domain of the function. $$g(x) = \log(7x-3)$$	8. Find the domain of the function. $$y = 5^x$$

9. Which of the two rates would yield the larger amount in 1 year with an initial deposit of $1,000? 3.25% compounded monthly, or 3.20% compounded continuously?	10. How long would it take to double an investment given an annual interest rate of 4.13% compounded quarterly?

11. Salt (NaCl) decomposes in water into sodium (Na^+) and chloride (Cl^-) ions according to the law of uninhibited decay. If the initial amount of salt is 25 kilograms and, after 10 hours, 15 kilograms of salt is left, how much salt is left after 1 day? How long does it take until 0.5 kilogram of salt is left?	12. An object is heated to 90° C and is then allowed to cool in a room whose air temperature is 21° C. If the temperature of the object is 80° C after 10 minutes, when will its temperature be 60° C? Using a graphing utility, determine how long until the object is 25° C.
13. Find the loudness of a pencil writing that produces a noise at an intensity of 10^{-9} watts per square meter.	14. Compare an earthquake with a Richter Scale reading of 5.5 versus one of 7.0
15. The half-life of radium is 1690 years. If 10 grams are present now, how much will be present in 50 years?	16. After the release of radioactive material into the atmosphere from a nuclear power plant at Chernobyl (Ukraine) in 1996, the hay in Austria was contaminated by iodine-131 (half-life 8 years). If it is all right to feed the hay to cows when 10% of the iodine-131 remains, how long do the farmers need to wait to use this hay?