Math unit 5

1. Solve a. e^. 05t = 1600 0. 05t = ln(1600) 0. 05t = 7. 378 t = 7. 378/. 05 t = 147. 56 b. ln(4x)= 3 4x = e^3 x = e^3/4 x = 5. 02 c. log2(8 – 6x) = 5 8-6x = 2^5 8-6x = 32 6x = 8-32 x = -24/6 x = -4 d. 4 + 5e-x = 0 5e^(-x) = -4 e^(-x) = -4/5 no solution, e cannot have a negative answer 2. Describe the transformations on the following graph of f (x) ? log(x) . State the placement of the vertical asymptote and x-intercept after the transformation. For example, vertical shift up 2 or reflected about the x-axis are descriptions. . g(x) = log(x + 5) horizontal left shift 5 Vertical asymptote x = -5 x-intercept: (-4, 0) b. g(x)= log(-x) over the x-axis vertical asymptote x= 0 no x-intercept 3. Students in an English class took a final exam. They took equivalent forms of the exam at monthly intervals thereafter. The average score S(t), in percent, after t months was found to be given by S(t) = 68 - 20 log (t + 1), t ? 0. a. What was the average score when they initially took the test, t = 0?

Round your answer to a whole percent, if necessary. S(0)= 68-20xlog(0+1) = 68-20x0 = 68% b. What was the average score after 4 months? after 24 months? Round your answers to two decimal places. -S(4) = 68-20xlog(4+1) 68-20x0. 699 68-13. 98 = 54. 02 -S(24) = 68-20xlog(24+1) = 40. 04 68-20x1. 398 68-27. 96 = 40. 04 c. After what time t was the average score 50%? Round your answers to two decimal places. 50 = 68 - 20 log (t + 1) 20log(t+1) = 68-50 log(t+1) = 18/20 t+1 = 10^(18/20) = 7. 9433 t = 7. 9433-1 = 6. 94 4.

The formula for calculating the amount of money returned for an initial deposit into a bank account or CD (certificate of deposit) is given by A= P(1+r/n)^nt A is the amount of the return. P is the principal amount initially deposited. r is the annual interest rate (expressed as a decimal). n is the

number of compound periods in one year. t is the number of years. Carry all calculations to six decimal places on each intermediate step, then round the final answer to the nearest whole cent. Suppose you deposit $2, 000 for 5 years at a rate of 8%. . Calculate the return (A) if the bank compounds annually (n = 1). Round your answer to the nearest whole cent. 2000(1+0. 08/1)^(1x5)= 2, 938. 66 b. Calculate the return (A) if the bank compounds quarterly (n = 4). Round your answer to the nearest cent. 2000(1+0. 08/4)^(4x5)= 2, 971. 89 c. If a bank compounds continuously, then the formula used is rtPeA= where e is a constant and equals approximately 2. 7183. Calculate A with continuous compounding. Round your answer to the nearest cent. 2000(2. 7183)^(0. 08x5) = 2, 983. 66