Math 1050 - Quiz 4

1. Find the solution of the equation $3^{4x+1} = 28$.

2. Find all solutions to the equation $\log_{10}\left[x^2 - 6x + 18\right] = 1$.

3. Use properties of logarithms to write the expression as a single logarithm.

$$f(x) = 3\ln(x+3) - 4\ln(x-4) + 2\ln(x-5)$$

4. Given $f(x) = 4e^{x-5} + 6$, find $f^{-1}(x)$.

5. Given $f(x) = 4\ln(x+6) + 5$, find $f^{-1}(x)$.

6. An initial amount of $ 12,000 is invested in an account compounded continuously at a rate of 6.5 % . (Use $A(t) = A_0 e^{rt}$.)

a) Determine the amount in the account at the end of 15 years.

b) How many years will it take for the account to grow to $ 1,000,000 ?

7. Suppose the number of bacteria in a sample grows exponentially ($A(t) = A_0 e^{kt}$) and increases from 3000 to 7000 in *5* hours.

a) Determine the value of *k*, the growth rate.

b) How long does it take for the number of bacteria to triple?