Homework 2

Question 1

Find all of the zeros of $f(x) = x^3 - 4x^2 + x + 6$ given that 2 is one of the roots of this equation.

Question 2

a) Convert the exponential equation $2^x = 8$ to logarithmic form.

b) Convert the logarithmic equation $log_2(2) + log_2(8x) = 4$ into exponential form.

c) Convert the logarithmic equation $log_9(\sqrt[3]{27}) = \frac{1}{2}$ to exponential form.

Question 3

Graph the function $f(x) = log_3(x - 1) + 2$. State the transformations of the function.

Question 4

Graph the exponential function $f(x) = 5^{x-2} - 3$. State the transformations compared to the parent function.

Question 5

a) Solve the equation $ln(5x - 1) + ln(3x + 2) = ln(56)$.

b) Solve the equation $log_{10}(2x - 3) - log_{10}(x + 4) = 1$.

c) Solve the equation $(\frac{1}{3})^{2x+1} = \frac{1}{9}$.

Question 6

A right triangle has one length measuring 6 units and the hypotenuse measuring 10 units. What is the length of the remaining side?

Question 7

Sarah, Sam, and Alex are camping in their own tents. The distance between Sarah and Sam is 153 ft, the distance between Sarah and Alex is 201 ft, and the distance between Sam and Alex is 175 ft. What is the angle between Sarah, Sam, and Alex?

Question 8

a) Find the exact value of $tan(105^\circ)$ using one of the identities.

b) Find the exact value of $sin(\frac{5\pi}{12})$ using one of the identities.