QUIZ 7 - MATH 111 Friday, October 21

YOUR NAME:_____ George Voutsadakis

Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [6 points]

   (a) Perform the division $(x^3 + 3x^2 + 1) \div (x^2 + 2)$ and write your answer in an appropriate form.

   (b) Perform the synthetic division $(x^3 + 3x^2 + 1) \div (x + 2)$ and write your answer in an appropriate form.

2. [6 points]

(a) Use the Remainder Theorem to compute the value $f(-3)$ if $f(x) = x^3 - 5x + 7$.

(b) Suppose we are given that 4 is a root of the polynomial $f(x) = 2x^3 + 3x^2 - 39x - 20$. Use the Factor Theorem to find the remaining roots of $f(x)$.