MATH 103 Pre-Calculus Mathematics Name_____
Quiz #8 Fall 2008 (November 6)

Note that there are three problems, the last of which is on page 2.

**1.** Describe a polynomial $Q$ having integer coefficients (preferably as small as possible) and having the same zeros as the polynomial

$$P(x) = \frac{2}{9}x^4 - \frac{1}{6}x^3 + x^2 + \frac{3}{4}x - 1$$

(You need not identify the zeros of P.)

**2.** List all rational numbers (but try to avoid duplicates) that, according to the *Rational Zero Test*, are candidates for being zeros of the polynomial

$$P(x) = 2x^3 - 4x^2 - 2x + 4$$

(You need not identify which of them are actually zeros of $P$.)

**3.** Factor the polynomial $P(x) = x^3 - 2x^2 - 2x + 4$ completely. Recall that the quadratic formula tells us that any zeros of $ax^2 + bx + c$ satisfy

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$