Last Name:_____

First Name:_____

ID:_____ Section:____

Math 1051 Midterm #1. September 28, 2001

Attention! Please, note that this is the closed book test. You are not allowed to use graphing calculator. Simple calculator is allowed. Please, show all important steps in you solution but do not make your solution excessively long.

1. Perform the indicated operations. Express your answer as a polynomial in standard form

$$[(x+y)^2+z^2]+[x^2+(y+z)^2]$$

2. Factor completely the polynomial

$$x^6-2x^3+1$$

3. Find the quotient and the remainder. Leave the answer in the form (Quotient)(Divisor)+ Remainder = Dividend

$$3x^4-x^3-8x+4 \qquad \text{divided by} \qquad x^2+3x-2$$

4. Simplify the expression. Express your answer so that only positive exponents occur. Determine the domain of the final expression

$$\left(\frac{x^{-3/2}}{y^{3/4}}\right)^2\left(\frac{y^{1/3}}{x^{2/3}}\right)^3$$

5. Rationalize the denominator of expression.

$$\frac{1+\sqrt{5}}{1-\sqrt{5}}$$

6. A Dodge Intrepid and a Mack truck leave an intersection at the same time. The Intrepid heads east at an average speed of 40 miles per hour, while the truck heads south at an average speed of 30 miles per hour. Find an expression for their distance d apart (in miles) at the end of 2 hours.