

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

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

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

$$x^5 + 1 \quad \text{divided by} \quad x + 1$$

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

$$\left(\frac{x^4}{y^2}\right)^{1/2} \left(\frac{y^{-3}}{x^6}\right)^{1/3}$$

5. Rationalize the denominator of expression.

$$\frac{4\sqrt{3} + 2}{2\sqrt{3} + 1}$$

6. A person wants to install cable TV in his new house. The house is located 400 feet from the road along which the cable is buried. The nearest connection box for the cable is located 300 feet down the road. How much cable does the person need to install cable directly from his house to the connection box.