First Exam   **MATHEMATICS I**   **20–11–2005**

Each problem is worth 5 points.

1. Find the domain of $f(x) = \sqrt{\dfrac{x^2 - 1}{x^2 + 2x}}$

2. Find the equation of the tangent line at x = 1 for $y = 4x^2 - 6x + 3$

3. Find the critical points of $f(x) = 2x^3 + 3x^2 - 12x + 10$

4. Find the absolute maximum and minimum of $y = x^3 - 12x + 5$ in the interval [-3 , 5]