EXAM 2 - MATH 111 Wednesday, October 15, 2003 INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 3 points. It is necessary to show your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

- 1. Find the vertex, the opening direction, the x- and y-intercepts and sketch the graph of $f(x) = \frac{1}{3}x^2 + \frac{2}{3}x 1$.
- 2. Find the equation of the parabola that has vertex V = (2, -3) and goes through the point (-1, -5).
- 3. The demand for a certain type of cosmetic is given by p = 500 x, where p is the price when x units are demanded. Find an expression for the revenue in terms of the number x of units. Then graph the revenue function and find the maximum revenue.
- 4. Create the sign table and make a rough sketch of the graph of the function $f(x) = x^4 4x^2$.
- 5. Find the domain, the horizontal and vertical asymptotes and roughly sketch the graph of the function $g(x) = \frac{-3x+5}{x+2}$.
- 6. Solve the exponential equation $2003^{3x^2-7x} = 1$.