PRACTICE EXAM 2 - MATH 111 DATE: Friday, February 20 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. Graph the function $f(x) = |\frac{1}{2}x 3|$.
- 2. Find the vertex, the opening direction, the x- and the y-intercepts and then make a rough sketch of the graph of the function $f(x) = x^2 - 3x - 4$.
- 3. Find the equation of the parabola that has vertex at V = (-1, 3) and passes through the point (2, -2).
- 4. The manager of the Downtowner[®] bar in the Soo is asking you advice about pricing their beer. He has found that at a price of $p(x) = 10 \frac{1}{100}x$ per mug of Budweiser[®], x mugs will be sold.
 - (a) Find an expression for the total revenue from the sale of x mugs.
 - (b) Find the marginal revenue at 100 mugs.
 - (c) Find the number of mugs that have to be sold to maximize the revenue.
 - (d) Find the maximum revenue.
- 5. Find the intercepts, construct the sign table and then roughly sketch the graph of the function $f(x) = x^2(x+3)(x-2)$.
- 6. Find the domain, the x- and the y-intercepts, construct the sign table, find the horizontal and the vertical asymptotes and then roughly sketch the graph of $g(x) = \frac{7x+1}{2x-3}$.