EXAM 2 - MATH 111

Wednesday, February 26, 2003
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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 $f(x) = \frac{1}{2}x^2 - 3x + \frac{5}{2}$.

2. Find the equation of the parabola that has vertex $V = (-1, 3)$ and goes through the point $(0, 1)$.

3. The supply and the demand of a specific item are modelled by $p = q^2 + q + 5$ and $p = -q^2 + 5q + 35$, respectively, where p denotes price and q number of items. Find the equilibrium price and the equilibrium supply.

4. Find the vertical and the horizontal asymptotes and the x- and y-intercepts of the function $f(x) = \frac{-x+1}{x-4}$ and roughly sketch its graph.

5. Solve the exponential equation $9^{x^2-8} = 3^{-14x}$.

6. Solve the logarithmic equation $\log_3 x - \log_3 (x - 5) = 2$.