EXAM 2 - MATH 111

Wednesday, October 16, 2002
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Read each problem very carefully before starting to solve it. Each question is worth 2 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 $f(x) = -\frac{1}{2}x^2 + x + \frac{3}{2}$.

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

3. The supply and the demand of a specific item are modelled by $p = \frac{1}{2}q^2 + q + \frac{1}{2}$ and $p = -\frac{1}{2}q^2 - q + \frac{7}{2}$, 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 $f(x) = -\frac{2x-3}{5x+6}$ and roughly sketch its graph.

5. Solve the exponential equation $4^{x^2+2} = 64^x$.

6. Solve the logarithmic equation $\log_2 x - \log_2 (x - 1) = 3$.