Math 112-4 Carter Test 1 Fall 2001

General Instructions: Write your name on only the outside of your blue book. Put your test paper inside your blue book as you leave. Solve each of the following problems point values (out of 100 points) are indicated on the problems.

1. Determine the equation and sketch the graph of the line *(8 points each)*:

   (a) that has slope 20 and contains the point $(35, 0)$.

   (b) that has x-intercept $(2400, 0)$ and y-intercept $(0, -3000)$.

   (c) that contains the points $(25, 36)$ and $(12, 29)$.

   (d) that is perpendicular to the line $y = 5/9x - 32$ and passes through the point $(68, 20)$.

2. For each of the following parabolas determine the vertex, axis of symmetry, y-intercept, and sketch the graph. Be sure to indicate a scale on your graph. *(10 points each)*

   (a) $y = 3x^2 + 36x - 29$

   (b) $y = 50000x - 2x^2$

   (c) $y = 2x^2 - 35x + 17$

   (d) $y = x^2 + 24x + 144$

3. *(8 points)* Sketch the graph of the circle $x^2 - 10x + y^2 - 24y = 0$

4. *(10 points)* Solve
$$x^3 - 441x = 0$$

5. *(10 points)* 50,000 feet of fencing are to enclose a rectangular area that is bounded on one side by a straight canal. What is the maximum area that can be enclosed?