Math 1710-05 Spring 2007

Name Test #1 Chapter 3 Score

Show work to earn full credits. Each question is worth 10 points.

1. Let $f(x) = -2x^2 + 16x - 27$. Use the vertex formula to determine the vertex of the graph.

2. Write the function $f(x) = 2x^2 - 8x - 1$ in the form $f(x) = a(x-h)^2 + k$.

3. A farmer has 1000 feet of fence to enclose a rectangular area. What dimensions for the rectangle result in the maximum area enclosed by the fence?

4. Solve the given equation by the method of completing the square.
   $3x^2 - 6x - 2 = 0$

5. Solve the given equation by the method of using the quadratic formula.
$2x^2 + 3x = 12 - 2x$

6. Solve the following:

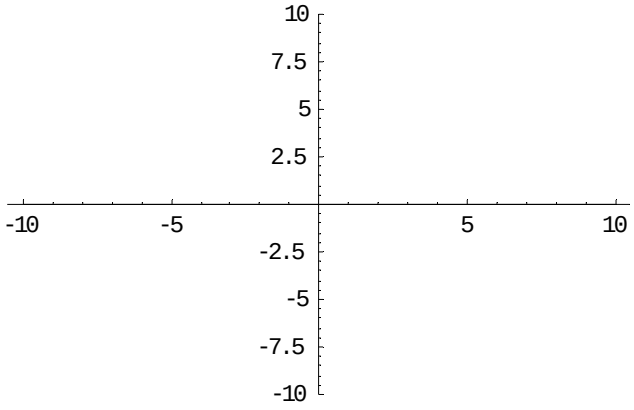
a. $3x^2 + 8x = 0$

$3x^2 + 8x \le 0$

$3x^2 + 8x \ge 0$

7. Consider $f(x) = x^2 - 3x - 4$. Do the following.

a. Use your graphing calculator to graph f(x) in the window [-10, 10]



b. write the solution set for $f(x) = 0$

b. write the solution set for $f(x) < 0$

c. write the solution set for $f(x) \ge 0$

8. let $f(x) = x^2$, explain how you can obtain the following graphs from the graph of f(x).

a. $y = x^2 - 2$

b. $y = (x+2)^2$

c. $y = 5x^2$

d. $y = \frac{-1}{2}x^2$

9. The points $(-12, 6)$, $(0, 8)$, $(8, 24)$ lie on the graph of $y = f(x)$. Determine three points that lie on the graph of

   a. $g(x) = f(x) + 2$

   b. $g(x) = f(x-2)$

10. Solve the quadratic equation

    $4x^2 - 13 = 0$