MAT 512, HOMEWORK 8

One goal for this course is for you to develop your skill in effectively communicating mathematics. With this in mind, try to write up your solutions as clearly as possible. A solution with little or no justification will receive little or no credit.

1. Do Exercise 10.3 in the textbook.

2. Consider the cubic equation $x^3 + ax^2 + bx + c = 0$. Verify that if we substitute $x = y - \frac{b}{3}$, we get a new equation of the form $y^3 + py + q = 0$, where

$$p = b - \frac{a^2}{3} \quad \text{and} \quad q = c - \frac{ab}{3} + \frac{2a^3}{27}.$$

3. Do Exercise 10.6 in the textbook.

4. Do Exercise 10.15 in the textbook.

5. Do Exercise 10.16 in the textbook.

Due on Wednesday, April 3.