

**Math 309 Final Exam, Due May 7, 2008**

You must show all your work in details to earn credits. Write legibly.

(1) Section 5.5, #16, p341. (10 points)

(2) Section 5.6, #6, p352. (15 points, 5 points for each part)

(Hint: Explain why when one of the eigenvalues is 1, the two populations tend toward constant levels.)

(3) Section 6.4, #10, p408. (10 points)

(4) Section 6.6, #4, p425. (10 points)

(5) Read p419 for the terminology, and p421 for The General Linear Model and Example 2. Then work on Section 6.6, #7, p425. (15 points, 5 points for the first part)

(6) Section 7.1, #20, p454. (10 points)

(7) Find the new cartesian coordinates in which the conic section  $9x^2 - 8xy + 3y^2 = 11$  assumes the standard form. (10 points)