

**Math 349 Algebraic Geometry, Spring 2009**  
**Homework 7, due Friday, April 10**

- (1) Chapter 4, §5, problem 8
- (2) Chapter 4, §5, problem 11
- (3)
  - (a) What condition must the homogeneous coordinates of three points  $(x_1, y_1, z_1)$ ,  $(x_2, y_2, z_2)$ , and  $(x_3, y_3, z_3)$  in  $\mathbb{RP}^2$  satisfy if the points are to be collinear? Please be as explicit as possible.
  - (b) Show that any two points  $(x_1, y_1, z_1)$  and  $(x_2, y_2, z_2)$  in  $\mathbb{RP}^2$  determine a unique line (this is Chapter 8, §1, problem 1(a)). Find the equation of the line.
- (4) Chapter 8, §1, problem 8