Homework 5

MATH 435 Geometry
Fall 2007

10/16/2007. Due on 10/23/2007

Instructions: Solve the following problems. Provide as much written detail as possible.

1. Determine the projective Point of intersection of the following two Lines in $\mathbb{RP}^2$:

$$x + 6y + 3z = 0$$
$$2x - 4y - 5z = 0.$$

2. Let $[a : b : c] \in \mathbb{RP}^2$ be a projective point whose representative vector (a, b, c) has *rational* coordinates a, b, c. Show that you can find *integers* a', b', c' so that $[a : b : c] = [a' : b' : c']$.

3. Determine an equation for the projective Lines that pass through each pair of different points : $[1 : 1 : 1], [1 : 0 : 0], [0 : 1 : 0], [0 : 0 : 1]$.