Problem Set 1B (Last revised 9/9/2008)

1.3 Show that any d points in projective space which are not contained in a line are the zero set of a collection of polynomials of degree d-1.

Proof:

1.5 Let Γ be a collection of $d \leq kn$ points in general position in projective n space ($k \geq 2$). Show that Γ is the zero se t of a collection of homogeneous polynomials of degrees at most k.

Proof:

1.6 Let $P_1, \ldots, P_{n+2}$ and $Q_1, \ldots, Q_{n+2}$ be two ordered sets of $n+2$ points in general position in projective n–space. Show that these varieties are projectively equivalent, and the equivalence can be chosen to preserve the order.

Proof: