

Algebraic Geometry: additional exercises (due Oct 17)

1. (Prime Avoidance) Let R be a ring, P_1, \dots, P_r ideals in R , at most two of which are not prime ideals. Let I be an ideal such that $I \not\subseteq P_i$ for $i = 1, \dots, r$.

Show that

$$I \not\subseteq P_1 \cup \dots \cup P_r.$$