Week 9 Wedensday

Make sure you know your neighbors' names, and then discuss:

Recall that, for each $j = 0, \ldots, n$, we have a subset

$$U_j = \mathbb{P}^n \setminus V(x_j) = \{(x_0 : \cdots : x_n) \mid x_j \neq 0\}.$$

Do you remember why U_j can be identified with $\mathbb{A}^n$?

(De)Homogenization

1. Let V be a subset of $\mathbb{P}^n$. Which of the following statements are true?

(A) If V is an algebraic subset of $\mathbb{P}^n$, then $V \cap U_0$ is an algebraic subset of $U_0 \cong \mathbb{A}^n$.

(B) If $V \cap U_0$ is an algebraic subset of $U_0 \cong \mathbb{A}^n$, then V is an algebraic subset of $\mathbb{P}^n$.

(C) Both (A) and (B).

(D) Neither (A) nor (B).