

## Problem session 8

**Problem 1.** Show that the cuspidal curve  $V(x^2z - y^3) \subseteq \mathbb{P}^2$  is birational to  $\mathbb{P}^1$ .

**Problem 2.** Show that if  $S = k[x_0, \dots, x_n]$ , then  $K(\mathbb{P}^n)$  is canonically isomorphic to the field of all elements of degree zero in  $T^{-1}S$ , where  $T \subseteq S$  is the multiplicative system consisting of all nonzero homogeneous polynomials in  $S$ .

**Problem 3.** Describe the set of points where the rational function  $\frac{x_1}{x_0}$  on  $\mathbb{P}^2$  is defined.