

HWK #7, DUE FRIDAY MARCH 7TH

1. Suppose that σ is a cone in $N_{\mathbb{R}} = \mathbb{R}^n$ and that u_1, u_2, \dots, u_m are generators of the semigroup $S_{\sigma} \subset M$. Show that the affine toric variety $U_{\sigma} \subset \mathbb{A}_K^m$ is defined by monomial equations of the form

$$x_1^{a_1} x_2^{a_2} \dots x_m^{a_m} = x_1^{b_1} x_2^{b_2} \dots x_n^{b_n},$$

where

$$\sum a_i u_i = \sum b_i u_i,$$

in S_{σ} .

2. Hartshorne: Chapter II, 5.1-5.6