

Algebraic Geometry 21/2 supplementary worksheet 3

Sheaves

No new critical Hartshorne problems in II.2 (same ones as last week). Note that problem 2.4 is related to a question which came up on class. Also try and work through the proof of Proposition 2.3 in the text!

1. It follows from the fact that $\mathcal{O}_{\text{Spec}(R)}$ is a sheaf that its elements are determined by their values at stalks. This implies, in particular that the map

$$R \rightarrow \prod_P R_P$$

is injective, where P ranges over the prime ideals of R . Verify this directly for a commutative ring R .