

PROBLEM SET 1 (DUE ON SEP 22)

(All Exercises are references to the December 29, 2015 version of *Foundations of Algebraic Geometry* by R. Vakil.)

- Problem 1.** Exercise 2.2.I (pushforward induces maps of stalks)
- Problem 2.** Exercise 2.2.J (stalks of \mathcal{O}_X -modules are $\mathcal{O}_{X,p}$ -modules)
- Problem 3.** Exercise 2.3.C (sheaf Hom)
- Problem 4.** Exercise 2.4.B (support of a section is closed)
- Problem 5.** Exercise 2.4.E (isomorphisms are determined by stalks)
- Problem 6.** Exercise 2.4.H (sheafification is a functor)
- Problem 7.** Exercise 2.4.M (sheafification preserves stalks)
- Problem 8.** Exercise 2.4.N (sheaf monomorphisms and injectivity)