PROBLEM SET 4 (DUE ON OCT 13)

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

Problem 1. Exercise 4.5.E(a) (prime ideals of $((S_\bullet)_f)_0$)

Problem 2. Is $\operatorname{Proj} k[x, y]/(x^2 y)$ affine, where x and y have degree 1?

Problem 3. Exercise 5.1.B (irreducible closed subsets are closures of points)

Problem 4. Exercise 5.1.E (quasicompact schemes have closed points)

Problem 5. Exercise 5.2.I (restriction maps on integral schemes are inclusions)

Problem 6. Exercise 5.3.C (integrality conditions for Noetherian schemes)