

MATH 216 PROBLEM SET 15: RELATIVE SPEC AND PROJ AND PROJECTIVE MORPHISMS; AND INTRODUCTION TO CECH COHOMOLOGY

This set is due at noon on Friday, March 12. Hand it in to my mailbox by 4:15 pm. You can also give it to me in class.

Please *read all of the problems*, and ask me about any statements that you are unsure of, even of the problems you won't try. Hand in at least thirteen solutions, where each "-" problem is worth half a solution, and each "+" problem is worth two solutions. If you are ambitious (and have the time), go for more. Up to two can be from earlier problem sets if you'd like. Try to solve problems on a range of topics. Starred problems and topics are not necessarily harder or less important, but might be less central to where we are going. You are encouraged to talk to each other, and to me, and to anyone else, about the problems. Some of these problems require hints, and I'm happy to give them!

Problems from the March 4 version of the notes (the problems from §18.1 are partially repeats):

2.7E (the FHHF theorem), 18.1.B, 18.1.C, 18.1.D, 18.1.E, 18.1.E, 18.1.F, 18.1.G, 18.1.H, 18.2.A+, 18.2.B, 18.2.C, 18.2.D+, 18.2.E, 18.2.F, 18.2.G, 18.3.A-, 18.3.B-, 18.3.C-, 18.3.D++ (worth three), 19.1.A, 19.1.B, 19.1.C, 19.1.D, 19.2.A, 19.2.B-, 19.2.C, 19.2.D, 19.2.E, 19.2.E, 19.2.F, 19.2.G, 19.3.A, 19.4.A, 19.4.B+ (Riemann-Roch!), 19.4.C, 19.4.D, 19.4.E, 19.4.F, 19.4.G, 19.4.H-, 19.4.I, 19.4.J, 19.4.K, 19.4.L, 19.4.M, 19.4.N, 19.4.O (Bezout!), 19.4.P, 19.4.Q, 19.4.R, 19.4.S, 19.4.T, 19.4.U, 19.4.V. (We won't get far into 19.4 on Friday, March 5, so there is no need to go farther than we have gone.)

The usual additional (mandatory!) question: (a) Which problems did you particularly like, and why? (b) Which ones did you like less? (c) What is the most confusing topic so far? (Thanks to everyone who has answered this question in the past!)

E-mail address: vakil@math.stanford.edu