Math 256B. Homework 7

Due Wednesday 13 March

1. Show directly from the definition (without using cohomology) that if $i\colon X \to Y$ is a closed embedding of noetherian schemes and if $\mathscr{L}$ is an ample line sheaf on Y, then the line sheaf $i^*\mathscr{L}$ is ample on X.

2. Hartshorne II Ex. 7.5. Do not use cohomology for this exercise.

    In part (d), for partial credit you may assume that X is proper over $\operatorname{Spec} A$, or for slightly more partial credit you may instead assume that X is reduced. For parts (d) and (e), "very ample" means very ample over $\operatorname{Spec} A$.

3. Hartshorne III Ex. 5.7(a)–(c). For part (a), use cohomology.