

HW #5, DUE 5-5

1-3. Exercises 5.12-14, Atiyah-Macdonald

4. Give an example of a flat extension of a ring that is not faithfully flat.

5. Let A, B be Noetherian rings with $A \subset B$. Show that B has the going-up property with respect to A if and only if the map $\text{Spec } B \rightarrow \text{Spec } A$ is closed, using the finiteness of the number of minimal primes over any ideal of A or B .