

1. Prove that there is an inclusion preserving bijection between the prime ideals of  $S^{-1}R$  and the prime ideals of  $R$  not meeting  $S$  whenever  $S$  is a multiplicatively closed subset of  $R$ .
2. Prove that there is an inclusion preserving bijection between the prime ideals of  $R/I$  and the prime ideals of  $R$  containing  $I$  whenever  $I$  is an ideal of  $R$ .
3. Do exercise 1.6 from Matsumura.
4. Do exercise 4.4.2 from Weibel.