

Math 128b, problem set 07
Due: Fri Mar 24

Problems to be done, but not turned in: (Ch. 19) 1, 3, **9** (contraction theorem), 11, 13, 15, **19**, 21, 25, 27, 29, 31; (Ch. 20) 3, 5, 7.

Problems to be turned in:

1. (Ch. 19) 6.
2. (Ch. 19) 10 (expansion theorem).
3. (Ch. 19) 22.
4. Let $p(x) = a_n x^n + \cdots + a_1 x + a_0$ be an irreducible element of $F[x]$, and consider the field $E = F[x]/\langle p(x) \rangle$. Find a basis for E as a vector space over F , with proof.
5. (Ch. 20) 2.
6. (Ch. 20) 4.
7. (Ch. 20) 8.