

April 15, 2011

**18.702 Problem Set 7**

due friday, April 22

1. see Chapter 15, Exercise 3.4 b,e,f. (*the irreducible polynomials for some  $\zeta$* )
2. Chapter 15, Exercise 3.7b. ( *$\sqrt[3]{5}$  is not in the field  $\mathbb{Q}(\sqrt[3]{2})$* )
3. Chapter 15, Exercise 3.8. (*a condition for  $\alpha$  and  $\beta$  to be algebraic*)
4. Chapter 15, Exercise 4.2. (*the irreducible polynomial for  $\gamma = \sqrt{3} + \sqrt{5}$* )
5. Chapter 15, Exercise 5.2. (*constructing the regular pentagon*)
6. Chapter 15, Exercise 7.6. (*factoring  $x^a - x$* )
7. Chapter 15, Exercise M5. (*elements of finite order in  $GL_2(\mathbb{Z})$* )

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