

### Math 4108 Homework 9

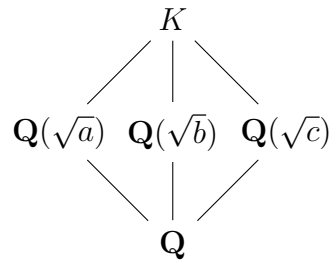
Due at the beginning of class on Tuesday, March 10.

§16.9 #5, 9(a,b), 12, 13

§16.10 #1, 5

**Not from the text:**

1. Let  $K = \mathbf{Q}(\sqrt{4 + \sqrt{7}}, \sqrt{4 - \sqrt{7}})$ . In Example 16.9.2(c), Artin proves that  $G(K/\mathbf{Q}) \cong D_2$ , so the diagram of intermediate fields is



for some  $a, b, c \in \mathbf{Q}$ . Find  $a, b, c$ .

**Note:**

1. Hint for #16.9.5: what is the discriminant of  $f$ ?