EXTRA HINTS FOR EXERCISE SHEET 9

This exercise sheet should be a short and quick one.

Exercise 9.1. There is not too much to say. For part (1), if you are not sure, grab a deck and take a look. For part (2), if you are unsure, try to sketch the shapes.

Exercise 9.2. In this problem, you only need to find the bound which is guaranteed by Minkowski's Theorem (or its compact form). Both sets are compact, so you can apply Corollary 9.11 for a slightly better result. All you need to do is to solve the appropriate inequality relating the two volumes. In part (2), what is the area of the square in terms of r?

Exercise 9.3. Reflexivity and symmetry are almost immediate. For the transitivity and part (2), you may find Exercise 8.2 (3) helpful. Remember the product of ideals satisfies commutativity and associativity.

Exercise 9.4. The proof is completely parallel to that of Proposition 9.12. A few expressions involving real and imaginary parts have to be modified. Pay attention that the coefficient $\frac{1}{2}$ disappears in the case of real quadratic fields.

Date: November 22, 2014.