Math 5320, 3/26/18 Name:

Worksheet 25

Some new terminology for something we've already seen: Given field extensions K/F, K'/F, a (ring) isomorphism $K \to K'$ that sends every element of F to itself is called an F-isomorphism. If $K = K'$, we'd call it an F-automorphism of K.

1. Find all of the $\mathbb{R}$-automorphisms of $\mathbb{C}$. (Hint: $i^2 = -1$)

2. Use the proof of the primitive element theorem to find elements of $\mathbb{Q}(\sqrt{3}, \sqrt{5})$ and $\mathbb{Q}(\sqrt{2}, \sqrt{3}, \sqrt{5})$ that are primitive over $\mathbb{Q}$.

3. Any questions about the upcoming exam? Any thoughts or comments on what could make the last part of the semester as helpful and productive as possible for you?

Check this box if you would like feedback ☐