

Homework 7, Number Systems

Due Tuesday November 25th, 2008

You can reference anything we did in class. However, if you use something we didn't do in class, then you need to justify it.

1. Prove that $\sqrt{3}$ and $\sqrt[3]{2}$ are not rational numbers.
2. Prove that $\sqrt{2} + \sqrt{5}$ is not a rational number. [Hint: Prove that $\sqrt{5}$ is not rational.]
3. Prove that any decreasing sequence of real numbers which is bounded below converges.