

Due: Tuesday, July 25th, 2006

Problem to be turned in: 3.

1. If $p \in \mathbb{Q}, p \neq -2$, then $\frac{2p+2}{p+2} \in \mathbb{Q}$.
2. Show that there does not exist $p \in \mathbb{Q}$ such that $p^2 = 12$.
3. Let $A = \{p \in \mathbb{Q} : p^2 < 2\}$. Show that A is bounded above but does not have a least upper bound.

Extra Credit: Define the set of natural numbers \mathbb{N} (providing an axiomatic construction). Given \mathbb{N} , define (and construct) \mathbb{Q} .