1. Prove if $m, n \in \mathbb{N}$ and $m|n$ then $m \leq n$.
2. Prove 2 is prime.
3. Prove that if $m, n \in \mathbb{N}$ and $(m/n)^2 \in \mathbb{N}$ then $(m/n) \in \mathbb{N}$.
4. Use Question 3 to prove there does not exist $c \in \mathbb{Q}$ such that $c^2 = 2$.