Math 441 - Homework 8 Due Wednesday, Nov. 4

1. Use the Intermediate Value Theorem to prove that every odd degree polynomial has a real root.

2. Suppose that $f : \mathbb{R} \to \mathbb{R}$ is continuous and $f(x) = 0$ for all $x \in \mathbb{Q}$. Prove that $f(x) = 0$ for all $x \in \mathbb{R}$.

3. Prove that $e^x = 3x$ has a solution for some $x \in (0, 1)$.