

MAA 4102, MAA 5104
Homework 5
Due: Friday, February 10, 2017

Solve all problems and be sure to show all work. Answers with no supporting work will be given no credit.

1. (p.48 1.7.11) Prove that the product of a nonzero rational number together with an irrational number is an irrational number.
2. (p. 48, 1.7.12) Prove that every open interval $(a, b) \subset \mathbb{R}$ contains a both a rational and an irrational number.
3. (p.48 1.7.15) Show there exists a real number x such that $x^2 = 2$.