

Discrete Mathematics
Problem Set 2
Basic Proof Techniques

1. Prove that the product of two odd integers is an odd integer.
2. A positive integer a is a multiple of 3 if and only if a^2 is a multiple of 3.
3. Prove that $\sqrt{3}$ is irrational.
4. A positive number a is even if and only if a^3 is even.
5. Prove that $\sqrt[3]{2}$ is irrational.
6. Prove by contradiction that if $17n + 2$ is odd then n is odd.