Math 135: Discrete Mathematics, Fall 2010 Worksheet 2

1. Prove that the sum of two odd integers is even.

2. Prove the following: If $n^3 + 5$ is odd, then n is even.

3. Prove that the sum of an irrational number and a rational number is irrational.

4. Show that 3x + 2 is even if and only if x + 5 is odd.

5. Use induction to show that for all $n \ge 1$,

$$\sum_{i=1}^{n} i^2 = n(n+1)(2n+1)/6$$