Math 135: Discrete Mathematics, Spring 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.

    Hint: Try a proof by contradiction.

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

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

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