

## HOMEWORK 2

**Question 1.** Prove that if  $a$  and  $b$  are odd integers, then  $a + b$  is an even integer.

**Question 2.** Prove that if  $n$  is an odd integer, then  $2n^2 + 3n + 4$  is an odd integer.

**Question 3.** Prove that  $\sqrt{6}$  is irrational.

**Question 4.** Prove that  $\sqrt{2} + \sqrt{3}$  is irrational.