

## Practice problems

1. Prove that for every positive integer  $n$ ,

$$1^2 + 2^2 + \cdots + n^2 = \frac{n(n+1)(2n+1)}{6}.$$

(Hint. This is actually solved in the book. But... try to solve it yourself without aid, and if you do not succeed, then look at the proof in the book.)

2. Prove that for every positive integer  $n$ ,

$$1 + 3 + 5 + \cdots + (2n - 1) = n^2,$$

in other words the sum of the first  $n$  odd integers is  $n^2$ .