

Math 199, Section 41
Introduction to Analysis and Linear Algebra (Autumn 2009)

Homework 2 (due 10/16/2009).

Chapter 1, problems: 1.5.10, read definition 1.6.6, prove 1.6.7, 1.6.9, 1.6.14, 1.6.16, 1.6.17 iv),v).

1. Prove the following formula by induction

$$1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}.$$

Also carefully read Chapter 1 section 6 .

Extra problems to try: 1.5.9, 1.6.8, 1.6.10, 1.6.17.

2. Prove the following formula by induction

$$1^3 + 2^3 + 3^3 + \dots + n^3 = (1 + 2 + 3 + \dots + n)^2.$$