

Math 204- Discrete Mathematics, Spring 2010

Quiz 5, April 12, 2010, 17:40 group

Time: 20 minutes

Write your solutions clearly, provide explanation, etc.

Do not forget to write your name and ID No on top of the page!

Problem 1 (10 pts). Prove that 7 divides $8^n - 1$ for all $n \geq 1$.

Problem 2 (10 pts). Prove the identity

$$1^3 + 2^3 + 3^3 + \cdots + n^3 = (1 + 2 + 3 + \cdots + n)^2, \text{ for all } n \geq 1.$$