

MATH 302 Discrete Mathematics

Assignment 6. Due on Wednesday, October 21, 2009

Read: Sections 2.4, 4.1

Definition: Write down the definitions for the following terms. [5 points]

the sets A and B have the same cardinality
countable

Principle of Mathematical Induction (3 pts)

Problems to be graded: [10 points]

§2.4/ 4, 7, 14, 17.

§4.1/ 5, 10, 11, 15

Also do the following problems:

Let g be a function from the set A to the set B and let f be a function from the set B to the set C . Let h be composition of f and g , i.e., $h = f \circ g$.

1. Prove that if h is one-to-one, then g must be one-to-one.
Give an example to show that f is not necessarily one-to-one.
2. Prove that if h is onto, then f is onto.
Give an example to show that g is not necessarily onto.

Other problems:

§2.4/ 2, 3, 9, 10, 13, 15, 23.

§4.1/ 6, 9, 13, 18, 22,