

# Math 220 - Discrete Mathematics - Fall 2016

## Homework 12b

Due Monday, December 5

### 1. BOOK PROBLEMS

Section 12.4 # 1, 3, 4, 5, 8, 10

### 2. ADDITIONAL PROBLEMS

In the following problems, let  $f : A \rightarrow B$  and  $g : B \rightarrow C$ . Prove or disprove the following statements

- (1) If  $f$  is surjective and  $g$  is injective, then  $g \circ f$  is a bijection.
- (2) If  $f$  is injective and  $g$  is surjective, then  $g \circ f$  is a bijection.
- (3) If  $g \circ f$  is a bijection, then  $g$  is surjective and  $f$  is injective.