

University of South Carolina
Math 574: Discrete Mathematics I
Section 001
Summer I 2012

Homework Set 4

Pre-Class Homework Due: 5-31

Post-Class Homework Due: 6-7

Section 4.1 - Direct Proof and Counterexample I

Before Class

- Read pages 146–150 (through Example 4.1.5).
- Let $P(x)$ be some statement about the set \mathbb{Z} of integers. Roughly speaking, what must one do to prove/disprove the following statements?
 1. prove $\exists x \in \mathbb{Z}$ such that $P(x)$
 2. disprove $\exists x \in \mathbb{Z}$ such that $P(x)$
 3. prove $\forall x \in \mathbb{Z}, P(x)$
 4. disprove $\forall x \in \mathbb{Z}, P(x)$

After Class

- # 5, 12, 27, 32, 46
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Section 4.2 - Direct Proof and Counterexample II

Before Class

- Read pages 163–165 (through Example 4.2.1).
- Complete the following sentence: The set of rational numbers contains all ratios $\frac{p}{q}$ such that...

After Class

- # 14, 17, 25, 28