CSC/MAT-220: Discrete Structures

Homework 4

Due: 10/6/2017

Book Problems

Please do each of the following problems from your book:
17.18, 17.25, 20.7, 21.8, 22.13, 22.14, and 22.15

Other Problems

Problem 1

Use the Well-Ordering Principle to prove the following generalization of Mathematical Induction.

Theorem. *Let $m \in \mathbb{N}$ and let $P(n)$ be a statement that is either true or false for each $n \geq m$. Then $P(n)$ is true for all $n \geq m$, provided that*

i. $P(m)$ is true, and

ii. for each $k \geq m$, if $P(k)$ is true, then $P(k+1)$ is true.

Problem 2

Use the Well-Ordering Principle to prove Theorem 22.9 (Strong Induction).