Homework 10

Math 220 (section 906), Fall 2018

This homework is due on Thursday, November 1. (Turn in your answers to questions 1–2.) You may cite results from class, as appropriate.

0. *(This problem is not to be turned in.)* Read Section 6.1.

   (a) Are the Well-ordering principle and the Principle of mathematical induction, equivalent?

   (b) What does it mean that the Well-ordering principle is an *axiom*?

1. Answer the following questions, and explain your answers.

   (a) Is the Well-ordering principle still true if, instead of subsets of the *nonnegative* integers, we consider subsets of the *positive* integers?

   (b) Is the Well-ordering principle still true if, instead of subsets of the *nonnegative* integers, we consider subsets of the integers?

   (c) Does every non-empty subset of $\mathbb{Z}$ have a *largest* element?

   (d) Does every non-empty subset of $\mathbb{R}$ have a *smallest* element?

2. Section 6.1 #1,2,3