# Problem Set 17

Due: Thursday, April 23rd

**Instructions:** Answer each of the following questions and provide a justification for your answer.

1. Problem 8.1.1 from the book.

2. Let $G$ be a connected graph. Prove that deleting any edge disconnects $G$ if and only if $G$ has no circuits.

3. Determine whether each of the following is a degree sequence for a graph (not a multigraph). If so, draw such a graph (which may not be connected): if not, prove it.

   (a) 1,1,1,1,1,1,6
   (b) 1,3,5,7,7,7,7,7
   (c) 1,2,3,4,4,5
   (d) 2,3,4,5,6
   (e) 3,3,4,5,5,5,6,6,7,7
   (f) 0,0,0,1,1,1,1,2,2,2

4. Problem 8.1.11 from the book.

5. Problem 8.2.5 from the book.