MATH/CSE 1019: Discrete Math for Computer Science
Fall 2011
Assignment 2 (Released October 24 , 2011)
Submission deadline: 6:45 pm, November 7, 2011

Notes:

1. The assignment can be handwritten or typed. It MUST be legible.

2. You must do this assignment individually.

3. Submit this assignment only if you have read and understood the policy on academic honesty on the course web page. If you have questions or concerns, please contact the instructor.

4. Use the dropbox near the CSE main office to submit your assignments, OR submit your assignment online using the submit command from a CSE machine (follow instructions on the class webpage). No late submissions will be accepted. Please do not send files by email.

5. Your answers should be precise and concise. Points may be deducted for long, rambling arguments.

Question 1

[4 points] Show that postage of six cents or more can be achieved by using only 2 cent and 7 cent stamps. Do not use Mathematical Induction even if you know it.

Question 2

[3 points] Prove or disprove:

$$X \cap (Y - Z) = (X \cap Y) - (X \cap Z)$$

Question 3

[4 points] Let g be a function from X to Y and let f be a function from Y to Z. Prove or disprove: if f is onto, then $f \circ g$ is onto.

Question 4

[4 points] Prove that a disjoint union of any finite set and any countably infinite set is countably infinite.