Assignment 4
Due: October 25, 9:30 am

1. (4 points) Let A and B be sets. Show that $A \cup (B - A) = A \cup B$.

2. (4 points) Exercise 2.2:48(b,d) from the textbook.

3. (4 points) Determine whether f is a function from Z to Z, if it is then determine if it is surjective (onto), injective (one-to-one), or both i.e. bijective (one-to-one correspondence).

   a. $f(n) = \pm n$

   b. $f(n) = n^2+1$

   c. $f(n) = \lceil n/2 \rceil$

   d. $f(n) = n^5$

4. (4 points) Let $f:R \rightarrow R$ be such that $f(x) = 4x+2$. Find f^{-1} and $f^{-1}(\{-2,-1,0\})$

5. (4 points) Let $f:A \rightarrow B$. Assume $S \subseteq A$ and $T \subseteq A$. Show $f(S \cap T) \subseteq f(S) \cap f(T)$.