Math 441 - Homework 2 Due Monday, Sept. 14th

1. Prove that a relation is an equivalence relation if and only if it is reflexive and circular. (This is problem 6.28 in the book.)

2. Prove that all integers $n \geq 8$ can be written in the form $3m + 5n$ where m and n are nonnegative integers.

3. Suppose that $f : A \to B$ and $S, T \subseteq A$. Prove or give a counterexample.

   (a) $S \subseteq T \Rightarrow f(S) \subseteq f(T)$.

   (b) $f(S) \subseteq f(T) \Rightarrow S \subseteq T$.