Intermediate Analysis - Homework #2

Due Friday, September 16

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 $n \ge 8$ can be written in the form 3m + 5n where m and n are nonnegative integers. (Hint: If you can prove it for n = 8, 9, 10, then you are almost done).

3. Suppose that f : A → B and S, T ⊆ A. Prove or give a counterexample.
(a) S ⊆ T ⇒ f(S) ⊆ f(T).

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