

CSE 321: Discrete Structures

Assignment #2

Due: Wednesday, April 13

Reading Assignment: Section ?? of Rosen.

Problems:

1. Section 1.3, exercise 8.
2. Section 1.3, exercise 46.
3. Section 1.4, exercise 10 (d,h,i,j).
4. Section 1.4, exercise 28 (a,c,e,f,h,j).
5. Prove or disprove the claim that $\forall x(P(x) \rightarrow Q(x))$ is logically equivalent to $\forall P(x) \rightarrow \forall Q(x)$.
6. Section 1.5, exercise 22 (a).
7. Section 1.5, exercise 28.
8. Prove that if a, b, c are real numbers and $a \neq 0$, there is a unique solution of the equation $ax + b = c$. (Hint: you need to prove both the existence and uniqueness. For the uniqueness, use the approach of contradiction).
9. Which of the following statements are true?
 - (a) $\{x\} \subseteq \{x\}$
 - (b) $\{x\} \in \{x, \{x\}\}$
 - (c) $\{x\} \in \{x\}$
 - (d) $\{x, \{x\}\} \subseteq \mathcal{P}(\{x\})$