Anna Karlin, 426C Sieg

Homework #3

Due at the beginning of class, Wednesday, April 22

Reading: Rosen, Sections 3.2–3.3, 4.1

Problems:

1. Find the Cartesian product $N \times V \times A$, where

$$\begin{aligned} N &= \{Allen, Nick\}, \\ V &= \{likes, hides\}, \\ \text{and } A &= \{Tron, doughnuts, hats\}. \end{aligned}$$

2. Rosen, Section 1.5, problem 14.
3. Rosen, Section 1.6, problem 2.
4. Rosen, Section 1.6, problem 10.
5. On Rosen, page 77, is a proof that the set of real numbers is an uncountable set. Explain why the same proof can not be used to show that the set of rational numbers is an uncountable set. Be very specific as to where the proof breaks down.
6. Rosen, Section 3.1, problem 2, parts a and e.
7. Rosen, Section 3.1, problem 8.
8. Rosen, Section 3.1, problem 20.
9. Rosen, Section 3.1, problem 32.