

CS 3133 Foundations of Computer Science
C term 2019

Homework 1, due Tuesday, January 22

Most homeworks will be worth 100 points; consider the point value in determining how much time you spend on each question. Homeworks must be legible and stapled, with writing on only one side of each piece of paper. Homeworks will be collected at the end of lecture on the due date. This homework assignment and all other handouts are also posted on my home page (<http://web.cs.wpi.edu/~gsarkozy>).

READING: Chapters 1, 2, 3.

1. Exercise 23 on page 60. (15 points)
2. Exercise 26 on page 60. (15 points)
3. Exercise 39.d on page 61. (15 points)
4. Let Σ be an alphabet, and u, v, w regular expressions over Σ . Are the following regular expression identities true?
 - (a) $u \cup (vw) = (u \cup v)(u \cup w)$.
 - (b) $u^*(v \cup w) = u^*v \cup u^*w$.

If yes, explain why, if no, give a counterexample. (20 points)

5. Exercise 44 on page 39. (15 points)
6. Exercise 1 on page 97. (20 points)