

Please remember that consulting course bibles or other outside or online materials for help with this assignment is not permitted.

1. Sipser, problems 1.5 d, g, h.
2. Give state diagrams of DFAs recognizing the following languages over $\Sigma = (a, b)$
 - a. $\{w \mid w \text{ contains at least three } bs\}$.
 - b. $\{w \mid w \text{ contains an even number of } as, \text{ or contains exactly two } bs\}$.
 - c. $\{w \mid w \text{ contains no more than three } as\}$.
 - d. $\{w \mid w \text{ has length at least 3 and its third symbol is an } a\}$.
3. Sipser 1.13. Note that strings in this language may contain two sequential 1s, since there is an even number (i.e., 0) of symbols between them. Otherwise, each pair of 1s must be separated by an even number of 0s.
4. Sipser 1.16a and b.