

Theory of Computation, CSCI 438 spring 2022
Regular expressions, pg. 63-66, Jan. 26

Exercise 1.18 (this refers to 1.6) b, f, g, k, m, & n and 1.20 a, c & f, 1.31 (page 88)

1.18 Create regular expressions for the following. The alphabet is $\{0, 1\}$.

b. $\{w \mid w \text{ contains at least three } 1\text{s}\}$

f. $\{w \mid w \text{ doesn't contain the substring } 110\}$

g. $\{w \mid \text{the length of } w \text{ is at most } 5\}$

k. $\{\epsilon, 0\}$

m. The empty set

n. All strings except the empty string

1.20 Give two strings which are members and two string that are not members. The alphabet is $\{a, b\}$.

a. a^*b^*

b. $a^* \cup b^*$

f. $aba \cup bab$

1.31 For any string $w=w_1w_2\dots w_n$, the reverse of w , written w^R , is the string w in reverse order, $w_n\dots w_2w_1$. For any language A , let $A^R=\{w^R \mid w \in A\}$. Show that if A is regular, so is A^R .