

## 13.4 Language Recognition

### 13.4 pg. 887 # 3

Determine whether 0101 belongs to each of these regular sets.

- a)  $01^*0^*$
- b)  $0(11)^*(01)^*$
- c)  $0(10)^*1^*$
- d)  $0^*10(0 \cup 1)$
- e)  $(10)^*(11)^*$

### 13.4 pg. 887 # 5

Express each of these sets using a regular expression.

- a) the set consisting of the strings 0, 11, and 010
- b) the set of strings of three 0s followed by two or more 0s
- c) the set of strings of odd length
- d) the set of strings that contain exactly one 1
- e) the set of strings ending in 1 and not containing 000

### 13.4 pg. 887 # 7

Express each of these sets using a regular expression.

- a) the set of strings of one or more 0s followed by a 1
- b) the set of strings of two or more symbols followed by three or more 0s
- c) the set of strings with either no 1 preceding a 0 or no 0 preceding a 1

### 13.4 pg. 887 # 17

Construct a regular grammar  $G = (V, T, S, P)$  that generates the language recognized by the given finite-state machine.

