

## Exercise 2.1 (c,e,f,h) – regular expressions

c) All strings of digits that contain no leading zeroes

nonzero = 1 | 2 | ... | 9

digit = 0 | nonzero

answer = 0 | nonzero digit\*

e) All strings of digits such that all the 2's occur before all the 9's

digitnot9 = 0 | 1 | ... | 8

digitnot2 = 0 | 1 | 3 | 4 | ... | 9

answer = digitnot9\* digitnot2\*

f) All strings of a's and b's that contain no three consecutive b's

$$(a \mid ba \mid bba)^* (\epsilon \mid b \mid bb)$$

h) All strings of a's and b's with an even number of a's and an even number of b's

$$(aa \mid bb)^* ((ab \mid ba)(aa \mid bb)^* (ab \mid ba)(aa \mid bb)^*)^*$$

