Q2.

base case:

(mylength []) - (mylength (filterPQ [])) = (countIf [])

LHS = (1 + 0) – (mylength (filterPQ [])) L1

= 1 + mylength ([]) F1

= 1 L1

RHS = 0 C1

Inductive Assumption :

(mylength t) - (mylength (filterPQ t)) = (countIf t)

Inductive Case:

(mylength (h:t)) - (mylength (filterPQ (h:t))) = (countIf (h:t))

Case 1: (h == “P”|| h == “Q”)

LHS = 1 + (mylength t – mylength (filterPQ(h:t))) L2

= 1 + (mylength t – mylength (filterPQ t)) F2C

RHS = 1 + countIf t C2A, C2B

Case 2: ( ord x < 80 || ord x > 81)

LHS = h : (filterPQ t) B1, A1, F2A, F2B

RHS = countIf t C2C