$$(myLength x) - (myLength (filterPQ x)) = (countIf x)$$

Base case: Base case happens when x is empty.

Left hand side	Right hand side
(myLength []) - myLength (filterPQ [])	countIf []
= (myLength [] - myLength ([]))By [F1]	= 0 by [C1]
= 0 - 0 By [L1]	
=0	

Base case is proof since the left-hand side = the right-hand side.

Inductive assumption: $(myLength\ t) - (myLength(FilterPQ\ t)) = (countIf\ t)$ [AI]

Inductive step:

Left hand side	Right hand side	
(myLength (h:t) - myLength(filterPQ (h:t)))	count If(h:t)	
= (1 + myLength t) - myLength(filterPQ (h:t)) by [L2]		
Case 1: h is "P"		
= (1 + myLength t) - myLength(filterPQ t) by [F2C]		
= (1 + myLength t) - (myLength (filterPQ t)) by [L2]	-1 (countle t) has [C2.4]	
= 1 + (myLength t) - (myLength(filterPQ t))	= 1 + (countIf t) by [C2A]	
By [AI], the left-hand side = the right-hand side (*)		
Case 2: h is "Q"		
= (1 + myLength t) - myLength(filterPQ t) by [F2C]		
= (1 + myLength t) - (myLength (filterPQ t)) by [L2]		
= 1 + (myLength t) - (myLength(filterPQ t))	= 1 + (count If t) by [C2B]	
	(ste ste)	
By [AI], the left-hand side = the right-hand side (**)		
Case 3: h is before "P"		
= (1 + myLength t) - myLength(h: (filterPQ t)) by [B1], [F2A]		
= (1 + myLength t) - (1 + myLength (filterPQ t)) by [L2]	= (countIf t) by [C2C]	
= (myLength t) - (myLength(filterPQ t))		
By [AI], the left-hand side = the right-hand side (***)		
Case 4: h is after "Q"		
= (1 + myLength(t) - myLength(h: (filterPQ t))) by [A1], [F2B]		
= (1 + myLength t) - (1 + myLength (filterPQ t)) by [L2]		
= (myLength t) - (myLength(filterPQ t))	(, , , , , , , , , , , , , , , , , , ,	
, ,	= (countIf t) by [C2C]	
By [AI], the left-hand side = the right-hand side (****)		

By (*), (**), (***) and (****), we claim that:
$$(myLength\ x) - \big(myLength\ (filterPQ\ x)\big) = (countlf\ x)$$