

Proving Partial Correctness of While Loops

(P D

while (B) {

 C

}

(Q D

Prove that the following triple is satisfied under partial correctness.

$\{ (x \geq 0) \} D$

$y = 1 ;$

$z = 0 ;$

$\text{while } (z \neq x) \{$

$z = z + 1 ;$

$y = y * z ;$

$\}$

$\{ (y = x!) \} D$

Prove that the following triple is satisfied under partial correctness.

$\{ (x \geq 0) \}$

$y = 1;$

$z = 0;$

while $(z < x) \{$

$z = z + 1;$

$y = y * z;$

$\}$

$\{ (y = x!) \}$