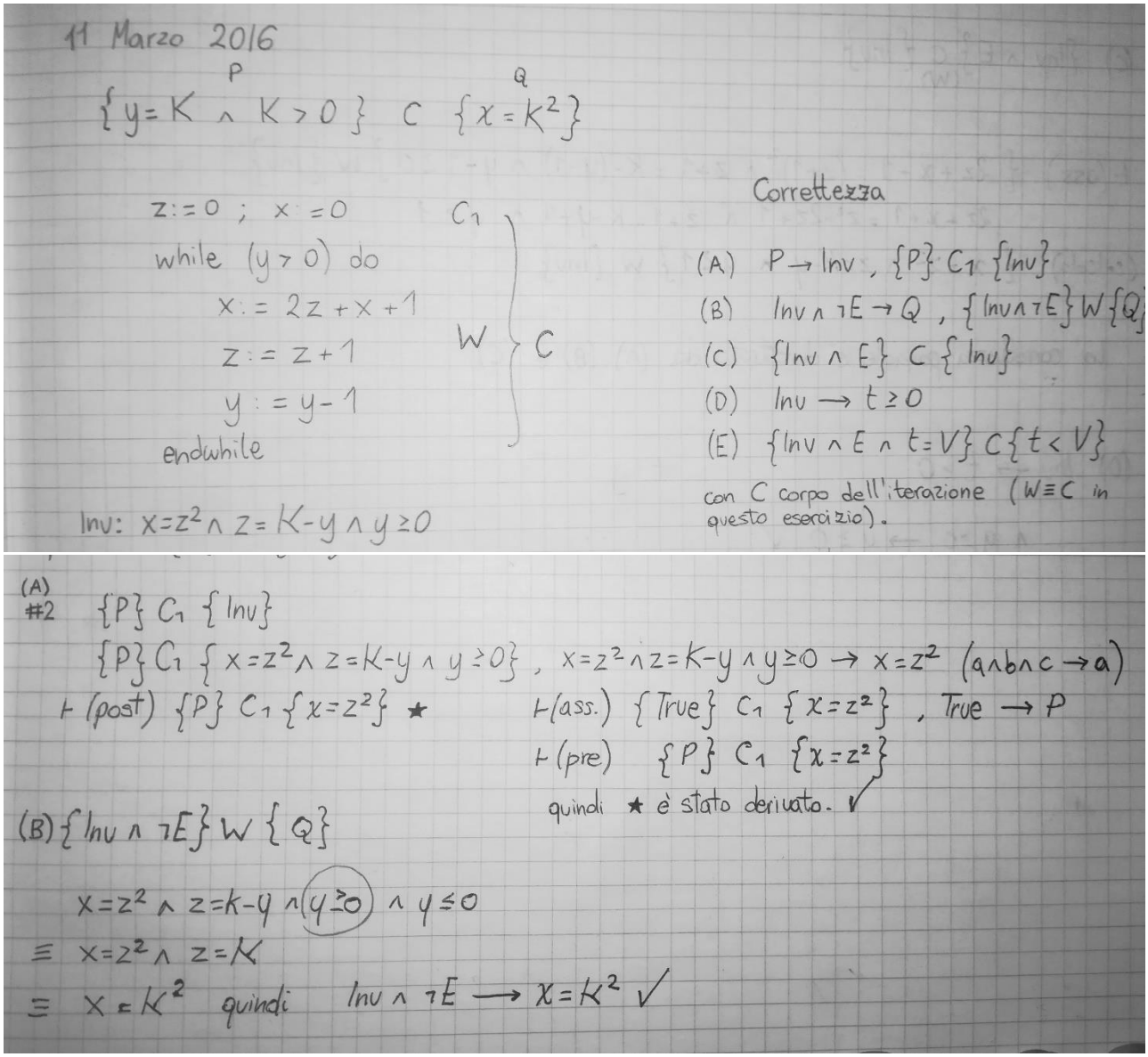
Hoare triples exercises



(C) $\{Inv \wedge E\} \underset{(W)}{C} \{Inv\}$

$\vdash$ (ass.) $\{ 2z+x+1 = (z+1)^2 \wedge z+1 = K-(y-1) \wedge y-1 \geq 0 \}\ W\ \{Inv\}$

$2z+x+1 = z^2+2z+1 \wedge z+1 = K-y+1 \wedge y \geq 1$

(calcolo) $\{ x = z^2 \wedge z = K-y \wedge y \geq 1 \}\ W\ \{Inv\}$

La correttezza parziale è dimostrata da (A), (B) e (C).

(D) $Inv \rightarrow t \geq 0$ $\quad t : y$

$\ldots \wedge y \geq 0 \rightarrow y \geq 0$ ✓

(E) $\{Inv \wedge E \wedge y = V\} \underset{(W)}{C} \{y < V\}$

$\vdash$ (ass.) $\{ y-1 < V \}\ W\ \{y < V\}$

$x = z^2 \wedge z = K-y \wedge y \geq 0 \wedge y > 0 \wedge y = V \equiv Inv \wedge E \wedge y = V$

$\rightarrow y = V \wedge y > 0$

$\rightarrow y-1 < V$

$\vdash$ (pre) $\{Inv \wedge E \wedge y = V\}\ W\ \{t < V\}$

La correttezza totale è dimostrata dalla correttezza parziale e (D), (E).