1. naloga: pokaži delno pravilnost

$\{y > 3\}$

$x := 2 \cdot y;$

$\{y > 3, x = 2y\}$ CSP in EQ

$x := x - y$

$\{y > 3, x = y\}$ AS

$\{x > 3\}$ $\Rightarrow$ za celo št.

$\{x \geq 4\}$

Za popolno pravilnost bi namesto CSP uporabili CST.

2. naloga: pokaži delno pravilnost

$\{true\}$

if $x<y$ then

$\{x<y\}$

$z := x$

$\{x<y,\ z=x\} \Rightarrow \{z=\min(x,y)\}$ CSP, EQ [CST]

else:

$\{x \geq y\}$

$z := y$

$\{x \geq y,\ z=y\} \Rightarrow \{z=\min(x,y)\}$ CSP, EQ [CST]

$\{z=\min(x,y)\}$ CD

3. naloga: pokaži popolno pravilnost

$[a=0 \wedge y=0 \wedge a \leq b]$ $\quad I \Leftrightarrow y = a \cdot x \wedge 0 \leq a \leq b$

[I]

while $a<b$ do ($\quad e \sim b-a$

$[y=a \cdot x \wedge 0 \leq a \leq b \wedge a<b \wedge b-a=v]$

$a := a+1;$

$[y=(a-1) \cdot x \wedge 0 \leq a-1 \leq b \wedge a-1<b \wedge b-a+1=v]$ AS

$y := y+x$)

$[y-x=(a-1) \cdot x \wedge 0 \leq a-1 \leq b \wedge a-1<b \wedge b-a+1=v]$ AS

$[y=ax \wedge 0 \leq a \leq b \wedge b-a=v-1<v]$

done

$[y=a \cdot x \wedge 0 \leq a \leq b \wedge b \leq a]$ WHT

$[y=x \cdot b]$

4. naloga: pokaži popolno pravilnost

$[x \geq 0]$

$y := 0;\ z := x$

$[x \geq 0, y = 0, z = x]$ EQ, EQ

$[\Leftrightarrow y^2 \leq x \leq z^2 \wedge 0 \leq y \leq z \leq x]$

$[]$

$e = z - y$

while $z - y > 1$ do

$[y^2 \leq x \leq z^2 \wedge 0 \leq y \leq z \leq x \wedge z - y > 1 \wedge z - y = v]$

$s := (y + z)/2;$

$[y^2 \leq x \leq z^2 \wedge 0 \leq y \leq z \leq x \wedge z - y > 1 \wedge z - y = v \wedge s = (y+z)/2]$ EQ

$2s - z = y$

$2s - y = z$

if $s \cdot s < x$ then

$[-11-, s^2 < x]$

$y := s$

$[(2y - z)^2 \leq x < z^2 \wedge 0 \leq 2y - z \leq z \wedge z - 2y + z > 1 \wedge z - 2y + z = v \wedge y^2 < x]$ AS

else $[-11-, s^2 \geq x]$ $z := s$

$[y^2 < x \leq (2z - y)^2 \wedge 0 < y \leq 2z - y \leq x \wedge 2z - y - y > 1 \wedge 2z - y - y = v \wedge z^2 \geq x]$ AS

$[y^2 \leq x \leq z^2 \wedge 0 \leq y \leq z \leq x \wedge z - y < v]$ CD (sledi iz končnih pogojev obeh vej stavka if)

$[y^2 \leq x \leq z^2 \wedge 0 \leq y \leq z \leq x \wedge z - y \leq 1]$ WHT $\Longrightarrow$ $[y^2 \leq x \leq (y+M)^2]$