Hannah Faus

$x = 137641$

$u=0 \quad v=0 \quad bot=0 \quad top=0 \quad side=0$

round 1

$bot = (0-0) \wedge (13)$

$= 013$

$side = 2 \times 0$

$= 0$

$v = \quad v \times (0 \wedge v) \leq 013$

$3 \times (03) \leq 013$ ✓

$v = 03$

$u = 03 \times (0 \wedge 03)$

$= 9$

$top = 0 \wedge 03$

$= 003$

round 2

$bot = (013 - 9) \wedge (76)$

$= 476$

$side = 2 \times 003$

$= 006$

$v = \quad v \times (006 \wedge v) \leq 476$

$v = 7 \qquad 469 \leq 476$ ✓

$u = 7 \times (006 \wedge 7)$

$= 7 \times 67$

$= 469$

$top = 003 \wedge 7$

$= 0037$

round 3

$bot = (476 - 469) \wedge (41)$

$= 741$

$side = 2 \times 0037$

$= 74$

$v = \quad v \times (74 \wedge v) \leq 741$

$v = 1 \qquad 741 \leq 741$ ✓

$u = 1 \times (741)$

$= 741$

$top = 37 \wedge 1$

$= 371$

return top;

371

mystery procedure is the square root function

$\sqrt{137641} = 371$ ✓

&

$371^2 = 137641$ ✓