

TechNote #4: Calculating a Square Root in Quickstep™

Sample code to calculate the square root of a number

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Below is an example of code written to calculate the square root of a number. To get the square root of a number, enter it into register 11. The result is multiplied by 10 and stored in register 12.

For example if you enter an 81 in register 11, the result in register 12 would be 90 (9 times 10).

[1] TopLevel

;;; Enter value into reg#11. Reg#12 will contain the result X10.

<NO CHANGE IN DIGITAL OUTPUTS>

```
store 0 to reg_13
store reg_11 / 100 to reg_11
store reg_11 to reg_17
if reg_11 <> reg_17 goto Next
```

[2] sq

<NO CHANGE IN DIGITAL OUTPUTS>

```
store reg_11 * 100 to reg_11
store reg_11 / 200 to reg_13
store reg_13 + 2 to reg_13
goto Next
```

[3] cycle

<NO CHANGE IN DIGITAL OUTPUTS>

```
store reg_11 / reg_13 to reg_12
store reg_12 + reg_13 to reg_12
store reg_12 / 2 to reg_12
goto Next
```

[4] check

<NO CHANGE IN DIGITAL OUTPUTS>

```
store reg_12 - reg_13 to reg_20
if reg_20 < 0 goto FlipSign
if reg_20 <= 1 goto TopLevel
store reg_12 to reg_13
```

goto cycle

[5] FlipSign

<NO CHANGE IN DIGITAL OUTPUTS>

store 0 - reg_20 to reg_20
if reg_20 <= 1 goto TopLevel
store reg_12 to reg_13
goto cycle