Hero's Square Roots

Suppose you want the square root of N. You guess an initial value, Xo and calculate a better value, X1

X1 = (Xo + N/Xo)/2

Then you use X1 as your next guess and calculate a better guess, X2:

X2 = (X1 + N/X1)/2

And so on X3=, X4….. etc.

For an example we want to know the square root of 10. We know that 3 squared is 9 and 4 squared is 16 so may be for Xo we could try 3.5. However what about any other number? So I suggest we always start with the number 1. That is we guess the square root of any number is 1. Not very clever but it just means a few more guesses before we get the answer we want. Possibly an extra 1/100 of a second computing time – so who cares then!

So the first guess gives us X1 = (1+10/1)/2 = 11/2 = 5.5

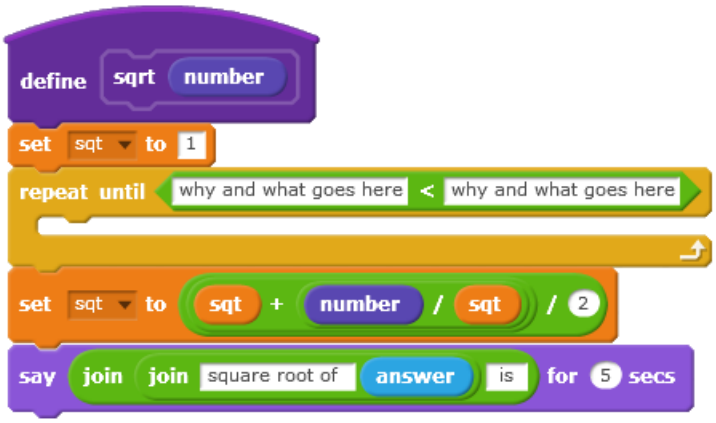
Then X2 = (5.5+10/5.5)/2 = 3.659091

etc.

Try your own ideas before looking at the next crib……


Sprite1


when clicked
change error by 1e-11
set sqt to 0
delete all of tries
ask Square root off and wait
set rootis to 0
if answer = why and what goes here then
if answer < why and what goes here then
sqrt answer


define sqrt number
set sqt to 1
repeat until why and what goes here < why and what goes here
set sqt to sqt + number / sqt / 2
say join join square root of answer is for 5 secs