Pythagoras

One of the secrets of Pythagoras is the possibility of determining the square root of any number graphically, using a ruler and the compasses and the right angle theorems of Pythagoras . Here is the algorithm:

1. Select a number “N” for which you want the square root
2. Subtract 1
3. Divide by 2
4. Plot the result, (N-1)/2, units on a horizontal line, call that the line A.
5. Add 1 unit to the left end of the horizontal line “A” and using the compasses pinned at the right end of the of the line “A”, scribe an arc with a radius of A+1 units upward from the horizontal line.
6. From the end of line A, (not A+1) construct a vertical line that intersects the arc.
7. The vertical line length is exactly the square root of N.

Try it.