

Find the square root for Y

Stage One:

1. Determine the largest squared whole number less than Y.
2. Use the square root of the largest squared whole number to be the first part of the answer.
Place this number to the left of the decimal place within the answer.
3. Find the difference of Y and the squared whole number.

Stage Two:

1. Multiply the difference by 100, designated as A.
2. Multiply the answer so far by 2 (without the decimal point), designated as B.
3. Multiply B by 10.
4. Give C one of the following values: 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9
5. Find D where $(B+C)*C$ equals the greatest value less than A.
6. C becomes the next digit right of the decimal in the answer.
7. Find the difference between of A and D.
8. Repeat Stage Two until the answer reaches the desired number of digits after the decimal.

Example:

$$\sqrt{3}$$

Stage One

1.

1 is the largest squared whole number less than 3.

2.

$$\sqrt{3} \frac{1}{.}$$

3.

$$1*1 = 1 \quad \begin{array}{r} \frac{1}{\sqrt{3}} \\ -1 \\ \hline 2 \end{array}$$

Stage Two

1.

$$1*1 = 1 \quad \begin{array}{r} \frac{1}{\sqrt{3}.} \\ -1 \\ \hline 200 \end{array}$$

2.

$$1*1 = 1 \quad \begin{array}{r} \frac{1}{\sqrt{3}.} \\ -1 \\ \hline 200 \end{array}$$
$$1*2 = 2$$

3.

$$1*1 = 1 \quad \begin{array}{r} \frac{1}{\sqrt{3}.} \\ -1 \\ \hline 200 \end{array}$$

$$1*2 = 2$$

$$2*10 = 20$$

4. and 5.

$$1*1 = 1$$

$$\begin{array}{r} \frac{1.}{\sqrt{3.}} \\ -1 \\ \hline 200 \end{array}$$

$$1*2 = 2$$

$$2*10 = 20$$

$$(20+7)*7 = 189$$

$$[(20+8)*8 = 224 \text{ which is greater than } 200]$$

6.

$$1*1 = 1$$

$$\begin{array}{r} \frac{1.7}{\sqrt{3.}} \\ -1 \\ \hline 200 \end{array}$$

$$1*2 = 2$$

$$2*10 = 20$$

$$(20+7)*7 = 189$$

7.

$$\begin{array}{r} \frac{1.7}{\sqrt{3.}} \\ -1 \\ \hline 200 \\ -189 \\ \hline 11 \end{array}$$

8.

$$\begin{array}{r} \frac{1.73205}{\sqrt{3.}} \\ -1 \\ \hline 200 \\ -189 \\ \hline 1100 \\ -1029 \\ \hline 7100 \\ -6924 \\ \hline 17600 \\ -0 \\ \hline 1760000 \\ -1732025 \\ \hline \text{etc...etc} \end{array}$$

$$17*2=34$$

$$34*10=340$$

$$(340+3)*3=1029$$

$$173*2=346$$

$$3462*2=6924$$

$$1732*2=3464$$

$$3464*0=0$$

$$17320*2=34640$$

$$346405*5=1732025$$