

Approximating Square Roots

Method 1: Estimate by finding the two closest squares.

Steps:

- 1) Find the perfect square below the radicand.
- 2) Find the perfect square above the radicand.
- 3) Name the two integer values that the radicand is between.

Method 2: Using a calculator. Use the square root function of your calculator.

- 1) The value of $-\sqrt{17}$ is between which two consecutive integers?

$$\begin{array}{ccc} = -5 & & = -4 \\ -\sqrt{25} & -\sqrt{17} & -\sqrt{16} \end{array}$$

$-\sqrt{17}$ is between -4 and -5 .

- 2) A square table has an area of 60 square feet. Between which two consecutive integers is the length of the table?

$$\begin{array}{ccc} & s & \\ & \square & \\ s & A = 60 & \end{array} \quad \begin{array}{ccc} = 7 & & = 8 \\ \sqrt{49} & \sqrt{60} & \sqrt{64} \end{array}$$

The length of the table is between 7 and 8 feet long.

3) The value of 3 times the square root of 8 is between which two consecutive integers?

$$3\sqrt{8} \quad \begin{matrix} =2 \\ \sqrt{4} \end{matrix} \quad \begin{matrix} =3 \\ \sqrt{9} \end{matrix}$$

3 • almost 3
is almost 9

$3\sqrt{8}$ is between 8 and 9

4) Which list of values is ordered from least to greatest?

$$\sqrt{13} \approx 3.6 \quad \begin{matrix} =3 \\ \sqrt{9} \end{matrix} \quad \begin{matrix} =4 \\ \sqrt{16} \end{matrix}$$

* Change all numbers to decimals and compare

2.9
4.5
13

2.9, $\sqrt{13}$, 4.5, 13