

Quick Question:

If a whole number has an approximate square root of 5.66, is the whole number closer to 25 or 26?

Estimating the Square Root of a Decimal

Whether numbers are whole numbers or decimals, we treat them the same way and can estimate using the same techniques.

Ex. Estimate $\sqrt{0.40}$

What are the closest perfect squares? 0.36 and 0.49

It is closer to 0.36

Their square roots are 0.6 and 0.7

I estimate $\sqrt{0.40}$ to be 0.64

Actual: 0.632

Identifying a Number from it's Square Root

We can work backwards to determine a number (decimal, fraction, etc) that has a square root between two numbers.

Ex. Identify a decimal that has a square root between 19 and 20.

The number with a square root of 19 is: $19^2 = \underline{361}$

The number with a square root of 20 is: 400

So any number between 361 and 400 are answers.

Choose one: 365.7 Check it: 19.12

Ex2. Identify a decimal with a square root between 24 and 25

$$24^2 = 576$$

$$25^2 = 625$$

$$\sqrt{592.5} = 24.34$$

Ex3. Identify a decimal with a square root between 8 and 9

$$8^2 = 64$$

$$9^2 = 81$$

$$\sqrt{73.3} = 8.56$$