

## Estimating Square Roots

All numbers are not perfect squares, but they can still be square rooted!!

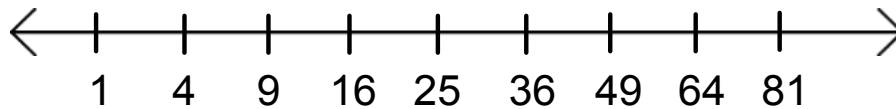
$$\sqrt{15}$$

$$\sqrt{17}$$

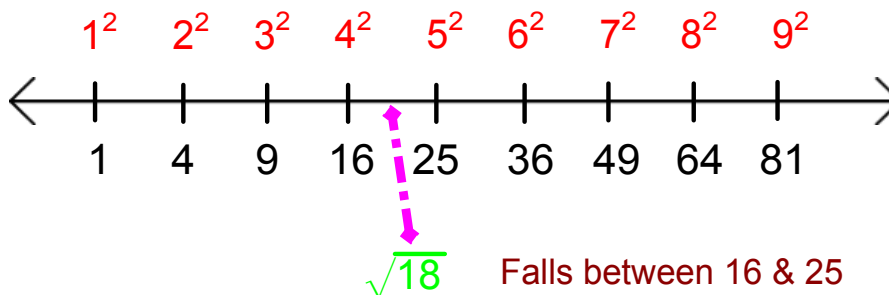
$$\sqrt{12}$$

We can estimate to find the square roots of non-perfect square numbers.

Think of your list of perfect squares...



$$\sqrt{18}$$



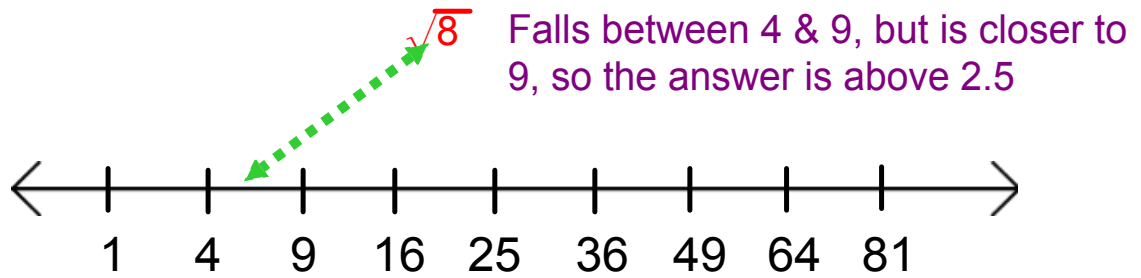
Always go to the closer of the two perfect squares - and choose 3 decimal numbers and square them

ie:  $4.1^2 = 4.1 \times 4.1 = 16.8$   
 $4.2^2 = 4.2 \times 4.2 = 17.64$   
 $4.3^2 = 4.3 \times 4.3 = 18.49$

Choose the closest number to 18, without going over 18

$$\therefore \sqrt{18} \cong 4.2$$

$\cong$  means approximately equal to



$$2.6^2 = 2.6 \times 2.6 = 6.76$$

$$2.7^2 = 2.7 \times 2.7 = 7.29$$

$$2.8^2 = 2.8 \times 2.8 = 7.84$$

$$2.9^2 = 2.9 \times 2.9 = 8.41$$

$$\therefore \sqrt{8} \cong 2.8$$

Try these...

1.  $\sqrt{13}$

2.  $\sqrt{24}$

3.  $\sqrt{27}$

4.  $\sqrt{83}$

5.  $\sqrt{42}$

6.  $\sqrt{91}$

Book Work...Pages 25 - 27

#'s 4, 5, 7, 8, 9, 10, 13, 14, 15, 16, 17, 22, 23

Work Sheets 11 & 12

