

Name: Key  
Date: \_\_\_\_\_

Mr. Johnson  
Math 8

### Lesson 1.4 – Estimating Square Roots

Think it out....

List all of the square roots that you know (or think you know):

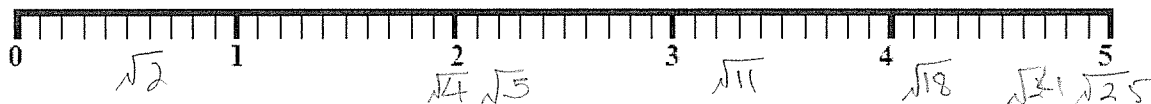
will likely put:  $\sqrt{4}$ ,  $\sqrt{9}$ ,  $\sqrt{16}$ ,  $\sqrt{25}$  . . . . .

You did not list the  $\sqrt{5}$  or  $\sqrt{8}$ . Why? *because they are not perfect squares. There is no whole number that you can multiply by itself to = 5 or 8.*

Investigate:

Work with a partner. Use the number line below to place each square root on the number line to show its approximate value:

$\sqrt{2}$ ,  $\sqrt{4}$ ,  $\sqrt{5}$ ,  $\sqrt{11}$ ,  $\sqrt{18}$ ,  $\sqrt{24}$ ,  $\sqrt{25}$



Investigate Question:

1. What strategies did you use to estimate the square roots?

My way: I used the squares I know to estimate

2. Can you think of any other strategies that might work?

-use a calculator  
-use a square root table

Notes:



How could we label this number line to assist us in estimating square roots from 1 to 100?

Examples:

1. Which whole number is  $\sqrt{77}$  closer too?

Method #1:

we know that 77 is between 64 and 81

we know that  $\sqrt{64} = 8$

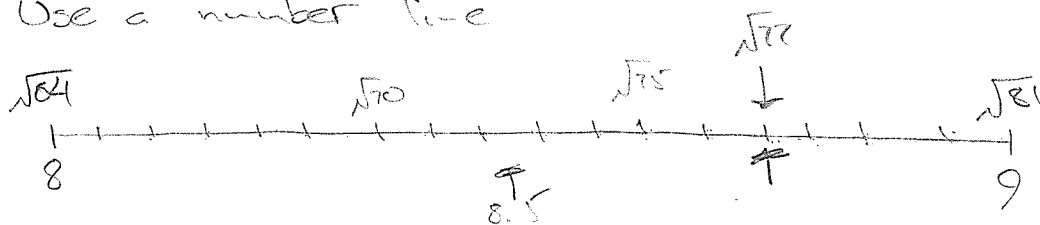
$$\sqrt{81} = 9$$

$\therefore \sqrt{77}$  is between 8 and 9

since  $\sqrt{77}$  is close to  $\sqrt{81}$  we expect the answer to be closer to 9.

Method #2:

Use a number line



$\therefore$  between 8.5 and 9

Hint: A great way to check your answers is to use a calculator. BUT, during tests and quizzes you will not be able to use your calculator. So you must choose a method that works for you and be sure to **SHOW YOUR WORK!**

Assignment:

Pg. 24-27

#'s 1-11, 14-16, 20