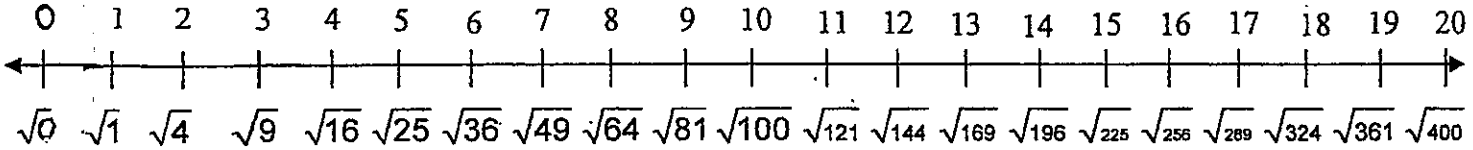
Name_____ Date_____

Mrs. Roumbos 8R Period_____

Estimating Square Roots

Day 1



I. **Definitions:**

1) Perfect Squares-

2) Square Roots-

3) Integers-

II. The square root of a number is between two consecutive integers. (The numbers may not always be perfect squares, they may be irrational ex: $\sqrt{7}$, $\sqrt{23}$)

III. **Estimating the square root of a non-perfect square**

A)Between which 2 whole numbers

Steps: 1) List the Perfect Squares
2) Find the two consecutive perfect squares that the irrational number is in between.
3) Set up an inequality.
4) Find the square roots of those perfect squares

B) Ex's: Find which two whole numbers the root is in between.

1) $\sqrt{55}$	2) $\sqrt{43}$	3) $\sqrt{87}$	4) $\sqrt{190}$

C)To the nearest whole number

Steps: 1) Follow steps 1-3 from above
2) Find the difference from the irrational root to the smaller square root and the irrational root to the larger root
3) The smaller difference will show which perfect square the irrational square root is closer to and therefore the closer square root (whole number) it is closer to.

D) Ex's: Find which whole number the root is closer to.

1) $\sqrt{18}$

2) $\sqrt{139}$

3) $\sqrt{75}$

4) $\sqrt{45}$

E) Word Problems

6) While searching for a lost hiker, a helicopter covers a square area of 150 miles.

What is the approximate length of each side of the square area? Round to the nearest mile.

7) A tent was advertised in the newspaper as having an enclosed square area of 98ft. What is the approximate length of the sides of the square area? Round to the nearest foot.