Do Now

1. $12^2 =$ 2. $7 \times -9 =$ 3. $\sqrt{196} =$ 4. $3^2 =$

5. Is the $\sqrt{49}$ rational or irrational?

Perfect Squares and Square Roots

I CAN:

- Take the square root of rational perfect squares

- I can solve an equation of the form $x^2 = p$, where p is a perfect square for both solutions

- solve for the side length of a square when given a certatin area

8.EE.2

Review

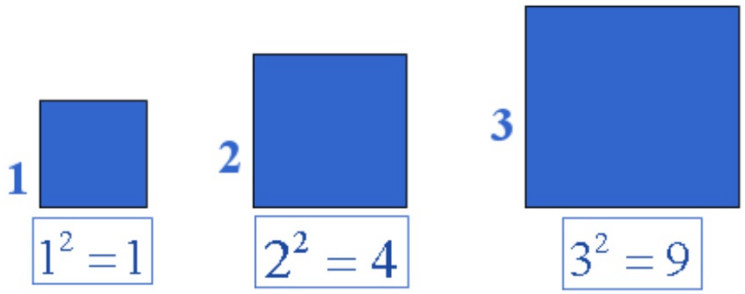
The Real Number System

Real Numbers	Our number system
Rational Numbers	#'s that can be written as a fraction
Irrational Numbers	#'s that cannot be written as a fraction
Whole Numbers	all positive numbers including 0
Integers	whole numbers and their opposites
Perfect Squares	**1,4,9,16,25,36,49,64,81,100, 121, 144, 169, 196, 225**

$\sqrt{13}$ 0.234 $\frac{7}{5}$ $\sqrt{100}$ $\frac{4}{4}$ 15 0.34858594...

Foldable

Square Roots



Area-

Perimeter-

The opposite of squaring a number is taking the **square root.**

- For example $\sqrt{81}$

  asks what number multiplied by itself is equal to 81? [redacted]

Is there another solution to that problem?

Practice

$\sqrt{100}$

Squares and roots

- Here is a list that will be helpful:

$1^2 = 1$	$\sqrt{1} = 1$
$2^2 = 4$	$\sqrt{4} = 2$
$3^2 = 9$	$\sqrt{9} = 3$
$4^2 = 16$	$\sqrt{16} = 4$
$5^2 = 25$	$\sqrt{25} = 5$
$6^2 = 36$	$\sqrt{36} = 6$
$7^2 = 49$	$\sqrt{49} = 7$
$8^2 = 64$	$\sqrt{64} = 8$
$9^2 = 81$	$\sqrt{81} = 9$
$10^2 = 100$	$\sqrt{100} = 10$
$11^2 = 121$	$\sqrt{121} = 11$
$12^2 = 144$	$\sqrt{144} = 12$

Once we have learned the perfect squares we can identify nonperfect squares

$\sqrt{8}$ $\sqrt{121}$ $\sqrt{75}$

$\sqrt{18}$ $\sqrt{144}$ $\sqrt{1}$

Let's identify the two whole numbers that these square roots fall between.

Example: $\sqrt{3}$

* The square roots of ALL perfect squares are ***rational***.

* The square roots of numbers that are NOT perfect squares are ***irrational***.

Try This: Identify each number as rational or irrational

1. $\sqrt{2}$
2. $-\sqrt{81}$
3. 0.53
4. $0.\overline{627}$
5. $13.875931\ldots$

CFU

1. $\sqrt{64}$

2. $-\sqrt{36}$

3. $\sqrt{\frac{81}{121}}$

In Search of Pefect Squares

Find Each Square Root

Perfect Squares and Pefect Cubes

Exit Ticket

1. $\sqrt{0}$

2. $-\sqrt{\frac{25}{196}}$