## 10-6-17

Aim: SWBAT find the square root or cube root of a number.

HW: Packet Page 4

Do Now: Packet Page 1 # 1 - 5

.

AIM: SWBAT find the square root or cube root of a number.

DO NOW:
1) State the first five Counting Numbers 1, 2, 3, 4, 5
2) Whole Numbers are all the <u>counting</u> and <del>Zero</del> .
3) Integers are all the whole #'s and their 0705145.
4) Rational #5 are numbers that CAN be written as a fraction. Those would be
terminating decimals and repeating decimals.
5) Give an example of a number that CANNOT be written as a fraction.
CLASSWORK:  are numbers that CANNOT be written as a fraction. Those are
non-terminating, non-repeating decimals.
Square - an operation - a number raised to the second power. A number times itself.
Ex: $4^2 = 16$ $(-4)^2 = 16$ $-4^2 = -16$ Perfect Squares - A number that is the square of an integer.
******MEMORIZE THE FIRST 15 PERFECT SQUARES!*****
1 , 4. , 9 , 16 , 25 , 36 , 49 , 64 , 81 , 100 , 121 , 144 , 169 , 196 , 225
Square Root - the opposite (inverse) of squaring a number.
$\sqrt{}$ - radical sign
$\sqrt{}$ "principal root" positive root
- $\sqrt{}$ negative root
$\pm$ $\sqrt{}$ Both the positive and negative roots
The number under the radical sign is called the "radicand"
$\sqrt{4}$ 4 is the radicand
$\sqrt{4}$ The principal or ( <u>Positive</u> ) square root of 4 is
- $\sqrt{4}$ The negative root of 4 is $\frac{1}{2}$
$\pm\sqrt{4}$ Both roots of 4 are $\frac{2}{\sqrt{2}}$ and $\frac{-2}{\sqrt{2}}$ . $\pm2$

The square root of a perfect square is a RATIONAL Number.

The square root of a non-perfect square is an IRRATIONAL Number.

Find the SQUARE ROOT of each number.

1) 
$$\sqrt{196} = 14$$

3) 
$$-\sqrt{100} = -10$$

5) 
$$\pm \sqrt{121} = \frac{2}{120}$$
 6)  $-\sqrt{144} = \frac{2}{120}$ 

6) 
$$-\sqrt{144} = -12$$

7) 
$$\sqrt{\frac{4}{9}} = \frac{2}{3} \sqrt{4}$$

7) 
$$\sqrt{\frac{4}{9}} = \frac{2}{3} \sqrt{\frac{14}{9}}$$
 8)  $-\sqrt{\frac{169}{225}} = \frac{13}{15} \sqrt{\frac{169}{325}}$  9)  $\sqrt{25} = \frac{5}{15}$ 

SQUARE each number.

Cube - an operation - a number raised to the third power.  $(-5)^2$ 

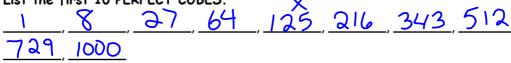


Perfect Cubes - A number that is the cube of an integer.

Cube Roots - the opposite (inverse) of cubing a number.



List the first 10 PERFECT CUBES.



The cube root of a perfect cube is a RATIONAL Number.

The cube root of a non-perfect cube is an IRRATIONAL Number.

Evaluate.

1) 
$$\sqrt[3]{1000} = 10$$
 2)  $\sqrt[3]{-216} = -6$  3)  $\sqrt[3]{-125} = -5$  4)  $\sqrt[3]{729} = 9$ 

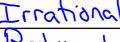
6) 
$$\sqrt[3]{-343} = \frac{-7}{7}$$
 7)  $\sqrt[3]{64} = \frac{4}{7}$  8)  $\sqrt[3]{8} = \frac{2}{7}$ 

Decide if each number is RATIONAL or IRRATIONAL.

9) 
$$\sqrt{100}$$



10)  $\sqrt{10}$ 



2

- Triational
- 13) <sup>3</sup>√8
- 14) <sup>3</sup>√18
- 'Katona' 15) <sup>3</sup>√-1
- 16) Why is it ok to have a negative number under the radical sign in a cube root, but not in a square root?

You ran cube a neg.# and get a neg.
You rannot square a neg# and get a neg.

## HOMEWORK - SQUARES/PERFECT SQUARES & CUBES/PERFECT CUBES

	PERFECT SQUARES.		
List the first 10 P	PERFECT CUBES.		
Evaluate.			
1) $\sqrt{36}$ =	2) -√ <del>196</del> =	3) ± √225 =	4) - √4 =
5) <sup>3</sup> √343 =	6) <sup>3</sup> √−125 =	7) <sup>3</sup> √216 =	8) <sup>3</sup> √-27 =
SQUARE each num	nber.		
9) 7	10) -5	11) 8	12) 15
CUBE each number	r.		
13) 7	14) -5	15) 8	16) -10
17)	are numbe	rs that CAN be written as	a fraction. This would
include	decima	decimals and decimals.	
18)	are number	s that CANNOT be writte	n as a fraction. This would
include		dec	imals.
Decide if each nur	mber is RATIONAL or I	IRRATIONAL.	
19) √144		20) <sup>3</sup> √1000	
21) √200		22) - $\sqrt{1}$	
23) √12		24) <sup>3</sup> √15	
25) <sup>3</sup> √−27		26) √400	