

REAL NUMBERS

• NATURAL NUMBERS: counting numbers

no dec
no fract
no neg
no zero

1, 2, 3, ...

• WHOLE NUMBERS:

0, 1, 2, 3, 4, ...

no dec
no frac
no neg.

• INTEGERS: whole numbers and opposites

no dec
no frac... -3, -2, -1, 0, 1, 2, 3, ...

ex

$\frac{7}{1}$, 1.4
 $\frac{12}{5}$
 $\frac{7}{10}$ $\frac{14}{10}$

• RATIONAL NUMBERS: is a number that can be written in the form $\frac{a}{b}$ where a and b are integers and b is not zero (term. & repeating dec. or ration.)

• IRRATIONAL NUMBERS

Decimals that never repeat. Not perfect squares or cubes.

Ex: π $\sqrt{2}$ $\sqrt{29}$ $\sqrt[3]{56}$

Classify each number

- | | | | | |
|-----------------------------------------------------|-------------------|------------------------------|---------------------------------------|-----------------------------|
| 1) 3 N, W, I, R | 2) 0 W, I R | 3) -7 I, R | 4) $\frac{9}{3} = 3$ N, W, I, R | 5) $0.5 = \frac{1}{2}$ R |
| 6) 2.34 $\frac{234}{100}$ $\frac{234}{100}$ R | 7) π IR | 8) 0.3 R $\frac{1}{3}$ | 9) $\sqrt{49} = 7$ N, W, R, I | 10) $\sqrt{17}$ IR |

Simplifying Square Roots

- No estimating. Get the square root as simple as possible.

EX: $\sqrt{24}$ try to split 24 into two factors where one is a perfect square.

$\sqrt{24} = \sqrt{4 \cdot 6} = 2\sqrt{6}$

$\sqrt{2 \cdot 12}$
 $9\sqrt{2}$

1) $\sqrt{40}$

$\sqrt{10 \cdot 4}$
 $2\sqrt{10}$

2) $\sqrt{50}$

$\sqrt{2 \cdot 25}$
 $5\sqrt{2}$

3) $\sqrt{27}$

$\sqrt{3 \cdot 9}$
 $3\sqrt{3}$

4) $\sqrt{162}$

$\sqrt{81 \cdot 2}$
 $9\sqrt{2}$

ORDERING RATIONAL NUMBERS

Put the numbers in ascending order

least + greatest

1) $7, \sqrt{12}, \frac{2}{5}, \frac{15}{3}$

$7, 3, 0.4, 5$

$\frac{2}{5}, \sqrt{12}, \frac{15}{3}, 7$

2) $\sqrt{80}, -3.4, 4\frac{1}{2}, 5$

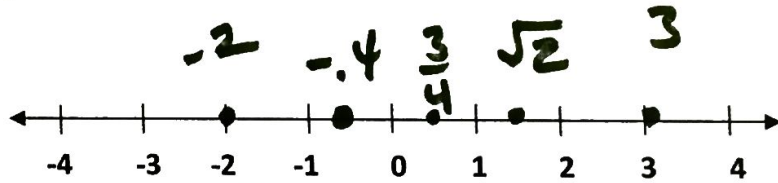
$8, -3.44, 4.5, 5$

$-3.4, 4\frac{1}{2}, 5, \sqrt{80}$

GRAPH THE NUMBERS ON A NUMBER LINE

1) $-0.4, \frac{3}{10}, -2, \sqrt{2},$ and 3

$\sqrt{1}, \sqrt{2}, \sqrt{4}$
1 2



2) $6.5, -4\frac{2}{3}, \sqrt{12}, -\sqrt{12}$

