

January 9, 2015

$$N = \{1, 2, 3, \dots\}$$

$n = m \cdot k$   
factor of  $n$

(#1)  $x - 2 = 4$   
 $+2 \quad +2$   
 $x = 6 \rightarrow N$

(#2)  $x + 2 = 2$   
 $-2 \quad -2$   
 $x = 0 \rightarrow$  not a Natural Number

Jan 9-10:52 AM

(2) Whole Numbers

$$W = \{0, 1, 2, \dots\}$$

(3)  $x + 3 = 2$   
 $-3 \quad -3$   
 $x = -1?$

Integers

$$I = \left\{ \dots, \underbrace{-2, -1}_{-N}, \underbrace{0, 1, 2, \dots}_N \right\}$$

or opposite

Jan 9-11:16 AM

(4)  $2x - 1 = 0$   
 $+1 \quad +1$   
 $\frac{2x}{2} = \frac{1}{2}$

$n = m \cdot k$   
 $\frac{n}{m} = k$

$x = \frac{1}{2}?$

Rational Numbers

$$Q = \left\{ \frac{m}{n} \mid \begin{array}{l} m \neq n \text{ are} \\ \text{Integers} \ \& \ n \neq 0 \end{array} \right\}$$

Such that

Jan 9-11:22 AM

Why can not "n" be zero?

$\frac{m}{n}; n \neq 0?$

$\frac{5}{0} \rightarrow$  Undefined

Jan 9-11:27 AM

Rational Numbers

$\frac{5}{1}, \frac{-23}{1}, \frac{1053}{1}$

$\frac{1}{2} = 2$   $\begin{array}{r} 0.5 \\ 1.0 \\ -1.0 \\ \hline 0 \end{array}$  Terminating fraction

$\frac{2}{3} = 3$   $\begin{array}{r} 0.66 \\ 2.00 \\ -1.80 \\ \hline 0.20 \\ -0.20 \\ \hline 0 \end{array}$  non-terminating fraction

Jan 9-11:28 AM

Rational

- NON-Integer:  $\frac{1}{2}, \frac{3}{4}, \frac{2}{3}, \frac{1}{5}$
- Integers:  $\frac{5}{1}, \frac{-23}{1}$

Jan 9-11:34 AM

$$x^2 - 2 = 0$$

$$x^2 + 2 = 0$$

$$\sqrt{x^2} = \pm \sqrt{2}$$

$$x = \pm \sqrt{2} ?$$

⑤ Irrational Numbers

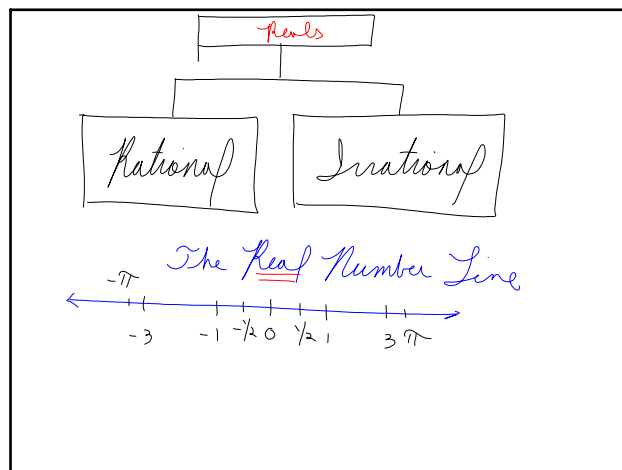
$$\mathbb{Q}' = \{ \text{all numbers that are not rational} \}$$

$\sqrt{2}, \sqrt{3}, \sqrt{5}, \pi, e$

↓

3.14.....

Jan 9-11:36 AM



Jan 9-11:41 AM