

Rational NumbersReview:

$W = \text{Whole Numbers}$
 $\{0, 1, 2, 3, \dots\}$

$N = \text{Natural Numbers}$
 $\{1, 2, 3, 4, 5, \dots\}$

$Z = \text{Integers}$
 $\{\dots, -2, -1, 0, 1, 2, \dots\}$

$R = \text{Real Numbers}$
 $\{\dots, -1, \dots, 0, \dots, 1, \dots\}$

*

$Q = \text{Rational Numbers}$

$$\frac{\text{Integer}}{\text{Integer}} = \frac{Z}{Z} = \frac{\{\dots, -2, -1, 0, 1, 2, \dots\}}{\{\dots, -2, -1, 0, 1, 2, \dots\}}$$

exs) Yes or No to \mathbb{Q}

$$1.2 \rightarrow \text{Yes!} \quad \frac{12}{10} = \frac{12}{10}$$

$$\frac{3}{4} \rightarrow \text{Yes!}$$

$$-1 \rightarrow \text{Yes!} \quad -\frac{1}{1} = -1$$

$$\mathbb{W} \rightarrow \text{Yes!}$$

$$\mathbb{N} \rightarrow \text{Yes!}$$

$$\mathbb{Z} \rightarrow \text{Yes!}$$

$$\mathbb{R} \rightarrow \text{Not Always}$$

$$\pi \rightarrow (\text{pi}) \approx 3.14 \text{ No!}$$

$$\sqrt{2} = \text{No!}$$

**I can't be
certain**

**if they
cried**

**when
irrationality**

**was
realized**

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Commutative Property for Addition & Multiplication.

→ Does Not Matter the order

For any \mathbb{Q} a & b ,
 $a + b = b + a$ and $ab = ba$


$$3 + 5 = 5 + 3$$


$$2 \cdot 3 = 3 \cdot 2$$

Associative Property for Addition & Multiplication

For any \mathbb{Q} $a + b + c$
 $a + (b + c) = (a + b) + c$ and

$$a(bc) = (ab)c$$

ex) $(3+2)+5 = 5+5 = \underline{\underline{10}}$ 

$$3+(2+5) = 3+7 = \underline{\underline{10}}$$
 

$$\begin{array}{r} 14 \\ 7 \\ 6 \\ 3 \\ +10 \\ \hline 40 \end{array}$$

Handwritten annotations: A red line connects 14 to 20. A red checkmark is next to 7. A blue checkmark is next to 6. A blue checkmark is next to 3. A blue line connects 6 to 10. A black line connects 10 to 10. The final result 40 is circled in orange.

O.T.L.

① Pg 63: Exp.

11-15(a); 16, 17, 19, 21
22, 24,