

August 24, 2016

Sets

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

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

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

$Q = \{\frac{m}{n} \mid m, n \in Z \text{ and } n \neq 0\}$

In what sets is "2"?

$N, W, Z, Q$

Aug 24-9:55 AM

$\frac{-5}{1}, \frac{16}{1}, \frac{236}{1}, \frac{0}{1}$

$\frac{1}{2}, \frac{1}{3}, \frac{5}{8}, \frac{7}{3}$

$\frac{1}{2} = 2 \overline{) \begin{array}{r} 0.5 \\ -1.0 \\ \hline 0 \end{array}} = 0.5 = 50\%$

$\frac{1}{3} = 3 \overline{) \begin{array}{r} 1.000 \\ -9 \\ \hline 10 \\ -9 \\ \hline 1 \end{array}} = 0.\overline{3}$

Aug 24-10:12 AM

$\frac{23}{5} = 5 \overline{) \begin{array}{r} 4 \\ 23 \\ -20 \\ \hline 3 \end{array}} = 4 \frac{3}{5}$

*Improper*      *Mixed*

$\frac{(4 \cdot 5) + 3}{5} = \frac{20 + 3}{5} = \frac{23}{5}$

Aug 24-10:17 AM

$0.240 = \frac{6}{25}$

$\frac{240}{1000} = \frac{24}{100} = \frac{12}{50} = \frac{6}{25}$

When the only number common between two or more numbers is "1", then we say it is **Relatively Prime**.

*What does it mean to be Reduced?*

*R.P.*

Aug 24-10:19 AM

$0.\overline{24} \approx 0.24242424\dots$

Steps  $= \frac{8}{33}$

① Let  $x = 0.\overline{24}$  (2 places)

②  $100(x = 0.\overline{24})$

$100x = 24.\overline{24}$

③  $100x = 24.\overline{24}$

$- x = \quad \cdot\overline{24}$

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$99x = 24$

$\frac{99x}{99} = \frac{24}{99}$

$x = \frac{24}{99} = \frac{8}{33}$  *R.P.*

Aug 24-10:24 AM

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

*← not*

the set of Irrational Numbers or numbers that can not be written as a ratio of two Integers.

Aug 24-10:31 AM

$\mathbb{R}$  the set of Real Numbers  
 $\{x \mid x \text{ is a Real Number}\}$   
 $\{x \mid x \in \mathbb{Q} \text{ or } \mathbb{Q}'\}$

Aug 24-10:34 AM

	N	W	Z	Q	Q'	R
$\frac{1}{2}$	✓	✓	✓	✓		✓
$0.\bar{9}$				✓		✓
$\pi$					✓	✓
$\sqrt{2}$				✓		✓
$-6$			✓	✓		✓
$0$		✓	✓	✓		✓

Aug 24-10:36 AM

Do 1.1 CORJ for Friday

Aug 24-10:42 AM

Algebra's Power Tools  
 ① Commutative Property  $+$  &  $\cdot$   
 $a + b = b + a$   
 $5 + 3 = 3 + 5$   
 $8 = 8 \checkmark$

Aug 24-10:44 AM