

January 12, 2015
 * Quiz #1 - Friday

Jan 12-9:00 AM

Sets
 ① $\mathbb{N} = \{1, 2, 3, \dots\}$
 ② $\mathbb{W} = \{0, 1, 2, \dots\}$
 ③ $\mathbb{Z} = \{\dots, -2, -1, 0, 1, 2, \dots\}$

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\mathbb{N} $x + 2 = 4$
 $x = 6$ ← ?
 6 is in \mathbb{N} .
 $x + 2 = 2$
 $x = 0$ ← ?
 0 is in \mathbb{W}
 $x + 3 = 2$
 $x = -1$ ← ?
 -1 is in \mathbb{Z}

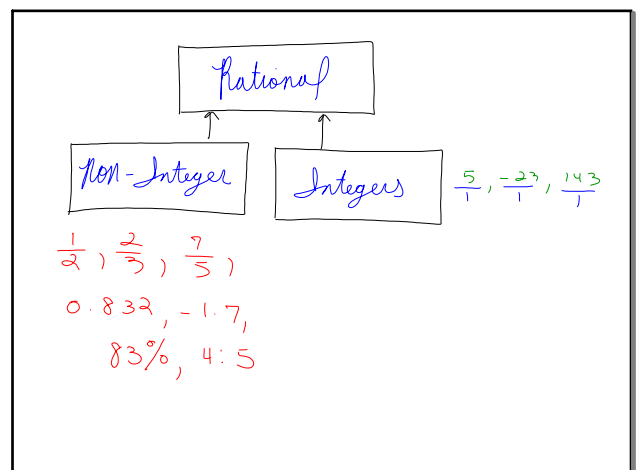
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$2x - 1 = 0$
 $\frac{2x}{2} = \frac{1}{2}$
 $x = \frac{1}{2}$ ← ?
 ④ Rational Numbers
 (Ratio) → Fractions
 $\mathbb{Q} = \left\{ \frac{m}{n} \mid m \text{ \& } n \text{ are Integers \& } n \neq 0 \right\}$
 such that
 Why can not $n = 0$?
 $\frac{5}{0}$ of what whole? → Undefined!
 $\frac{5}{6}$ of some whole $\frac{5}{6}$

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$\frac{2}{3}$ $\left\{ \frac{2}{3} \mid 2 \text{ \& } 3 \text{ are Prime} \right\}$

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$\frac{1}{2} = 2 \overline{) 0.5}$ *Terminating Fraction*
 $\frac{5}{1} = 1 \overline{) 5}$
 $\frac{2}{3} = 3 \overline{) 2.00}$ *NON-Terminating But settles into a pattern*

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* So, all rational numbers either terminate or settle into a pattern.

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⑤ Irrational Numbers
 ← prime or 0 opposite
 $\mathbb{Q} = \{ \text{all numbers that are not rational} \}$
 $\sqrt{2}, \sqrt{3}, \sqrt{5}, \pi, e$
 \downarrow
 3.14...

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