

August 28, 2017
 * Quiz #1 - Wednesday
 on COR 1.1

Aug 28-8:55 AM

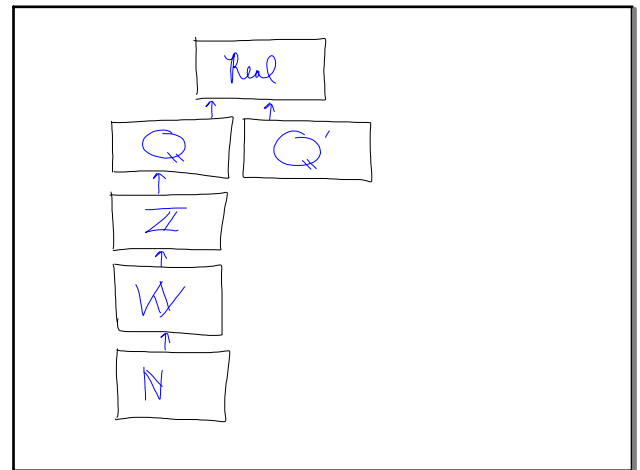
Sets: a collection of well-defined things.

$\mathbb{N} = \{1, 2, 3, \dots\}$
 $\mathbb{W} = \{0, 1, 2, \dots\}$
 $\mathbb{Z} = \{\dots, -2, -1, 0, 1, 2, \dots\}$
 $\mathbb{Q} = \{\frac{m}{n} \mid m, n \in \mathbb{Z} \wedge n \neq 0\}$
 $\mathbb{Q}' = \{\text{not } \mathbb{Q}\}$
 $\mathbb{R} = \{x \mid x \text{ is a Real Number}\}$

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\mathbb{Q}' (Q Prime) \rightarrow Irrational Numbers
 $\pi, e, \sqrt{2}, \sqrt{3}, \sqrt{11}$
 Show $\sqrt{2}$ is Irrational.
 pf: Suppose $\sqrt{2}$ is Rational
 (Proof by Contradiction)
 $(\sqrt{2})^2 = (\frac{p}{q})^2 \quad \{p, q \in \mathbb{Z}\}$
 $2 = \frac{p^2}{q^2}$
 $2q^2 = p^2$
 $2 \cdot \underbrace{q \cdot q} = \underbrace{p \cdot p}$
 3 things \neq 2 things \rightarrow Contradiction
 Thus, $\sqrt{2}$ is Irrational.

Aug 28-9:17 AM



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	N	W	Z	Q	Q'	R
-1023	/	/	✓	✓	/	✓
$-\frac{13}{9}$				✓	/	✓

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