August 29, 2017

* Quiz #1 - Wednesday

Aug 29-9:01 AM

Is $\sqrt{5}$ Irrational?

* Suppose $\sqrt{5}$ is rational. (Contradiction)

Then if $\sqrt{5}$ is rational, then $(\sqrt{5})^2 = \left(\frac{p}{q}\right)^2$

$p, q \in \mathbb{Z}$

$q^2\left(5 = \frac{p^2}{q^2}\right)$ Clearing the denominator

$q^2 \cdot 5 = q^2 \frac{p^2}{q^2}$

$q^2 \cdot 5 = p^2$

$q \cdot q \cdot 5 \neq p \cdot p$

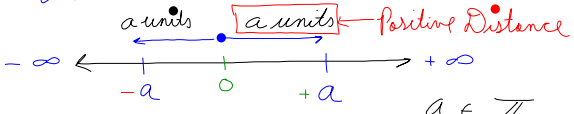
this is our contradiction!

Thus, $\sqrt{5}$ is not Rational, therefore it must be irrational.

Aug 29-9:08 AM

CORE 1.1

What is Absolute Value?



$a \in \mathbb{Z}$

Absolute Value, written $|a|$ is the positive distance from zero.

Aug 29-9:28 AM

$|8| = 8$

$|-8| = 8$

$-|3| = (-1) \cdot |3|$
$= (-1) \cdot 3$
$= -3$

$-|-3| = (-1) \cdot |-3|$
$= (-1) \cdot 3$
$= -3$

Aug 29-9:37 AM

The formal definition of Absolute Value

$$|x| = \begin{cases} x \text{ if } x \geq 0 \\ -x, \text{ if } x < 0 \end{cases}$$

$x = -5$

$-(-5) = (-1) \cdot (-5)$
$= 5$

Aug 29-9:48 AM