August 23, 2017

Math Jam Fridays

12:00 – 2:00

Rm # 320

Dr. Kidane

Aug 23-9:55 AM

$\mathbb{N} = \{1, 2, 3, \ldots\}$

$n = mk$

$p = p \cdot 1$ Prime number

* If not prime, then it is a composite number.

Fundamental Theorem of Arithmetic

Aug 23-10:11 AM

$326 = 2 \cdot 163$

(2) · (163)

Aug 23-10:14 AM

Zero → 0

$\mathbb{W} = \{0, 1, 2, 3, \ldots\}$

Whole

$a + 0 = a$

Additive Identity (A. Id)

$a + (-a) = 0$

Additive Inverse (A. In)

$5 + 0 = 5$

$5 + (-5) = 0$

$-12 + 12 = 0$

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$5x + 5 = 25$

$+0 \quad -5$ A. In $\quad -5$

A. Id $5x + 0 = 20$

$5x = 20$

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$\mathbb{Z} = \{\ldots, -2, -1, 0, 1, 2, \ldots\}$

Integers

or

$\{0, \pm 1, \pm 2, \pm 3, \ldots\}$

IS $\mathbb{N}, \mathbb{W}, \mathbb{Z}$

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$\mathbb{Q} = \left\{ \frac{m}{n} : m \text{ and } n \in \mathbb{Z}, \text{ such that } n \neq 0 \right\}$

Rational (Fractions)

$\frac{3}{4}, \frac{1}{9}, \frac{5}{8}, -\frac{6}{13}$ Proper

$\frac{4}{3}, \frac{9}{1}, \frac{8}{5}, -\frac{13}{6}$ Improper

Why can not n be zero?

$\frac{3}{0}$ of a whole

= Undefined

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$\frac{2}{9}\left(\frac{9}{2}\cdot\frac{t}{1}\right) = \left(\frac{2}{9}\cdot\frac{9}{2}\right)\cdot\frac{t}{1}$

Commutative: $a + b = b + a$, $a \cdot b = b \cdot a$

Associative: $a + (b + c) = (a + b) + c$

$\left(\frac{2}{9}\cdot\frac{9}{2}\right)\cdot\frac{t}{1}$

$\frac{18}{18}\cdot\frac{t}{1}$

$1 \cdot t = t$

Aug 23-11:26 AM

$3^{-2} = \frac{1}{3^2} = \frac{1}{9}$

Negative Exponent Rule

① $\frac{a^{-n}}{1} = \frac{1}{a^{+n}}$

② $\frac{1}{a^{-n}} = a^{+n}$

$\frac{1}{3^{-2}} = \frac{\frac{1}{1}\ K}{\frac{1}{3^2}\ F} = \frac{1}{1}\cdot\frac{3^2}{1} = \frac{1}{1}\cdot\frac{9}{1} = 9$

Aug 23-11:36 AM