Ironic proofs

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Table des matières

Proof of homogeneity of the sinal function

Theorem

$-\sin(x) \equiv \sin(-x)$

Proof

1. We define :

$$sign(x) = + \qquad\qquad sign(-x) = -$$

2. We apply the **phonetic equivalence principle** of sin and *sign* :

$$\begin{aligned} -\sin(x) &= \sin(-x) \\ \therefore -sign(x) &= sign(-x) \quad \text{by phonetic equivalence} \\ \Rightarrow -(+) &= - \\ \Rightarrow - &= - \end{aligned}$$

$\therefore\ -\sin(x) \equiv \sin(-x)$

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Proof of equivalence of addition to multiplication in the definition of the factorial

Theorem

$$n! = \prod_{i=0}^{n-1}(n-i) \equiv \sum_{i=0}^{n-1}(n-i)$$

Proof

1. It is known that :

$$n! = \prod_{i=0}^{n-1}(n-i) = (n-0) \times (n-1) \times \cdots \times 1$$

2. We apply the **rotation property** of multiplication

$$\begin{aligned} n! = \prod_{i=0}^{n-1}(n-i) &= (n-0) \times (n-1) \times \ \ldots \ \times 1 \\ &= (n-0) \overset{\curvearrowright}{+} (n-1) \overset{\curvearrowright}{+} \ \ldots \ \overset{\curvearrowright}{+} 1 \\ &= (n-0) + (n-1) + \ \ldots \ + 1 \\ &= \sum_{i=0}^{n-1}(n-i) \end{aligned}$$

$\therefore\ n! \equiv \sum_{i=0}^{n-1}(n-i)$

Examples of application

$$\begin{aligned} 3! &= \prod_{i=0}^{3-1}(3-i) = 3 \times 2 \times 1 = 6 \\ &\equiv \sum_{i=0}^{3-1} = 3 + 2 + 1 = 6 \end{aligned}$$

$$\begin{aligned} 1! &= \prod_{i=0}^{1-1} = 1 \\ &\equiv \sum_{i=0}^{1-1}(1-i) = 1 \end{aligned}$$

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Proof of Product Substraction

Theorem

Large numbers can be sunstracted by substracting the product of the numbers which composes them.

Examples of application

$$
\begin{aligned}
689 - 271 &= (6)(8)(9) - (2)(7)(1) \\
&= 432 - 14 \\
&= 418 \\
797 - 484 &= (7)(9)(7) - (4)(8)(4) \\
&= 441 - 128 \\
&= 313 \\
981 - 909 &= (9)(8)(1) - (9)(0)(9) \\
&= 72 - 0 \\
&= 72
\end{aligned}
$$

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Proof of $\sin(\pi/6)$

Theorem

$$\sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$$

Proof

1. By the first principle of engineering, $\pi = 3$

$$\begin{aligned}\sin\left(\frac{\pi}{6}\right) &= \sin\left(\frac{3}{6}\right)\\ &= \sin\left(\frac{1}{2}\right)\end{aligned}$$

2. By the second principle of engineering, $\sin(x) = x$

$$\sin\left(\frac{1}{2}\right) = \frac{1}{2}$$

$\therefore \sin\left(\frac{\pi}{6}\right) = \frac{1}{2}$

$\blacksquare$

Proof that $5/2 = 2.5$

Theorem

$5/2 = 2.5$

Proof

1. We apply the rotation principle to the division sign :

$$\begin{aligned} 5/2 &= 2\overset{\circlearrowleft}{-}5 \\ &= 2-5 \end{aligned}$$

2. We apply the shrinkage theorem to the substraction sign :

$$\begin{aligned} 2-5 &= 2\overset{\Rightarrow\Leftarrow}{-}5 \\ &= 2.5 \end{aligned}$$

$\therefore\ 5/2 = 2.5$

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Proof that $4^2 - 3^2 = 7$

Theorem

$4^2 - 3^2 = 7$

Proof

1. By the new additive power quotient property of exponents *(paper forthcoming)*, we rewrite :

$$\begin{aligned} 4^{2} - 3^{2} &= (4-3)^{2/2} \\ &= (4-3)^{1} \end{aligned}$$

2. We then apply the power-to-mathematical-sign transferral property the shrinkage theorem to the substraction sign :

$$\begin{aligned} (4-3)^{1} &= (4+3) \\ &= 7 \end{aligned}$$

$\therefore\ 4^2 - 3^2 = 7$

$\blacksquare$

Proof that $\frac{|}{0} = \infty$

Theorem

$$\frac{|}{0} = \infty$$

Proof by reverse-order

1. We apply the rotation principle to both sides :

$$\frac{|}{0} \circlearrowleft = \infty \circlearrowleft$$
$$\Rightarrow -|0 = 8$$

2. We remove the belt from 8 on the right side to give it to 0 on the left :

$$-|0 = 8$$
$$\Rightarrow -|8 = 0$$

3. We reapply the rotation principle to both sides :

$$-|8 \circlearrowleft = 0 \circlearrowleft$$
$$\Rightarrow \frac{|}{\infty} = \underbrace{0}_{\text{0 is invariant to rotation}}$$

$\therefore \frac{|}{0} = \infty$

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Proof of Taylor Expansion

Proof

i. Taylor;
ii. T a y l o r;
iii. T a y l o r;
iv. T a y l o r;
v. T a y l o r;
vi. T a y l o r;
vii. T a y l o r;
viii. T a y l o r;
ix. T a y l o r;
x. T a y l o r;

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Proof of the evilness of school

Theorem

$$\text{school} = \text{evil}$$

Proof

1. School requires time and money :

$$\text{school} = \text{time} \times \text{money}$$

2. Time is money :

$$\text{time} \equiv \text{money}$$

3. Money is the root of all evil :

$$\text{money} \equiv \sqrt{\text{evil}}$$

$\therefore$ $\text{school} = \text{money}^2 = \text{evil}$

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