SECTION-1: Broken-Symmetry (BS) Math

"It is important to realize that if our understanding of fundamental principles is incorrect, then any extrapolation of that understanding will induce further misunderstandings" Joseph A. Rybczyk

BS Rule-of-Signs: (-) (-) = (+) A negative times a negative is equal to a positive

Courant and Robbins states that it "cannot be proved"

> From "What Is Mathematics" by Courant and Robbins – page 55*:
>
> The rule **(-1) (-1) = +1**
>
> Which we set up to govern the multiplication of negative integers, is a consequence of **our desire to preserve the <u>distribution law</u> a(b+c) = ab + ac**. It took a long time for mathematicians to realize that the "**Rule-of-signs**" together with all the other definitions governing negative integers and fractions **cannot be "proved**". **<u>They were created</u>** by us in order to attain the freedom of operation while preserving the fundamental laws of arithmetic. Even the great Euler (1707-1783) resorted to a thoroughly unconvincing argument to show that (-1)(-1) "must "be equal to +1. For, as he reasoned, it must either be +1 or –1, and cannot be –1, since –1 = (+1)(-1)

Jack Kuykendall: The reason it cannot be proved is because it is INCORRECT for real symmetrical space.

(BS) math only works in an imaginary world where left is different from right, front is different from back and up is different from down.

BS mathematicians should have discovered the problem. Instead they invented symbols and definitions and bypassed the real problem, i.e., [(imaginary numbers: $i^2 = -1$) and (absolutely values: |-X|=+X)].

After many year of working on the problem, on January 7, 2005, I broke the codes for the different uses of the dash (-) and cross (+) symbols. Breaking of the codes allows an explanation of the errors and the start of the numerous corrections that will be needed. Because the error is in the basic number line, all math must be rewritten to correct for BS errors.

This breaking of the CODES means that math, physics and chemistry books must be rewritten and calculators and computers software must be rewritten to correct for these errors.

BS mathematicians use the following for their Rule-of-Signs:

$(-)(-)=(+)$ a negative times a negative is equal to a positive

$(-)(+)=(-)$ a negative times a positive is equal to a negative

$(+)(+)=(+)$ a positive times a positive is equal to a positive

This automatically made the BS Cartesian number line broken-symmetry.
To my knowledge, BS mathematicians have never considered a symmetrical number line.

The Kuykendall Symmetry-Math (SM) number line uses a different Rule-of-Signs:

ALLOWED IN Symmetry Math:

subtraction of a direction arrow is equal to the opposite direction

$$\underset{sub\ operator}{-}\ \underset{\rightarrow}{\overset{number\ and\ direction}{6}} = \underset{\leftarrow}{\overset{opposite\ direction}{6}}$$

$$-\underset{\leftarrow}{6} = \underset{\rightarrow}{6}$$

addition of a direction arrow is equal to the same direction

$$+\underset{\rightarrow}{6} = \underset{\rightarrow}{6}$$

$$+\underset{\leftarrow}{6} = \underset{\leftarrow}{6}$$

(a direction arrow) & (a direction arrrow) is equal to the resultant of the directions.

$$\underset{\leftarrow}{6} \,\&\, \underset{\rightarrow}{7} = \underset{\rightarrow}{1}$$

$$\underset{\leftarrow}{7} \,\&\, \underset{\rightarrow}{6} = \underset{\leftarrow}{1}$$

NOT ALLOWED IN Symmetry Math:

$(-)(right) \neq (left)$ a subtraction operator multiplied by a direction arrow in space is not allowed

$(-)(left) \neq (right)$

$(+)(\rightarrow) \neq (\rightarrow)$ an addition operator multiplied by a direction arrow in space is not allowed

$(+)(\leftarrow) \neq (\leftarrow)$

(sub)(add) $\neq (sub)$ a subtraction operator multiplied by an addition operator is not allowed

(-)$(+) \neq (-)$

$(\leftarrow)(\rightarrow) \neq (Not\ Allowed)$ a direction arrow cannot be multiplied by the opposite direction arrow

$(\rightarrow)(\rightarrow) \neq (Not\ Allowed)$ a direction arrow cannot be multiplied by another direction arrow

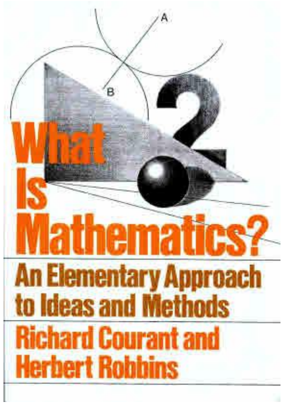
An arrow multiplied by an arrow is not allowed

$(\#\rightarrow)(\#\rightarrow) \neq$ is not allowed

$(\#\rightarrow)(\#\leftarrow) \neq$ is not allowed

Symmetry-Math is a symmetrical system and correctly represents space and time.

*



such that $a + c = b$, i.e. it is the solution of the equation $a + x = b$. But in the domain of natural numbers the symbol $b - a$ has a meaning only under the restriction $b > a$, for only then does the equation $a + x = b$ have a natural number x as a solution. It was a very great step towards removing this restriction when the symbol 0 was introduced by setting $a - a = 0$. It was of even greater importance when, through the introduction of the symbols $-1, -2, -3, \cdots$, together with the definition

$$b - a = -(a - b)$$

for the case $b < a$, it was assured that subtraction could be performed without restriction *in the domain of positive and negative integers.* To include the new symbols $-1, -2, -3, \cdots$ in an enlarged arithmetic which embraces both positive and negative integers we must, of course, *define operations* with them in such a way that *the original rules of arithmetical operations are preserved.* For example, the rule

$$(-1)(-1) = 1, \tag{3}$$

which we set up to govern the multiplication of negative integers, is a consequence of our desire to preserve the distributive law $a(b + c) = ab + ac$. For if we had ruled that $(-1)(-1) = -1$, then, on setting $a = -1, b = 1, c = -1$, we should have had $-1(1 - 1) = -1 - 1 = -2$, while on the other hand we actually have $-1(1 - 1) = -1 \cdot 0 = 0$. It took a long time for mathematicians to realize that the "rule of signs" (3), together with all the other definitions governing negative integers and fractions cannot be "proved." They are *created* by us in order to attain freedom of operation while preserving the fundamental laws of arithmetic. What *can*—and must—be proved is only that on the basis of these definitions the commutative, associative, and distributive laws of arithmetic are preserved. Even the great Euler resorted to a thoroughly unconvincing argument to show that $(-1)(-1)$ "must" be equal to $+1$. For, as he reasoned, it must either be $+1$ or -1, and cannot be -1, since $-1 = (+1)(-1)$.