Do Infinities Exist ?

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All Odd Numbers > 1 are Prime Numbers.

Prime Number

A natural number that has only two divisors.

For Further Reading

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Prime Number

A natural number that has only two divisors.

For Further Reading

Mathematician

- 3 is an odd number, 3 is a prime number.
- 5 is an odd number, 5 is a prime number.
- 7 is an odd number, 7 is a prime number.

- By induction, all the odd integers are prime.

All Odd Numbers > 1 are Prime.

Engineer

- 3 is an odd number, 3 is a prime number.
- 5 is an odd number, 5 is a prime number.
- 7 is an odd number, 7 is a prime number.
- 9 is an odd number, 9 is not a prime number.
- 11 is an odd number, 11 is a prime number.
- 13 is an odd number, 13 is a prime number.
- 15 is an odd number, 15 is not a prime number.
- 17 is an odd number, 17 is a prime number.
- 19 is an odd number, 19 is a prime number.

- Except for the experimental errors, the data clearly indicates that all the odd integers are prime.

All Odd Numbers > 1 are Prime.

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- 3 is an odd number, 3 is a prime number.
- 5 is an odd number, 5 is a prime number.
- 7 is an odd number, 7 is a prime number.
- 9 is an odd number, 9 is a prime number.
- 11 is an odd number, 11 is a prime number.
- 13 is an odd number, 13 is a prime number.
- 15 is an odd number, 15 is a prime number.
- 17 is an odd number, 17 is a prime number.
- 19 is an odd number, 19 is a prime number.
- the data clearly indicates that all the odd integers are prime.

All Odd Numbers > 1 are Prime.

Particle / Nuclear Physicist

- 3 is an odd number, 3 is prime.
- 5 is an odd number, 5 is prime.
- 7 is an odd number, 7 is prime.
- 9 is an odd number, 9 is $\cdots$ uh, $\frac{9}{3}$ is prime, so $\cdots$
- 11 is an odd number, 11 is prime.
- 13 is an odd number, 13 is prime.
- 15 is an odd number, 15 is $\cdots$, $\frac{15}{3}$ is prime, so $\cdots$

When Renormalization is Properly applied[1] :

- All the odd integers are prime.

[1] divide by smaller prime(s) when needed.

Knowledge versus Understanding

Acquire information versus Integrate information

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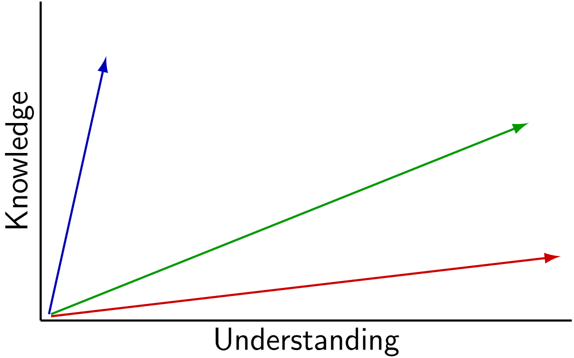
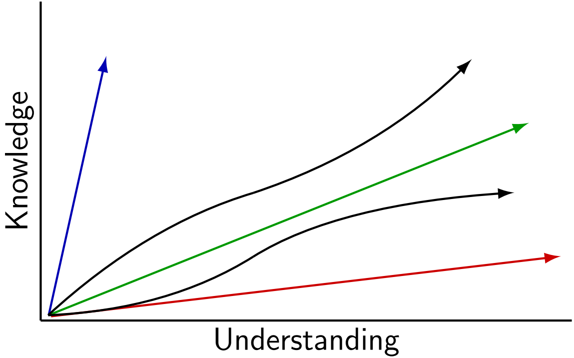


Knowledge versus Understanding

Acquire information versus Integrate information



A Metamathematical Interlude

1

A Metamathematical Interlude

$$1 + 2$$

A Metamathematical Interlude

$$1 + 2 + 3$$

A Metamathematical Interlude

$$1 + 2 + 3 + 4$$

A Metamathematical Interlude

$$1 + 2 + 3 + 4 + 5$$

A Metamathematical Interlude

$$1 + 2 + 3 + 4 + 5 + 6$$

A Metamathematical Interlude

$$1 + 2 + 3 + 4 + 5 + 6 + \cdots$$

A Metamathematical Interlude

$$1 + 2 + 3 + 4 + 5 + 6 + \cdots =$$

A Metamathematical Interlude

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This result is not surprising $\cdots$

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Correction,

A Metamathematical Interlude

$$1 + 2 + 3 + 4 + 5 + 6 + \cdots = -\frac{1}{12} \qquad (1)$$

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Correction, this result is not **inherently** surprising.

A Metamathematical Interlude

$$1 + 2 + 3 + 4 + 5 + 6 + \cdots \; = \; -\frac{1}{12} \tag{1}$$

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Correction, this result is not **inherently** surprising.

Consider the Euler–Riemann zeta function,

$$\zeta\,(-1) = -\frac{1}{12}\ \text{, and , }\ \zeta\,(z) = 1^{-z} + 2^{-z} + 3^{-z} + 4^{-z} + \cdots$$

A Metamathematical Interlude

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Consider the Euler–Riemann zeta function,

$$\zeta(-1) = -\frac{1}{12} \text{ , and , } \zeta(z) = 1^{-z} + 2^{-z} + 3^{-z} + 4^{-z} + \cdots$$

Therefore,

$$1 + 2 + 3 + 4 + 5 + 6 + \cdots = -\frac{1}{12}$$

Standard Example, $x < +1$

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$$1 - 1 + 1 - 1 + \cdots = \frac{1}{2}$$

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$$1 + 5 + 25 + 125 + 625 \cdots = -\frac{1}{4}$$

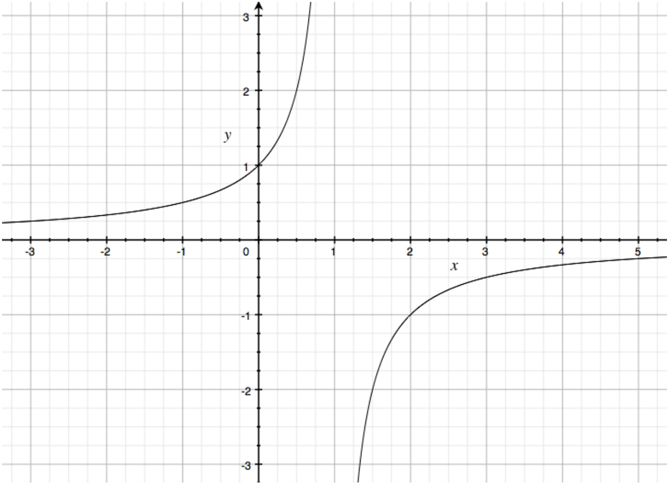

Figure 1 : $y = \frac{1}{1-x}$ versus x

21[st] Century understanding requires Quantum Mechanics

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Figure 2 : Red Flag Warning

21st Century understanding requires Quantum Mechanics

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Looking to the past for "truth" is futile. Ancient Wisdom $\cdots$ Isn't ?

Perception versus Reality

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Perception

Over thousands of millennia our progenitors evolved what can be best described as a "classical" perception of their internal as well as their external environment.
Envision: Blue Skies, Rainbows, and Unicorns.

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Blue Pill | Red Pill

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Socrates-Plato-Aristotle : The Authority for "Philosophers".

Timidity is a virtue ... until it is Not ?

About 100 years ago we were timid as we tried to understand the storm clouds on the horizon. Several examples $\cdots$

wavicle : an entity having :
$\{$properties characteristic of (waves) $\cup$ (particles)$\}$.

We are supposed to be timid until we must be bold.

> *I myself have never met an interpretation of quantum mechanics I didn't dislike.*[2]

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[2] THE ITHACA INTERPRETATION OF QUANTUM MECHANICS
by N. David Mermin, 17 September 1996

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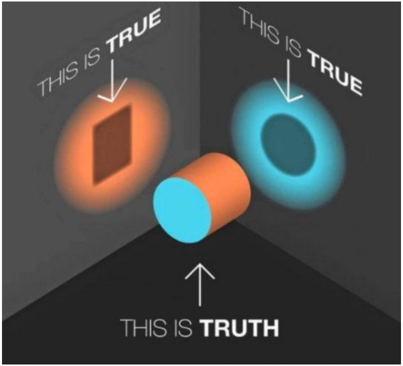
What You See ··· NOT ‽



When is a Particle not a Particle ?

$\{\underline{\text{Things that are particles}}.\}$ versus $\{\text{Not } \underline{\text{Things that are particles}}.\}$

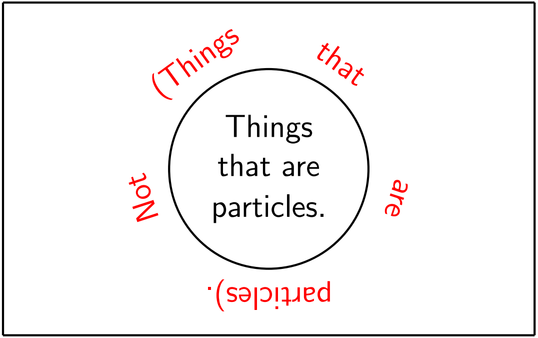


Figure 3 : $P \cap \neg P = \emptyset$: $P \cup \neg P =$ All Things

When is a Wave not a Wave?

$\{\underline{\text{Things that are waves.}}\}$ versus $\{\text{Not } \underline{\text{Things that are waves.}}\}$

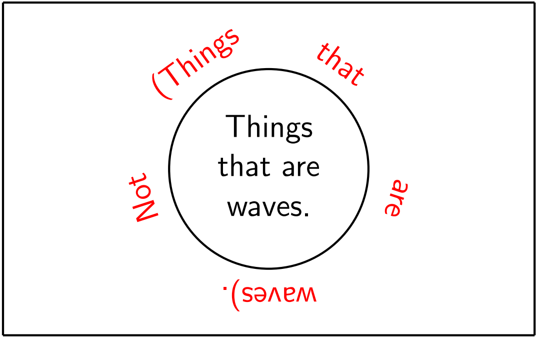


Figure 4 : $W \cap \neg W = \emptyset$: $W \cup \neg W =$ All Things

Is thingness a thing?

electron : an entity having :

$$\{\text{properties characteristic of (particles} \cap \neg \text{ particles)}\}$$
$$\cap$$
$$\{\text{properties characteristic of (waves} \cap \neg \text{ waves)}\}.$$

photon : an entity having :

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These "properties" are **Emergent Properties**.