

... but is $2 = 2.0$?

$$1.0 + 1.00 = 2.0$$

$$1.0 + 1 = 2.0 \quad \dots \quad \text{it's } 2$$

$$1.0 + 0.1 = 0.0$$

$$1 + 1 = 2$$

$$1.0000\dots + 1.0 = 2.0$$

is

$$1.0000 + 1.0 = 1.0 + 1.0 ?$$

if depends, doesn't it?

$$1 + 1 + \frac{0}{10} + \frac{0}{100} + \frac{0}{1000} + \frac{0}{10000} = 1 + 1 \leftarrow \text{yes}$$

$$(1.0 \pm 0.1) + (1) \neq (1.00 \pm 0.01) + (1)$$

$$\pi \times 10^0 = \pi = 3.1415926 \dots$$

$$\pi \times 10^1 = 31.415926 \dots$$

$$\pi \times 10^5 = 314,159.26 \dots$$

$$\text{but } N_A = 6.02 \times 10^{23} =$$

$$602,214,076,000,000,000,000,000$$

which is an integer, but really

~~$$N_A = 6.02 \times 10^{23}$$~~
 exactly

$$N_A = (6.02214078 \pm 0.18 \times 10^{-6}) \times 10^{23}$$

~~$N_A = 6.02 \times 10^{23}$ exact integer~~ ← it's not really

$$N_A \approx (6.02214078 \pm 0.00000018) \times 10^{23}$$

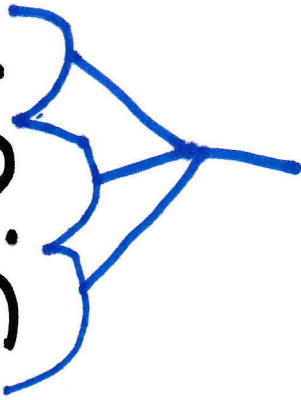
What about things like

$$1.0 \text{ liter} + 2.0 \text{ liter} = 3.0 \text{ liter?}$$

just pretend liters are atoms
and remember that nukes are
a thing, so like yeah...

“order of magnitude” = 42
(in this case)

$$5.67 \times 10^{42}$$



“Significant
figures”

(3 in this case)

$$\pm 2.43 \times 10^{40}$$

uncertainty