On Young Sheldon & Vanity Cards

#700

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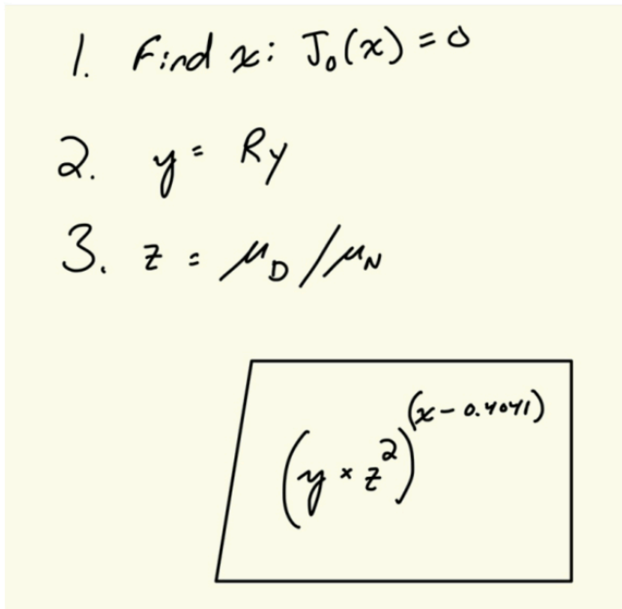
CHUCK LORRE PRODUCTIONS, #700

Congratulations *Young Sheldon* for reaching —



— episodes!

Not knowing the show's episode count, I took the challenge and decided to compute the Young Sheldon Episode Count value myself. I'm not a physicist but am still smart enough to realize that the formula was concocted and I'd have to make, er, certain assumptions in order to play the CLP game. And with that, let us begin.

There is an equation to solve YSEC:1648777428, shown outlined above, having 3 variables, x, y and z, whose values we have to determine before we can compute a YSEC solution. Here are the hints:

1. Find $x : J_0(x) = 0$
2. $y = R_y$
3. $z = \mu_D/\mu_N$

To find x we first have to figure out what the function $J_0(x)$ is, then substitute values of x until the function evaluates to 0. Thank goodness for a searchable web; how did we get anything done before that existed? I dunno but I certainly needed it. After some poking-around time I convinced myself that $J_0(x)$ is a Bessel function of order zero, a damped oscillatory function that crosses zero an infinite number of times. You can see this in Wolfram Alpha with the command **Plot[BesselJ[0, x], {x, 0, 20}]**, and determine the first few zero-crossing x-values with **BesselJZero[0, k]**:

k	x
1	2.4048
2	5.5201
3	8.6537
4	11.7915
5	14.9309

Surely CLP wants someone to solve the YSEC equation, does this sample of 5 solutions taken from an infinite number of solutions contain the value of x that I need? Assume the KISS principle, take the first crossing k = 1, and note that the fractional part of x is very close in value to 0.4041 in the exponent portion of the YSEC equation. There must be deep hidden meaning here, thus, ***x* = 2.4048**.

That was interesting, time to tackle what y in the YSEC equation might be. Searching for R_y I locked-in on the Rydberg unit of energy:

$$y = 2.180 \times 10^{-18}\ J$$

or

$$y = 13.606\ eV$$

Well, which value, what units do we use? Units are bad, Sheldon's Spidey-sense must be tingling, he knows we want a reasonable, unit-less, episode count after all. Let's see what the variable z can tell us, perhaps it can help make the choice for y.

Searching for μ_D and μ_N only produced a meaningful result for μ_N, the nuclear magneton value:

$$\mu_N = 5.051 \times 10^{-27}\ J\ T^{-1}$$

or

$$\mu_N = 3.152 \times 10^{-8}\ eV\ T^{-1}$$

But I still require a value for μ_D, whatever that is. Hmmm, there are a lot of other μ magnetic moment values for different particles, what might D represent? I guessed deuterium, and in deuterium's Wikipedia page was this nugget:

$$\mu_{deuterium} = 0.857\mu_N$$

Yep, I just got lucky, but luck often plays a role in science. Thank you Wikipedia, that's the reason I donate, so I can answer the world's important questions. Thus, $\mu_D/\mu_N =$ **z = 0.857**, and the reciprocal units cancel.

So where do we stand at this time? We have potential values for x and z, both unit-less, but now need to decide which of two y values is correct. We cannot use units as an assist, the only thing they tell us is ***Young Sheldon would never have written the YSEC equation because the units are illogical***, the equation is not unit-less, hold-your-nose-yuck! Okay, KISS once again, henceforth we ignore units. And given what we know about x and z, y cannot be on the order of 10^{-18} if we are to compute a sensible episode count, so ***y* = 13.606**.

In conclusion:

$$x = 2.4048$$

$$y = 13.606$$

$$z = 0.857$$

Thus, the YSEC equation evaluates to:

$$= (y \cdot z^2)^{(x - 0.4041)}$$

$$= (13.606 \cdot 0.857^2)^{(2.4048 - 0.4041)}$$

$$= (13.606 \cdot 0.7345)^{2.0007}$$

$$= 100.0193448$$

$= 100.0$ (to 4 significant digits)

Q.E.D.

100 Young Sheldon episodes and I've enjoyed every one.