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Math Procedures in the Planck Constants

Implicit Math Procedure Affirmed in the Order and the Names of Selected Planck Constants Together with Alternate Mathematical Procedures and Other Constants

Fundamental Physical Constants from the CODATA		
Planck constant	6.62606896	*Fractal expression*
Planck constant ***in eV s***	4.13566733	"
Planck constant ***over 2 pi***	1.054571628	"
Planck constant ***over 2 pi in eV s***	6.58211899	"
Planck constant ***over 2 pi times c in MeV fm***	1.973269631	"

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Planck constant *over 2 pi times c in MeV fm*	1.973269631	"

1-Implicit Procedure Affirmed in the Order and the Names of the Planck Constants

Planck constant ÷ **e** = Planck constant *in eV s*
Planck constant ÷ **2 pi** = Planck constant *over 2 pi*
Planck constant *over 2 pi* ÷ **e** = Planck constant *over 2 pi in eV s*
Planck constant *in eV s* ÷ **2 pi** = Planck constant *over 2pi in eVs*
Planck constant *over 2 pi in eV s* • **c** = Planck constant *over 2 pi times c in MeV fm*

6.62606896 ÷ **1.602176487** = ***4.135667334***
6.62606896 ÷ **6.283185307** = ***1.054571628***

1.054571628 ÷ **1.602176487** = ***6.58211899***
4.135667334 ÷ **6.283185307** = ***6.58211899***

6.58211899 • **2.99792458** = ***1.973269631***

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The following slides present the implied procedure in deriving the cited Planck constants together with selected alternate procedures. These are based upon simply alternating the the selected mathematical procedures chosen in the implied procedure in the CODATA.

1- Implied Procedure
h divided by e
divided by 2 pi
times c

2- Alternate Procedure
h divided by 2 pi
divided by e
times c

3- Alternate Procedure
h times c
divided by e
divided by 2 pi

4- Alternate Procedure
h divided by e
times c
divided by 2 pi

5- Alternate Procedure
h divided by 2 pi
times c
divided by e

6- Alternate Procedure
h times c
divided by 2 pi
divided by e

Each procedure begins with the Planck Constant, 6.62606896 and ends with the Planck constant *over 2 pi times c in MeV fm* , 1.973269631 fractal

1-Implicit Procedure Affirmed in the Names of the Planck Constants

Planck constant ÷ **e** = Planck constant *in eV s*
Planck constant *in eV s* ÷ **2pi** = Planck constant *over 2pi in eV s*
Planck constant *over 2 pi in eV s* • **c** = Planck constant over 2 pi times c in MeV fm

6.62606896 ÷ 1.602176487 = 4.135667334
4.135667334 ÷ 6.283185307 = 6.58211899
6.58211899 • 2.99792458 = **1.973269631**

Repetitions not included

2- A Selected Alternate Procedure in the Planck Constants

Planck constant ÷ **2pi** = Planck constant over *2pi*
Planck constant over *2pi* ÷ **e** = Planck constant over *2pi in eV s*
Planck constant over *2 pi in eV s* • **c** = Planck constant over *2 pi times c in MeV fm*

6.62606896 ÷ **6.283185307** = **1.054571628**
1.054571628 ÷ 1.602176487 = 6.58211899
6.58211899 • 2.99792458 = 1.973269631

3- A Selected Alternate Procedure in the Planck Constants & Distinct Constants

Planck constant • **c** = **Energy of a photon of wavelength λ**
Energy of a photon of wavelength λ ÷ e = **Wavelength of 1eV photon**
Planck constant *over 2 pi* ÷ **2pi** = Planck constant *over 2 pi times c in MeV fm*

6.62606896 • 2.99792458 = ***1.9864455***
1.9864455 ÷ 1.602176487 = ***1.239841875***
6.58211899 ÷ 6.283185307 = 1.97326963

4- A Selected Alternate Procedure in the Planck Constants & Distinct Constant

Planck constant ÷ **e** = Planck constant *in eV s*
Planck constant *in eV s* • **c** = **Wavelength of 1eV photon**
Planck constant *over 2 pi* ÷ **2pi** = Planck constant *over 2 pi times c in MeV fm*

6.62606896 ÷ 1.602176487 = 4.135667334
4.135667334 • 2.99792458 = ***1.239841876***
1.239841876 ÷ 2pi 2.99792458 = 1.973269631

5- A Selected Alternate Procedure in the Planck Constants & Unknown Constant

Planck constant ÷ ***2pi*** = Planck constant *over 2pi*
Planck constant *over 2pi* • **c** = ***Unknown constant***
Unknown constant ÷ **e** = Planck constant *over 2 pi times c in MeV fm*

6.62606896 ÷ 6.283185307 = 1.054571628
1.054571628 • 2.99792458 = ***3.161526206***
3.161526206 ÷ 1.602176487 = 1.973269631

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6- A Selected Alternate Procedure in the Planck Constants & Distinct Constants

Planck constant • c = **Energy of a photon of wavelength λ**

Energy of a photon of wavelength λ ÷ 2pi = ***Unknown constant***

Unknown constant **÷ e** = Planck constant *over 2 pi times c in MeV fm*

6.62606896	•	2.99792458	= ***1.9864455***
1.9864455	÷	6.283185307	= ***3.1615262***
3.1615262	÷	1.602176487	= 1.97326963

In the six different selected mathematical procedures analyzed here, the numerical values of the cited Planck constants are not called into question. This analysis is carried out based upon an acceptance of those values. However, in other works, we have questioned those values. For now, the purpose has been to illustrate the fact that an infinite number of alternate mathematical procedures exist in treating the CODATA fundamental physical constants. This means that there are certainly many more unaccounted physical constants that require identification and discussion. In this study the alternate mathematical procedures have produced two candidates for inclusion in the CODATA: **1.9864455** and **3.1615262**.

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Math Procedures in the Planck Constants

If the inter-relationships of the Planck constants exist as posed in the CODATA, then one may relate their numerical values amongst themselves. The alternate procedure, then, should also represent and produce numerical values that reflect spacetime/motion events in matter-energy. The apparently little treated constant values, ***1.9864455*** and ***3.161526206***, derived as of the existing values should also reflect spacetime/motion. The alternate procedure for computing the different values of the Planck constants may then be accepted as a valid procedure. The cited constants 1.9864455 and 3.16152606 must therefore be a valid physical spacetime relationship.

One isolated example of the 1.9864455 number appeared in the Google searches:
"As we usually use nanometers to note wavelength, and a nanometer is 10^-9 meters, equation is as follows:
*E=(6.62606896*10^-34*2.99792458*10^8)/(λ*10^-9), which result on*
*E= **1.9864455***10^-16/λ as the energy of a photon of wavelength lambda expressed in nm."*

Math Procedures in the Planck Constants

Proposition: **The relationship between fundamental physical constants produces other physical constants.**

There are citations of a near fractal value on the Internet for the ***3.161526206*** number, although it was impossible to actually view the respective texts. The fractal values cited appears to be related to a notion about the "Universe's four-dimensional size". The two following entries appear in a Google search.

"Our undiscovered universe: introducing null physics, the science of… www.worldcate.org/title/our-undiscovered… Universal parameters and astrophysical constants… **universe's four-dimensional size…is equal to 3.161526**…J-m"

"**Reality's four-dimensional size**… Our undiscovered universe… Unit hypervolume can now be written directly in terms of Plank's constant… in units of J-m2/s, **using SI Units of joule-matter: 3.161526(**10)-26 J-m"

Math Procedures in the Planck Constants

In these six different mathematical procedures, two relatively unknown numerical values made their appearance in relation to the various Planck constants. One can only imagine how many such numerical values exist as all of the identified fundamental physical constants in the CODATA.

In previous studies, we have identified yet other numerical values that similarly reflect potential concepts for fundamental physical constants. Certainly many more shall arise, some may find examples in the science literature, but others may not.

Initially, the identification of these relatively unused and/or little treated numerical values may constitute a recognition of omissions in the CODATA. The next step would consist of discussing whether some of the numerical values of the fundamental physical constants are correct or not.

I suspect that there exist innumerable math procedures similarly so for the 326 cited fundamental physical constants that would produce additional relationships among the physical constants. Undoubtedly, additional little known or untreated physical constants would also obtain.