Planck's Fundamental Physical Constants: The Theoretical Foundation of the Planck Units and the *Implied* Planck Constants

New Values for 2010-2013

Based on Selected 2010 CODATA Constants

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Planck's Fundamental Physical Constants: The Theoretical Foundation of the Planck *Implied* Units

New Values Based on Selected 2010 CODATA Numerical Expressions

None of the computed implied constants derived on the tables of this study appear on the CODATA list of fundamental physical and chemical constants. Once again I am forwarding the proposal that these implied values should appear on the CODATA list.

First Foundation	*Second Foundation*	*Third Foundation*	*Fourth Foundation*	***Planck's Constants***
		Planck implied energy **1.956078711** *times*	**Planck implied mass** **3.387424817** *equals*	Planck constant 6.62606957
		Planck constant 6.62606957 *divided by*	2π 6.283185307 *equals*	Reduced Planck constant 1.054571725
		Planck constant 6.62606957 *divided by*	Elementary charge 1.602176565 *equals*	Planck constant in eV s 4.135667513
Planck constant 6.62606957 *divided by*	2π 6.283185307 *equals*	Reduced Planck constant 1.054571725 *divided by*	Elementary charge 1.602176565 *equals*	Reduced Planck in eV s 6.58211927
Reduce Planck in eV s 6.58211927 *divided by*	Reciprocal Speed of Light 3.33564095 *equals*	Reduced Planck in MeV fm 1.9732697 *divided by*	Elementary charge 1.602176565 *equals*	*Not given* 1.23161813
Reduced Planck constant 1.054571725 *divided by*	Elementary charge 1.602176565 *equals*	Reduced Planck in eV s 6.58211927 *divided by*	Reciprocal speed of light 3.33564095 *equals*	Reduced Planck in MeV fm 1.9732697
Reciprocal speed of light 3.33564095 *times*	Proton mass 1.67262176565 *equals*	**Planck implied mass *multiple*** ***3.48704105*** *divided by*	Elementary charge 1.602176565 *equals*	Planck mass 2.17643993
Speed of light in vacuum 2.99792458 *divided by*	First radiation constant 3.741736091 *equals*	**Planck implied energy *multiple*** **1.956084456** *divided by*	Elementary charge 1.602176565 *equals*	Planck energy 1.220891941
Unified atomic mass unit 1.660538921 *times*	Solar constant 1.3661 *equals*	**Planck implied temperature** **2.26846222** *divided by*	Elementary charge 1.602176565 *equals*	Planck temperature 1.415862814
Inverse fine structure constant 1.37035999074 *divided by*	Bohr radius 0.52917721092 *equals*	**Planck implied length** **2.589605073** *divided by*	Elementary charge 1.602176565 *equals*	Planck length 1.616304426
Reciprocal of speed of light 3.33564095 *times*	Planck implied length 2.589605073 *equals*	**Planck implied time** **8.637992726** *divided by*	Elementary charge 1.602176565 *equals*	Planck time 5.39141123

Planck's Fundamental Physical Constants: The Theoretical Foundation of the Planck *Implied* Units

New Values Based on Selected 2010 CODATA Numerical Expressions

Contradiction of Terms in CODATA for Planck Implied Mass Values: 3.387424817 & 3.487153315

First Foundation	*Second Foundation*	*Third Foundation*	*Fourth Foundation*	***Planck's Constants***
		Planck implied energy	**Planck implied mass**	Planck constant
		1.956078711 *times*	**3.387424817** *equals*	6.62606957

The 2010 CODATA Planck Implied Mass value thus derived appears later in the table in another key computation in order to derive Planck Mass. Without an understanding of the Planck *Implied* Constants, it is difficult to comprehend some of the fundamental Planck Constants in the CODATA.

In the case of following the relationship of the reciprocal of the speed of light times the proton mass, a value of 3.48704105 fractal-multiple obtains:

3.33564095 x 1.672621777 = 5.579265693, halves to 2.789632847, 1.394816423, 6.97408211, 3.48704105 fractal

Reciprocal speed of light	Proton mass	**Planck implied mass *multiple***	Elementary charge	Planck mass
3.33564095 *times*	1.67262176565 *equals*	***3.48704105*** *divided by*	1.602176565 *equals*	**2.17643993**

However, in order to derive Planck mass as 2.17651 as given in the 2010 CODATA, a different Planck Implied Mass value must be used. 2.17651 x 1.6702176565 = 3.487153315

		Planck implied mass *multiple*	Elementary charge	Planck mass CODATA 2010
		3.487153315 *divided by*	1.602176565 *equals*	**2.17651**

The apparent contradiction of terms is essentially an error whereby the same category has two different values: 3.387424817 and 3.487153315.

Also, note the similarity of the two values in this case: 2.17651 x 1.67021765 65 = 3.487153315

Planck's Fundamental Physical Constants: The Theoretical Foundation of the Planck Units

New Values Based on Selected 2010 CODATA Numerical Expressions

First Foundation	*Second Foundation*	*Third Foundation*	*Fourth Foundation*	***Planck's Constants***
	CODATA Planck Implied energy →	Planck implied energy **1.956148638** *times*	Planck implied mass **3.387303726** *equals*	**Planck constant** **6.62606957**
		Planck constant	2π	Reduced Planck constant
				n eV s
Planck constant 6.62606957 *di*				n eV s
Reduce Planck 6.58211927 *di*				
Reduced Planck 1.054571725 *c*				n MeV fm
Reciprocal spee 3.33564095 *tim*				
Speed of light i 2.99792458 *di*				
Unified atomic mass unit 1.660538921 *times*	Solar constant 1.3661 *equals*	Planck implied temperature 2.26846222 *divided by*	Elementary charge 1.602176565 *equals*	Planck temperature 1.415862814
Inverse fine structure constant 1.37035999074 *divided by*	Bohr radius 0.52917721092 *equals*	Planck implied length 2.589605073 *divided by*	Elementary charge 1.602176565 *equals*	Planck length 1.616304426
Reciprocal of speed of light 3.33564095 *times*	Planck implied length 2.589605073 *equals*	Planck implied time 8.637992726 *divided by*	Elementary charge 1.602176565 *equals*	Planck time 5.39141123

In line one of the table we employ the CODATA Planck Implied Energy value, 1.956148638. This value is derived from the 2010 CODATA in the following manner:

Planck energy 1.220932
Elementary Charge 1.602176565

1.220932 x 1.602176565 = 1.956148638 implied value in two given CODATA values.

Therefore, with the Planck Implied Energy constant as shown and the Planck constant, h, as given in the 2010 CODATA, then the Planck Implied Mass value is thus derived as 3.387303726.

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New Values Based on Selected 2010 CODATA Numerical Expressions

First Foundation	*Second Foundation*	*Third Foundation*	*Fourth Foundation*	***Planck's Constants***
	CODATA 2010 Planck Implied energy Planck constant, *h* →	Planck implied energy **1.956148638** *times*	Planck implied mass **3.387303726** *equals*	**Planck constant** **6.62606957** CODATA
		Planck constant 6.62606957 *divided by*	2π 6.283185307 *equals*	Reduced Planck constant 1.054571725
		Planck constant 6.62606957 *divided by*	Elementary charge 1.602176565 *equals*	Planck constant in eV s 4.135667513
Planck constant 6.62606957 *divided by*	2π 6.283185307 *equals*	Reduced Planck constant 1.054571725 *divided by*	Elementary charge 1.602176565 *equals*	Reduced Planck in eV s 6.58211927
Reduce Planck in eV s 6.58211927 *divided by*	Reciprocal Speed of Light 3.33564095 *equals*	Reduced Planck in MeV fm 1.9732697 *divided by*	Elementary charge 1.602176565 *equals*	*Not given* *1.23161813*
Reduced Planck constant 1.054571725 *divided by*	Elementary charge 1.602176565 *equals*	Reduced Planck in eV s 6.58211927 *divided by*	Reciprocal speed of light 3.33564095 *equals*	Reduced Planck in MeV fm 1.9732697
		Planck implied mass *multiple* **3.487153315** *divided by*	Elementary charge 1.602176565 *equals*	Planck mass CODATA 2010 **2.17651**
The use of the same numerical value for Planck Implied Energy still obviates the contradiction of numerical values for the Planck Implied Mass appearances. →		Planck implied energy **1.956148638** *divided by*	Elementary charge 1.602176565 *equals*	Planck energy **1.220932** CODATA 2010
Unified atomic mass unit 1.660538921 *times*	Solar constant 1.3661 *equals*	Planck implied temperature 2.26846222 *divided by*	Elementary charge 1.602176565 *equals*	Planck temperature 1.415862814
Inverse fine structure constant 1.37035999074 *divided by*	Bohr radius 0.52917721092 *equals*	Planck implied length 2.589605073 *divided by*	Elementary charge 1.602176565 *equals*	Planck length 1.616304426
Reciprocal of speed of light 3.33564095 *times*	Planck implied length 2.589605073 *equals*	Planck implied time 8.637992726 *divided by*	Elementary charge 1.602176565 *equals*	Planck time 5.39141123

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New Values Based on Selected 2010 CODATA Numerical Expressions

Contradiction of Terms in CODATA for Planck Implied Mass Values: 3.387303726 & 3.487153315

Planck energy implied in CODATA 2010	**Planck implied mass**	**Planck constant** CODATA 2010
1.956148638 *times*	**3.387303726** *equals*	**6.62606957**

Planck implied mass *multiple*	Elementary charge CODATA 2010	Planck mass CODATA 2010
3.487153315 *divided by*	**1.602176565** *equals*	**2.17651**

The apparent contradiction of CODATA terms is essentially an error whereby the same category has two different values: 3.387303726 and 3.487153315.

In other words, in order to derive the Planck Constant, 6.62606957, a value of 3.387303726 must be employed for the Planck Implied Mass, when using the CODATA derived Planck Implied Energy of 1.956148638.

But, in order to derive the CODATA 2010 Planck Mass constant, 2.17651, a numerical multiple of 3.487153315 must be employed for the same Planck Implied Mass value, when employing the Elementary charge, 1.602176565.

It is impossible to employ two different numerical values for the same fundamental physical constant as suggested by the CODATA. Either one or both of the cited values, 3.387303726 and 3.487153315, are incorrect, causing the resulting numerical values of the other Planck constants cited to also possibly be incorrect.