

Review of thermodynamics laws of solids, liquid and gases and probable new ideal equation for gases.

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Abstract: In the present paper review of thermodynamics of solids, liquids and gasses are presented. The correction to zeroth, first, second and third laws of thermodynamics are presented. The thermodynamics laws like Boyle's, Charle's Gay-Lussac's Law and Combined and Ideal gas laws are proved to be wrong through reasoning and analysis and also from calculations using these laws. Probable new ideal equation for gasses is proposed and is presented in this paper.

Keywords: Thermodynamics laws, Boyle's law, Gay-Lussac's law, Charle's law, combined and ideal law, new ideal gas equation.

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I. Introduction

In the present paper revisiting of thermodynamics of solids, liquids and gasses are considered. The zeroth, first, second and third laws of thermodynamics are revisited through reasoning and analysis. The thermodynamics laws like Boyle's, Charle's Gay-Lussac's Law and Combined and Ideal gas laws have been proved to be wrong through reasoning and analysis and also from calculations using these laws. Probable new ideal equation for gasses is proposed in this paper.

II. Results and discussion:

One needs to know the parameters which affect the properties of solids, liquids and gases. The basic quantity is temperature and heat. According to reference [1] heat is the total energy of the motion of the molecules of a substance, whereas temperature refers to the measure of the average energy of the motions of the molecules in the substance. The units of temperature are Kelvin and units of heat are $\text{kg}\cdot\text{m}^2\cdot\text{s}^{-2}$ (Joules). This is wrong as the units of temperature are not considered in units of heat.

The temperature is a measure of how hot the matter is. Its units are Kelvin (K). The heat is a measure of how much temperature is needed to attain the particular temperature for one Kg of mass in unit time. The units of heat are K/(Kg-s). The other parameters which affect the properties of matter are pressure and volume. Pressure is a measure of force applied per unit area. The units of force are Newton which is equal to $\text{Kg}\cdot\text{m}/\text{s}^2$. The overall units of pressure are $\text{Kg}\cdot\text{m}^{-1}\cdot\text{s}^{-2}$. This is wrong as one has to consider time. The corrected formula of pressure is force applied per unit area per unit second. Therefore the modified units of pressure will be $\text{Kg}\cdot\text{m}^{-1}\cdot\text{s}^{-3}$. The units of volume are m^3 .

The basic principle of thermodynamics is Pascal law which states that a pressure change at any point in a confined incompressible fluid is transmitted throughout the fluid such that the same change occurs everywhere[2]. In simple words it is explained as follows. Pascal law states that when pressure applied on incompressible liquid is changed and the pressure is uniform throughout the liquid, then this results in change in height in the capillary tube. This depends upon the pressure applied on both sides of the capillary tube. Higher is the pressure on one side of the capillary tube higher will be the height difference in the capillary tube. If the height of the capillary tube is equal then the fluid flows out from the capillary tube to which lower pressure is applied. The relation between change in pressure applied (ΔP) and the resulted change in height (Δh) is shown below. Here ρ is mass density and g is the acceleration due to gravity. The calculated parameters are shown in Table 1. In the Table 1, F_1 & F_2 are force, A_1 & A_2 are area. In the Table 1, $P_1=F_1/A_1$ & $P_2=F_2/A_2$. Δh is the change in height in the capillary tube.

$$\Delta h = \frac{\Delta P}{(\rho * g)} \quad (1)$$

According to reference [3], the laws of thermodynamics (zeroth law, first law, second law and third law) are as stated below.

- 1) Zeroth states that If two systems are both in thermal equilibrium with a third system, then they are in thermal equilibrium with each other
- 2) First law states that, In general, the conservation law states that the total energy of an isolated system is constant; energy can be transformed from one form to another, but can be neither created nor destroyed.
- 3) Second law states that energy cannot be extracted from colder body to hotter body
- 4) Third law states that, A system's entropy approaches a constant value which has maximum value as its temperature approaches absolute zero.

The above thermodynamics laws are corrected or updated as follows

1) Regarding Zeroth law

(a) If two systems are both in thermal equilibrium with each other, then they will attain thermal equilibrium with third system either by increasing or decreasing temperature considering the temperature of third system. This can be applied to any number of systems.

(b) If two systems are both in volumetrically equilibrium with each other, then they will attain volumetric equilibrium with third system either by increasing or decreasing volume considering the volume of third system. This can be applied to any number of systems.

(c) If two systems are both in equilibrium with each other regarding the pressure, then they will attain equilibrium in pressure with third system either by increasing or decreasing pressure considering the pressure of third system. This can be applied to any number of systems.

2) Regarding First law:

The first law of thermodynamics (as given above) does not give relation for conservation of mass in to energy and energy to mass.

Albert Einstein proposed mass–energy equivalence in 1905 in one of his Annus Mirabilis papers entitled "Does the inertia of a body depend upon its energy-content? The equivalence is described by the famous equation:

$$E = mc^2 \quad (2)$$

where E is energy, m is mass, and c is the speed of light. The formula is dimensionally consistent and does not depend on any specific system of measurement units. The equation $E = mc^2$ indicates that energy always exhibits relativistic mass in whatever form the energy takes. Mass–energy equivalence does not imply that energy may be "converted" to matter, but it allows for matter to be converted to energy. The calculation using the equation (2) are shown in Table 2.

It is known to all that mass can be converted in to energy and energy can be converted in to matter, but total conversion is not possible in real sense. According to Einstein the upper limit for the unit mass to be converted in to energy irrespective of material to be used is 9.0×10^{16} joules per kilogram. Then the question arises from one kilo gram of uranium and one kilo gram of water if converted in to energy is it possible to produce same output energy (9.0×10^{16} joules per kilogram)? This is not the case in real sense. In the above equation (equation 2) velocity of light is considered for conversion of mass to energy and energy to mass relation. This is wrong as one has to consider the temperature and heat for conversion of mass in to energy and energy to mass not the velocity of light.

3) Regarding second law

Second law states that energy cannot be extracted from colder body to hotter body. This may be corrected as energy can be transformed from hotter body to colder until the equilibrium is attaining on both the systems and bodies. This can be applied to any number of systems.

4) Regarding third law.

The equation relating the third law is given as $S = K_B \ln(\Omega)$, where S is the entropy, K_B is the Boltzmann's constant and Ω is the number of microstates [3]. This equation is wrong and the correct equation for entropy relating the heat and temperature is $S = Q/T$, where Q is the heat transfer and T is absolute temperature [4]. This means that entropy is the measure of a system's thermal energy per unit temperature that is unavailable for doing useful work. As the temperature attains absolute zero then the entropy attains a maximum value and for higher temperatures the entropy attains a minimum value.

Expansion of solids [5]

The expansion of solids on the application of temperature is measured in three quantities for example length expansion, areal expansion and volume expansion.

The length expansion of rod is given by $\Delta L = (L_2 - L_1) = \alpha_L * L_1 * (T_2 - T_1)$, here L_2 is length after expansion of rod, L_1 is initial length of rod, ΔL is the change in length, T_2 is the final temperature, T_1 is initial temperature and α_L is the coefficient of linear expansion of solid rod.

The areal expansion of rod is given by $\Delta A = (A_2 - A_1) = \alpha_A * A_1 * (T_2 - T_1)$, here A_2 is area after expansion of rod, A_1 is initial area of rod, ΔA is the change in area, T_2 is the final temperature, T_1 is initial temperature and α_A is the coefficient of areal expansion of solid rod.

The volume expansion of rod is given by $\Delta V = (V_2 - V_1) = \alpha_V * V_1 * (T_2 - T_1)$, here V_2 is volume after expansion of rod, V_1 is initial volume of rod, ΔV is the change in Volume, T_2 is the final temperature, T_1 is initial temperature and α_V is the coefficient of volume expansion of solid rod.

Expansion of liquids

The expansion of solids on the application of temperature is measured in three quantities for example height expansion, areal expansion and volume expansion.

The height expansion of rod is given by $\Delta h = (h_2 - h_1) = \beta_L * h_1 * (T_2 - T_1)$, here h_2 is height after expansion of liquid, h_1 is initial height of liquid in a container, Δh is the change in height, T_2 is the final temperature, T_1 is initial temperature and β_h is the coefficient of linear expansion of liquid.

The areal expansion of liquid is given by $\Delta A = (A_2 - A_1) = \beta_A * A_1 * (T_2 - T_1)$, here A_2 is area after expansion of liquid, A_1 is initial area of liquid in container, ΔA is the change in area, T_2 is the final temperature, T_1 is initial temperature and β_A is the coefficient of areal expansion of liquid.

The volume expansion of liquid is given by $\Delta V = (V_2 - V_1) = \beta_V * V_1 * (T_2 - T_1)$, here V_2 is volume after expansion of liquid in a container, V_1 is initial volume of liquid, ΔV is the change in Volume, T_2 is the final temperature, T_1 is initial temperature and β_V is the coefficient of volume expansion of liquid in a container.

Expansion of gases

The gases have only volume expansion of solids as they do not have length and area. The gases are occupied volumetrically rather than areal and length wise.

The volume expansion of gases is given by $\Delta V = (V_2 - V_1) = \gamma_V * V_1 * (T_2 - T_1)$, here V_2 is volume after expansion of gas in a container, V_1 is initial volume of gas, ΔV is the change in Volume, T_2 is the final temperature, T_1 is initial temperature and γ_V is the coefficient of volume expansion of gases in a container.

The units of α_L , α_A , α_V , β_L , β_A , β_V and γ_V are K^{-1} (Kelvin inverse in SI units). The dimensions are $M^0 L^0 T^0 K^{-1}$, where M is mass, L is length, T is time and K is units of temperature.

Other thermodynamics laws of gases [6]

1) Boyle Law

In 1662 Robert Boyle studied the relationship between volume and pressure of a gas of fixed amount at constant temperature. The pressure is inversely proportion to volume or volume is inversely proportional to pressure. The final formula is $P_1 V_1 = P_2 V_2$, where P_1 and P_2 are initial pressure and final pressure respectively. V_1 & V_2 are initial volume and final volume respectively. Table 3 shows the approximately values considered for P_1 and P_2 as shown in column 1 & 3. V_1 & V_2 are the approximately values consider as shown in column 2 & 4 in Table 3. In the case of column 7 & 8, the values are calculated values of V_2 and V_1 using formula $P_1 V_1 = P_2 V_2$. It is observed that the calculated values of V_1 & V_2 are inversely equal to V_1 & V_2 which was considered approximately. Similar is the case with P_1 and P_2 as shown in Table 4. The approximately values of P_1 (column 1) & P_2 (column 3) considered are inversely equal to calculated values of P_1 (column 7) and P_2 (Column 8). It is also observed that the values of $P_1 V_1$ and $P_2 V_2$ obtained from the approximately considered values are not equal. This means that the formula is not correct.

2) Gay-Lussac's Law

In 1808, Gay-Lussac's studied the relationship between pressure and temperature of a gas of fixed amount at constant volume. The pressure is directly proportion to temperature. The final formula is $P_1/T_1 = P_2/T_2$, where P_1 and P_2 are initial pressure and final pressure respectively. T_1 & T_2 are initial temperature and final temperature respectively. Table 5 shows the approximately values considered for P_1 and P_2 as shown in column 2 & 4. T_1 & T_2 are the approximately values consider as shown in column 1 & 3 in Table 5. In the case of column 7 & 8, the values are calculated values of T_2 and T_1 using formula $P_1/T_1 = P_2/T_2$. It is observed that the calculated values of T_2 are inversely equal to T_2 which was considered approximately. The magnitude of calculated values of T_1 is higher than the approximately value of T_1 . The approximately values of P_1 (column 2) & P_2 (column 4) considered are inversely equal to calculated values of P_1 (column 7) and P_2 (Column 8) as

shown in Table 6. It is also observed that the values of $P1/T1$ and $P2/T2$ obtained from the approximately considered values are not equal. This means that the formula is not correct.

3) Charles Law

In 1787, Jacques Charles studied the relationship between Volume and temperature of a gas of fixed amount at constant Pressure. The volume is directly proportion to temperature. The final formula is $V1/T1=V2/T2$, where $V1$ and $V2$ are initial volume and final volume respectively. $T1$ & $T2$ are initial temperature and final temperature respectively. Table 7 shows the approximately values considered for $V1$ and $V2$ as shown in column 2 & 4. $T1$ & $T2$ are the approximately values consider as shown in column 1 & 3 in Table 7. In the case of column 7 & 8, the values are calculated values of $V2$ and $V1$ using formula $V1/T1=V2/T2$. It is observed that the calculated values of $V1$ & $V2$ are inversely equal to $V1$ & $V2$ which was considered approximately. It is observed that the calculated values of $T2$ are inversely equal to values of $T2$ which was considered approximately as shown in Table 8. The magnitude of calculated values of $T1$ is higher than the approximately value of $T1$ as shown in Table 8. It is also observed that the values of $V1/T1$ and $V2/T2$ obtained from the approximately considered values are not equal. This means that the formula is not correct.

4) Combined and Ideal gas laws

The combined and ideal gas laws are as follows

$$P1V1/T1=P2V2/T2$$

Here $P1$ and $P2$ are initial and final values of pressure or gas, $V1$ & $V2$ are the initial and final volumes of gas and $T1$ & $T2$ are the initial and final temperature of gas.

From the Tables 9, 10 & 11, it can be observed the calculated values of $P1$ (column 9) & $P2$ (column 10) are inversely equal to $P1$ (column 1) & $P2$ (column 4) which was considered approximately (Table 9). It is also observed that the calculated values of $V1$ (column 9) & $V2$ (column 10) are inversely equal to $V1$ (column 2) & $V2$ (column 5) which was considered approximately (Table 10). The magnitude of calculated values of $T1$ (column 9) and $T2$ (column 10) is higher than the approximately value of $T1$ (column 3) & $T2$ (column 6) as shown in Table 11. It is also observed that the values of $P1V1/T1$ and $P2V2/T2$ obtained from the approximately considered values are not equal. This means that the formula is not correct.

5) New Ideal gas equation

The new ideal gas equation as proposed by us is given below

$$\frac{\Delta P * \Delta V}{T2 * g^2 * m} * \frac{(T2 - T1)}{t} = \text{constant} \quad (2)$$

Where $\Delta P=P2-P1$ is the change in pressure, $\Delta V=V2-V1$ is the change in volume, $\Delta T=T2-T1$ is the change in temperature, g is acceleration due to gravity, m is the mass of the gas and t is the time of applied pressure. The units in the left side of the equation are balanced and this is equal to constant in the right side of the equation.

Table 12 shows the values of ΔP , ΔV , ΔT , g , m , t .

Figure 1(a & b) shows the temperature dependence of $\text{abs}(\text{constant})$ from the values tabulated in Table 12 using new equation (2) as given above.

From the above plot the slope B is obtained by linear fitting to the plot. The value of B is between 1 and 4 i.e ($1 \leq B \leq 4$). The units of slope (B) are in K^{-1} .

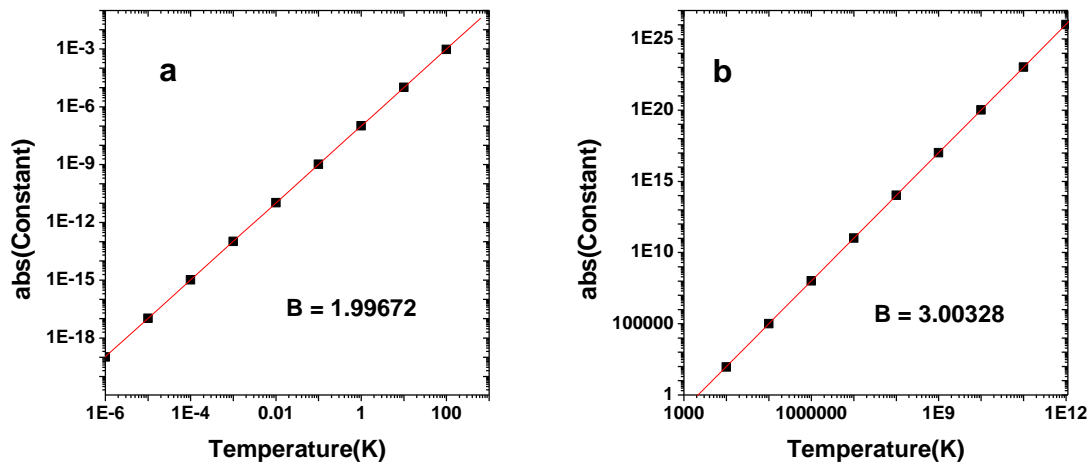


Figure 1(a & b). Shows the plot of abs(constant) vs. Temperature (K) for the values shown in Table 12.

Table 1. Parameters obtained by using Pascal law
$$\Delta h = \frac{\rho P}{(\rho * g)}$$

F1	A1	F2	A2	F1/A1=P1	F2/A2=P2	F1*A2/A1	g	ΔP=P2-P1	ρ	Δh
10-6	10-6	10-6	1000000	1	1E-12	1000000	9.8	-1	1E9	-1.02041E-10
10-5	10-5	10-5	100000	1	1E-10	100000	9.8	-1	1E9	-1.02041E-10
10-4	10-4	10-4	10000	1	1E-8	10000	9.8	-1	1E9	-1.02041E-10
10-3	10-3	10-3	1000	1	1E-6	1000	9.8	-1	1E9	-1.02041E-10
10-2	10-2	10-2	100	1	1E-4	100	9.8	-0.9999	1E9	-1.02031E-10
10-1	10-1	10-1	10	1	0.01	10	9.8	-0.99	1E9	-1.0102E-10
1	1	1	1	1	1	1	9.8	0	1E9	0
10	10	10	0.1	1	100	0.1	9.8	99	1E9	1.0102E-8
100	100	100	0.01	1	10000	0.01	9.8	9999	1E9	1.02031E-6
1000	1000	1000	1E-3	1	1000000	1E-3	9.8	999999	1E9	1.02041E-4
10000	10000	10000	1E-4	1	1E8	1E-4	9.8	1E8	1E9	0.0102
100000	100000	100000	1E-5	1	1E10	1E-5	9.8	1E10	1E9	1.02041
1000000	1000000	1000000	1E-6	1	1E12	1E-6	9.8	1E12	1E9	102.04082

Table 2 Calculations using equation E=mc²

m (Kg)	c (m/s)	E=mc ² (Kg.m/s)
1	3x10 ⁸	9x10 ¹⁶
10	3x10 ⁸	9x10 ¹⁷
10 ²	3x10 ⁸	9x10 ¹⁸
10 ³	3x10 ⁸	9x10 ¹⁹
10 ⁴	3x10 ⁸	9x10 ²⁰
10 ⁵	3x10 ⁸	9x10 ²¹
10 ⁶	3x10 ⁸	9x10 ²²
10 ⁷	3x10 ⁸	9x10 ²³
10 ⁸	3x10 ⁸	9x10 ²⁴
3x10 ⁸	3x10 ⁸	2.7x10 ²⁵

Table 3. P1V1=P2V2

P1 (Column 1)	V1 (Column 2)	P2 (Column 3)	V2 (Column 4)	P1V1 (Column 5)	P2V2 (Column 6)	V2=P1*V1/P2 (Column 7)	V1=P2*V2/P1 (Column 8)
10-6	10-6	10-6	1000000	1E-12	1	1E-6	1000000
10-5	10-5	10-5	100000	1E-10	1	1E-5	100000
10-4	10-4	10-4	10000	1E-8	1	1E-4	10000
10-3	10-3	10-3	1000	1E-6	1	1E-3	1000
10-2	10-2	10-2	100	1E-4	1	0.01	100
10-1	10-1	10-1	10	0.01	1	0.1	10
1	1	1	1	1	1	1	1
10	10	10	0.1	100	1	10	0.1

100	100	100	0.01	10000	1	100	0.01
1000	1000	1000	1E-3	1000000	1	1000	1E-3
10000	10000	10000	1E-4	1E8	1	10000	1E-4
100000	100000	100000	1E-5	1E10	1	100000	1E-5
1000000	1000000	1000000	1E-6	1E12	1	1000000	1E-6

Table 4. $P1V1=P2V2$

P1 (Column 1)	V1 (Column 2)	P2 (Column 3)	V2 (Column 4)	P1V1 (Column 5)	P2V2 (Column 6)	$P2=P1*V1/V2$ (Column 7)	$P1=P2*V2/V1$ (Column 8)
10-6	10-6	10-6	1000000	1E-12	1	1E-18	1000000
10-5	10-5	10-5	100000	1E-10	1	1E-15	100000
10-4	10-4	10-4	10000	1E-8	1	1E-12	10000
10-3	10-3	10-3	1000	1E-6	1	1E-9	1000
10-2	10-2	10-2	100	1E-4	1	1E-6	100
10-1	10-1	10-1	10	0.01	1	1E-3	10
1	1	1	1	1	1	1	1
10	10	10	0.1	100	1	1000	0.1
100	100	100	0.01	10000	1	1000000	0.01
1000	1000	1000	1E-3	1000000	1	1E9	1E-3
10000	10000	10000	1E-4	1E8	1	1E12	1E-4
100000	100000	100000	1E-5	1E10	1	1E15	1E-5
1000000	1000000	1000000	1E-6	1E12	1	1E18	1E-6

Table 5. $P1/T1=P2/T2$

T1 (Column 1)	P1 (Column 2)	T2 (Column 3)	P2 (Column 4)	P1/T1 (Column 5)	P2/T2 (Column 6)	$T2=P2*T1/P2$ (Column 7)	$T1=P1*T2/P2$ (Column 8)
1E-6	1E-6	1E-6	1000000	1	1E12	1000000	1E-18
1E-5	1E-5	1E-5	100000	1	1E10	100000	1E-15
1E-4	1E-4	1E-4	10000	1	1E8	10000	1E-12
1E-3	1E-3	1E-3	1000	1	1000000	1000	1E-9
0.01	0.01	0.01	100	1	10000	100	1E-6
0.1	0.1	0.1	10	1	100	10	1E-3
1	1	1	1	1	1	1	1
10	10	10	0.1	1	0.01	0.1	1000
100	100	100	0.01	1	1E-4	0.01	1000000
1000	1000	1000	1E-3	1	1E-6	1E-3	1E9
10000	10000	10000	1E-4	1	1E-8	1E-4	1E12
100000	100000	100000	1E-5	1	1E-10	1E-5	1E15
1000000	1000000	1000000	1E-6	1	1E-12	1E-6	1E18

Table 6. $P1/T1=P2/T2$

T1 (Column 1)	P1 (Column 2)	T2 (Column 3)	P2 (Column 4)	P1/T1 (Column 5)	P2/T2 (Column 6)	$P1=P2*T1/T2$ (Column 7)	$P2=P1*T2/T1$ (Column 8)
1E-6	1E-6	1E-6	1000000	1	1E12	1000000	1E-6
1E-5	1E-5	1E-5	100000	1	1E10	100000	1E-5
1E-4	1E-4	1E-4	10000	1	1E8	10000	1E-4
1E-3	1E-3	1E-3	1000	1	1000000	1000	1E-3
0.01	0.01	0.01	100	1	10000	100	0.01
0.1	0.1	0.1	10	1	100	10	0.1
1	1	1	1	1	1	1	1
10	10	10	0.1	1	0.01	0.1	10
100	100	100	0.01	1	1E-4	0.01	100
1000	1000	1000	1E-3	1	1E-6	1E-3	1000
10000	10000	10000	1E-4	1	1E-8	1E-4	10000
100000	100000	100000	1E-5	1	1E-10	1E-5	100000
1000000	1000000	1000000	1E-6	1	1E-12	1E-6	1000000

Table 7. $V1/T1=V2/T2$

T1 (Column 1)	V1 (Column 2)	T2 (Column 3)	V2 (Column 4)	V1/T1 (Column 5)	V2/T2 (Column 6)	$V1=V2*T1/T2$ (Column 7)	$V2=V1*T2/T1$ (Column 8)
1E-6	1E-6	1E-6	1000000	1	1E12	1000000	1E-6
1E-5	1E-5	1E-5	100000	1	1E10	100000	1E-5
1E-4	1E-4	1E-4	10000	1	1E8	10000	1E-4
1E-3	1E-3	1E-3	1000	1	1000000	1000	1E-3
0.01	0.01	0.01	100	1	10000	100	0.01
0.1	0.1	0.1	10	1	100	10	0.1
1	1	1	1	1	1	1	1
10	10	10	0.1	1	0.01	0.1	10
100	100	100	0.01	1	1E-4	0.01	100

1000	1000	1000	1E-3	1	1E-6	1E-3	1000
10000	10000	10000	1E-4	1	1E-8	1E-4	10000
100000	100000	100000	1E-5	1	1E-10	1E-5	100000
1000000	1000000	1000000	1E-6	1	1E-12	1E-6	1000000

Table 8. $V1/T1=V2/T2$

T1 (Column 1)	V1 (Column 2)	T2 (Column 3)	V2 (Column 4)	V1/T1 (Column 5)	V2/T2 (Column 6)	T2=V2*T1/V1 (Column 7)	T1=V1*T2/V2 (Column 8)
1E-6	1E-6	1E-6	1000000	1	1E12	1000000	1E-18
1E-5	1E-5	1E-5	100000	1	1E10	100000	1E-15
1E-4	1E-4	1E-4	10000	1	1E8	10000	1E-12
1E-3	1E-3	1E-3	1000	1	1000000	1000	1E-9
0.01	0.01	0.01	100	1	10000	100	1E-6
0.1	0.1	0.1	10	1	100	10	1E-3
1	1	1	1	1	1	1	1
10	10	10	0.1	1	0.01	0.1	1000
100	100	100	0.01	1	1E-4	0.01	1000000
1000	1000	1000	1E-3	1	1E-6	1E-3	1E9
10000	10000	10000	1E-4	1	1E-8	1E-4	1E12
100000	100000	100000	1E-5	1	1E-10	1E-5	1E15
1000000	1000000	1000000	1E-6	1	1E-12	1E-6	1E18

Table 9. $P1*V1/T1=P2*V2/T2$

P1 (Column 1)	V1 (Column 2)	T1 (Column 3)	P2 (Column 4)	V2 (Column 5)	T2 (Column 6)	P1*V1/T1 (Column 7)	P2*V2/T2 (Column 8)	P1=P2*V2*T1/(T1*V1) (Column 9)	P2=P1*V1*T2/(T1*V2) (Column 10)
1E-6	10-6	1E-6	1000000	1000000	1000000	1E-6	1000000	1000000	1E-6
1E-5	10-5	1E-5	100000	100000	100000	1E-5	100000	100000	1E-5
1E-4	10-4	1E-4	10000	10000	10000	1E-4	10000	10000	1E-4
1E-3	10-3	1E-3	1000	1000	1000	1E-3	1000	1000	1E-3
0.01	10-2	0.01	100	100	100	13-2	100	100	0.01
0.1	10-1	0.1	10	10	10	0.1	10	10	0.1
1	1	1	1	1	1	1	1	1	1
10	10	10	0.1	0.1	0.1	10	0.1	0.1	10
100	100	100	0.01	0.01	0.01	100	0.01	0.01	100
1000	1000	1000	1E-3	1E-3	1E-3	1000	1E-3	1E-3	1000
10000	10000	10000	1E-4	1E-4	1E-4	10000	1E-4	1E-4	10000
100000	100000	100000	1E-5	1E-5	1E-5	100000	1E-5	1E-5	100000
1000000	1000000	1000000	1E-6	1E-6	1E-6	1000000	1E-6	1E-6	1000000

Table 10. $P1*V1/T1=P2*V2/T2$

P1 (Column 1)	V1 (Column 2)	T1 (Column 3)	P2 (Column 4)	V2 (Column 5)	T2 (Column 6)	P1*V1/T1 (Column 7)	P2*V2/T2 (Column 8)	V1=P2*V2*T1/(T2*P1) (Column 9)	V2=P1*V1*T2/(T1*P2) (Column 10)
1E-6	10-6	1E-6	1000000	1000000	1000000	1E-6	1000000	1000000	1E-6
1E-5	10-5	1E-5	100000	100000	100000	1E-5	100000	100000	1E-5
1E-4	10-4	1E-4	10000	10000	10000	1E-4	10000	10000	1E-4
1E-3	10-3	1E-3	1000	1000	1000	1E-3	1000	1000	1E-3
0.01	10-2	0.01	100	100	100	13-2	100	100	0.01
0.1	10-1	0.1	10	10	10	0.1	10	10	0.1
1	1	1	1	1	1	1	1	1	1
10	10	10	0.1	0.1	0.1	10	0.1	0.1	10
100	100	100	0.01	0.01	0.01	100	0.01	0.01	100
1000	1000	1000	1E-3	1E-3	1E-3	1000	1E-3	1E-3	1000
10000	10000	10000	1E-4	1E-4	1E-4	10000	1E-4	1E-4	10000
100000	100000	100000	1E-5	1E-5	1E-5	100000	1E-5	1E-5	100000
1000000	1000000	1000000	1E-6	1E-6	1E-6	1000000	1E-6	1E-6	1000000

Table 11. $P_1*V_1/T_1=P_2*V_2/T_2$

P1 (Column 1)	V1 (Column 2)	T1 (Column 3)	P2 (Column 4)	V2 (Column 5)	T2 (Column 6)	P1*V1/T 1 (Column 7)	P2*V2/T 2 (Column 8)	T1= P1*V1*T2/(P2*V2) (Column 9)	T2= P2*V2*T1/(P1*V1) (Column 10)
1E-6	10-6	1E-6	100000	100000	100000	1E-6	1000000	1E-18	1E18
1E-5	10-5	1E-5	100000	100000	100000	1E-5	100000	1E-15	1E15
1E-4	10-4	1E-4	10000	10000	10000	1E-4	10000	1E-12	1E12
1E-3	10-3	1E-3	1000	1000	1000	1E-3	1000	1E-9	1E9
0.01	10-2	0.01	100	100	100	13-2	100	1E-6	1000000
0.1	10-1	0.1	10	10	10	0.1	10	1E-3	1000
1	1	1	1	1	1	1	1	1	1
10	10	10	0.1	0.1	0.1	10	0.1	1000	1E-3
100	100	100	0.01	0.01	0.01	100	0.01	1000000	1E-6
1000	1000	1000	1E-3	1E-3	1E-3	1000	1E-3	1E9	1E-9
10000	10000	10000	1E-4	1E-4	1E-4	10000	1E-4	1E12	1E-12
100000	100000	100000	1E-5	1E-5	1E-5	100000	1E-5	1E15	1E-15
1000000	1000000	1000000	1E-6	1E-6	1E-6	1000000	1E-6	1E18	1E-18

Table 12. Parameters obtained using below new equation.

$\Delta P=P_2-P_1$	$\Delta V=V_2-V_1$	T1	T2	$\Delta T=T_2-T_1$	g^2	m	t	Total Constant
1E-6	1E-6	1E-6	1000	1000	96.2361	1000	100	1.03911E-19
1E-5	1E-5	1E-5	1000	999.99999	96.2361	1000	100	1.03911E-17
1E-4	1E-4	1E-4	1000	999.9999	96.2361	1000	100	1.03911E-15
1E-3	1E-3	1E-3	1000	999.999	96.2361	1000	100	1.03911E-13
0.01	0.01	0.01	1000	999.99	96.2361	1000	100	1.0391E-11
0.1	0.1	0.1	1000	999.9	96.2361	1000	100	1.03901E-9
1	1	1	1000	999	96.2361	1000	100	1.03807E-7
10	10	10	1000	990	96.2361	1000	100	1.02872E-5
100	100	100	1000	900	96.2361	1000	100	9.352E-4
1000	1000	1000	1000	0	96.2361	1000	100	0
10000	10000	10000	1000	-9000	96.2361	1000	100	-93.52
100000	100000	100000	1000	-99000	96.2361	1000	100	-102871.99918
1000000	1000000	1000000	1000	-999000	96.2361	1000	100	-1.03807E8
1E7	1E7	1E7	1000	-9.999E6	96.2361	1000	100	-1.03901E11
1E8	1E8	1E8	1000	-9.9999E7	96.2361	1000	100	-1.0391E14
1E9	1E9	1E9	1000	-9.99999E8	96.2361	1000	100	-1.03911E17
1E10	1E10	1E10	1000	-1E10	96.2361	1000	100	-1.03911E20
1E11	1E11	1E11	1000	-1E11	96.2361	1000	100	-1.03911E23
1E12	1E12	1E12	1000	-1E12	96.2361	1000	100	-1.03911E26

$$\frac{\Delta P * \Delta V}{T_2 * g^2 * m} * \frac{(T_2 - T_1)}{t} = \text{const an } t$$

III. Conclusions:

Thermodynamics of solids, liquids and gasses and also the correction to zeroth, first, second and third laws of thermodynamics are reviewed and presented in this paper. Through reasoning and analysis and also through calculations using the thermodynamics laws like Boyle's, Charle's Gay-Lussac's Law and Combined and Ideal gas laws are proved to be wrong. Probable new ideal equation for gasses is proposed which is presented in this paper.

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