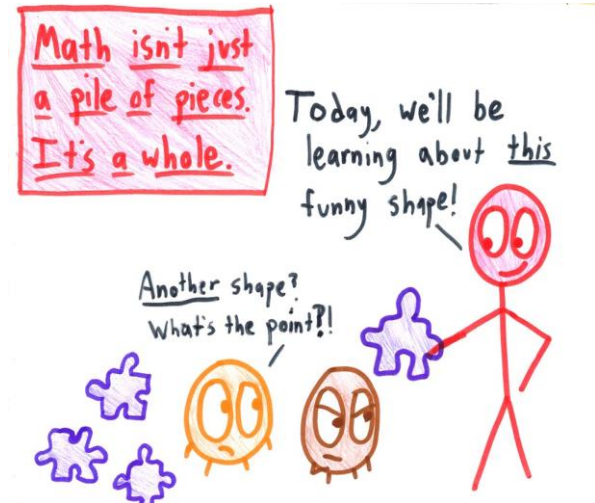


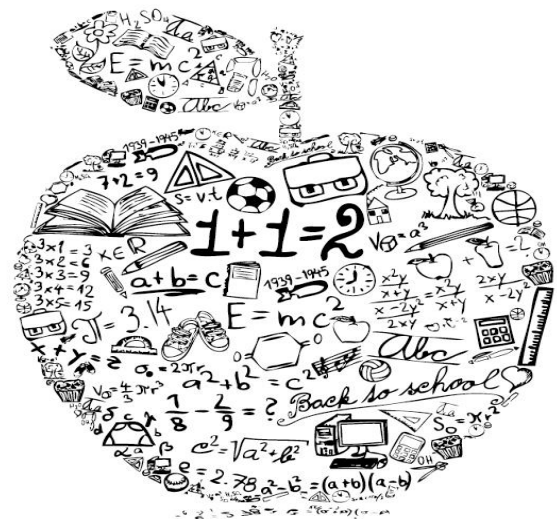
Equations that changed the world

Students nowadays are highly critical about their Mathematics curriculum. They take no time to say Math. is very hard and useless thing to learn. What will I do with these equations?.

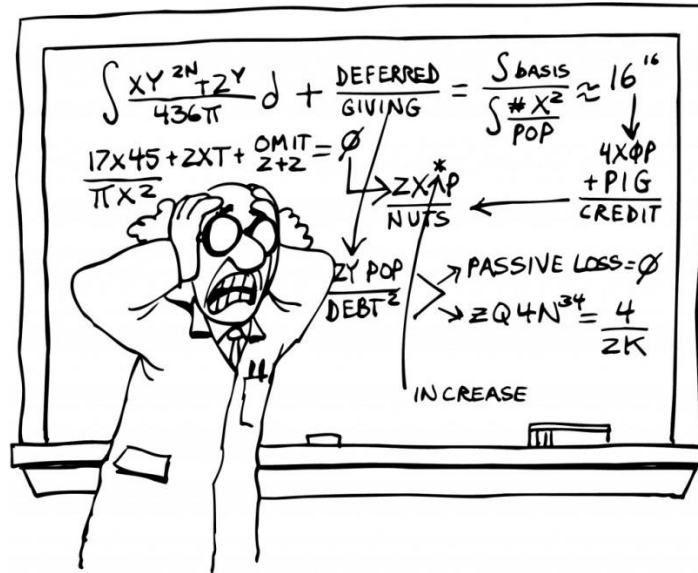
Nobody in work place will ask me hey! integrate this or differentiate that. I will be sitting in my chair, doing my work assigned to me, most of these work will be mechanical or clerical in nature, so why we remember all these formulas and equations?.



Well, they may be right to some extent because , when people eat foods and drink beverages they praise the quality of the food but not the cook. This is very common feature of human life. People do not realize the contribution of those who serve them to make human life easier ,cheaper and comfortable by discovering new equations , new ideas and bring a revolutionary changes in the world.



Scientists and mathematicians, who have discovered these things, were also students like them, but they never thought these ideas and equations to be redundant and useless, rather they spent their valuable time to provide us many such rules and equation which has made this world more beautiful place to live.



Here, I would like to mention few of such equations in mathematical form which has really contributed in changing the world we live in.

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| 1. Pythagoras's theorem | $x^2 + y^2 = z^2$ | Pythagoras, 530 BC |
| 2. Logarithms | $\log xy = \log x + \log y$ | John Napier, 1610 |
| 3. Calculus | $\frac{df}{dt} = \lim_{h \rightarrow 0} \frac{f(t+h) - f(t)}{h}$ | Newton, 1668 |
| 4. Law of Gravity | $F = G \frac{m_1 m_2}{r^2}$ | Newton, 1687 |
| 5. The square of minus -1 | $i^2 = -1$ | Euler, 1750 |
| 6. Euler's formula for Polyhedra | $V - E + F = 2$ | Euler, 1751 |
| 7. Normal Distribution | $\phi(x) = \int_{-\infty}^{\infty} \frac{1}{\sqrt{2\pi\sigma}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$ | C.F. Gauss, 1810 |

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| 8. Wave equation | $\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$ | J.d'almbert,1746 |
| 9. Fourier Transform | $f(\omega) = \int_{-\infty}^{\infty} f(x) e^{-2\pi i x \omega} dx$ | J.Fourier,1822 |
| 10. Navier-Stokes Equation | $\rho \left(\frac{\partial v}{\partial t} + v \cdot \nabla v \right) = -\nabla \rho + \nabla T + f$ | C.Navier,G.Stokes,1845 |
| 11. Maxwell's equations | $(a) \nabla \cdot D = \rho \quad (b) \nabla \cdot B = 0$
$(c) \nabla \times E = -\frac{\partial B}{\partial t} \quad (d) \nabla \times H = \frac{\partial D}{\partial t} + J$ | J.C Maxwell,1865 |
| 12. Second Law of Thermodynamics | $ds \geq 0$ | L.Boltzmann,1874 |
| 13. Relativity | $E = mc^2$ | Einstein,1905 |
| 14. Schrodinger's Equation | $ih \frac{\partial}{\partial t} \psi = H \psi$ | E.Schrodinger,1927 |
| 15. Information Theory | $H = -\sum p(x) \log p(x)$ | C.Shannon,1949 |
| 16. Chaos theory | $x_{t+1} = kx_t(1-x_t)$ | Robert May,1975 |
| 17. Black Scholes Equation | $\frac{1}{2} \sigma^2 S^2 \frac{\partial^2 v}{\partial S^2} + rS \frac{\partial v}{\partial S} + \frac{\partial v}{\partial t} - rv = 0$ | F.Black,M.Scholes,1990 |

People who use these mathematical equations in practical forms they are fully aware with the importance of above equations , but students wants to see the advantage of these only in a way when they see these thing happening in front of them. they praise Samsung company for the beautiful app it provides in their mobile phones , but hey fail to realize what made it to happen this way. They fail to praise those equations and rule which make this happen. If a child in the womb of his/her mother is explained that the place where you are now is very small compared to the world where we live, do you think he/she will believe it , of course not because for him the small womb of her mother is the biggest world.

Let us appreciate the efforts of mathematician and scientists whose names are mentioned in the list above. You don't know what you are destined to become. Fast changing world , may not give, what you want.



Math

You must learn whatever you are taught, because, the people who make curriculum are experts ,who know very well, what you might need in your future. You want to succeed through education but don't want to appreciate what you are asked to learn how is this?

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