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Physics is filled with equations and formulas that deal with angular motion, Carnot engines, fluids, forces, moments of inertia, linear motion, simple harmonic motion, thermodynamics, and work and energy.Heres a list of some important physics formulas and equations to keep on hand arranged by topic so you dont have to go searching to find them. Angular motion Equations of angular motion are relevant wherever you have rotational motions around an axis. When the object has rotated through an angle of with an angular velocity of and an angular acceleration of , then you can use these equations to tie these values together. You must use radians to measure the angle. Also, if you know that the distance from the axis is r, then you can work out the linear distance traveled, s, velocity, v, centripetal acceleration, ac, and force, Fc. When an object with moment of inertia, I (the angular equivalent of mass), has an angular acceleration, , then there is a net torque . Carnot engines A heat engine takes heat, Qh, from a high temperature source at temperature Th and moves it to a low temperature sink (temperature Tc) at a rate Qc and, in the process, does mechanical work, W. (This process can be reversed such that work can be performed to move the heat in the opposite direction a heat pump.) The amount of work performed in proportion to the amount of heat extracted from the heat source is the efficiency of the engine. A Carnot engine is reversible and has the maximum possible efficiency, given by the following equations. The equivalent of efficiency for a heat pump is the coefficient of performance. Fluids A volume, V, of fluid with mass, m, has density, . A force, F, over an area, A, gives rise to a pressure, P. The pressure of a fluid at a depth of h depends on the density and the gravitational constant, g. Objects immersed in a fluid causing a mass of weight, Wwater displaced, give rise to an upward directed buoyancy force, Fbuoyancy. Because of the conservation of mass, the volume flow rate of a fluid moving with velocity, v, through a cross-sectional area, A, is constant. Bernoullis equation relates the pressure and speed of a fluid. Forces A mass, m, accelerates at a rate, a, due to a force, F, acting. Frictional forces, FF, are in proportion to the normal force between the materials, FN, with a coefficient of friction, . Two masses, m1 and m2, separated by a distance, r, attract each other with a gravitational force, given by the following equations, in proportion to the gravitational constant G: Moments of inertia The rotational equivalent of mass is inertia, I, which depends on how an objects mass is distributed through space. The moments of inertia for various shapes are shown here: Disk rotating around its center: Hollow cylinder rotating around its center: I = mr2 Hollow sphere rotating an axis through its center: Hoop rotating around its center: I = mr2 Point mass rotating at radius r: I = mr2 Rectangle rotating around an axis along one edge where the other edge is of length r: Rectangle rotating around an axis parallel to one edge and passing through the center, where the length of the other edge is r: Rod rotating around an axis perpendicular to it and through its center: Rod rotating around an axis perpendicular to it and through one end: Solid cylinder, rotating around an axis along its center line: The kinetic energy of a rotating body, with moment of inertia, I, and angular velocity, : The angular momentum of a rotating body with moment of inertia, I, and angular velocity, : Linear motion When an object at position x moves with velocity, v, and acceleration, a, resulting in displacement, s, each of these components is related by the following equations: Simple harmonic motion Particular kinds of force result in periodic motion, where the object repeats its motion with a period, T, having an angular frequency, , and amplitude, A. One example of such a force is provided by a spring with spring constant, k. The position, x, velocity, v, and acceleration, a, of an object undergoing simple harmonic motion can be expressed as sines and cosines. Thermodynamics The random vibrational and rotational motions of the molecules that make up an object of substance have energy; this energy is called thermal energy. When thermal energy moves from one place to another, its called heat, Q. When an object receives an amount of heat, its temperature, T, rises.Kelvin (K), Celsius (C), and Fahrenheit (F) are temperature scales. You can use these formulas to convert from one temperature scale to another:The heat required to cause a change in temperature of a mass, m, increases with a constant of proportionality, c, called the specific heat capacity. In a bar of material with a cross-sectional area A, length L, and a temperature difference across the ends of T, there is a heat flow over a time, t, given by these formulas:The pressure, P, and volume, V, of n moles of an ideal gas at temperature T is given by this formula, where R is the gas constant:In an ideal gas, the average energy of each molecule KEavg, is in proportion to the temperature, with the Boltzman constant k: Work and energy When a force, F, moves an object through a distance, s, which is at an angle of ,then work, W, is done. Momentum, p, is the product of mass, m, and velocity, v. The energy that an object has on account of its motion is called KE.Physics is concerned with the study of the universe from the smallest to the largest scale: it is about unravelling its complexities to discover the way it is and how it works.Discoveries in physics have formed the foundation of countless technological advances and play an important role in many scientific areas. Many techniques used in medical imaging, nanotechnology and quantum computing are derived from physics instrumentation. Even the World Wide Web was a spin-off from the information processing and communications requirements of high-energy particle physics.The contributions of physics to solving global problems such as energy production, environmental protection, global warming and public health are essential and have an enormous impact on our society. ">Video of Physics at Oxford University Oxford has one of the largest university physics departments in the UK, with an outstanding and very diverse research programme in six sub-departments:AstrophysicsAtmospheric, Oceanic and Planetary PhysicsAtomic and Laser PhysicsCondensed Matter Physics (including BioPhysics)Particle PhysicsTheoretical Physics.Physics at Oxford is challenging and mathematical with a strong emphasis on fundamental concepts such as optics and relativity.There are two undergraduate courses, an MPhys and the BA. All applicants apply for the four-year MPhys in the first instance.The fourth-year MPhys option courses bring you to the threshold of current research, and can lead to subject specialism.The department is equipped with state-of-the-art lecture facilities and teaching laboratories. Tutorials give students direct and regular access to physicists actively involved in research and provide an opportunity to explore scientific ideas with experts in the field.Project work/international opportunitiesIn the third year, all students carry out a short project in the teaching laboratories. Students on both the BA and MPhys may have the opportunity to do industry projects investigating a real physics problem.There is further flexibility to undertake computational and experimental projects.A wide choice of fourth-year MPhys projects is available across all six physics sub-departments.'Ive always wanted to study physics. I saw Apollo 13 when I was about 13 years old and theres this bit where the scientists are trying to fit a square peg into a round hole this made me want to work for NASA! But the more physics I study, the more I realise that theres so much awesome stuff apart from astrophysics; Ive ended up focusing on condensed matter which gets me thinking about the applications of physics in the real world. Learning the theoretical stuff is all very well, but I like being able to get useful things out of it.I am president of the Oxford University Physics Society. One of the main things we do is get famous physicists in to speak to us. This can help students to remember the exciting, real-world cool stuff that got them into physics in the first place, even when theyre struggling through reams of maths problem sheets.'Karla-Luise'The tutorial system is one of the greatest things about studying at Oxford. Having to present your proofs and answers to world-leading mathematicians and academics on a twice-weekly basis can seem daunting, but it accelerates your understanding of difficult concepts and ideas, and equips you with the ability to deal with any other problems in a rigorous and precise way. The pace of the course is very rapid and the amount of material that is covered is vast. Very quickly, you will start to learn how to digest large volumes of information, understand it, and apply it to solving problems effectively. The ability to analyse situations critically, understand abstract problems and patterns, and apply a high level of computational knowledge are skills that are vital across all sectors and industries, both public and private, and are highly valued by employers.'SaraUnistats informationDiscover Unicourse data provides applicants with Unistats statistics about undergraduate life at Oxford for a particular undergraduate course.Please select 'see course data' to view the full Unistats data for Physics.Please note that there may be no data available if the number of course participants is very small.Visit the Studying at Oxford section of this page for a more general insight into what studying here is likely to be like. Are you tired of searching high and low for those elusive physics formulas? Look no further! The Guide to All Physics Formulas is here to save the day. This comprehensive resource is a one-stop-shop for all your physics equation needs.With its organized and easy-to-navigate layout, this guide ensures that you can quickly find the formula youre looking for without wasting precious time. Whether youre a student struggling with homework, an educator preparing lessons, or a professional needing quick reference, this guide has got you covered.No more frantically flipping through textbooks or scouring the internet for reliable sources. The Guide to All Physics Formulas provides everything you need in one convenient place. So why wait? Dive into this treasure trove of knowledge today and unlock the secrets of physics at your fingertips.Dont miss out on this game-changing resource that simplifies complex concepts and empowers learners of all levels. Get ready to conquer physics like never before!Importance of Physics Formulas in Competitive Examsphysics formulasPhysics formulas play a crucial role in competitive exams, especially those that are physics-based. They are not just random equations but powerful tools that help students solve complex problems efficiently. Heres why understanding and utilizing these formulas is essential for scoring high in such exams:Key role in solving complex problems efficiently: Physics formulas provide a shortcut to solving intricate problems by condensing the necessary steps into concise equations. They allow students to save time and effort while still arriving at accurate solutions.Enhances problem-solving skills and logical thinking: By using physics formulas regularly, students develop their problem-solving skills and enhance their logical thinking abilities. These formulas teach them how to break down complex problems into manageable parts, analyze the given data, and apply the appropriate formula to find the solution.Essential for scoring high in physics-based competitive exams: In physics-based competitive exams, understanding and applying the relevant formulas correctly can significantly impact ones performance. These exams often test not only theoretical knowledge but also practical application of concepts through problem-solving questions. Knowing the right formula to use can make a substantial difference in obtaining correct answers quickly.Mastering physics formulas is therefore vital for excelling in competitive exams. It empowers students with efficient problem-solving techniques, enhances their logical reasoning capabilities, and ensures they are well-prepared to tackle challenging questions effectively.So, whether youre preparing for an entrance exam or aiming for a top score on a physics competition, investing time in learning and practicing physics formulas will undoubtedly give you an edge over your competitors.Mechanics Formulas: Fundamentals and ApplicationsThe study of mechanics forms the foundation of physics, providing us with a deep understanding of how objects behave in motion. This guide to all physics formulas focuses specifically on mechanics, covering fundamental concepts and their practical applications.Newtons LawsNewtons laws of motion are essential for comprehending the behavior of objects in motion. They provide a framework for understanding the relationship between forces acting on an object and its resulting acceleration. The following laws are covered:First Law: An object at rest stays at rest, and an object in motion continues moving with constant velocity unless acted upon by an external force.Second Law: The acceleration of an object is directly proportional to the net force applied to it and inversely proportional to its mass.Third Law: For every action, there is an equal and opposite reaction.Motion EquationsTo describe various types of motion accurately, this guide presents a set of equations that encompass displacement, velocity, and acceleration. These equations allow us to calculate crucial quantities such as initial/final velocity, time taken, or displacement traveled.Forces and Energy EquationsUnderstanding forces is vital when analyzing mechanical systems. This section covers formulas related to gravitational force, frictional force, normal force, tension force, and more. Energy equations are explored to comprehend how energy is transferred or transformed within a system.Real-World ApplicationsMechanics formulas find extensive use in real-world scenarios where objects are in motion. Some notable applications include:Projectile Motion: Examining the trajectory of projectiles launched into the air under gravitys influence.Collisions: Analyzing collisions between objects to determine their outcomes.Circular Motion: Understanding the forces acting on objects moving along circular paths.By mastering these mechanics formulas, you will gain valuable insights into the physical world around us and be equipped to solve a wide range of problems involving motion and forces.Thermodynamics Formulas: Heat, Energy, and Their Practical UsesThermodynamics formulas play a crucial role in understanding various concepts related to heat, energy, and their practical applications. These formulas are essential for comprehending the processes of energy conversion, making them invaluable in fields like engineering, chemistry, and environmental science.Exploring concepts such as heat transfer, work done, and efficiency is at the core of thermodynamics formulas. By understanding these principles, scientists and engineers can analyze how heat flows from one object to another or how work is performed in different systems. For instance:Heat transfer: Thermodynamics provides formulas that explain how heat moves between objects. This knowledge is vital in designing efficient cooling systems for electronic devices or optimizing heating systems for buildings.Work done: The formulas also allow us to calculate the work done by a system. This information helps engineers determine the amount of energy required to perform specific tasks or operate machinery effectively.Efficiency: Thermodynamics offers insights into efficiency calculations. By utilizing these formulas, professionals can assess how efficiently energy is converted from one form to another. This understanding enables them to optimize processes and minimize wasted energy.The practical uses of thermodynamics extend beyond theoretical calculations. They find real-world applications in diverse industries:Engineering: Engineers rely on thermodynamic principles to design engines, turbines, refrigeration systems, and other devices that involve energy conversion.Chemistry: In chemical reactions and processes involving temperature changes or energy transfers, thermodynamic formulas provide valuable insights into reaction rates and equilibrium conditions.Environmental Science: Understanding thermodynamics helps researchers study climate change phenomena such as heat transfer within Earths atmosphere or ocean currents.By leveraging the power of thermodynamic formulas, professionals across disciplines gain a deeper understanding of heat flow dynamics, work calculations, and overall system efficiency. These formulas serve as indispensable tools for solving complex problems and advancing scientific knowledge in numerous fields.Electromagnetism Formulas: Understanding and Applying the Forces of NatureElectricity and magnetism are two fundamental forces that shape our understanding of the physical world. By studying electromagnetism, we gain insights into electric fields, magnetic fields, and electromagnetic waves. These concepts play a crucial role in various applications, including electricity generation and transmission.Understanding electric fields allows us to comprehend how electric charges interact with each other. Electric fields surround charged objects and exert forces on other charged particles within their vicinity. This knowledge is vital for engineers designing electrical systems or physicists exploring the behavior of subatomic particles.Similarly, comprehending magnetic fields helps us grasp the interactions between magnets and electric currents. Magnetic fields influence the motion of charged particles, leading to phenomena like electromagnetic induction. This principle forms the basis for technologies such as generators, motors, and transformers.Electromagnetic waves encompass a broad spectrum ranging from radio waves to gamma rays. These waves propagate through space without requiring a medium and carry energy across vast distances. Telecommunications heavily rely on electromagnetic waves for transmitting signals wirelessly, enabling global communication networks.The practical applications of electromagnetism extend beyond theoretical physics. Electronics heavily utilize these principles in designing circuits that power countless devices we use daily. Power systems rely on electromagnetism for efficient generation, distribution, and consumption of electrical energy.Optics Formulas: Exploring Vision and Light PhenomenaOptics formulas encompass a fascinating range of topics, including reflection, refraction, lenses, and wave optics. These formulas provide valuable insights into how light interacts with different materials, shedding light on various phenomena related to vision and the behavior of light itself.By understanding reflection, we can comprehend how light bounces off surfaces. This knowledge finds applications in fields like photography and astronomy, where capturing and analyzing reflected light is crucial. Refraction formulas allow us to explore how light bends when passing through different mediums, enabling advancements in ophthalmology by helping us understand how lenses correct vision.The study of wave optics delves into the intricate nature of light waves. With these formulas, we gain an understanding of concepts such as interference and diffraction. This knowledge has practical implications in fields like telecommunications and laser technology.Optics formulas find relevance in a wide array of disciplines. In photography, they guide professionals in manipulating lighting conditions to achieve desired effects. Astronomers rely on these formulas to analyze celestial objects properties based on the light they emit or reflect. Ophthalmologists use optics principles to design corrective lenses that enhance patients vision.ConclusionMastering physics formulas is crucial for success in competitive exams. Understanding and applying these formulas can help you excel in various fields of physics.In mechanics, learning the fundamentals and applications of formulas will enable you to solve problems related to motion, forces, and energy. Thermodynamics formulas allow you to comprehend concepts like heat, energy transfer, and their practical uses in everyday life. Electromagnetism formulas help you understand the forces of nature and their applications in electricity, magnetism, and electromagnetic waves. Optics formulas delve into vision and light phenomena, allowing you to explore topics such as reflection, refraction, and lens behavior.By mastering these physics formulas, you will gain a solid foundation that can significantly enhance your performance on exams. Remember to practice solving problems using these formulas regularly to reinforce your understanding.To further improve your exam success rate, consider seeking additional resources such as online tutorials or study guides that provide comprehensive explanations and examples. Engaging with study groups or hiring a tutor can also be beneficial for clarifying any doubts or misconceptions.Dont underestimate the power of consistent practice; it is through continuous effort that mastery is achieved. Stay motivated by setting specific goals for yourself and tracking your progress along the way.Remember: success in physics exams is within reach when you have a strong grasp of the essential formulas. Keep practicing, stay focused, and believe in your abilities!Frequently Asked Questions1. How can mastering physics formulas benefit me?Mastering physics formulas allows you to solve complex problems accurately during exams or competitions. It enhances your understanding of fundamental concepts while improving your problem-solving skills.2. Are there any shortcuts or tricks for memorizing all the physics formulas?While there are no shortcuts per se, regular practice and repetition can help with formula retention. Create flashcards or mnemonic devices to aid memorization.3. Can I rely solely on understanding the formulas, or should I also focus on theory?While understanding the formulas is essential, its equally important to grasp the underlying theory behind them. This knowledge will enable you to apply the formulas effectively in various scenarios.4. How can I overcome difficulties in applying physics formulas to real-life situations?Practicing with real-life examples and case studies can help you bridge the gap between theoretical concepts and practical applications. Seek out resources that provide such examples for a better understanding.5. What should I do if I encounter a physics formula that I dont understand?If you come across a formula that confuses you, dont hesitate to seek clarification from your teacher, classmates, or online forums dedicated to physics education. Exploring different explanations can often lead to clarity.Remember, practice makes perfect! Keep working on your physics skills and dont be afraid to ask for help when needed. Good luck with your exam preparations! the free encyclopedia that anyone can change.Search the 270,022 articles in the Simple English WikipediaHow to write Simple English pages Useful pages Simple talk Categories HelpSchools Gateway (for users who want to make changes from a school)This is the front page of the Simple English Wikipedia. Wikipedias are places where people work together to write encyclopedias in different languages. We use Simple English words and grammar here. The Simple English Wikipedia is for everyone, such as children and adults who are learning English.There are 270,022 articles on the Simple English Wikipedia. All of the pages are free to use. They have all been published under both the Creative Commons Attribution/Share-Alike License 4.0 International License and the GNU Free Documentation License. You can help here! You may change these pages and make new pages. Read the help pages and other good pages to learn how to write pages here. If you need help, you may ask questions at Simple talk.When writing articles here:Use Basic English words and shorter sentences. This allows people to understand complex terms or phrases.Write good pages. The best encyclopedia pages have useful, well-written information.Use the pages to learn and teach. These pages can help people learn English. You can also use them to make a new Wikipedia to help other people.Simple does not mean short. Writing in Simple English means that simple words are used. It does not mean readers want basic information. Articles do not have to be short to be simple; expand articles, add details, but use basic vocabulary.Be bold! Your article does not have to be perfect, because other editors will fix it and make it better. And most importantly, do not be afraid to start and make articles better yourself.Hurricane Vince was an unusual hurricane that began in the northeast Atlantic Ocean. It was part of the 2005 Atlantic hurricane season. The waters where it formed were thought to be too cold for tropical cyclones to exist. Vince was the 20th named storm and 12th hurricane of the season.The storm that became Vince started out as an extratropical cyclone. It became a subtropical storm on October8 to the southeast of the Azores. The National Hurricane Center (NHC) did not officially give the storm a name until the next day. Vince grew into a hurricane before beginning to weaken at sea. On October11, it made landfall on the Iberian Peninsula in Spain. At that time, it was a tropical depression. It may have been the first storm to hit the area since a hurricane in 1842. Vince died out over Spain. However, it dropped rain in the country. What was left of the storm passed into the Mediterranean Sea.more...Other very good articles Proposals RequirementsFrom a collection of Wikipedia's articles:... that the bee hummingbird (pictured) from the Isle of Youth in Cuba is the smallest living bird species in the world with an average length of only 5-6 centimeters?... that in 1924, University of Chicago law students Nathan Leopold and Richard Loeb murdered a 14-year old boy to show that they were intelligent?... that the French word for sausage comes from Vulgar Latin salsica, which comes from salsicus meaning seasoned with salt?... that in 1923, Calvin Coolidge was inaugurated as President of the United States at his family farm in Vermont by his father?... that Istanbul is the only city in the world that is on two different continents: Europe and Asia?... that during Daniel J. Evans's campaign for Governor of Washington, serial killer Ted Bundy was a close campaign assistant of his?Archives Start a new article Nominate an articleApplied sciencesArchitecture (building) Communication Electronics Engineering Farming Health Industry Medicine Transport WeatherPeople and social studiesAnthropology (study of people) Archaeology (history of civilization) Geography Education History Language Philosophy (abstract ideas) Psychology Sociology TeachingDaily life, art and cultureAnimation Art Book Cooking Custom Culture Dance Family Games Gardening Leisure (free time) Movies and films Music Radio Sports Theater Travel TelevisionNatural sciences and mathsAlgebra Astronomy (stars and space) Biology (animals and plants) Chemistry Computer science Earth science Ecology Geometry Mathematics Physics Statistics Zoology (study of animals)Government and lawCopyright Defense Economics (trade and business) Government Human rights Laws Military Politics TradeReligions and beliefsAtheism Bah' Buddhism Christianity Esotericism Hinduism Islam Jainism Judaism Mythology Paganism Sect Sikhism Taoism TheologyWikipedia is hosted by the Wikimedia Foundation, a non-profit organization that also hosts a range of other projects:In Simple English:WiktionaryDictionary and thesaurusCommonsFree media repositoryWikifunctionsFree collection of functionsIn Regular English:WikispeciesDirectory of speciesWikipediaEnglish WikipediaWikidataFree knowledge baseWikinewsFree-content newsWiktionaryDictionary and thesaurusWikiquoteCollection of quotationsWikibooksFree textbooks and manualsWikisourceFree-content libraryWikiversityFree learning resourcesMeta-WikiWikimedia project coordinationWikivoyageFree travel guideMediaWikiWiki software developmentSee the pages of the Wikimedia Foundation Governance wiki, too.5,000,000 articles or moreEnglish Cebuano (Cebuano)1,000,000 articles or more (Arabic) (Egyptian Arabic) Deutsch (German) espaol (Spanish) (Persian) franais (French) italiano (Italian) (Japanese) Nederlands (Dutch) polski (Polish) portugus (Portuguese) (Russian) svenska (Swedish) (Ukrainian) Ting Vit (Vietnamese) Winaray (Waray) (Chinese)500,000 articles or morecatal (Catalan) (Chechen) etina (Czech) suomi (Finnish) magyar (Hungarian) Bahasa Indonesia (Indonesian) (Korean) norsk (Norwegian) romn (Romanian) / srpski (Serbian) Trke (Turkish) / tatara (Tatar) 100,000 articles or moreSimple English Afrikaans (Afrikaans) asturianu (Asturian) azrbaycanca (Azerbaijani) (South Azerbaijani) (Belarusian) (Bulgarian) (Bangla) Cymraeg (Welsh) dansk (Danish) (Greek) Esperanto (Esperanto) eesti (Estonian) euskara (Basque) galego (Galician) (Hebrew) (Hindi) hrvatski (Croatian) (Armenian) (Georgian) (Kazakh) Latina (Latin) Ladin (Ladin) lietuvi (Lithuanian) latvieu (Latvian) Minangkabau (Minangkabau) (Macedonian) Bahasa Melayu (Malay) (Burmese) norsk nynorsk (Norwegian Nynorsk) srpskohrvatski / (Serbo-Croatian) slovenina (Slovak) slovenina (Slovenian) shqip (Albanian) (Tamil) (Telugu) (Tajik) (Thai) (Urdu) ozbekcha / (Uzbek) (Cantonese) / Bn-lm-g (Minnan)List of all Wikipedias Languages working together Start a Wikipedia for a new languageRetrieved from " Physics is a fundamental branch of science that studies matter, its fundamental constituents, and its motion and behavior through space and time. Physics Formulas are very important during applications of various concepts of physics.In this article, we will cover all important formulas related to physics ranging from mechanics to electromagnetism as well as thermodynamics and quantum mechanics. List of all Physics Formula Below is the list of all important formulas related to physics:Physics FormulasFormulasFrequency FormulaF = v/Kinetic Energy Formula E = 1/2 mv2Ohms Law Formula V = I RPressure Formula P = F/AWeight Formula W = mgNewtons Second Law F = m aPower Formula P = W/tDensity Formula P = m/VAcceleration Formula a = v - u/tAverage Speed Formula S = d/tPendulum Formula T = 2L/gFahrenheit Formula F = (9/5 C) + 32Work Formula W = F d cosTorque FormulaT = F r sinDisplacement FormulaX = XfXiMass FormulaF = m a or m = F/aAmplitude Formula x = A sin (t +) Tension FormulaT = mg + maSurface Charge Density Formula = q / ALinear Speed Formula V(linear speed) = S/TPosition Formulax = x2 x1Heat of Fusion Formula q = m HFGravity Formula F m1m2/r2Spring Potential Energy Formula P.E = 1/2 k x2Physics Kinematics Formula v2 = vo2 + 2a(x - xo)DC Voltage Drop Formula V = I RHubbles Law Formula v = HorInduced Voltage Formula e = N(dB/dt)Latent Heat FormulaL = Q / MWavelength Formula = v/fGravitational Force FormulaF = G(m1m2)/R2Potential Energy FormulaPE = mghStrain Energy FormulaU = F / 2Friction Force Formulaf = NCell Potential FormulaEcell = Ecathode EanodeShear Modulus Formula(shear stress)/(shear strain) = (F/A)/(x/y) Water Pressure FormulaWater pressure = g hRefractive Index Formulan = c/vCentroid FormulaC = [(x1 + x2 + x3)/ 3, (y1 + y2 + y3)/ 3]Mechanics FormulasFew important mechanics formulas are given below:Newton's Second Law of MotionF = m a Where:F is the force applied to an object,m is the mass of the object,a is the acceleration of the object.Work-Energy TheoremW = KEWhere:W is the work done on an object,KE is the change in kinetic energy.Kinetic EnergyKE = 1/2mv2Where:KE is the kinetic energy,m is the mass of the object,v is the velocity of the object.Potential Energy (Gravitational)PE = mghWhere:PE is the potential energy,m is the mass,g is the acceleration due to gravity,h is the height.Hooke's Law (Spring Force)Fs = kxWhere:Fs is the spring force,k is the spring constant,x is the displacement from the equilibrium position.Newton's Law of Universal GravitationF = G m1 m2 / r2Where:F is the gravitational force between two masses,G is the gravitational constant,m1 and m2 are the masses,r is the distance between the centers of the masses.Kinematics FormulasBelow are some important kinematics formulas:Displacement (s)s = ut + 1/2 at2Where:s is the displacement.u is the initial velocitya is the acceleration,t is the time.Final Velocity(v)v = u+ atWhere:v is the final velocity,u is the initial velocity,a is the acceleration,t is the time.Kinematic Third Equation of Motionv2 = u2 + 2asWhere:v is the final velocity,u is the initial velocity,a is the acceleration,s is the displacement.Average Velocity (v)v = x / tWhere:v is the average velocity.x is the displacement.t is the time interval.Acceleration (a)a = v /tWhere:a is the acceleration.v is the change in velocity.t is the time interval.Electricity FormulasFew important electricity formulas are given below:Electric Current (I)I = Q/tWhere:I is the electric current (measured in Amperes, A).Q is the charge that passes through a given point.t is the time taken.Electric Charge (Q)Q = I tWhere:Q is the electric charge (measured in Coulombs, C).I is the electric current.t is the time taken.Ohm's LawV = IRWhere:V is the voltage,I is the current,R is the resistance.PowerP = VIWhere:P is the power,I is the current,V is the voltage.ResistanceR = l / A Where:R is the resistance, is resistivity, l is length, and A is areaWatt's LawP = IR or P = V/RWhere:R is the resistance,I is Current, andV is VoltageElectric EnergyP = W x Twhere:P is power, W is energy, and T is timeVoltageV = E / Q where E is energy, and Q is chargeElectromagnetism FormulasImportant Electromagnetism Formulas are given below:Electric Field (E)E = F/qWhere:E is the electric field.F is the force experienced by the charge.q is the magnitude of the charge.Faraday's Law of Electromagnetic Induction = d/dtWhere: is the induced EMF. is the magnetic flux through the loop.t is time.Magnetic Force on a Moving ChargeF = qvBsinWhere:F is the magnetic force,q is the charge,v is the velocity,B is the magnetic field strength, is the angle between v and B.Gauss' Law for Electric Field = q/oWhere:o is the electric permittivity of free space is the magnetic flux through the loop.q is the net charge enclosed by the surface.Electric Potential (Voltage)V = W/qWhere:V is the electric potential (voltage).W is the electric potential energy.q is the charge.Optics FormulasFew important optics formula are:Snell's Law (Refraction)n1 sin1 = n2 sin2Where:n1 incident indexn2 refracted index1 incident angle2 refracted angleLens Formula1/f = 1/v - 1/uWhere:f is the focal length of the lens,u is the object distance,v is the image distance.Magnification for Lensesm = v/uWhere:m is the magnification,v is the image distance,u is the object distance.Magnifying Power M = 1 + d/fWhere:Mis the magnifying powerfis the focal distancedis the distance between the object and the lensThin Lens Formula1/f = 1/i + 1/oWhere:f is the focal length.i is the image distance.o is the object distance.Sound FormulasImportant sound formulas are given below:Speed of Soundv = (B/p)Where:v is the speed of sound,B is the bulk modulus of the medium, is the density of the medium.Wavelength () = v/fWhere: is Wavelengthv is Speed of soundf is Frequency of the sound waveFrequency (f)f = v / Where:f is Frequencyv is Speed of sound is Wavelength Acoustic Impedance (Z)Z = cWhere:Z is Acoustic impedance is Density of the mediumc is Speed of sound in the mediumFluid Mechanics FormulasFew important formulas related to fluid mechanics are:Density = mVWhere: is density of fluidm is mass, andv is volumePressureP = F/AWhere:P is the pressure of the fluid,F is applied Force,A is area Pressure at a Depth h in a Fluid of Constant Densityp = po + ghwhere:p is pressure at height hpois the pressure at the fluid's surface, is the density of the fluid, g is the acceleration due to gravity, and h is the depth to which the object is submergedViscosity = FL/vAWhere: is fluid viscosityF is forceL is distance between the platesV is constant velocityA is area of the platePascal's LawF = PAWhere:F is applied ForceP is Pressure, andA is area under cross-section.Reynolds Number (Re)Re = pvL/Where: is the density of the fluid.v is the velocity of the fluid.L is a characteristic length (e.g., diameter of the pipe). is the dynamic viscosity of the fluid.Thermodynamics formulasImportant thermodynamics formulas are illustrated below:First Law of Thermodynamics (Energy Conservation)U = Q WWhere:U is the change in internal energy,Q is the heat added to the system,W is the work done by the system.Work Done in Isothermal Process (Ideal Gas)W = nRTln(Vf/Vi)Where:W is the work done,n is the number of moles of gas,R is the ideal gas constant,T is the temperature,Vf is the final volume,Vi is the initial volume.Heat Transfer (Constant Pressure)Q = nCp TWhere:Q is the heat added or removed,n is the number of moles of gas,Cp is the specific heat at constant pressure,T is the change in temperature.Ideal Gas LawPV = nRTWhere:P is the pressure of the gas.V is the volume of the gas.n is the number of moles of gas.R is the gas constant.T is the temperature of the gas.Entropy ChangeS = Q/TWhere:S is the change in entropy.Q is the heat.T is the temperature.Gibbs Free EnergyG = H TSWhere:G is the change in Gibbs free energy, H is the change in enthalpy, S is the change in entropy, and T is the absolute temperatureWave FormulasImportant formulas related to wave are described below:Wave Velocity (v)v = f Where:v = Wave velocity (in meters per second, m/s)f = Frequency of the wave (in Hertz, Hz) = Wavelength of the wave (in meters, m)Frequency (f)f = 1/TWhere:f = Frequency (in Hertz, Hz)T = Time period of one wave cycle (in seconds, s)Wavelength () = v/fWhere: = Wavelength (in meters, m)v = Wave velocity (in meters per second, m/s)f = Frequency (in Hertz, Hz)Intensity (I)I = P/Awhere:P is the power A is the area.Solved Examples on Physics FormulasExample 1: A stretched string has a displacement of 20 cm and a spring constant of 50Nm1. Calculate the potential energy that the stretched string contains.Solution:The parameters that are given arek = 50Nm1x is equal to 20 cm, or 0.2 m.Potential energy is what it will be.P.E. = 1/2 k x2P.E =3/4 X 50 (0.2)2P.E = 1 JExample 2: When x is in meters and t is in seconds, a body travels down the x-axis in accordance with the equation x = 1 2 t + 3t2. Determine the body's acceleration at t = 3s.Solution: As we havex = 1 - 2 t + 3t2 then; Speed v = dx/dt = d(1 - 2t + 3t2)/dt = 2 + 6tNow Acceleration a = dv/dt = d(2+6t)/dt = 6acceleration when t is 3s = 6 m/s2Example 3: Determine the weight of an item that weighs 50 kg on Earth.Solution: We know, weight = m gw = (50 9.8) kg m/s2w = 490 NExample 4: A person travels in 10 seconds from Point A to Point B and returns in 8 seconds. Determine the person's average speed if the distance is 36 meters between A and B.Solution: This distance traveled in total is 36 + 36 = 72 meters.18 seconds was the total time taken.Thus, average speed is equal to the total distance traveled divided by total time.average speed = 72/18 = 4 m/s. Hence the average speed of the person is 4 m/s.Example 5: Determine the mass of an object having a kinetic energy of 100J and a velocity of 5 m/s.Solution: We know, KE = mv2.100 = x m x 5 x 5.100 = 25 m/2m = (100 2)/25 m = 8 kgPractice Problems Problems 1: Determine the displacement that an object traveling at a speed of 60 m/s will cover in 3 seconds. Problems 2: A 50 cm long, thin rod has an evenly distributed total charge of 5 mC over it. Determine the linear density of charges.Problems 3: A automobile with a mass of 250 kg is moving at a speed of 10 meters per second. What is the kinetic energy of it?Problems 4: 400kcal of heat is required for the phase transition of a 2 kilogram material. Calculate the heat it contains latently.Problems 5: A cube immersed in water with a side length of 0.1 meters and a density of 800 kg/m3. Determine if the cube will sink or float by computing the buoyant force acting on it. Learning Physics is all about implementing concepts & its derivations to solve the problems. Well, this article provides you exactly what you require to solve the physics problems. Physics Questions will always be challenging to students and it challenges your skills and physics knowledge. Some of the major tasks that students should face while solving the physics questions are Examine what numerical are given and asked in the problem, Applying the correct physics formula or equation, and Filling in the values and calculating properly.In order to get success in these types of challenges, everyone wants to have an adequate understanding of physics formulas along with its concepts. Hence, we are providing a comprehensive list of physics formulas in this article, which will act as an intermediary reference at the time of solving physics problems. Also, you can make use of this physics equations list as a quick revision before an exam. List of Physics Formulas & EquationsPhysics is the most basic subject of all sciences, and also it seems very harder to master. Basically learning physics is nothing but studying the basic laws which lead our universe. One can master in physics if they understand the theories thoroughly, and also they can easily identify the relation between the quantities or numbers by which they can form the formulas, derive it and learn simply.Students who are looking for physics formulas can grab the list from this page and utilize them to revise daily and before your exams. While memorizing the physics formulas, first of all, try to understand what a formula says and means, and then what physics relation it outlined. If you comprehend the physics topics underlying those formulas, deriving & memorize them will be easy for you. So, use the list of physics equations available over here and solve the basic physics problems very easily & quickly. 1) Average Speed Formula:Theaverage speedis the average of speed of a moving body for the overall distance that it has covered. S = \(\frac{d}{t} \)Where,SAverage speeddTotal distance traveledtTotal time is taken2) Acceleration Formula:Accelerationis defined as the rate of change in velocity to the change in time. It is denoted by symbol a.a =\(\frac{v-u}{t} \) where,aAccelerationvFinal VelocityuInitial VelocitytTime taken3) Density Formula:The density of material shows the denseness of it in a specific given area. \(\rho = \frac{m}{V} \)Where, DensitymMass of the bodyVThe volume of the body4) Newtons Second Law:According to Newtons second law of motion, the force can be expressed by the product of mass and acceleration of the body.F = m aWhere,FForcemMass of the bodyaAcceleration in velocity available5) Power Formula:The capacity to do some work is termed as Energy. The Energy spent to do work in a unit amount of time is termed asPower.P=\(\frac{W}{t} \)Where,PPowerWWork donetTime taken6) Weight Formula:Weight is not anything but the force which an object experiences due to gravity.W=mgWhere,WWeightmMass of the bodygAcceleration due to gravity7) Pressure Formula:The pressure is defined as the amount of force applied per unit area of the object.P=\(\frac{F}{A} \)Where,PPressureFForce appliedATotal Area of the object8) Kinetic Energy formula:Kinetic energyis the energy that is possessed by a body due to its state of motion.E = \(\frac{1}{2}mv^2 \)Where,EKinetic EnergymMass of the bodyvThe velocity with which the body is traveling9) Ohms Law Formula:Ohms law says that the current running through some conductor material is directly proportional to thepotential differencebetween two endpoints of the conductor.V= I RWhere,VVoltage measured in VoltsIElectric current flowing through the conductor in amperes.RThe resistance of the material in ohms.10) Frequency Formula:Frequency is the revolutions completed per second or as the number of wave cycles.f= \(\frac{V}{\lambda} \)Where,fFrequency of the waveVVelocity or wave speedThe wavelength of the waveFinal WordsThis is the list of some of the important physics formulas that are used by all class students mostly to solve physics problems. Every branch of physics theory is replaced with countless formulas. If you grasp the underlying theory behind the formulas then physics will be easier for you. So, dont just mug up the physics formulas mentioned here for the sake of exams, understand them, and relate them with every physics concept and be a creative student in your class.If you need Maths and Chemistry Formulas list to solve problems easily and score better marks in the final board exams, then visit our site and get an updated list of formulas and equations for better preparation.Frequently Asked Questions on Physics Formulas1. Where can I find all the formulas of Physics?You can discover all major and commonly used physics formulas from the above list provided over here and whenever you need them, you can use them for free within no time.2. What are the major formulas in physics?Basic Formulas in Physics are provided below for the sake of students. So, let us have a loot at them before solving the physics problems:v=u+ats=ut+1/2at^2v^2-u^2=2asF=maP=force/area3. How Can I learn Scientific Formulas?One of the finest ways to understand and learn the physics formulas is practicing & memorizing the derivation of the formula. Solve the example sums with the formula and read the formulas fluently in a day. Use the memory palace and jot down all the formulas in an understandable way and memorize them easily.4. How to Memorize Physics Formulas?There are four three steps you should follow to memorize all physics formulas. They are as underUsing Mnemonic DevicesUnderstanding Each FormulaTaking Care of Your Body5. What are the tips to learn Physics Formulas?Below are furnished top tips to quickly learn several Physics formulas:Practice concentrationRelax your brainPractice as much as you can

and can be described by several equations, including the famous E=mc equation. We will dive into examples of how these equations are used to understand energy transformations and their applications in everyday life.Applying ForcesForces are everywhere, and understanding how they work is crucial in many fields, from engineering to sports. We will explore the equations that describe different types of forces and their applications, such as calculating the force needed to lift an object or predicting the behavior of a moving car. In conclusion, equations are powerful tools that allow us to understand and predict the physical world. By providing real-world examples, we hope this article has not only enhanced your understanding of equations but also sparked a deeper interest in the fascinating world of physics.

Physics formulas and how to use them. How to make physics formula sheet. How to know what formula to use in physics. How are physics formulas derived. Physics formulas explained. How to learn physics formulas.