I'm not a bot

Let’s assume that you move one end of the rope up and down to generate a wave in the string. How long will it take for the wave to travel from one end to another? It depends on the speed of the wave. What Is the Speed of a Wave? Wave speed is the distance the wave travels in a given amount of time, such as the number of meters it travels per second. The equation that represents the wave speed is given as follows: \(\begin{array}{l}Speed=\frac{Distance}{Time}\end{array} \) If an ocean wave crest travels a distance of 30 m in 10 seconds, then the speed of the ocean wave is 3 m/s. On the other hand, if the crest of the ocean wave covers a distance of 40 m at the same time that is 10 seconds, then the speed of this ocean wave is 4 m/s. From this, we can conclude that the faster wave covers a larger distance in the same amount of time. Sometimes, we encounter situations in which the wave meets the end of a medium and also the presence of a different medium. To better understand this, let us take the example of a slinky. The wave introduced by a person into the slinky will travel through the slinky and eventually reaches the end of the slinky and the presence of the hand of a second person. One behavior that waves undergo at the end of the medium is reflection. When a wave undergoes reflection, it merely remains in the medium and only reverses its direction of travel. The slinky wave has traveled double its distance. This reflection phenomenon of waves is commonly observed in sound waves. When you let out a loud cry within a canyon, you often hear the echo of the holler. The sound waves travel through the medium; in this case, the air and reflect off the canyon wall and return to the origin of the sound (you). The result is that you hear the echo of your holler. A classic problem about the reflection of the wave is as follows: Example 1: Deepa stands 170 meters away from a steep canyon wall. She shouts and hears her echo a second later. What is the speed of the wave? Solution: In this case, the speed of the wave is 340 m/s because the distance travelled by the sound wave in 1 second is equivalent to 170 meters down to the canyon wall plus 170 meters back from the canyon wall. And, we know that, \(\begin{array}{l}Speed=\frac{Distance}{Time}\end{array} \) Substituting the value, we get: \(\begin{array}{l}Speed=\frac{170\,m/s + 170\,m/s}{1\,s}\end{array} \) \(\begin{array}{l}= 340\,m/s\end{array} \) Dependance on the Medium The speed of most waves depends on the medium in which it travels. Generally, waves travel fastest through solids and slowest through gases. This is because particles are closest together in solids and farthest apart in gases. When the particles are farther apart, it takes longer for the energy distribution to pass from one particle to another through the medium. Suggested Reading Interference of Waves Wave Motion Watch the video and learn more about the velocity of the wave on a string A wave is a disturbance in a medium that carries energy without a net movement of particles. Wave speed is defined as the total distance covered by the wave in a given time period. Wave Speed = Distance Covered/Time taken The period of a wave is the time for a particle on a medium to make one complete vibrational cycle. If you wish to learn more Physics concepts with the help of interactive video lessons, download BYJU’S – The Learning App. Put your understanding of this concept to test by answering a few MCQs. Click ‘Start Quiz’ to begin! Select the correct answer and click on the “Finish” buttonCheck your score and answers at the end of the quiz Visit BYJU’S for all Physics related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Quiz Answers and Analysis When describing wave motion, there are several terms which are important to know, including:AmplitudeWavelengthFrequencyTime PeriodWave velocityWavefrontAmplitude is defined as:The distance from the undisturbed position to the peak or trough of a waveIt is given the symbol A and is measured in metres (m)Amplitude is the maximum or minimum displacement from the undisturbed positionWavelength is defined asThe distance from one point on the wave to the same point on the next wave.In a transverse wave:The wavelength can be measured from one peak to the next peakIn a longitudinal waveThe wavelength can be measured from the centre of one compression to the centre of the nextThe wavelength is given the symbol λ (lambda) and is measured in metres (m)The distance along a wave is typically put on the x-axis of a wave diagramDiagram showing the amplitude and wavelength of a waveFrequencyFrequency is defined as:The number of waves passing a point in a secondFrequency is given the symbol f and is measured in Hertz (Hz)Time PeriodThe time period (or sometimes just 'period') of a wave is defined as:The time taken for a single wave to pass a pointThe time period is given the symbol T and is measured in seconds (s)Wave VelocityWave velocity (or wave speed) is defined as:The distance travelled by a wave each secondWavefrontWavefronts are a useful way of picturing waves from above: each wavefront is used to represent a single waveThe image below illustrates how wavefronts are visualised:The arrow shows the direction the wave is moving and is sometimes called a rayThe space between each wavefront represents the wavelengthWhen the wavefronts are close together, this represents a wave with a short wavelengthWhen the wavefronts are far apart, this represents a wave with a long wavelengthDiagram showing a wave moving to the right, drawn as a series of wavefrontsDid this page help you? By the end of this section, you will be able to do the following: Define amplitude, frequency, period, wavelength, and velocity of a wave Relate wave frequency, period, wavelength, and velocity Solve problems involving wave properties The learning objectives in this section will help your students master the following standards: (7) Science concepts. The student knows the characteristics and behavior of waves. The student is expected to: (B) investigate and analyze the characteristics of waves, including velocity, frequency, amplitude, and wavelength, and calculate using the relationship between wave speed, frequency, and wavelength; (D) investigate the behaviors of waves, including reflection, refraction, diffraction, interference, resonance, and the Doppler effect. [BL][OL][AL] Review amplitude, period, and frequency for simple harmonic motion. In the chapter on motion in two dimensions, we defined the following variables to describe harmonic motion: Amplitude—maximum displacement from the equilibrium position of an object oscillating around such equilibrium position Frequency—number of events per unit of time Period—time it takes to complete one oscillation For waves, these variables have the same basic meaning. However, it is helpful to word the definitions in a more specific way that applies directly to waves: Amplitude—distance between the resting position and the maximum displacement of the wave Frequency—number of waves passing by a specific point per second Period—time it takes for one wave cycle to complete In addition to amplitude, frequency, and period, their wavelength and wave velocity also characterize waves. The wavelength λ λ is the distance between adjacent identical parts of a wave, parallel to the direction of propagation. The wave velocity v w v w is the speed at which the disturbance moves. Wave velocity is sometimes also called the propagation velocity or propagation speed because the disturbance propagates from one location to another. Consider the periodic water wave in Figure 13.7. Its wavelength is the distance from crest to crest or from trough to trough. The wavelength can also be thought of as the distance a wave has traveled after one complete cycle—or one period. The time for one complete up-and-down motion is the simple water wave’s period T. In the figure, the wave itself moves to the right with a wave velocity vw. Its amplitude X is the distance between the resting position and the maximum displacement—either the crest or the trough—of the wave. It is important to note that this movement of the wave is actually the disturbance moving to the right, not the water itself; otherwise, the bird would move to the right. Instead, the seagull bobs up and down in place as waves pass underneath, traveling a total distance of 2X in one cycle. However, as mentioned in the text feature on surfing, actual ocean waves are more complex than this simplified example. Figure 13.7 The wave has a wavelength λ, which is the distance between adjacent identical parts of the wave. The up-and-down disturbance of the surface propagates parallel to the surface at a speed vw. This video is a continuation of the video “Introduction to Waves” from the "Types of Waves" section. It discusses the properties of a periodic wave: amplitude, period, frequency, wavelength, and wave velocity. The crest of a wave is sometimes also called the peak. Watch Physics: Amplitude, Period, Frequency and Wavelength of Periodic Waves. This video introduces several concepts of sound; amplitude, period, frequency, and wavelength of periodic waves. If you are on a boat in the trough of a wave on the ocean, and the wave amplitude is 1 m , what is the wave height from your position? Since wave frequency is the number of waves per second, and the period is essentially the number of seconds per wave, the relationship between frequency and period is or just as in the case of harmonic motion of an object. We can see from this relationship that a higher frequency means a shorter period. Recall that the unit for frequency is hertz (Hz), and that 1 Hz is one cycle—or one wave—per second. The speed of propagation vw is the distance the wave travels in a given time, which is one wavelength in a time of one period. In equation form, it is written as or From this relationship, we see that in a medium where vw is constant, the higher the frequency, the smaller the wavelength. See Figure 13.8. Figure 13.8 Because they travel at the same speed in a given medium, low-frequency sounds must have a greater wavelength than high-frequency sounds. Here, the lower-frequency sounds are emitted by the large speaker, called a woofer, while the higher-frequency sounds are emitted by the small speaker, called a tweeter. [BL] For sound, a higher frequency corresponds to a higher pitch while a lower frequency corresponds to a lower pitch. Amplitude corresponds to the loudness of the sound. [BL][OL] Since sound at all frequencies has the same speed in air, a change in frequency means a change in wavelength. [Figure Support] The same speaker is capable of reproducing both high- and low-frequency sounds. However, high frequencies have shorter wavelengths and are hence best reproduced by a speaker with a small, hard, and tight cone (tweeter), whereas lower frequencies are best reproduced by a large and soft cone (woofer). These fundamental relationships hold true for all types of waves. As an example, for water waves, vw is the speed of a surface wave; for sound, vw is the speed of sound; and for visible light, vw is the speed of light. The amplitude X is completely independent of the speed of propagation vw and depends only on the amount of energy in the wave. In this lab, you will take measurements to determine how the amplitude and the period of waves are affected by the transfer of energy from a cork dropped into the water. The cork initially has some potential energy when it is held above the water—the greater the height, the higher the potential energy. When it is dropped, such potential energy is converted to kinetic energy as the cork falls. When the cork hits the water, that energy travels through the water in waves. Large bowl or basin Water Cork (or ping pong ball) Stopwatch Measuring tape Instructions Fill a large bowl or basin with water and wait for the water to settle so there are no ripples. Gently drop a cork into the middle of the bowl. Estimate the wavelength and the period of oscillation of the water wave that propagates away from the cork. You can estimate the period by counting the number of ripples from the center to the edge of the bowl while your partner times it. This information, combined with the bowl measurement, will give you the wavelength when the correct formula is used. Remove the cork from the bowl and wait for the water to settle again. Gently drop the cork at a height that is different from the first drop. Repeat Steps 3 to 5 to collect a second and third set of data, dropping the cork from different heights and recording the resulting wavelengths and periods. Interpret your results. A cork is dropped into a pool of water creating waves. Does the wavelength depend upon the height above the water from which the cork is dropped? No, only the amplitude is affected. Yes, the wavelength is affected. Students can measure the bowl beforehand to help them make a better estimation of the wavelength. Figure 13.9 The destructive effect of an earthquake is a palpable evidence of the energy carried in the earthquake waves. The Richter scale rating of earthquakes is related to both their amplitude and the energy they carry. (Petty Officer 2nd Class Candice Villarreal, U.S. Navy) Geologists rely heavily on physics to study earthquakes since earthquakes involve several types of wave disturbances, including disturbance of Earth’s surface and pressure disturbances under the surface. Surface earthquake waves are similar to surface waves on water. The waves under Earth’s surface have both longitudinal and transverse components. The longitudinal waves in an earthquake are called pressure waves (P-waves) and the transverse waves are called shear waves (S-waves). These two types of waves propagate at different speeds, and the speed at which they travel depends on the rigidity of the medium through which they are traveling. During earthquakes, the speed of P-waves in granite is significantly higher than the speed of S-waves. Both components of earthquakes travel more slowly in less rigid materials, such as sediments. P-waves have speeds of 4 to 7 km/s, and S-waves have speeds of 2 to 5 km/s, but both are faster in more rigid materials. The P-wave gets progressively farther ahead of the S-wave as they travel through Earth’s crust. For that reason, the time difference between the P- and S-waves is used to determine the distance to their source, the epicenter of the earthquake. We know from seismic waves produced by earthquakes that parts of the interior of Earth are liquid. Shear or transverse waves cannot travel through a liquid and are not transmitted through Earth’s core. In contrast, compression or longitudinal waves can pass through a liquid and they do go through the core. All waves carry energy, and the energy of earthquake waves is easy to observe based on the amount of damage left behind after the ground has stopped moving. Earthquakes can shake whole cities to the ground, performing the work of thousands of wrecking balls. The amount of energy in a wave is related to its amplitude. Large-amplitude earthquakes produce large ground displacements and greater damage. As earthquake waves spread out, their amplitude decreases, so there is less damage the farther they get from the source. What is the relationship between the propagation speed, frequency, and wavelength of the S-waves in an earthquake? The relationship between the propagation speed, frequency, and wavelength is v w =fλ. v w =fλ. The relationship between the propagation speed, frequency, and wavelength is v w = f λ . v w = f λ . The relationship between the propagation speed, frequency, and wavelength is v w = λ f . v w = λ f . The relationship between the propagation speed, frequency, and wavelength is v w = fλ . v w = fλ . In this animation, watch how a string vibrates in slow motion by choosing the Slow Motion setting. Select the No End and Manual options, and wiggle the end of the string to make waves yourself. Then switch to the Oscillate setting to generate waves automatically. Adjust the frequency and the amplitude of the oscillations to see what happens. Then experiment with adjusting the damping and the tension. Which of the settings—amplitude, frequency, damping, or tension—changes the amplitude of the wave as it propagates? What does it do to the amplitude? Frequency; it decreases the amplitude of the wave as it propagates. Frequency; it increases the amplitude of the wave as it propagates. Damping; it decreases the amplitude of the wave as it propagates. Damping; it increases the amplitude of the wave as it propagates. Calculate the wave velocity of the ocean wave in the previous figure if the distance between wave crests is 10.0 m and the time for a seagull to bob up and down is 5.00 s. The values for the wavelength (λ=10.0 m) (λ=10.0 m) and the period ( T=5.00s) ( T=5.00s) are given and we are asked to find v w v w Therefore, we can use v w = λ T v w = λ T to find the wave velocity. Enter the known values into v w = λ T v w = λ T v w = 10.0 m 5.00 s =2.00 m/s. v w = 10.0 m 5.00 s =2.00 m/s. This slow speed seems reasonable for an ocean wave. Note that in the figure, the wave moves to the right at this speed, which is different from the varying speed at which the seagull bobs up and down. The woman in Figure 13.3 creates two waves every second by shaking the toy spring up and down. (a)What is the period of each wave? (b) If each wave travels 0.9 meters after one complete wave cycle, what is the velocity of wave propagation? To find the period, we solve for T= 1 f T= 1 f , given the value of the frequency ( f=2 s −1 ). ( f=2 s −1 ). Enter the known value into T= 1 f T= 1 f T= 1 2 s −1 =0.5 s. T= 1 2 s −1 =0.5 s. Since one definition of wavelength is the distance a wave has traveled after one complete cycle—or one period—the values for the wavelength (λ=0.9 m) (λ=0.9 m) as well as the frequency are given. Therefore, we can use v w =fλ v w =fλ to find the wave velocity. Enter the known values into v w =fλ v w =fλ v w =fλ=(2 s −1 )(0.9 m) = 1.8 m/s. v w =fλ=(2 s −1 )(0.9 m) = 1.8 m/s. We could have also used the equation v w = λ T v w = λ T to solve for the wave velocity since we already know the value of the period ( T=0.5s) ( T=0.5s) from our calculation in part (a), and we would come up with the same answer. 7. The frequency of a wave is 10 Hz. What is its period? The period of the wave is 100 s. The period of the wave is 10 s. The period of the wave is 0.01 s. The period of the wave is 0.1 s. 8. What is the velocity of a wave whose wavelength is 2 m and whose frequency is 5 Hz? 20 m/s 2.5 m/s 0.4 m/s 10 m/s Use these questions to assess students’ achievement of the section’s Learning Objectives. If students are struggling with a specific objective, these questions will help identify such objective and direct them to the relevant content. 9. What is the amplitude of a wave? A quarter of the total height of the wave Half of the total height of the wave Two times the total height of the wave Four times the total height of the wave 10 . What is meant by the wavelength of a wave? The wavelength is the distance between adjacent identical parts of a wave, parallel to the direction of propagation. The wavelength is the distance between adjacent identical parts of a wave, perpendicular to the direction of propagation. The wavelength is the distance between a crest and the adjacent trough of a wave, parallel to the direction of propagation. The wavelength is the distance between a crest and the adjacent trough of a wave, perpendicular to the direction of propagation. 11 . How can you mathematically express wave frequency in terms of wave period? f = 1 T f = ( 1 T ) 2 f = T f = ( T ) 2 12. When is the wavelength directly proportional to the period of a wave? When the velocity of the wave is halved When the velocity of the wave is constant When the velocity of the wave is doubled When the velocity of the wave is tripled scoresvideos A wave occurs when a planar surface is disturbed from the outside. A wave is a disturbance that propagates in space and transports energy and momentum from one point to another without transferring substance. The ripples in a pond, the sound that reaches us via wave motion, TV signals, and so on are some of the most widely utilized examples of waves. The kind of media, propagation energy, size, and particle vibration all contribute to the classification of waves. In this article, we'll discuss how to compute wave velocity. What is Wave Velocity?Wave velocity is defined as the speed at which a disturbance propagates in a given medium, OR In other words, the distance traversed by waves per unit time. The nature of the media utilized determines the wave velocity. Phase velocity is another name for wave velocity. Precise periodic oscillations of the particles cause perturbations in wave motion, which move across the medium. The wave's velocity will differ from the particle's velocity as they oscillate around their mean places. The wave velocity remains constant over time, whereas the particle velocity varies. SI unit of the velocity of the wave is m/s. Formula for Wave Velocity Wave velocity is calculated using the following formula: V = λν where, V is the velocity of wave (m/s),ν is the Frequency of wave, andλ is the Wavelength.Derivation of Wave VelocityThe product of the wave's wavelength and frequency, according to the wave velocity formula. V = w/k …(1) where, w is the Angular velocity, k is the Angular wavenumber.We have, w = 2πν where ν is the Frequency of wave.And k = 2π/λ where Substitute w and k in equation (1), V = (2πν) / (2π/λ) = (2πνλ) / (2π) V = λν Sample QuestionsQuestion 1: What Factors Have an Impact on Wave Velocity? Answer: The following factors affect the wave's velocity: The medium that was used.In a certain medium, the wavelength of a propagating wave.Question 2: Write two Properties of Wave velocity. Answer: Properties of Wave velocity are, In given medium, the wave velocity remains constant.The wave velocity is independent of the wave's time and source, but it is affected by the propagating wave's wavelength in a given medium.Question 3: How to calculate the wave velocity of a 10 m wavelength periodic wave with a 16 Hz frequency? Answer: Given : ν = 16 Hz, λ = 10 m Since, V = λν V = 16 × 10 = 160 m/s Question 4: If the wavelength of a wave is 6 m and the frequency of a wave is 12 Hz then Calculate the Velocity of the wave. Answer: Given : f = 12 Hz, λ = 6 m Since, V = λν = 12 × 6 = 72 m/s Question 5: The Wave's Velocity is 120 m/s. Calculate the frequency of the given wave if the wave's wavelength is 13 m. Answer: Given : V = 120 m/s, λ = 13 m Since, V = λν ν = V/λ = 120/13 = 9.23 Hz Question 6: A wave with a frequency of 120 Hz is traveling at a speed of 287 m/s. Then determine the wave's wavelength. Answer: Given : V = 287 m/s, ν = 120 Hz Since, V = λν or λ = V/ν = 287 / 120 = 2.39 m scoresvideos Study and Practice for FreeTrusted by 100,000+ Students WorldwideAchieve Top Grades in your Exams with our Free Resources.Practice Questions, Study Notes, and Past Exam Papers for all Subjects! Wave Velocity is one of the common topics of all the exams that test students on the parameters of physics. Students normally find it hard to deal with this topic as it is a little complex in nature. Although, if studied well, the same topic could be very scoring for the students from exam point of view. To bridge the gap between students and their learning Vedantu has come up with an article prepared by a team of dedicated teachers on wave velocity. Wave Velocity - Formula, Properties, Examples could also be found in the PDF format from the website. The students can download it on their devices and study from the comfort of their homes. The resource is free of cost and doesn’t require any prior registration fee. A wave is a result of external perturbation in a plane surface. We can define a wave as - a wave is a disturbance propagating in space with transportation of energy and momentum from one point to another without transfer of the matter. The most commonly used examples for waves are the ripples in a pond, Sound that reaches us propagates through wave motion, TV signals, etc. The waves are classified into different types depending upon the type of medium, propagation energy, dimensions, and the vibration of particles.What is Wave Velocity?Now, we are constantly talking about the term wave velocity. To understand the wave velocity first, let us look at the meaning and define wave velocity.The wave velocity definition is given as the velocity associated with the disturbance propagating in the given medium or in other words, wave velocity is the distance traveled by waves per unit time.The wave velocity depends upon the nature of the medium used.The wave velocity is also known as phase velocity (Image will be Uploaded soon)Now the formula of wave velocity is given as follows. The wave velocity formula says it is the product of wavelength and the frequency of the wave. I.e.,Wave velocity (v) mathematically is given by,\[\Rightarrow v = \frac{w}{k} \].....(1) Where, w - The angular velocity k - the angular wavenumber or propagation constantWe know that,The value of the angular velocity = w = \[2\pi u \]; where \[u\] - Frequency of the waveThe value of the wavenumber = k = \[\frac{2\pi}{\lambda}\]; where \[\lambda\] - The wavelength Substituting these value in equation (1) we get, \[\Rightarrow = \frac{2\piu}{2\pi\lambda} = \lambdau \]Therefore, we have,\[\Rightarrow = v = \lambdau \].....(2)Where,\[\lambda\]- The wavelength\[u\] - Frequency of the waveEquation (2) is known as the equation of wave velocity or wave velocity formula.Wave Velocity Formula:In wave motion, the perturbations travel through the medium due to repeated periodic oscillations of the particles. The velocity of the wave will be different from the velocity of the particles with which they vibrate about their mean positions. The wave velocity will always be constant but the particle velocity will be changing with time periods.Properties of Wave Velocity:The wave velocity in a given medium is always constant.The wave velocity is independent of the time and source of the wave, but the wave velocity depends on the wavelength of the propagating wave in a given medium.The wave velocity depends on the medium used.Examples:1. How to Calculate Wave Velocity for a Given Periodic Wave with a Wavelength of 3m Has a Frequency 6Hz?Sol: Given,The wavelength of the periodic wave = \[\lambda\] = 3mThe frequency of the given periodic wave = \[u\] = 6HzWe have to calculate the wave velocity of the given periodic wave. From the equation of wave velocity we have,\[\Rightarrow v = \lambdau \]Where, \[\lambda\] - The wavelength \[u\] - Frequency of the waveSubstituting the corresponding values in equation (1) we get, \[\Rightarrow\] v = (3)(6) = 18 m/s Therefore, the wave velocity of a given periodic wave is 18 m/s.2. How Do You Find the Velocity of a Wave with a Wavelength of 20m has a Frequency 70Hz?Sol: Given,The wavelength of the periodic wave = \[\lambda\] = 20mThe frequency of the given periodic wave = \[u\] = 70HzWe have to calculate the wave velocity of the given periodic wave. From the equation of wave velocity we have,\[\Rightarrow v = \lambdau \]Where, \[\lambda\] - The wavelength \[u\] - Frequency of the waveSubstituting the corresponding values in equation (1) we get, ⇒ v = (20)(70) = 1400 m/sTherefore, the wave velocity of a given periodic wave is 1400 m/s.3. The Velocity of Wave 70m/s. If the Wavelength of the Wave is 1m then Calculate the Frequency of the Given Wave.Sol: The wavelength of the wave = \[\lambda\] = 1mThe wave velocity of the given wave = v = 70m/sWe have to calculate the Frequency of the given wave. From the equation of wave velocity we have,\[\Rightarrow v = \lambdau \]..... 1Where, \[\lambda\] - The wavelength \[u\] - Frequency of the waveOn rearranging the equation (1) for the frequency of the wave, \[\Rightarrow u = \frac { v}{\lambda} \].....(2) Substituting the given values, \[\Rightarrow u = \frac {70}{1} \].....(2) = 70 HzTherefore, the frequency of the given wave is 70Hz 4. A Wave with a Frequency 450Hz is Traveling at a Speed of 200m/s. Then Calculate the Wavelength of the Wave. Sol: The frequency of the wave = \[u\] = 450HzThe wave velocity of the given wave = v = 200m/s We have to calculate the wavelength of the given wave. From the equation of wave velocity we have,\[\Rightarrow v = \lambdau \]..... 1Where, \[\lambda\] - The wavelength \[u\] - Frequency of the waveOn rearranging the equation (1) for the wavelength of the wave, \[\Rightarrow \lambda = \frac { v}{u} \].....(2) Substituting the corresponding values in (2) we get, \[\Rightarrow \lambda = \frac {200}{450} \].....(2) = 0.44m Therefore, the wavelength of the given wave is 0.44m.Revision remedyThe Wave Velocity - Formula, Properties, Examples article developed by Vedantu is a perfect tool for revision for the students. It is advised that when the exams are near, you should choose to revise from the wave velocity PDF. The article precisely mentions all the details with complete clarity to the students. One may even choose to make notes from the above content and enhance her chances to score well in the exams. On the other hand, just underlining the keywords would suffice too. All one has to do is look at the keywords. If feasible, taking a printout is also a convenient idea.Making the Notes and Underlining As it is common knowledge, having good revision notes is the best policy for scoring well in exams. One can use the wave velocity article to make the revision notes. Note down all the keywords and important definitions that are relevant from the exam point of view. The word “physics” comes from Ancient Greek: φυσική (ἐπιστήμη), romanized: physikḗ (epistḗmē), meaning “knowledge of nature”. What’s a definition of physics? What is physics? Physics is the branch of science that deals with the structure of matter and how the fundamental constituents of the universe interact. It studies objects ranging from the very small using... Kids Definition of chemistry 1 : a science that deals with the composition and properties of substances and of the changes they undergo. 2 : chemical composition and properties the chemistry of food. What is physics in simple words for kids? Physics is simply the study of matter and how it interacts with energy and... Dividing the Octave into Scales The word “octave” comes from a Latin root meaning “eight”. It seems an odd name for a frequency that is two times, not eight times, higher. The octave was named by musicians who were more interested in how octaves are divided into scales, than in how their frequencies are related.... Solution : A flow of large amount of current in a circuit, beyond the permissible value of current, is called overloading. It occurs when many electrical appliances of high power rating such as a geyser, a heater , an oven, a motor, etc. are switched on simultaneously . This causes fire. What is overloading in… A movable pulley is a pulley that is free to move up and down, and is attached to a ceiling or other object by two lengths of the same rope. Examples of movable pulleys include construction cranes, modern elevators, and some types of weight lifting machines at the gym. What is fixed and movable pulleys?... The key difference between Newtonian and non Newtonian fluids is that Newtonian fluids have a constant viscosity, whereas non-Newtonian fluids have a variable viscosity. We can divide fluids, i.e. liquids and gases, as either Newtonian or non-Newtonian depending on the viscosity of the fluid. How do you explain non-Newtonian fluid to a child? What does… In the mathematical field of differential geometry, a metric tensor (or simply metric) is an additional structure on a manifold M (such as a surface) that allows defining distances and angles, just as the inner product on a Euclidean space allows defining distances and angles there. How do you write a metric tensor? What are… The master of arts (M.A.) in physics is a non-research degree designed for students who do not require a research degree to satisfy their career objectives or as part of continuing work toward the Ph. D. or a career in the sciences. Physics is defined as the study of matter and energy and their interactions.... Internal pressure can make successes and failures feel like reflections of your worth. External pressure occurs when you feel coerced by external forces, like fear of punishment or obsession with attaining rewards, to do your job a certain way. What is the internal pressure formula? Barlow’s Formula relates the internal pressure that a pipe can… What is the difference between Impulse and Impact? While impulse is understood in terms of change in momentum of a body and is a function of force applied and the time period for which it is applied, impact force is the force applied over a very short period of time. What is impact in physics… A harmonic is a wave or signal whose frequency is an integral (whole number) multiple of the frequency of the same reference signal or wave. As part of the harmonic series, the term can also refer to the ratio of the frequency of such a signal or wave to the frequency of the reference signal… Abstract. The purpose of this investigation is to clarify the formulation of a quantity known as “energy imparted” which represents the energy removed from a radiation field but not including that given to increase rest mass. What do you mean by impart? Definition of impart transitive verb. 1 : to give, convey, or grant from… Often it is convenient to calculate the average power. In the straightforward cases where a constant force moves an object at constant velocity, the power is just P = Fv. In a more general case where the velocity is not in the same direction as the force, then the scalar product of force and velocity… “Gamma” is just a number whose value depends on the state of the gas. For air, gamma = 1.4 for standard day conditions. “Gamma” appears in several equations which relate pressure, temperature, and volume during a simple compression or expansion process. What is gamma in adiabatic process? For such an adiabatic process, the modulus of… In the CGS system the unit of charge is electrostatic unit of charge (E.S.U). It is also called Stat Coulomb (StatC). In the CGS system, the unit of charge is electromagnetic unit (E.M.U). What is emu system of units? Description. • The electromagnetic system of units (EMU) has the centimeter, gram, second, and biot as… Freezing, also known as solidification, is a phase transition where a liquid turns into a solid when its temperature is lowered below its freezing point. Is freezing chemistry or physics? Change of state in a substance is a physical change in a matter. These changes accommodate reversible changes, that is the changes that can be… The symbol for potential difference is V. If you connect the two ends of the same wire to opposite ends of the same battery, current will flow through it due to the potential difference between the two ends of the battery. What is potential difference physics? Voltage is represented in equations and schematics by the… If the size of the image formed is smaller than the object the image is said to be diminished image. What is diminished in light? Explanation: diminished is when the size of the image formed is relatively smaller than the object. What is mean by enlarged and diminished? If the height of the image is… Examples. A fixed-wing aircraft propulsion system generates forward thrust when air is pushed in the direction opposite to flight. This can be done by different means such as the spinning blades of a propeller, the propelling jet of a jet engine, or by ejecting hot gases from a rocket engine. What is thrust easy definition?... TR and TE are basic pulse sequence parameters and stand for repetition time and echo time respectively. They are typically measured in milliseconds (ms). The echo time (TE) represents the time from the center of the RF-pulse to the center of the echo. What is TE and PE? 1.2 K. 3:16. In Bohr’s model of...