The speed of waves on a string is 93 m/s

+100Join Yahoo Answers and get 100 points today. Terms-Privacy-AdChoices-RSS-HelpAbout Answers-Community Guidelines-Community Guidelines-Leaderboard-Knowledge Partners-Points &LevelsEnd Feedback 34. Storms in the South Pacific can create waves that travel to the California coast, 12,000 km away. How long does it take them to travel this distance if they travel at 15.0 m/s? 35. Waves in a pool spread at 0.75 m/s. You splash the water at one end of the pool and notice that the wave goes to the opposite end, reflects and returns in 30.00 s. How far away is the other end of the pool? 36. Wind gusts create waves in the ocean that have a wavelength of 5.00 cm and spread at 2.00 m/s. What is their frequency? 37. How many times a minute does a ship float up and down in ocean waves that have a wavelength of 40.0 m and a propagation rate of 5.00 m/s? 38. Scouts in a camp wave the rope bridge they have just crossed and notice that the ridges of the waves are 8.00 m away. If you shake the bridge twice per second, what is the rate of propagation of the waves? 39. What is the wavelength of the waves you create in a pool if you splash your hand at a speed of 2.00 Hz and the waves propagate at a wavelength of 0.800 m/s? 40. What is the wavelength of an earthquake that shakes you with a frequency of 10.0 Hz and reaches another city 84.0 km away in 12.0 s? 41. Radio waves transmitted through empty space at the speed of light (v.c.3,00×108m/s)(v-c-3,00×108m/s) by voyager spacecraft have a wavelength of 0.120 m. What is their frequency? 42. Your ear is able to differentiate the sounds that reach each ear just 0.34 ms away, which is useful for determining where the low-frequency sound originates from. (a) Suppose a low-frequency sound source is placed to the right of a person, whose ears are approximately 18 cm apart, and the speed of the generated sound is 340 m/s. How long does the interval last between when the sound reaches the right ear and the sound reaches the left ear? (b) Assume that the same person was diving and that a low-frequency sound source was to the right of the diver. How long does the interval last between when the sound reaches the right ear and the sound reaches the left ear, if the speed of sound in the water is 1500 m/s? c) What is significant about the time interval of the two situations? 43. (a) Seismographs measure earthquake arrival times with an accuracy of 0.100 s. To reach the distance to the epicenter of the earthquake, geologists compare the arrival times of the S and P waves, which travel at different speeds. If the S and P waves reach 4.00 and 7.20 km/s, respectively, in the considered, how accurately can the distance to the source of the earthquake be determined? (b) Seismic waves from underground nuclear bomb detonations can be used to locate the test site and detect violations of test bans. Discussing Arguing response to (a) implies a serious limit to such detection. (Also note that uncertainty is greater if there is uncertainty in the propagation speeds of the S and P waves.) 44. A Girl Scout is doing a 10.00 km walk to earn a merit badge. As he walks, he sees a cliff some distance away. She wants to estimate the time needed to walk to the cliff. She knows that the speed of sound is approximately 343 meters per second. She screams and discovers that the echo returns after about 2.00 seconds. If you can walk 1.00 km in 10 minutes, how long would it take you to get to the cliff? 45. A quality control engineer from a frying pan company is asked to rate a new line of non-stick coated pans. The coating must be 1.00 mm thick. One method to test thickness is for the engineer to choose a percentage of the manufactured pans, remove the coating and measure the thickness using a micrometer. This method is a destructive test method. Instead, the engineer decides that each skillet will be tested using a non-destructive method. An ultrasonic transducer is used that produces sound waves with a frequency of f-25kHz.f-25kHz. Sound waves are sent through the coating and reflected by the interface between the coating and the metal tray, and time is recorded. The wavelength of the ultrasonic waves in the coating is 0.076 m. What should be the time recorded if the coating is the correct thickness (1.00 mm)? 46. A pulse can be described as a single wave disturbance moving through a medium. Consider a pulse that is defined in time t-0.00st-0.00s by equation y(x)-6.00m3x2+2.00m2y(x)-6.00m3x2+2.00m2 centered around x.0.00m.x-0.00m. The pulse moves with a speed of v-3,00m/sv-3,00m/s in the positive x-direction. (a) What is the amplitude of the pulse? (b) What is the pulse equation based on position and time? (c) Where does the pulse focus on the time t-5.00st-5.00s? 47. A transverse wave in a chain is modeled with the wave function y(x,t) á (0.20 cm) without (2.00 m x 1 x 3.00, 1t + 16, x, t) , (0.20 cm) without (2.00 m x 3.00 x 1t + 16 x 16). What is the height of the chain relative to the balance position at a position x -4.00mx -4.00m and a time t-10.00s?t-10.00s? 48. Consider the wave function y(x,t) á (3.00 cm) without(0.4 m +2.00s, 1t + 10), y (x, t) , (3.00 cm) without (0.4 m + 1 x + 2.00s , 1t + 10). What are the period, wavelength, speed, and initial phase change of the wave modeled by the wave function? 49. A pulse is defined as y(x,t)-e-2.77(2.00(x-2.00m/s(t))5.00m)2.y(x,t)-e-2.77(2.00(x Use a spreadsheet or other computer program to plot the pulse as the height of the medium and depending on the x position. Plot the pulse sometimes t-0.00st-0.00s and t-3.00st-3.00s on the same chart. Where does the pulse focus on the t-3.00st-3.00s time? Use your spreadsheet to check your answer. 50. A Wave modeled in time t-0.00st-0.00s with a wave function that depends on the position. The equation is y(x)-(0.30m)sin(6.28m-1x)y(x)-(0.30m)sin(6.28m-1x). The wave travels a distance of 4.00 meters in 0.50 s in the positive x direction. Type an equation for the wave based on position and time. 51. A wave is modeled with the function y(x,t) á (0.25 m) cos(0.30m,1x,0,90s,1t+3), y (x, t) or (0.25 m) cos(0.30 m x 0.90, 1t + 3). Find the (a) amplitude, (b) wave number, (c) angular frequency, (d) wave rate, (e) initial phase offset, (f) wavelength, and (g) wave period. 52. A surface ocean wave has an amplitude of 0.60 m and the distance from the vaguada to the vaguada is 8.00 m. It moves at a constant wave rate of 1.50 m/s propagating in the positive x-direction. At t-0,t-0, the water displacement at x-0x-0 is zero, and vyvy is positive. (a) Assuming the wave can be modeled as a sine wave, write a wave function to model the wave. (b) Use a spreadsheet to plot the wave function sometimes t.0.00st-0.00s and t-2.00st-2.00s on the same chart. Verify that the wave moves 3.00 m in those 2.00 s. 53. A wave is modeled using the wave function y(x,t) á(0.30 m)sin[2 x 4.50 m(x x 18.00mst)].y(x,t)-(0.30 m)sin[2 x 4.50 m(x 18.00mst)]. What are the amplitude, wavelength, wavelength, period, and frequency of the wave? 54. A transverse wave in a chain is described with the wave function y(x,t) (0.50 cm)sin(1.57 m x 1 x 6.28s,1t)y (x, t) (a) What is the wave rate of the wave? (b) What is the magnitude of the maximum wind speed perpendicular to the direction of movement? 55. A swimmer in the ocean observes one day that waves on the ocean surface are periodic and resemble a sine wave. The swimmer estimates that the vertical distance between the crest and the wand of each wave is approximately 0.45 m, and the distance between each crest is approximately 1.8 m. The swimmer says 12 waves pass every two minutes. Determine the simple harmonic wave function that would describe these waves. 56. Consider a wave described by the wave function y(x,t) -0.3msin(2.00m-1x-628.00s-1t).y(x,t)-0.3msin(2.00m-1x-628.00s-1t). (a) How many ridges pass through an observer in a fixed place in 2.00 minutes? b) How far has the wave traveled in that time? 57. Consider two waves defined by the y1(x,t)-0.50msin(2-3.00mx+2-4.00st)y1(x,t)-0.50msin(2-3.00mx+2-4.00st) and y2(x,t)-0.50msin(2.6.00mx-2-4.00st).y2(x,t)-0.50msin(2.00mx-2-4.00st). What are the similarities and differences between the two waves? 58. Consider two waves defined by the y1(x,t)-0.20msin(2.6.00mx-2-4.00st)y1(x,t)-0.20msin(2.00mx-2-4,000st) and What are the similarities and differences between the two waves? 59. The speed of a wave on a rope is 300.00 m/s, its wavelength is 0.50 m, and the amplitude is 20.00 cm. How long does it take for a particle in the chain to move over a distance of 5.00 km? 60. Transverse waves are sent along a 5.00 m long rope with a speed of 30.00 m/s. The string is under a voltage of 10.00 N. What is the mass of the string? 61. A copper wire has a density of 8920 kg/m3, 8920 kg/m3, a radius of 1.20 mm and a length L. The cable is maintained under a voltage of 10.00 N. Transverse waves are sent over the cable. (a) What is the linear mass density of the cable? (b) What is the speed of the waves through the cable? 62. A piano cable has a linear mass density of μ 4.95×10 x 3 kg / m.μ 4.95×10 to 3 kg / m. Under what voltage should the string be maintained to produce waves with a wavelength of 500.00 m/s? 63. A rope with a linear mass density of μ 0.0060 kg/m to 0.0060 kg/m is tied to the ceiling. A mass of 20 kg is linked to the free end of the rope. The rope starts, sending a pulse down the rope. Calculate the pulse rate as it moves down the string. 64. A bead has a linear mass density of μ 0.0075 kg/m to 0.0075 kg/m and a length of three meters. The cable starts and the pulse takes 0.20 seconds to reach the end of the string. What's the tension of the rope? 65. A string is 3.00 m long with a mass of 5.00 g. The rope stays tight with a voltage of 500.00 N applied to the rope. A pulse is sent down the rope. How long does it take for the pulse to travel the 3.00 m of the rope? 66. Two strings are attached to the poles, however, the first string is twice as long as the second. If both strings have the same voltage and mu, what is the ratio of the pulse speed of the wave from the first string to the second string? 67. Two strings are attached to poles, however the first string is twice the mu linear mass density of the second. If both strings have the same voltage, what is the ratio of the pulse speed of the wave from the first string to the second string? 68. Transverse waves travel through a rope where the voltage is equal to 7.00 N with a speed of 20.00 m/s. What voltage would be needed for a wavelength of 25.00 m/s? 69. Two strings are joined between two poles separated by a distance of 2.00 m as shown below, both below the same voltage of 600.00 N. String 1 has a linear density of 1.0025kg/m-1-0.0025kg/m as chain 2 has a linear mass density of 2.0035kg/m.2-0.0035kg/m. Transverse wave pulses are generated simultaneously at opposite ends of the strings. How long does it take before the pulses pass to each other? 70. Two strings are joined between Poles separated by a distance of 2.00 meters as shown in the figure above, both strings have a linear density of 1 to 0.0025 kg/m, 0.0025 kg/m, the voltage on string 1 is 600.00 N and the voltage on string 2 is 700.00 N. Transverse transverse wave pulses are generated at opposite ends of the strings. How long does it take before the pulses pass to each other? 71. Note E4E4 is played on a piano and has a frequency of f-393.88.f-393.88. If the linear mass density of this piano string is μ 0.012 kg/m, 0.012 kg/m and the string is under a voltage of 1000.00 N, what is the wave speed on the string and the wavelength of the wave? 72. Two transverse waves travel through a tense rope. The speed of each wave is 30.00m/s.v.30.00m/s. Below is a graph of the vertical position based on the horizontal position for the time t-0.00s.t-0.00s. (a) What is the wavelength of each wave? (b) What is the frequency of each wave? (c) What is the maximum vertical speed of each string? 73. A sine wave travels along a tense, horizontal string with a linear mass density of μ 0.060 kg/m to 0.060 kg/m. The maximum vertical wave speed is vymax-0.30cm/s.vymax-0.30cm/s. The wave is modeled with the wave equation y(x,t)-Asin(6.00m-1x-24.00s-1t).y(x,t)-Asin(6.00m-1x-24.00s-1t). (a) What is the amplitude of the wave? b) What is the tension in the rope? 74. The speed of a transverse wave in a chain is 60.00 m/sv at 60.00 m/s and the voltage in the chain is FT-100.00NFT-100.00N. What should be the voltage to increase the wave speed to v -120.00m/s?v-120.00m/s? 75. A rope of length 5 m and a mass of 90 g is kept under a voltage of 100 N. A wave travels along the chain that is modeled as y(x,t)-0.01msin(15.7m-1x-1170.12s-1).y(x,t)-0.01msin(15.7m-1x-1170.12s-1). What is the power over a wavelength? 76. Intensity ultrasound 1.50×102W/m21.50×102W/m2 is produced by the rectangular head of a medical imaging device measuring 3.00 cm by 5.00 cm. What is its output power? 77. The low frequency speaker of a stereo assembly has an A-0.05m2A-0.05m2 surface and produces 1 W of acoustic power. (a) What is the intensity on the speaker? b) If the speaker projects that it sounds uniformly in all directions, how far from the speaker is the 0.1W/m20.1W/m2 intensity? 78. In order to increase the intensity of a wave by a factor of 50, in what factor should the amplitude be increased? 79. A device called a sunstroke meter is used to measure the intensity of sunlight. It has an area of 100cm2100cm2 and registers 6.50 W. What is the intensity in W/m2W/m2? 80. The energy of the Sun reaches the top of the Earth's atmosphere with an intensity of 1400W/m21400W/m2. How long does it take 1.80×109J1.80×109J to reach an area of 1.00m21.00m2? 81. Suppose you have a device that draws energy from the breakwaters in direct proportion to their intensity. If the device produces 10.0 kW of power in a day when the switches are 1.20 m high, how much will it produce when 0.600 m high? 82. A photovoltaic matrix of (solar cells) is 10.0%10.0% efficient in collecting solar energy and converting to If the average intensity of sunlight in a day is 70.00W/m270.00W/m2, what area should your matrix have to gather energy at a speed of 100 W? b) What is the maximum cost of the array if it must be paid for itself in two years of operation with an average of 10.0 hours per day? Suppose you make money at a rate of 9.00 cents per kilowatt-hour. 83. A microphone that receives a pure sound tone feeds an oscilloscope, producing a wave on its screen. If the sound intensity is originally 2.00×10-5W/m22.00×10-5W/m2, but is activated until the amplitude increases by 30.0%30.0%, what is the new intensity? 84. A rope with a mass of 0.30 kg is 4.00 m long. If the tension in the string is 50.00 N, and a sine wave with an amplitude of 2.00 cm is induced in the string, what should be the frequency for an average power of 100.00 W? 85. The figure above shows the power versus time for a point on a string (μ-0.05 kg/m)(μ-0.05 kg/m) in which a sine displacement wave is induced. The wave is modeled with the wave equation y(x,t)-Asin(20.93m-1x-t)y(x,t)-Asin(20.93m-1x-t). What is the frequency and amplitude of the wave? 86. A rope is under FT1FT1 voltage. The energy is transmitted by a wave on the string at the speed P1P1 by a frequency wave f1f1. What is the ratio of the new power transmission rate P2P2 to P1P1 if the voltage is doubled? 87. A 250 Hz tuning fork is hit and the intensity at the source is I1I1 at a distance of one meter from the source. (a) What is the intensity at a distance of 4.00 m from the source? (b) How far from the tuning fork is the intensity one-tenth of the intensity at the source? 88. A sound speaker is rated at a voltage of P -120.00VP -120.00V and a current of I-10.00A. I-10.00A. Electrical power consumption is P-IVP-IV. To test the speaker, a sine wave signal is applied to the speaker. Assuming that the sound wave moves like a spherical wave and that all the energy applied to the speaker is converted to sound energy, how far from the speaker is the intensity equal to 3.82W/m2?3.82W/m2? 89. The energy of a ripple in a pond is proportional to the squared amplitude. If the amplitude of the ripple is 0.1 cm at a source distance of 6.00 meters, what was the amplitude at a distance of 2.00 meters from the source? 90. Consider two sine waves traveling along a rope, modeled as y1(x,t)-0.3msin(4m-1x+3s-1t)y1(x,t)-0.3msin(4m-1x+3s-1t) y y2(x,t)-0.6msin(8m-1x6s-1t).y2(x,t)-0.6msin(8m-1x-6s-1t). What is the resulting wave height formed by interference from the two waves at the x-0.5mx-0.5m position in time t-0.2s?t-0.2s? 91. Consider two sinusoidal breast waves traveling along a rope, y1(x,t)-0.3msin(4m-1x+3s-1t+-3)y1(x,t)-0.3msin(4m-1x+3s-1t+-y1 3) y y2(x,t)-0.6msin(8m-1x-6s-1t).y2(x,t)-0.6msin(8m-1x6s-1t). What is the height of the wave formed by interference of the two waves at position x-1.0mx-1.0m in time t-3.0s?t-3.0s? 92. Consider two sinusoidal breast waves traveling along a rope, modeled as y1(x,t)-0.3msin(4m-1x-3s-1t)y1(x,t)-0.3msin(4m-1x-3s-1t) y y2(x,t)-0.3msin(4m-1x+3s-1t).y2(x,t)-0.3msin(4m-1x+3s-1t). What is the wave function of the resulting wave? [Track: Use the trig identity without(u±v)-sinucosv±cosusinvsin(u±v)-sinucosv±cosusinv 93. Two sine waves move through a medium in the same direction, both with amplitudes of 3.00 cm, a wavelength of 5.20 m and a period of 6.52 s, but one has a phase offset of an angle. What is the phase change if the resulting wave has an amplitude of 5.00 cm? [Track: Use the identity of trig sinu+sinv-2sin(u+v2)cos(u-v2)sinu+sinv-2sin(u+v2)cos(u-v2) 94. Two sine waves move through a medium in the positive x direction, both with amplitudes of 6.00 cm, a wavelength of 4.3 m and a period of 6.00 s, but one has a phase offset of an angle φ 0.50rad,φ-0.50. What is the resulting wave height at a time t-3.15st-3.15s and an x-0.45mx-0.45m position? 95. Two sine waves move through a medium in the positive x direction, both with amplitudes of 7.00 cm, a wave number of k-3,00m-1,k-3,00m-1, an angular frequency of 2.50 s, 1, 2.50, 1, and a period of 6.00 s, but one has a phase change of an angle φ 12.3rad.φ-12rad. What is the resulting wave height at a time t-2.00st-2.00s and a position x-0.53m?x-0.53m? 96. Consider two y1(x,t)y1(x,t) and y2(x,t)y2(x,t) waves that are identical except for a phase offset that propagates on the same medium. (a) What is the phase change, in radians, if the resulting wave amplitude is 1.75 times the amplitude of the individual waves? b) What is the degree phase change? (c) What is the phase change as a percentage of the individual wavelength? 97. Two sine waves, which are identical except for a phase change, travel in the same direction. The resulting wave equation is yR(x,t) - 0.70msin(3.00m-1x-6.28s-1t+π/a 116rad).yR(x,t)-0.70msin(3.00m-1x-6.28s-1t+π/16rad). What are the angular frequency, wave number, amplitude, and phase change of individual waves? 98. Two sine waves, which are identical except for a phase change, travel in the same direction. The resulting wave equation is yR(x,t) ,0.35 cmsin (6.28 m, 1 x 1.57, 1t + 4), yR (x, t) , 0.35 cmsin (6.28 m x 1.57s, 1t + 4). What are the period, wavelength, amplitude, and phase change of individual waves? 99. Consider two wave functions, (a) Using a spreadsheet, plot the two wave functions and the wave that results from the overlapping of two wave functions depending on the position (0.00≤x≤6,00m) (0.00≤x≤6,00m) for time t.0.00s.t-0.00s. (b) What are the wavelength and amplitude of the original two waves? (c) What are the wavelength and amplitude of the resulting wave? 100. Consider two wave functions, y2(x,t)-2.00msin(-2m-1x-3s-1t)y2(x,t)-2.00msin(-2m-1x-3s-1t) and y2(x x x ,t)-2.00msin(-2m-1x-3s-1t+-6).y2(x,t)-2.00msin(-2m-1x-3s-1t+6). (a) Check that the yR-2Acos(-2)sin(kx-t+-2)yR-2Acos(-2)sin(kx-t+-2) is the solution for the wave resulting from an overlay of the two waves. Make a column for x, y1y1, y2y2, y1+y2y1+y2, y yr-2Acos(-2)sin(kx-t+-2).yR-2Acos(-2)sin(kx-t+-2). Plot four waves based on the position where the range of x is from 0 to 12 m. 101. Consider two wave functions that differ only by a phase offset, y1(x,t)-

Acos(kx-t)y1(x,t)-Acos(kx-t) and y2(x,t)-Acos(kx-t+φ).y2(x,t)-Acos(-kx-t+φ). Use the trigonometric identities cosu+cosv-2cos(u-v2)cos(u+v2)cosu+cosv-2cos(u-v2)cos(u+v2) and cos(-)-cos(-)cos(-)cos(-)-cos(-)-cos(o) to find a wave equation for the wave resulting from the overlap of the two waves. Does the resulting wave function surprise you? 102. A wave traveling on a Slinky® extending to 4 m takes 2.4 seconds to travel the length of the Slinky and return again. (a) What is the speed of the wave? (b) Using the same Slinky stretched to the same length, a stationary wave consisting of three antinodes and four nodes is created. How often should the Slinky be oscillating? 103. A 2 m long string stretches between two supports with a voltage that produces a wavelength equal to vw-50.00m/s.vw-50.00m/s. What are the wavelength and frequency of the first three modes that resonate on the string? 104. Consider the experimental configuration shown below. The length of the rope between the string vibrator and the pulley is L-1,00m. 1.00m. The linear density of the chain is μ 0.06 kg/m.μ 0.06 kg/m. The string vibrator can oscillate at any frequency. The hanging mass is 2.00 kg. (a) What are the wavelength and frequency of n-6n-6 mode? (b) The rope oscillates the air around the rope. What is the wavelength of the sound if the sound speed is vs -343.00m/s?vs-343.00m/s? 105. A cable with a linear density of μ 0.2 kg/m-0.2 kg/m hangs from telephone poles. The voltage on the cable is 500.00 N. The distance between the poles is 20 meters. The wind blows through the line, causing the cable to resonate. A standing wave pattern occurs that has 4.5 wavelengths between the two poles. The sound speed at the current temperature T-20o CT-20oC is 343.00 m/s343.00 m/s. What are the frequency and wavelength of the hum? 106. Consider an L-length rod, mounted on the to a stand. There must be a node where the rod is mounted on a bracket, as shown Draws the first two normal modes of the rod as it leads to resonance. Label the wavelength and frequency needed to drive the rod to the resonance. 107. Consider two functions of wave y(x,t) - 0.30cmsin (3m.1x 4s.1t) and (x, t) , 0.30 cmsine (3 m x 1 x 4s, 1t) and (x, t) , 0.30 cmsina (3 m x 1 x 4s, 1t) y (x, t) , 0.30 cmsine (3 m x 4s, 1t)) y y y (x, t) at 0.30 cmsin (3m.1x + 4s, 1t) and (x, t) to 0.30 cmsin (3 m x 1 x + 4s , 1t). Type a wave function for the resulting stationary wave. 108. A 2.40 m cable has a mass of 7.50 g and is under a voltage of 160 N. The cable is rigidly held at both ends and placed in oscillation. (a) What is the speed of the waves on the cable? The chain is driven to resonance by a frequency that produces a standing wave with a wavelength equal to 1.20 m. (b) What is the frequency used to drive the string to resonance? 109. A chain with a linear mass density of 0.0062 kg/m and a length of 3.00 m is set to resonance mode n-100n-100. The tension in the string is 20.00 N. What is the wavelength and frequency of the wave? 110. A string with a linear mass density of 0.0075 kg/m and a length of 6.00 m is set to n-4n-4 resonance mode by driving at a frequency of 100.00 Hz. What is the voltage on the rope? 111. Two sine waves with identical wavelengths and amplitudes travel in opposite directions along a rope producing a standing wave. The linear mass density of the rope is μ 0.075 kg/m to 0.075 kg/m and the tension in the rope is FT-5,00N. FT 5.00N. The time interval between total destructive interference instances is 0.13 s. What is the wavelength of the waves? 112. A rope, fixed at both ends, is 5.00 m long and has a mass of 0.15 kg. The tension if the string is 90 N. The rope vibrates to produce a standing wave at the fundamental frequency of the string. (a) What is the speed of the waves on the string? b) What is the wavelength of the stationary wave produced? (c) What is the period of the permanent wave? 113. A chain is fixed at both ends. The mass of the rope is 0.0090 kg and the length is 3.00 m. The rope is under a voltage of 200.00 N. The chain is driven by a variable frequency source to produce standing waves in the chain. Find the wavelengths and frequency of the first four foot wave modes. 114. The frequencies of two successive modes of standing waves on a string are 258.36 Hz and 301.42 Hz. What is the next frequency above 100.00 Hz that a standing wave would produce? 115. A chain is fixed at both ends to support 3.50 m of separation and has a linear mass density of μ 0.005 kg/m.μ at 0.005 kg/m. The rope under a voltage of 90.00 N. A standing wave occurs on the rope with six nodes and five antinodos. What are the wavelength, wavelength, frequency, and standing wave period? 116. Sine waves are sent by a 1.5 m long rope fixed at both ends. The waves are reflected in the opposite direction. The amplitude of the wave is 4.00 cm. Propagation spread waves is 175 m/s. The n-6n-6 resonance mode of the string occurs. Type an equation for the resulting stationary wave. Wave.