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Wave calculations worksheet

Waves calculations worksheet answer key. Wavelength frequency and energy calculations worksheet answers.

Name: _____ Date: _____ Period: _____

Wave Worksheet

One full wave (cycle)

Wave train – two or more waves

Amplitude – measures the energy of a transverse wave
 • measured from the resting position to the top of a crest or the bottom of a trough (see vertical arrow)
Wavelength – length of a single wave cycle (horizontal arrow double sided arrow)
Frequency – of waves that pass a point in a given amount of time
Speed = wavelength x frequency

The time from the beginning to the end of the wave train in each situation is 1 second.

Wave 1

a) How many waves are there in this wave train? _____
 b) Wavelength _____ cm c) Amplitude _____ cm d) frequency _____ Hz e) speed _____ cm/s

Wave 2

a) How many waves are there in this wave train? _____
 b) Wavelength _____ cm c) Amplitude _____ cm d) frequency _____ Hz e) speed _____ cm/s

Problems:

- What is the wavelength of a sound wave with a frequency of 50 Hz? The speed of sound is 342 m/s.
- A sound wave in a steel rail has a frequency of 620 Hz and a wavelength of 10.5 m. What is the speed of sound in steel?

Wave speed calculations worksheet. Wave velocity calculations worksheet answer key. Wavelength frequency energy calculations worksheet. Wave properties and calculations worksheet. Waves calculations worksheet pdf. Wave speed calculations worksheet answers. Wave calculations worksheet quizlet. Wavelength calculations worksheet. Wave velocity calculations worksheet. Wave equation calculations worksheet. Waves calculations worksheet. Waves calculations worksheet answers. Wave calculations worksheet pdf answers.

Name _____ Date _____

Measuring waves : The formula for calculating wave speed is

Wave speed = frequency x wavelength

(metres per second, m/s) (hertz, Hz) (metre, m)

$(v) = (f) \times (\lambda)$

The following question is at a grade 4/5 level.

1. Using the equation above can you fill in the table to calculate the different wave speeds?

Remember to change units of wavelength into metres if they are in cm.

Frequency (Hz)	Wavelength (cm)	Wavelength (m)	Wave speed (m/s)
15 Hz	10 cm	0.1	
2.5 Hz	10 cm		
30 Hz	2 cm		
50 Hz	1 cm		
200 Hz	-	10	
1000 Hz	-	5	

Posted by: The Academy Calculator Team Last updated: August 1, 2023 Enter the wavelength of any frequency into the calculator to determine the wavenumber. The following formula is used to calculate the wave number. Where u is the wave number, λ is the wavelength (m). To calculate the wave number, simply divide 1 by the wavelength. Wavenumber is defined as the reciprocal of the wavelength. This is the number of waves per unit length. How to calculate wave number? First determine the wavelength. Determine the wavelength of the wave being analyzed using the speed and frequency. In this example, we will say that the wavelength is 10m, so we are defining the number of waves. Using the above formula, let's consider the wavenumber of 0.10m^{-1} . This can be described as 0.10 waves per meter. What is a wave number? A number is a unit of frequency used in spectroscopy, equal to the effective frequency divided by the speed of light. In other words, the number of waves can be thought of as the number of waves per unit distance. Last updated: November 8, 2020 This worksheet is for physics students studying for the GCSE final exams. It contains an ever-growing series of security questions, and the answers and additional videos are available via a link at the bottom of each page or via a QR code. This worksheet is also accompanied by detailed written responses and video explanations. Download the PDF to print or send digitally to students, and find many more GCSE worksheets at GCSE Physics Online. Creative Commons "NodeRivativativity" Please select an overall rating (no rating). Your rating should reflect your happiness. Write a review on an existing review and leave a review. Something went wrong. Please try again later. Better than perfect, you're amazing. All parts are excellent. An empty response has no meaning to the end user. Let us know if this violates our terms by reporting this resource. Our customer service will review your message and B'AUTOR: Calculator Academy Team Last update: August 1, 2023 Enter the wavelength of any wave frequency in the calculator to determine the wave number. The following formula is used to calculate the number of waves. Where u has the wave number, λ is the wavelength (m) To calculate the wave number, simply divide 1 by the wavelength. The wave number is defined as the opposite of the wavelength of a wave. This $\lambda \times 2$, $\lambda \times 80$, $\lambda \times 99$ is the number of waves per unit of length. How to calculate the wave number? First determine the wavelength. Use the speed and frequency to determine the wavelength of the wave to be analyzed. In this example, let's say that the wavelength is 10 m. Then determine the wave number. Using the above formula, we note that the number of waves is 0.10m^{-1} . It can be described as 0.10 wave per meter. What is the wave number? A wave number is a frequency unit used in spectroscopy which is equal to the real frequency divided by the speed of light. In other words, the number of waves can be considered the number of waves in the remote unit. Last update on November 8, 2020 This worksheet is intended for students in GCSE physics.

Name _____ Date _____ Class _____

Physical Science: Wave Calculations

Speed of a wave = wavelength x frequency
 $v = \lambda f$
 v = velocity (speed), measured in m/s
 λ = wavelength, measured in m
 f = frequency, measured in Hz (Hz = 1/s)

The speed of a wave depends on the medium that it is travelling through.
 $f = 1/T$
 f = frequency, measured in Hz
 T = period, measured in s

- A wave along a guitar string has a frequency of 500 Hz and a wavelength of 2.5 meters. Calculate the speed of the wave.
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____
- The speed of sound in air is about 340 m/s. What is the wavelength of sound waves produced by a guitar string vibrating at 400 Hz?
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____
- The speed of light is 300,000,000 m/s. What is the frequency of microwaves with a wavelength of 0.01 meters?
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____
- What is the period of the microwaves in the above question?
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____
- The string on a guitar that produces an A sharp vibrates with a frequency of 257 Hz. If the sound waves produced by the string have a wavelength in air of 1.40 meters, what is the speed of sound in air?
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____
- The average wavelength in a series of ocean waves is 15.0 meters. A wave crest arrives at the shore on an average of every 10.0 seconds. What is the frequency in Hz? What is the average speed of the waves?
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____
- An FM radio station broadcasts electromagnetic waves at a frequency of 94.3 MHz (equal to 94,300,000 Hz). These radio waves have a wavelength of 3.17 meters. What is the speed of the waves?
 Equation: _____ Rearranged Equation: _____ Work: _____ Final Answer: _____

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