Waves Equations Worksheet

Level: GCSE / A-Level | Difficulty: Intermediate | Topic: Waves & Optics

Practice the wave equations with 10 problems covering wave speed, frequency, period, and wavelength. Includes full worked answers.

Equations you will need

v = flambda	Wave speed = frequency x wavelength
T = 1/f	Period = 1 / frequency
f = 1/T	Frequency = 1 / period

Symbol key

Symbol	Quantity	Unit
v	wave speed	m/s
f	frequency	Hz (hertz)
lambda	wavelength	m
T	period	s

Practice problems

1. A wave has frequency 50 Hz and wavelength 4 m. Find its speed.

2. A sound wave travels at 340 m/s with wavelength 2 m. Find the frequency.

3. Find the period of a 25 Hz wave.

4. A water wave has a period of 0.5 s and wavelength 1.2 m. Find its speed.

5. Radio waves travel at 3 x 108 m/s. Find the wavelength of a 100 MHz station.

6. A wave on a string completes 60 oscillations in 4 s. Find the frequency and period.

7. A wave has speed 300 m/s and period 0.01 s. Find the wavelength.

8. Visible red light has wavelength 700 nm. Find its frequency. (c = 3x108 m/s)

9. A wave has frequency 200 Hz and travels 50 m in 0.25 s. Find the wavelength.

10. Two waves: A has period 0.02 s, B has period 0.05 s. Which has higher frequency?