InkPhysics

QUESTION WORKBOOK

Progressive waves

Waves · Year 12

AQA 3.3.1.1 · CIE 7.1 · OCR A 4.4.1

10 questions · 29 marks

PRINT EDITION

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SECTION A · Warm-up

A1 State what a progressive wave transfers, and what the particles of the medium do. [2]

A2 A wave has frequency 50 Hz and wavelength 6.0 m. Calculate its speed. [2]

A3 A wave has a period of 0.020 s. Calculate its frequency. [2]

SECTION B · Standard

B1 A sound wave travels at 340 m s^{-1} with a frequency of 170 Hz. Calculate its wavelength. [3]

B2 Red light of wavelength 600 nm travels at 3.0×10^{8} m s^{-1}. Calculate its frequency. [3]

B3 A wave has a frequency of 25 Hz and a wavelength of 1.2 m. Calculate (a) its speed and (b) its period. [3]

B4 Two points on a progressive wave are 0.75 m apart. The wavelength is 1.0 m. Calculate the phase difference between the two points, in degrees. [3]

SECTION C · Stretch

C1 On a lake, 20 complete waves pass a fixed post in 10 s, and successive crests are 3.0 m apart. Calculate (a) the frequency, (b) the wave speed and (c) the period. [4]

C2 Two points on a wave of wavelength 2.4 m have a phase difference of π/2 radians. Calculate the distance between them. [4]

C3 Explain why the particles in a progressive wave do not travel along with the wave, even though the wave itself moves forward. [3]