

- 5 A progressive wave Y passes a point P. The variation with time t of the displacement x for the wave at P is shown in Fig. 5.1.

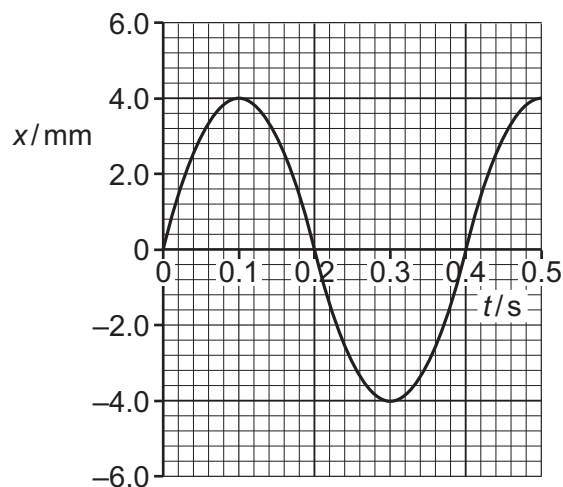


Fig. 5.1

The wave has a wavelength of 8.0 cm.

- (a) Determine the speed of the wave.

speed = ms^{-1} [2]

- (b) A second wave Z has wavelength 8.0 cm and amplitude 2.0 mm at point P. Waves Y and Z have the same speed.

For the waves at point P, calculate the ratio

$$\frac{\text{intensity of wave Z}}{\text{intensity of wave Y}}.$$

ratio = [3]