3 Two progressive sound waves Y and Z meet at a fixed point P. The variation with time *t* of the displacement *x* of each wave at point P is shown in Fig. 3.1.

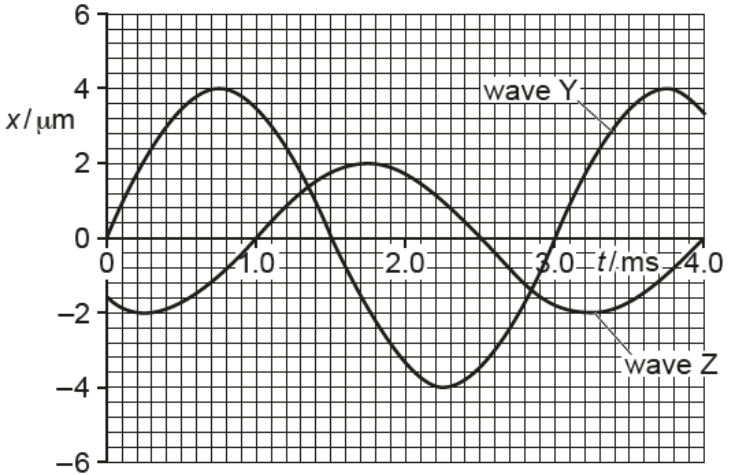

Fig. 3.1

(a) Determine the phase difference between the waves.

phase difference = ……° [1]

(b) The two waves superpose at P. Use Fig. 3.1 to determine the resultant displacement at time t = 0.75 ms.

resultant displacement = ……μm [1]

(c) The intensity of wave Y at point P is I.

Determine, in terms of I, the intensity of wave Z.

intensity = …… [2]

(d) The speed of wave Z is 330 m s^{-1}.

Determine the wavelength of wave Z.

wavelength = …… m [2]

[Total: 6]