7 **(a)** **(i)** Explain what is meant by a *progressive transverse* wave.

progressive: .....

.....

transverse: .....

.....

[2]

(ii) Define frequency.

.....

.....[1]

(b) The variation with distance x of displacement y for a transverse wave is shown in Fig. 7.1.

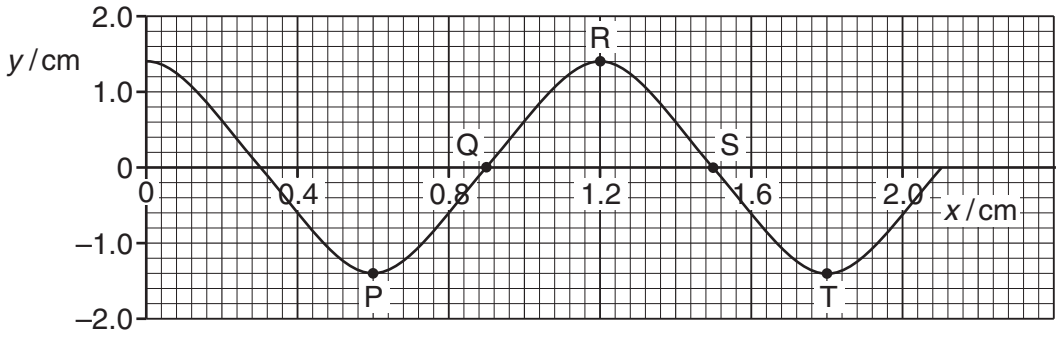

Fig. 7.1

On Fig. 7.1, five points are labelled.

Use Fig. 7.1 to state any two points having a phase difference of

(i) zero,

.....[1]

(ii) 270°.

.....[1]

(c) The frequency of the wave in **(b)** is 15 Hz.

Calculate the speed of the wave in **(b)**.

speed = ... $m\,s^{-1}$ [3]

(d) Two waves of the same frequency have amplitudes 1.4 cm and 2.1 cm.

Calculate the ratio

$$\frac{\text{intensity of wave of amplitude 1.4 cm}}{\text{intensity of wave of amplitude 2.1 cm}}.$$

ratio = ... [2]

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