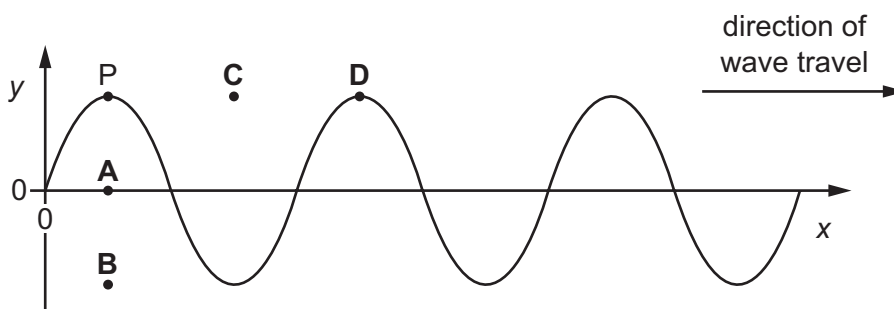


- 22 The variation with distance  $x$  of the displacement  $y$  of a transverse wave on a rope is shown at time  $t = 0$ .

The wave has a frequency of 0.5 Hz.

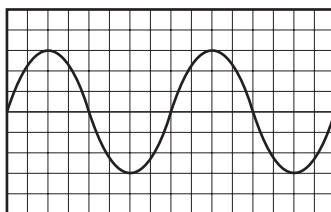
A point P on the rope is marked. The diagram shows the original position of P and four new positions.

What is the position of P at time  $t = 1$  s?



- 23 A cathode-ray oscilloscope (CRO) is connected to a microphone which detects sound of constant frequency.

The trace on the screen of the CRO is shown.



Which property of the sound wave is measured using **only** information from the CRO?

- A amplitude
  - B period
  - C speed
  - D wavelength
- 24 A transverse wave and a longitudinal wave both travel in the same direction down a long stretched spring.

Which statement is **not** correct for these two forms of wave?

- A The displacement measurements for the particles of the two waves are made at right angles to each other.
- B The energy transferred by the two waves is in the same direction.
- C The velocities of the two waves are in the same direction.
- D The wavelength measurements for the two waves are made at right angles to each other.