

- 5 (a) A progressive wave transfers energy. A stationary wave does not transfer energy. State two other differences between progressive waves and stationary waves.

1.
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2.
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[2]

- (b) A stationary wave is formed on a stretched string between two fixed points A and B. The variation of the displacement y of particles of the string with distance x along the string for the wave at time $t = 0$ is shown on Fig. 5.1.

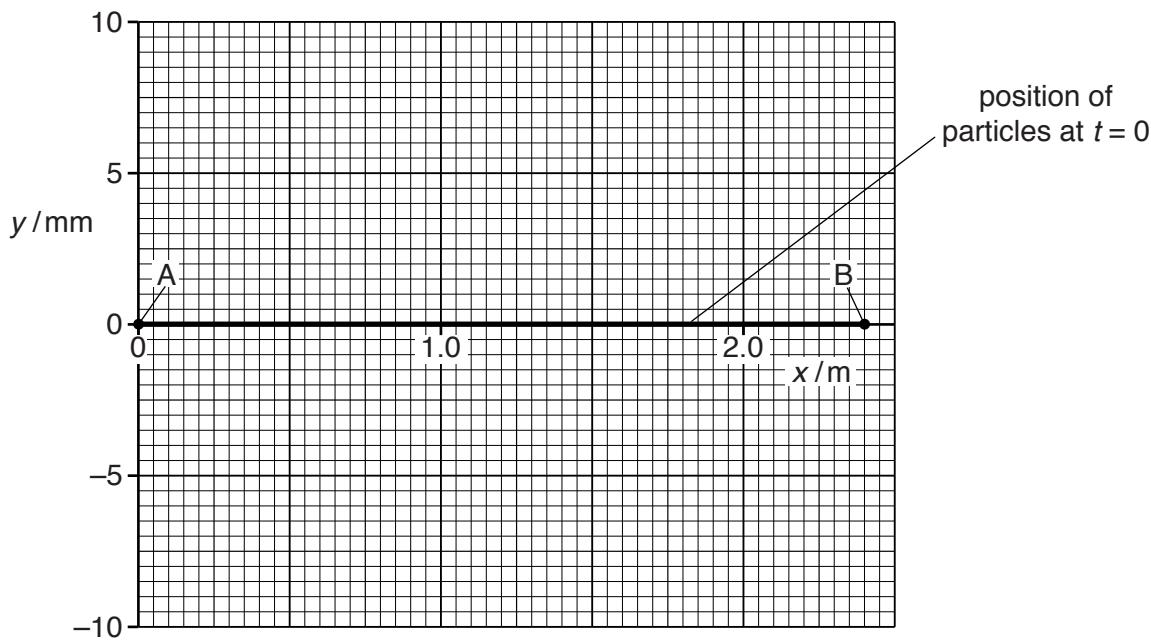


Fig. 5.1

The wave has a period of 20 ms and a wavelength of 1.2 m. The maximum amplitude of the particles of the string is 5.0 mm.

- (i) On Fig. 5.1, draw a line to represent the position of the string at $t = 5.0$ ms. [2]
- (ii) State the phase difference between the particles of the string at $x = 0.40$ m and at $x = 0.80$ m.

phase difference = unit [1]

- (iii) State and explain the change in the kinetic energy of a particle at an antinode between $t = 0$ and $t = 5.0$ ms. A numerical value is not required.
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[2]