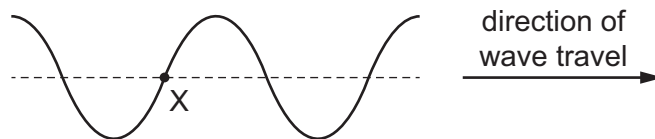


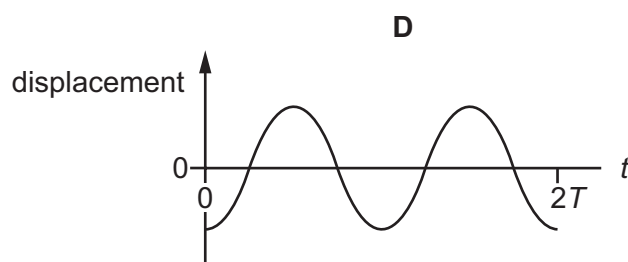
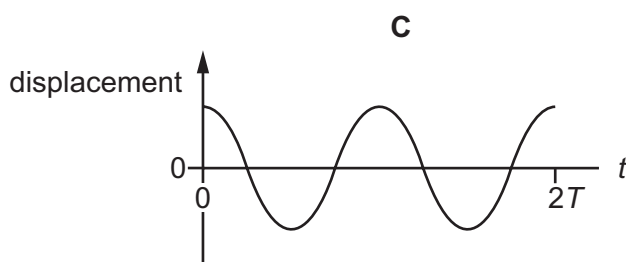
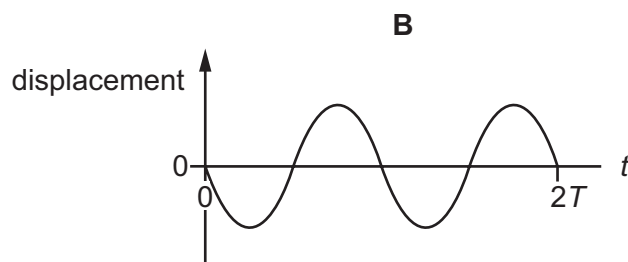
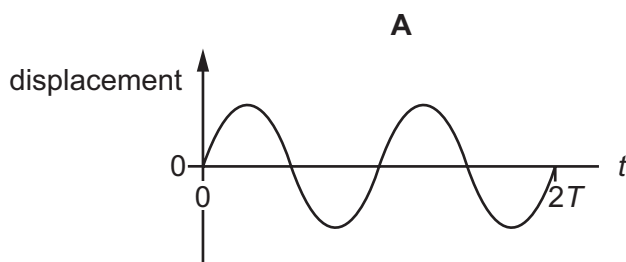
- 23** A transverse wave travels along a rope. The diagram shows the rope at time  $t = 0$ .

The wave is travelling from left to right. The period of the wave is  $T$ .



One particle of the rope is labelled X.

Which graph shows the variation with time of the displacement of particle X between  $t = 0$  and  $t = 2T$ ?



- 24** A jet aircraft travels at a speed of  $0.80v$ , where  $v$  is the speed of sound. The aircraft directly approaches a stationary observer. The frequency of sound emitted by the aircraft is 100 Hz.

Which frequency does the observer hear?

- A** 56 Hz      **B** 180 Hz      **C** 400 Hz      **D** 500 Hz

- 25** A telescope detects and analyses some electromagnetic radiation of wavelength 2 cm.

Which type of telescope is it?

- A** microwave telescope  
**B** optical telescope  
**C** radio telescope  
**D** X-ray telescope