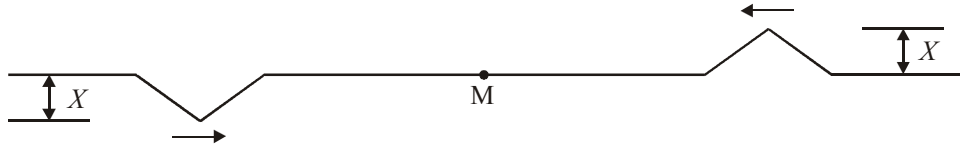


WAVES: IB Multiple Choice Questions ...

1. Two identical triangular pulses of amplitude X travel toward each other along a string. At the instant shown on the diagram below, point M is midway between the two pulses.

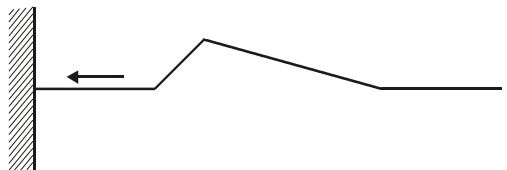


The amplitude of the disturbance in the string as the pulses move through M is

- A. $2X$.
- B. X .
- C. $\frac{X}{2}$.
- D. 0.

(1)

2. A pulse is sent down a string fixed at one end.



Which **one** of the following diagrams best represents the reflected pulse?

A.

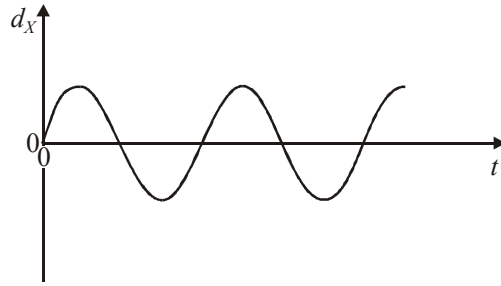
B.

C.

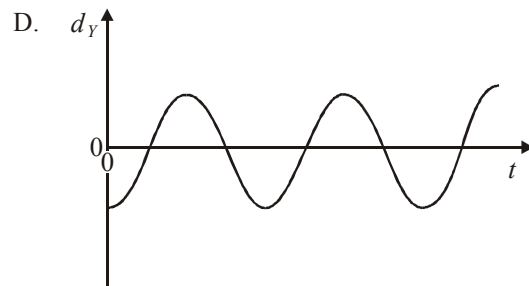
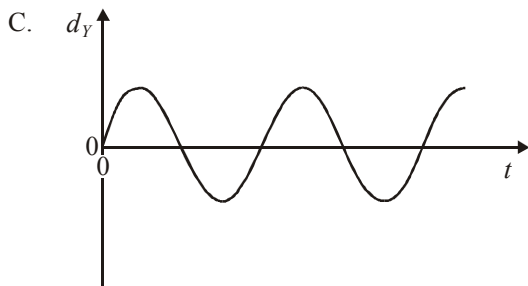
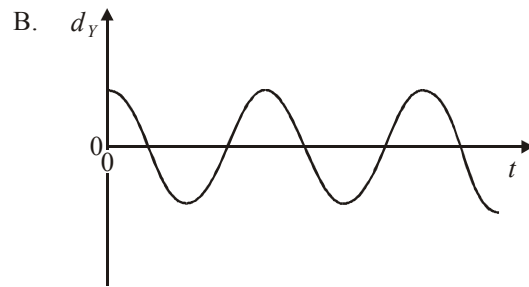
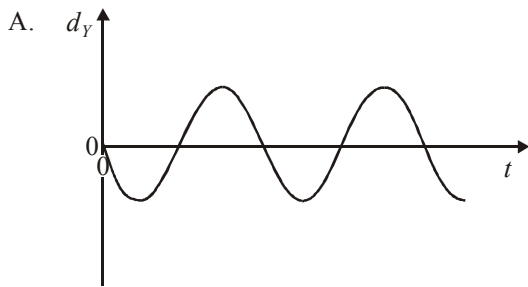
D.

(1)

3. Two particles X and Y are situated a distance $\frac{1}{2}\lambda$ apart on a stationary wave of wavelength λ .
The variation with time t of the displacement d_x of X is shown below.

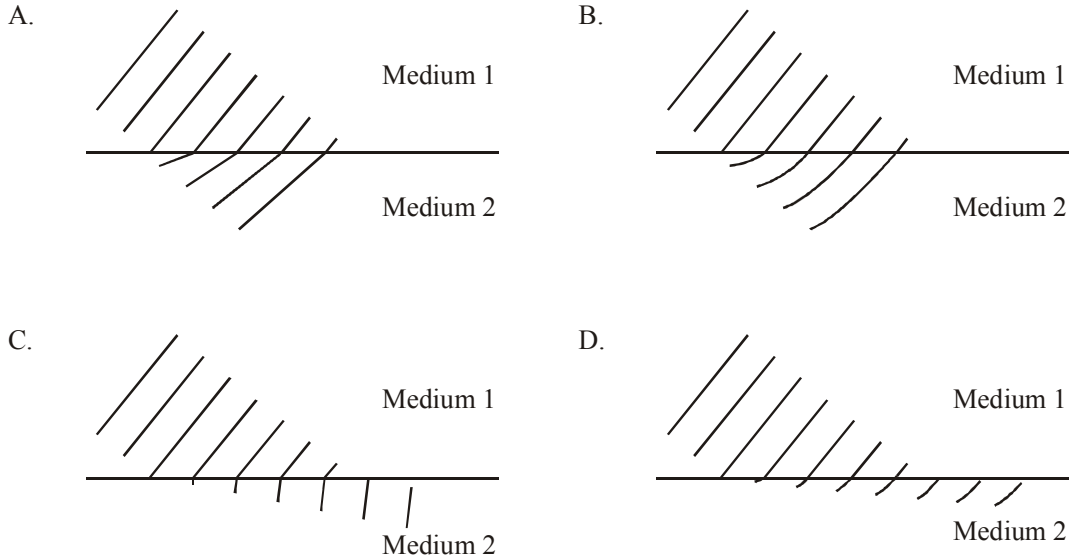


Which **one** of the following correctly shows the variation with time t of the displacement d_y of particle Y?



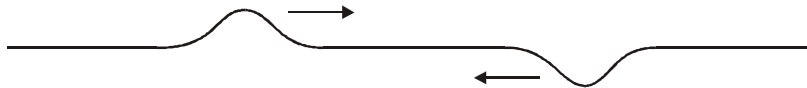
(1)

4. A plane wave approaches and passes through the boundary between two media. The speed of the wave in medium 1 is greater than that in medium 2. Which **one** of the following diagrams correctly shows the wavefronts?

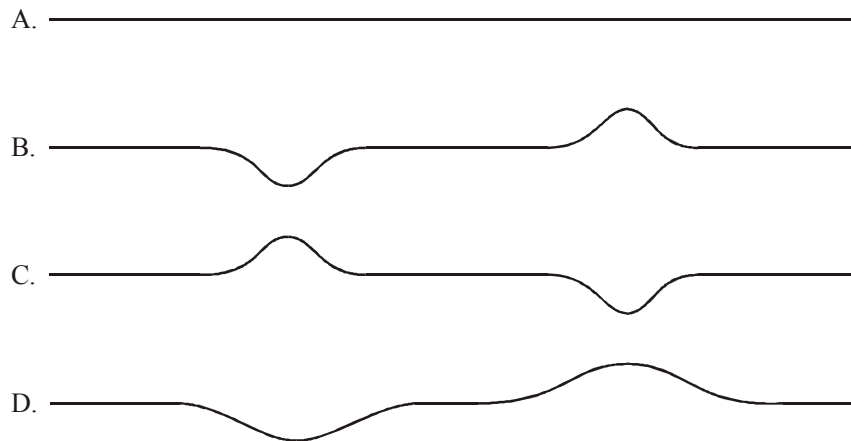


(1)

5. The diagram below shows two pulses on a string travelling toward each other.



Which of the following diagrams best shows the shape of the string after the pulses have passed through each other?



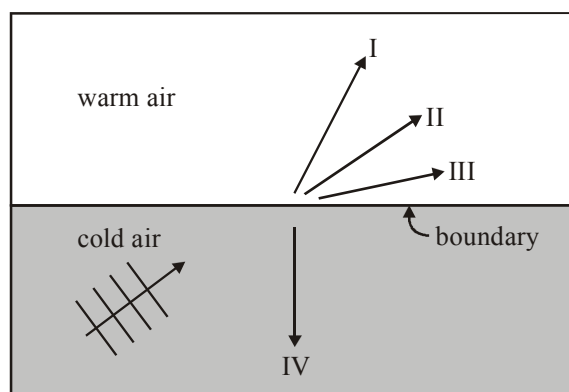
(1)

6. Which **one** of the following is **not** a true statement about a standing wave in one dimension?

- A. A standing wave is formed by the superposition of two progressive waves.
- B. A standing wave stores energy but does not transfer it.
- C. The wavelength of the standing wave is the distance between adjacent nodes.
- D. The amplitude of vibration varies along the standing wave.

(1)

7. Sound waves move faster in warm air than in cold air. The diagram below shows plane waves in cold air moving towards a boundary with warm air.

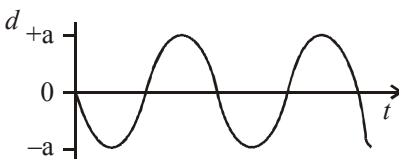
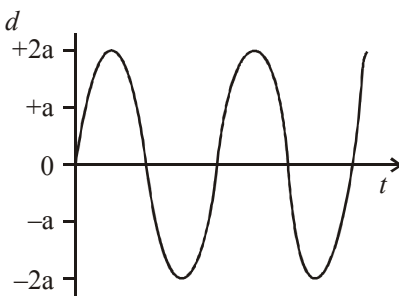


Which of the arrows shows the possible direction of waves after reaching the boundary?

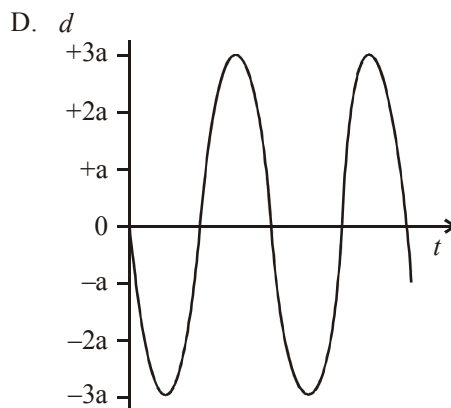
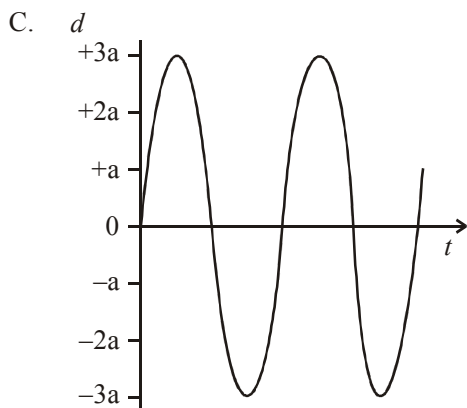
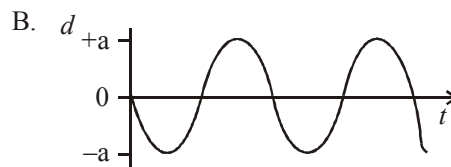
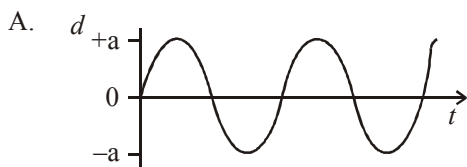
- A. I
- B. II
- C. III
- D. IV

(1)

8. The variation with time t of the separate displacements d of a point in a medium due to two waves is shown below.



The waves are superposed. Which of the following diagrams shows the variation with time t of the resultant displacement d of the point in the medium?



(1)

9. When a wave crosses the boundary between two media, which **one** of the following properties of the wave does **not** change?
- A. Amplitude
 - B. Wavelength
 - C. Frequency
 - D. Speed

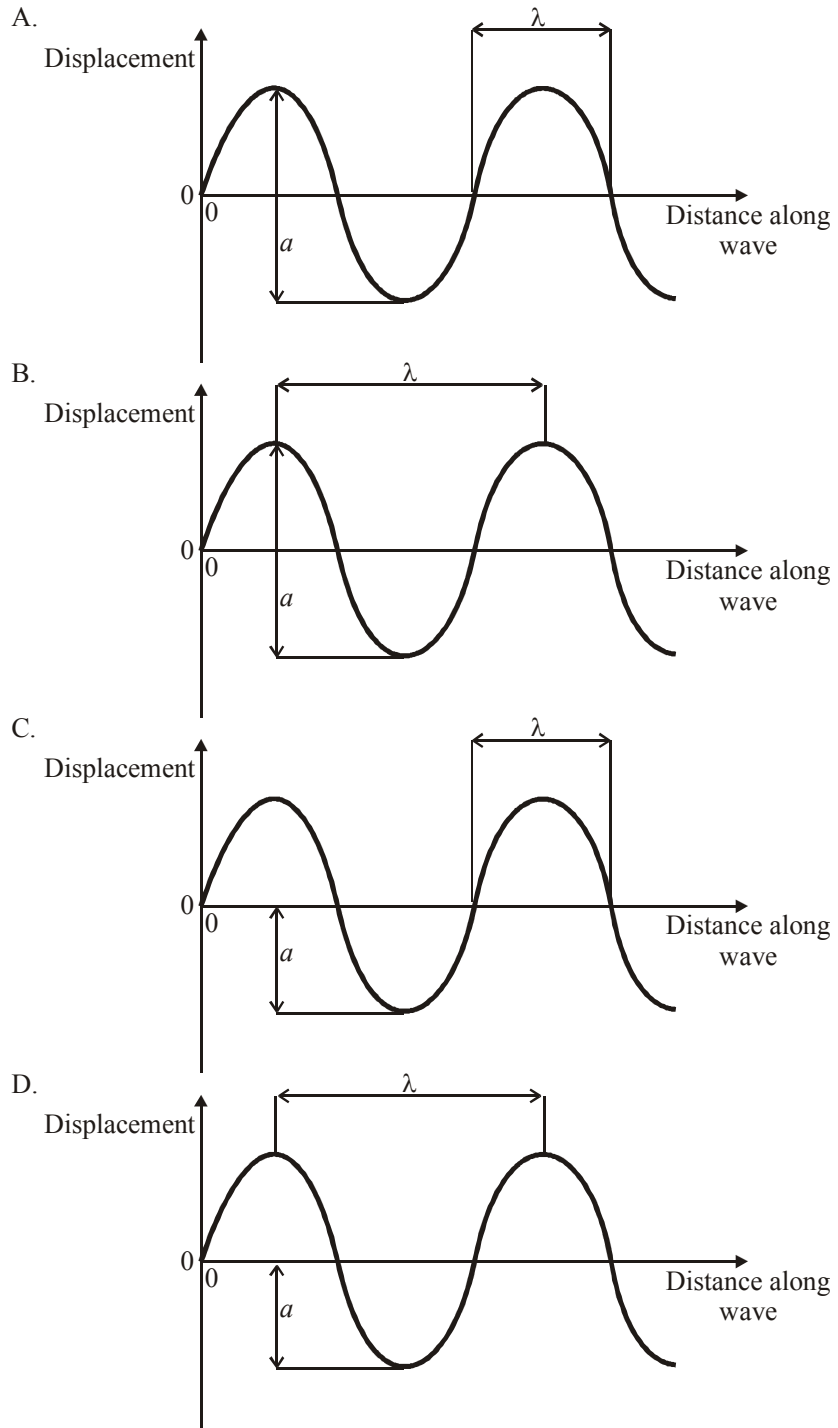
(1)

10. What change, if any, occurs in the wavelength and frequency of a light wave as it crosses a boundary from air into glass?

	Wavelength	Frequency
A.	Decreases	Decreases
B.	Decreases	Unchanged
C.	Increases	Increases
D.	Increases	Unchanged

(1)

11. On which **one** of the following graphs is the wavelength λ and the amplitude a of a wave correctly represented?



(1)

12. The diagram below shows two wave pulses moving towards one another.

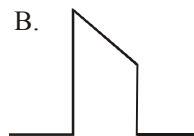


Which **one** of the following diagrams shows the resultant pulse when the two pulses are superposed?

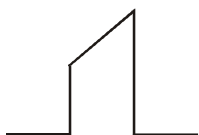
A.



B.



C.



D.



(1)