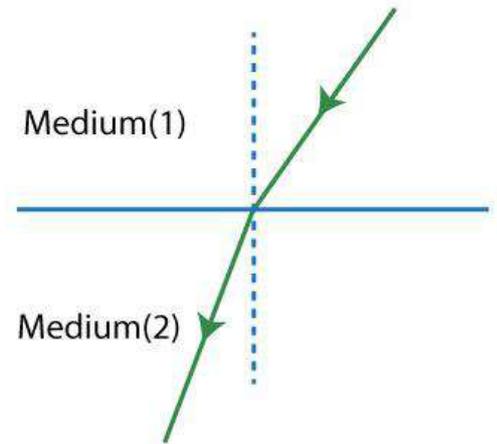


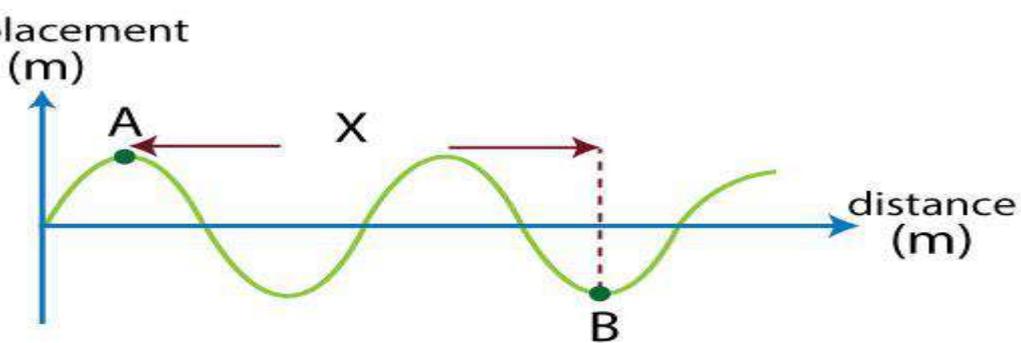
1. A light ray fell from medium (1) its absolute refractive index is 1.3 to medium (2) its absolute refractive index is 1.5 as shown in the figure.



Which one from the following choices shows what happens for both wavelength and the velocity of the light wave in medium (2)?

	Wavelength	Velocity
A	Increases	Increases
B	Decreases	Increases
C	Increases	Decreases
D	Decreases	Decreases

2. The graph represents a wave motion with wavelength (λ)

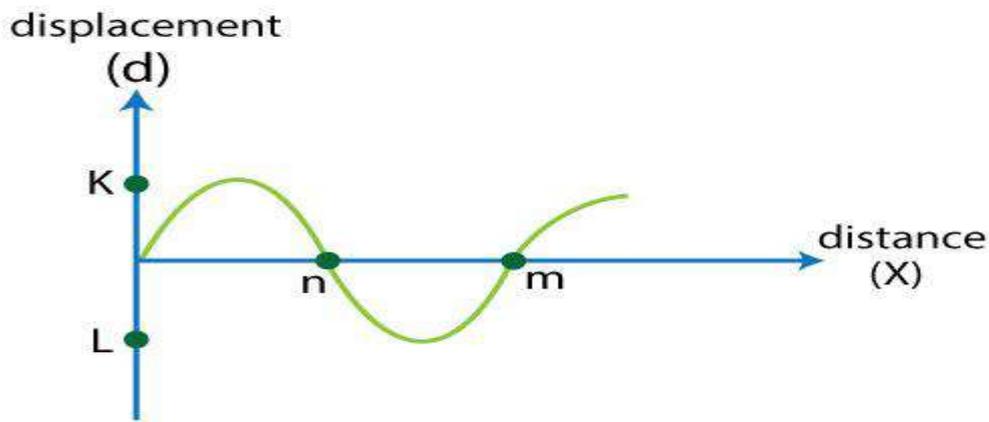


The horizontal distance (x) between the two points A and B represents

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- A. $\frac{3\lambda}{2}$
- B. $\frac{2\lambda}{3}$
- C. 2λ
- D. λ

3. The graph represents the relation between the displacement of one from medium particles during a certain time (d) and the covered distance by the wave during the same time (x).



Which one from the following choices represents the wave amplitude and wavelength?

	Wave amplitude	Wavelength
A	The distance KL	The distance mn
B	A half of distance KL	A double of distance mn
C	A double of distance KL	The distance mn
D	A half of distance KL	A half of distance mn

4. In Young's experiment to study the light interference, a monochromatic ray its wavelength 6000 \AA was used forming fringes on an observing screen at distance (R) from the double slits and the distance between two successive bright fringes was (Δy_1). If another monochromatic light its wavelength 4000 \AA is used and the distance between the double slits and the observing screen is doubled , the distance between two successive bright fringes becomes (Δy_2), the ratio $\frac{\Delta y_1}{\Delta y_2} = \dots\dots\dots$

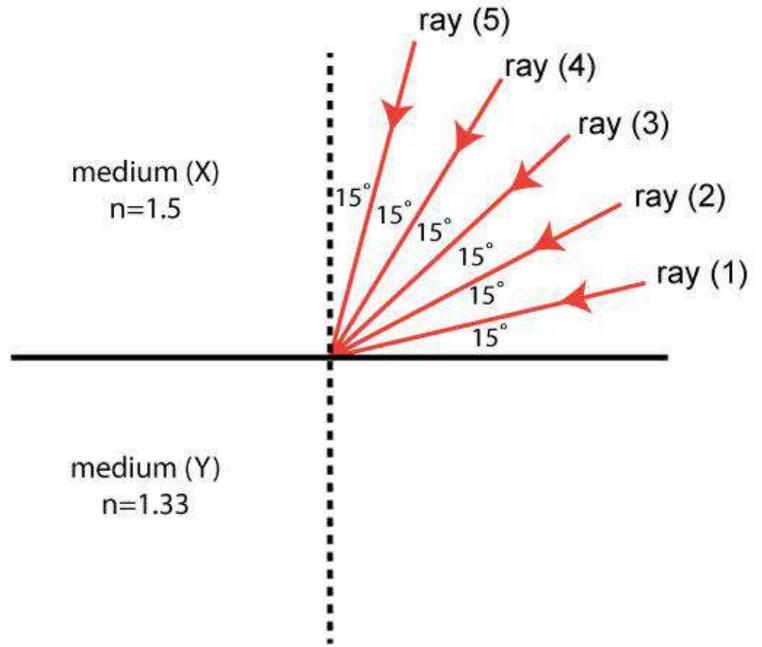
A. $\frac{3}{4}$

B. $\frac{4}{3}$

C. $\frac{6}{4}$

D. $\frac{1}{3}$

5. Five light rays are separated by equal angles each angle is 15° as shown in the figure if these light rays fall from medium (x) its absolute refractive index is 1.5 to medium (Y) its absolute refractive index is 1.33



How many rays can penetrate to medium (Y)?

- A. Four rays
- B. Three rays
- C. Two rays
- D. Five rays



6. Two thin prisms made of same material their apex angles (5° and 10°), **the ratio between their dispersive power** $\frac{(w_{\alpha 0})_1}{(w_{\alpha 0})_2} = \dots\dots\dots$

- A. 0.5
- B. 0.6
- C. 1
- D. 2

7. A light ray falls with angle of (45°) on one side of a triangular prism its apex angle is 30° and emerged normally from the opposite side, **so the angle of deviation =**

- A. 15°
- B. 20°
- C. 25°
- D. 30°

8. Four identical metallic balls are fallen down from the same height, each ball toward a separate jar where each jar contains a different liquid from the other jars then the taken time by each ball to reach the bottom of the jar is recorded in each case as the following:

The jar	The time taken by the ball to reach the bottom
1	0.2 s
2	0.3 s
3	0.6 s
4	1 s

Which jar contains the liquid with higher viscosity?

- A. Jar 1
B. Jar 2
C. Jar 3
D. Jar 4

9. A liquid flows with velocity (v) through a uniform tube, its diameter is (X) and a cork has small aperture is put at one end of this tube. If the diameter of the small aperture is ($\frac{X}{4}$). **The velocity of emergent water from the small aperture =**

- A. $16 v$
B. $4 v$
C. $\frac{1}{4} v$
D. $\frac{1}{16} v$

10. A wave its frequency (100 Hz) propagates in air with velocity of 320m/s, **calculate its wavelength.**

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11. A light wave propagates with velocity 2×10^8 m/s through a certain medium its refractive index 1.5 if this light wave transfers to another medium its refractive index is 1.2, **Find the velocity of light in the second medium.**

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12. A thin prism of apex angle 10° , its absolute refractive index of both blue and red colors (1.53 and 1.51) respectively.

Calculate the average deviation angle.

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