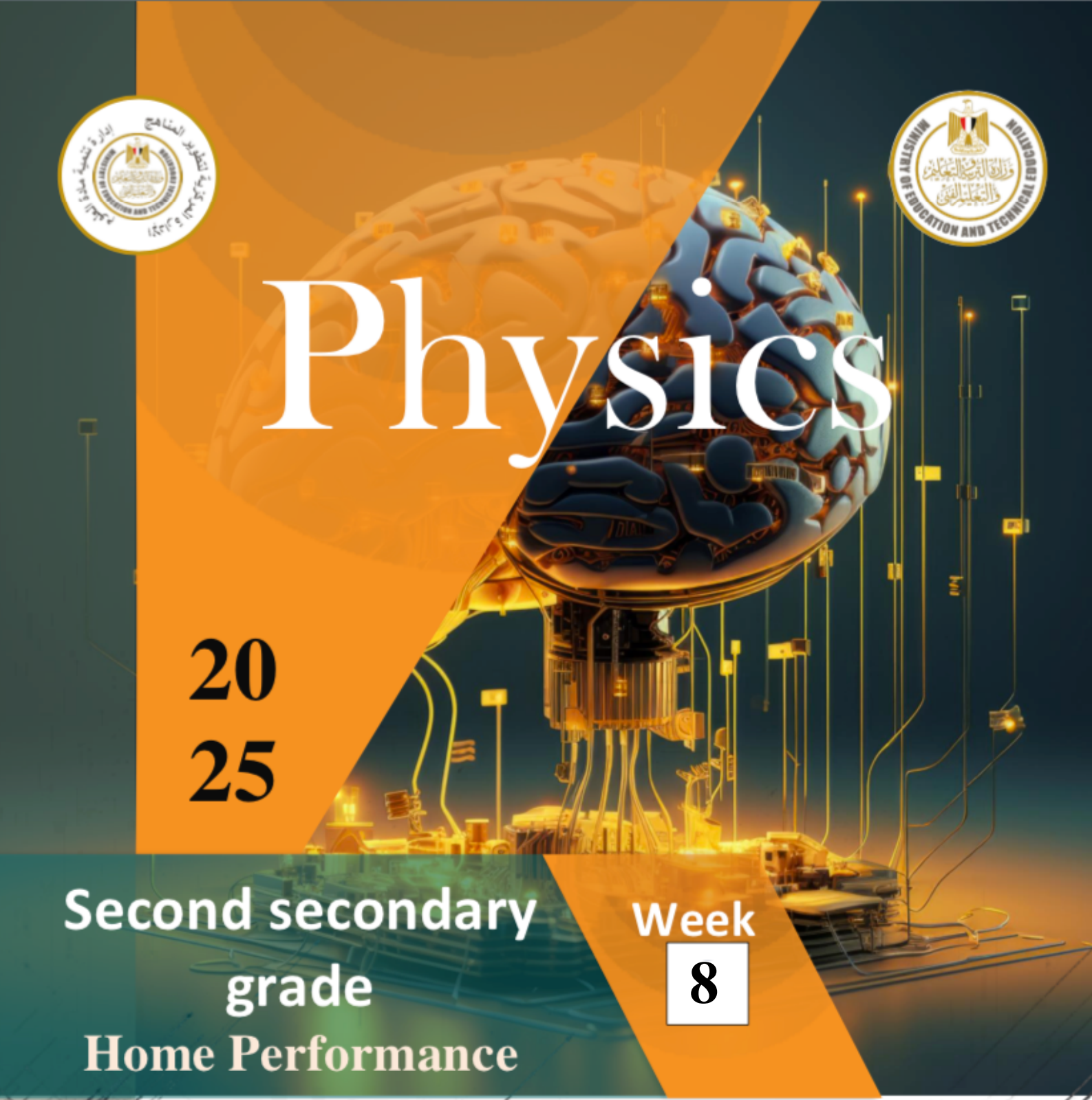
Physics



2025

Second secondary grade

Home Performance

Week 8

Prepare and review

Science Development Office

1) A triangular prism with a apex angle of 60° and a refractive index of $\sqrt{2}$. A ray falls on one of its faces at an angle of 45°. The magnitude of the angle of deviation is .....

(A) 15°

(B) 30°

(C) 45°

(D) 60°

2) light ray falls at an angle of 45° on a triangular prism with a apex angle of 30° and emerges perpendicular to its other face. The angle of deviation is = ...

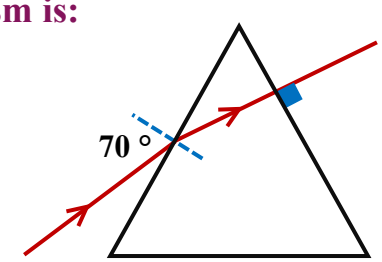
(A) 15°

(B) 20°

(C) 25°

(D) 30°

3) The opposite figure shows the path of a light ray that fell on one face of an equilateral triangular prism and emergence from the other face in a straight line. The angle of deviation of the light ray in the prism is:



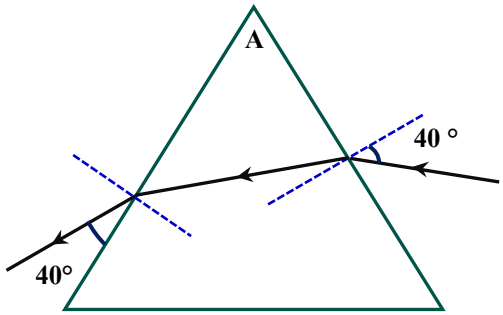
(A) 10 °

(B) 15 °

(C) 25 °

(D) 5 °

4) A light ray falls on one of the faces of an equilateral triangular prism at an angle of 40°, then emergences from the opposite face as shown in the figure. The angle of deviation of the ray is equal to .....



(A) 40°

(B) 60°

(C) 50°

(D) 30°

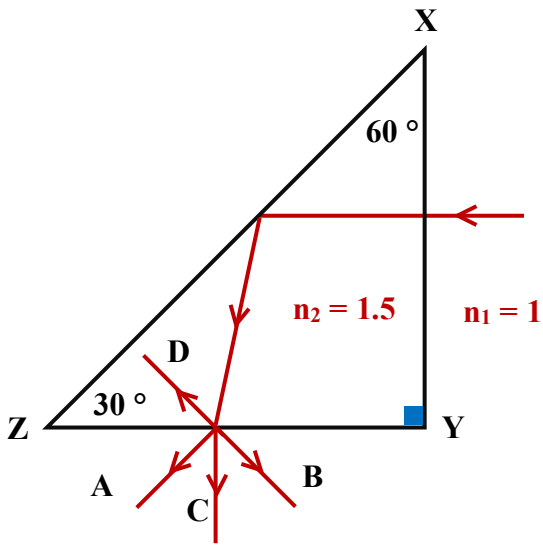
5) If a light ray falls on the XY face of a triangular prism as shown in the figure. According to the laws of prism, determine the point from which the light ray will emerge.

(A) A

(B) B

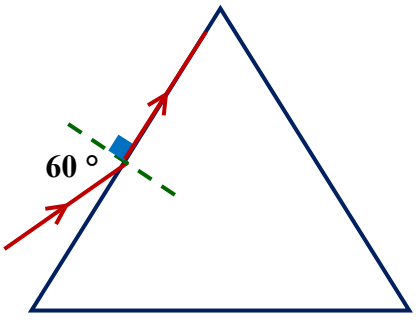
(C) C

(D) D

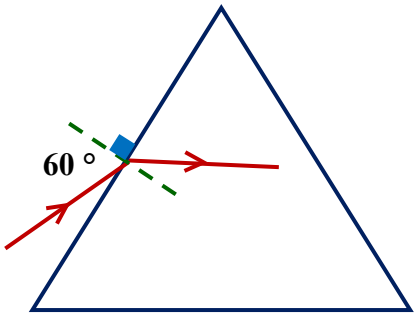


6) A student drew the incident and refracted rays as shown in Figure (A) and it was wrong. In order for the path of the refracted ray to be correct, the figure must be modified to look like Figure ..... .

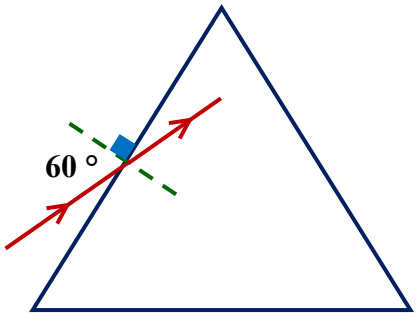
(Refractive index of the prism material n = $\sqrt{3}$)



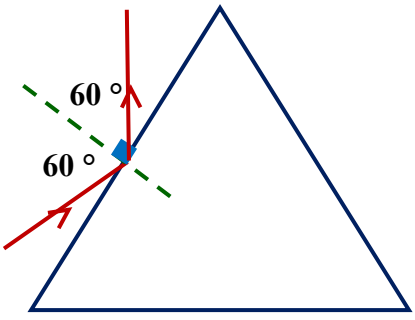
(A)



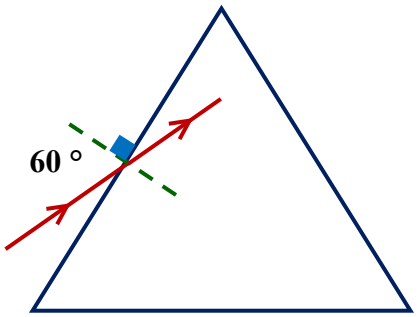
(B)



(A)



(C)



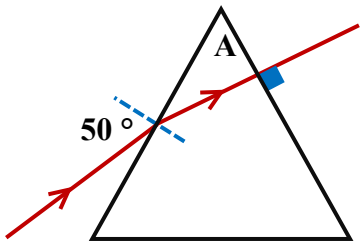
(D)

7) In the figure, the apex angle of the prism is ..... 50 °

(A) greater than

(B) less than

(C) equal to



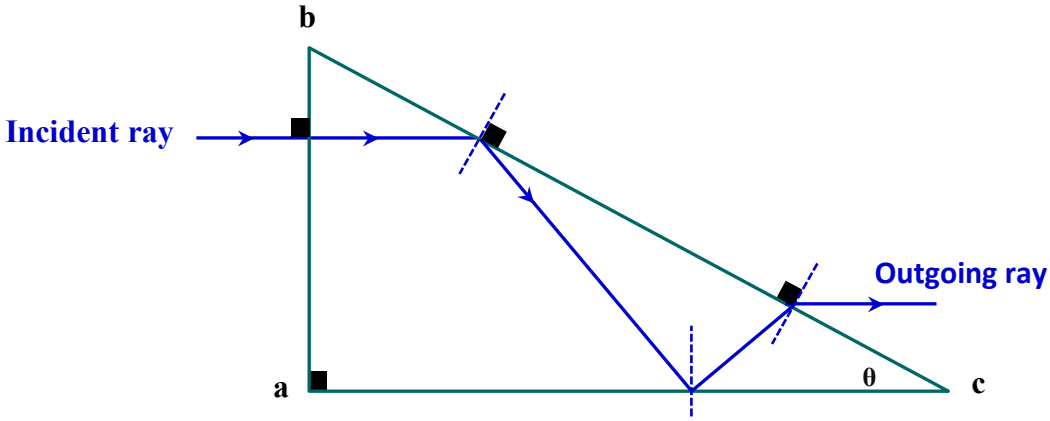
8) A light ray falls perpendicularly on one of the faces of a triangular prism, is totally reflected inside the prism two times and then emerges from face bc. The refractive index of the triangular prism is .....

(A) $(\sin \theta)/(\sin 3\theta)$

(B) $(\sin \theta)/(\cos 3\theta)$

(C) $(\cos \theta)/(\sin 3\theta)$

(D) $(\cos \theta)/(\cos 3\theta)$



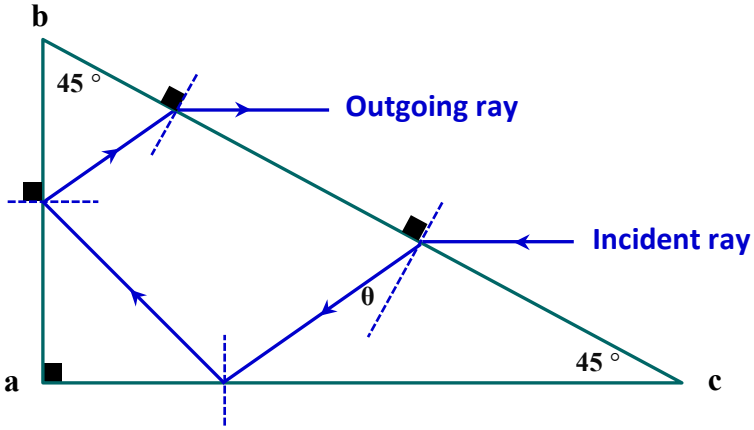
9) A light ray falls on one of the faces of a triangular prism, is totally reflected inside the prism two times, and then emergences from face bc parallel to the incident ray. The value of the critical angle (ϕ_C) is:

(A) $45° < \phi_C$

(B) $45° = \phi_C$

(C) $45° + \theta < \phi_C$

(D) $45° - \theta > \phi_C$



10) A triangular prism with a apex angle of 60°, and the angle of incidence from the air on the prism = 60°, and the second angle of incidence in the prism = 27.23° Calculate the value of the refractive index of the prism material. (1.59)

11) A light ray fell in the air on one of the faces of a triangular glass prism with a apex angle of 72°, and the ray refracted at an angle of 30°, and emergered tangent to the other face. Find:

(a) The critical angle between the glass and the air. [42°]

(b) The refractive index of the prism material. [1.49]

(c) The sine of the initial angle of incidence. [0.747]

(Consider sin 42° = 0.669, sin 30° = 0.5)

12) A triangular prism with a apex angle of 45°. A perpendicular ray falls on one of its faces and emerges tangent to the other face. Calculate the refractive index of its material. [1.414]

13) Trace the path of the light ray shown in the figure, which falls perpendicularly on one of the sides of a right-angled triangular prism, knowing that the critical angle between the glass and the air is 42° and that the sides of the right angle are equal. What is the angle of emergence of the light ray? [0°]