

Edexcel Physics A-Level

Topic 5.2 - TIR and Lenses

Flashcards

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State the equation used to calculate intensity.



State the equation used to calculate intensity.

$$I = P/A$$

P is the power

A is the area



What is the refractive index of a material through which light travels a speed of 'v'?



What is the refractive index of a material through which light travels a speed of 'v'?

$$n = c/v$$

Where c is the speed of light in a vacuum.



State the equation linking the refractive indexes and angles at an interface between two mediums.



State the equation linking the refractive indexes and angles at an interface between two mediums.

$$n_1 \sin\theta_1 = n_2 \sin\theta_2$$



What is the critical angle?



What is the critical angle?

The angle of incidence for which the angle of refraction is 90° and all the light passes along the boundary between the mediums. Beyond this angle all light will be reflected.



State the equation used to calculate a critical angle.



State the equation used to calculate a critical angle.

$$\sin C = 1/n$$



What is total internal reflection?



What is total internal reflection?

Total internal reflection is where all the light is reflected back at the boundary between two mediums. It occurs when light is incident at an angle greater than the critical angle.



What is the focal point of a converging lens?



What is the focal point of a converging lens?

The single point where the parallel rays of light entering the lens converge to.



What is the focal length of a lens?



What is the focal length of a lens?

The distance between the centre of the lens and the focal point.



What is the equation used to calculate the power of a lens?



What is the equation used to calculate the power of a lens?

$$\text{Power} = 1/\text{Focal Length}$$



How do you calculate the total power of a combination of thin lens?



How do you calculate the total power of a combination of thin lens?

$$P = P_1 + P_2 + P_3 + \dots$$



What is a real image?



What is a real image?

A real image is one that can be projected onto a screen and is always inverted. Real images are the consequence of light meeting at a focal point.



What is a virtual image?



What is a virtual image?

Virtual images are the consequence of rays of light appearing to meet at a point. They cannot be projected onto a screen.



State the equation used to calculate the magnification of an image.



State the equation used to calculate the magnification of an image.

$$\text{Magnification} = \text{Image Height} / \text{Object Height}$$



What is plane polarisation?



What is plane polarisation?

Plane polarisation is when the oscillations of a wave are restricted to a single plane.

