Physics Definitions

Light:

Light
Light is a form of energy that travels away from the source producing it at a speed of 3×10^8 m s^{-1}

Luminous
objects are objects that give out light. E.g. Include the Sun, stars, fire, bulbs.

Non-luminous
object is one which does not give out light.

Reflection
Reflection of light is the way in which light bounces off surfaces.

Diffuse reflection
Diffuse reflection is the way in which light is reflected off an object that one would not normally consider reflective

Regular reflection
Regular reflection is the way in which light reflects off smooth or polished surfaces like mirrors.

Laws of Reflection
Law 1: The incident ray, normal and the reflected ray are all in the same plane
Law 2: The angle of reflection (r) is equal to the angle of incidence (i).

$$i = r$$

Virtual image
A virtual image is the apparent intersection of light rays.

Real image
A real image is the actual intersection of light rays.

Lateral inversion
When we put a object against a mirror, it is identical but back-to-front. This is called lateral inversion

Concave mirror
Learn all rules for each.

Convex mirror
Learn all rules for each.

Focal length formula

$$\frac{1}{u}+\frac{1}{v}=\frac{1}{f}$$

Magnification

$$m=\frac{v}{u}$$

Refraction

Refraction is the bending of light when it goes from one medium to another.

Laws of refraction

Law 1: The incident ray, normal and refracted ray are all on the same plane.

Law 2: (SNELL'S LAW) The ratio of the sine of the angle of incidence to the sine of angle of refraction is a constant given by

$$\frac{Sin\ i}{Sin\ r}=n$$

Snell's law

: (SNELL'S LAW) The ratio of the sine of the angle of incidence to the sine of angle of refraction is a constant given by

$$\frac{Sin\ i}{Sin\ r}=n$$

Total internal reflection

Total internal Reflection occurs when the angle of incidence in the denser medium is greater than the critical angle

Critical angle

The critical angle (C) is the angle of incidence in the denser medium corresponding to an

angle of refraction of 90^0 in the less dense medium.

Snell's window

Snell's window is a phenomenon by which an underwater diver sees a circle of light on the surface of the water with darkness all around it.

Optical fibre

An Optical Fibre are made from a glass core (solid not hollow) with a layer of glass cladding (with lower n) where light can travel by total internal reflection.

Uses of optical fibres

Uses of optical fibres over copper in telecommunications
Optical Fibres in medicine.

Convex lens
If parallel beams of light hit the lens (parallel to the principal axis), the light will be refracted through a point known as the focus.

Concave lens
If a parallel beam of light hits a concave lens, it will be refracted as if it is coming from one point, i.e the focus.

Power of a lens

$$Power\ of\ a\ lens = \frac{1}{focal\ length}$$

Power of 2 lenses combined

$$P = P_1 + P_2$$

Power of accommodation of the eye
Is the ability of the eye to focus on a real image whether it is far from or near the eye.

Least distance of distinct vision of the eye
Is the least distance between the object and the eye where the object can be seen without putting the eye under strain.

Short sighted
A short sighted person can see nearby objects clearly but can't focus distant objects
Short sightedness can be corrected with a **concave** lens.

Long sighted
A long sighted person can see distant objects clearly, but can't focus nearby objects.
Long sightedness can be corrected with a **convex** lens.

Heat:

Heat:
Heat is a form of energy.

Temperature:
Temperature is a measure of the hotness or coldness of a body.
Unit of Temperature: Kelvin (K)

Convert Kelvin's to Degrees:
subtract 273.15

Convert Degrees to Kelvin's:
add 273.15

Thermometric Property:
Any physical property that changes *measurably* with temperature is called a thermometric property.

Thermocouple:
2 metals joined to form a circuit. If both junctions are kept at different temperatures, a small emf appears in the circuit. Greater the temperature, greater the emf.