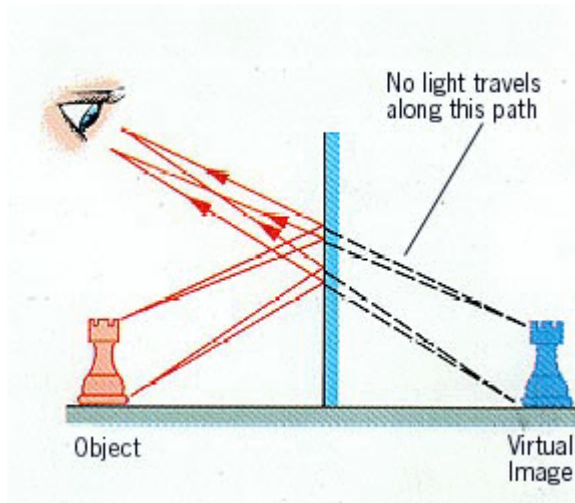


# LIGHT

## FORMATION OF IMAGE BY A PLANE MIRROR



Properties of image formed by a plane mirror:

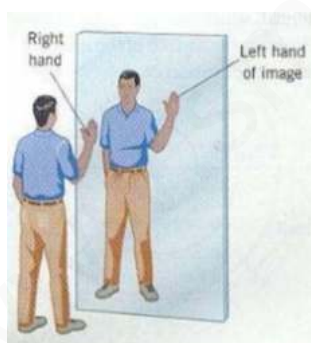
- It is the same size as the object.
- The image is at the same distance behind the mirror as the object is in front of it.
- The image is laterally inverted.
- The image is virtual.

### Why the image formed in the plane mirror is virtual.

This is because the image is formed by rays that appear to meet behind the mirror. In reality the rays bounce off the mirror.

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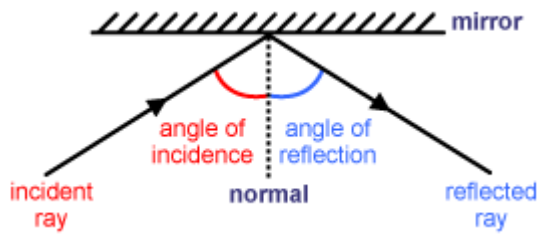
### Why the image formed in the plane said to be laterally inverted?



This is because the right side of the object appears to be the image's left side and vice-versa

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## Laws of reflection:



- The angle of incidence = angle of reflection ( $\angle i = \angle r$ )
- The incident ray, the reflected ray and the normal ray line on the same plane.

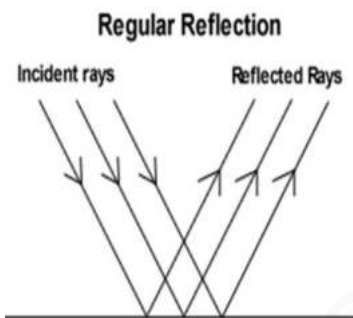
**Angle of incidence:** It is the angle between the incident ray and the normal.

**Angle of reflection:** It is the angle between the reflected ray and the normal.

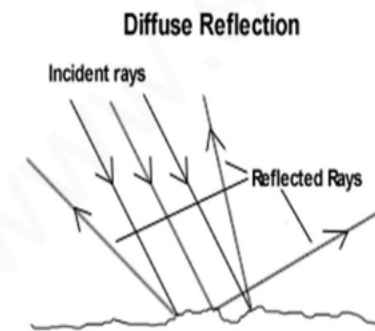
**Normal:** The straight line at  $90^\circ$  to the reflecting surface is called as the normal.

## Types of reflection:

There are two types of reflections:



- Regular reflection: When reflection is produced by very smooth surfaces and the reflected rays all leave the surface parallel to each other.
- Example: Images formed by a plane mirror, still water, a gleam off the polished floor, stainless steel, glass.



- Irregular reflection (Diffuse reflection): When reflection is produced by rough surfaces and the reflected rays all leave the surface in many different directions.
- Example: Images formed by a wooden tables, blankets, walls etc.



## Real and a virtual image:

	Real image	Virtual image
Definition	<p>A real image is formed by rays of light meeting Or A real image can be formed on the screen. Or A real image is formed on the opposite side of the lens from the object</p>	<p>A virtual image is an image that is not produced by real rays crossing each other Or A virtual image cannot be caught on a screen. Or In an virtual image , the rays appear to come from the image</p>
Nature	A real image is always inverted	It is always upright
Examples	Image formed on a cinema screen, image formed on the retina of the eye	Image formed by the plane mirror, magnifying glass

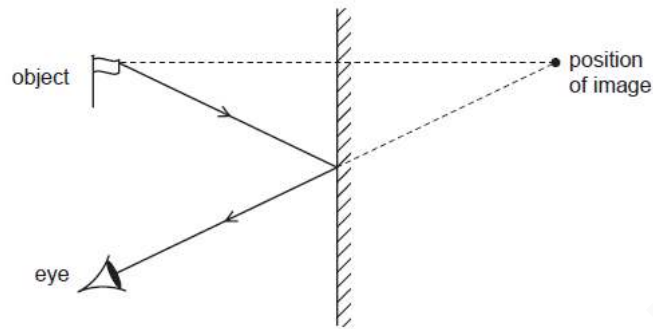
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## APPLICATION BASED QUESTIONS

### MCQ:

0625/11/M/J/12

- 23 The image formed by a plane mirror is upright.

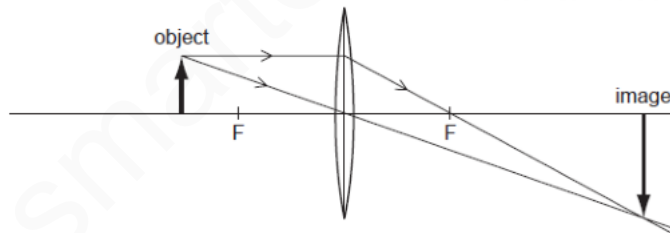


What are the other characteristics of the image?

	laterally inverted (left to right)	magnified (larger than the object)	virtual
<b>A</b>	no	yes	yes
<b>B</b>	yes	no	no
<b>C</b>	yes	no	yes
<b>D</b>	yes	yes	no

- 26 A thin converging lens forms an image.

0625/12/O/N/12



What is the nature of this image and can it be formed on a screen?

	nature of image	can be formed on a screen?
<b>A</b>	not real	no
<b>B</b>	not real	yes
<b>C</b>	real	no
<b>D</b>	real	yes

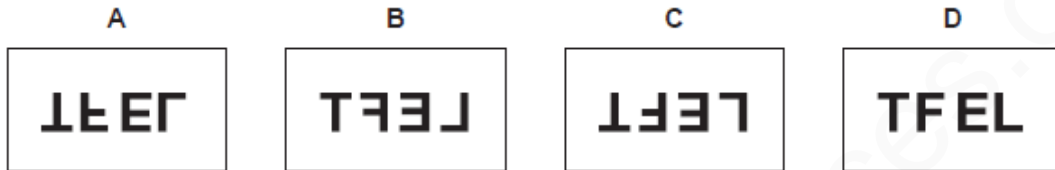
22 A girl writes the word **LEFT** on a piece of card.

0625/11/O/N/10



She looks at the image of this card, made by reflection by a plane mirror.

What does she see?



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22 The diagram shows the image of a clock in a plane mirror.

0625/11/O/N/11



What time is shown?

- A 02:25              B 02:35              C 09:25              D 09:35
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