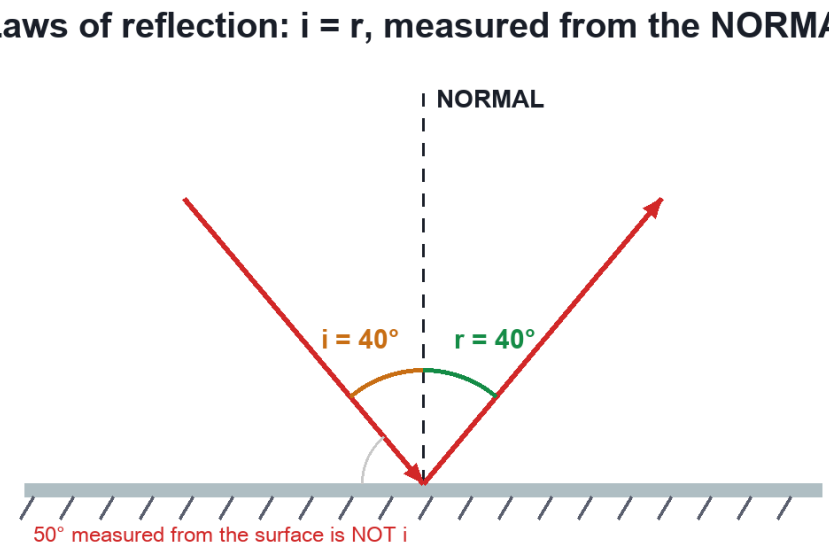
Laws of Reflection

Class 10 Physics · Chapter: Light – Reflection and Refraction
🎬 **Video explanation (PrayogX reel):** https://www.instagram.com/reel/DfGo4k4kkDp/

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1. The laws



Law 2: incident ray, normal and reflected ray lie in the SAME PLANE.

1. **First law:** the angle of incidence is equal to the angle of reflection (i = r).
2. **Second law:** the incident ray, the normal at the point of incidence and the reflected ray all lie in the same plane.

2. Key terms

Term	Meaning
Normal	The line perpendicular to the surface at the point of incidence
Angle of incidence (i)	Angle between the incident ray and the normal
Angle of reflection (r)	Angle between the reflected ray and the normal

3. The common mistake

Angles are measured from the **normal**, not from the mirror surface. A ray making 50° with the surface has i = 40°.

4. Solved examples

Example 1. A ray falls on a plane mirror at 30° to the surface. Find the angle of reflection. i = 90° − 30° = 60°, so r = **60°**.
Example 2. A ray falls along the normal. Angle of reflection? i = 0°, so r = **0°**: it returns along the same path.
Example 3. The angle between the incident and reflected rays is 90°. Find i. i + r = 90° and i = r, so i = **45°**.

5. Key takeaways

- i = r, both measured from the normal.
- Incident ray, normal and reflected ray lie in one plane.
- The laws hold for every reflecting surface, plane or curved.

Practice questions (CBSE style)

1. State the laws of reflection. (2 marks)
2. A ray makes an angle of 35° with a plane mirror. Find the angle of reflection. (1 mark)
3. The angle between the incident ray and the reflected ray is 120°. Find the angle of incidence. (2 marks)
4. What is the angle of reflection when light falls normally on a mirror? (1 mark)
5. Do the laws of reflection apply to curved mirrors? Explain. (2 marks)

Answer key with worked solutions

1. (i) The angle of incidence equals the angle of reflection. (ii) The incident ray, the normal at the point of incidence and the reflected ray lie in the same plane.
2. i = 90° − 35° = 55°, so r = 55°.
3. i + r = 120° and i = r, so i = 60°.
4. 0°: the ray retraces its path.
5. Yes. At each point we use the normal to the curved surface at that point, and i = r holds there.