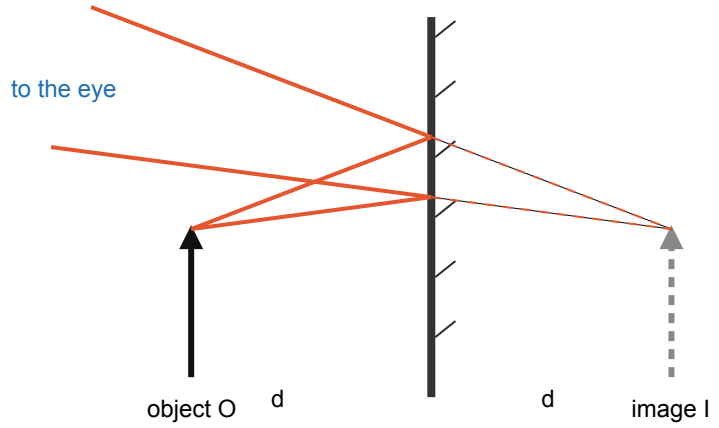
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Image Formed by a Plane Mirror

1. The puzzle

You stand **2 m** in front of a mirror. Your image is 2 m *behind* it, so it is **4 m** from you.

2. How the image forms



Rays from the top of the object reflect with **angle of reflection = angle of incidence**. The reflected rays spread out; the eye traces them straight back, and their dashed extensions meet **behind the mirror**. That point is the image.

3. Properties

Property	Plane mirror
Nature	Virtual: the rays only appear to meet, so it cannot be caught on a screen
Orientation	Erect
Size	Same as the object (magnification = 1); it only *looks* smaller when farther away
Position	As far behind the mirror as the object is in front
Left-right	Laterally inverted: your right hand is the image's left

Why AMBULANCE is written backwards: the driver ahead sees it in a rear-view mirror, which inverts it back to read correctly.

Solved example

Q. A girl stands 1.5 m from a plane mirror and walks 0.5 m towards it. How far is she from her image now?
A. New distance from the mirror = 1.0 m; the image is 1.0 m behind; distance = 1.0 + 1.0 = **2.0 m**.

Practice questions

1. (MCQ) The image in a plane mirror is (a) real, inverted (b) virtual, erect (c) real, erect (d) virtual, inverted
2. (Very short) What is the magnification of a plane mirror?
3. (Short) Why can the image in a plane mirror not be obtained on a screen?
4. (Numerical) You stand 4 m from a mirror. How far is your image from you?
5. (Short) What is lateral inversion? Give one everyday example.
6. (Numerical) A person moves towards a mirror at 2 m/s. At what speed does the image approach the person?

Answer key

1. (b).
2. 1.
3. The reflected rays do not actually meet; only their backward extensions meet, so no light reaches a screen there.
4. 8 m.
5. Right appears as left in the image; e.g. AMBULANCE written in mirror form, or your raised right hand seen as the image's left.
6. 4 m/s.

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