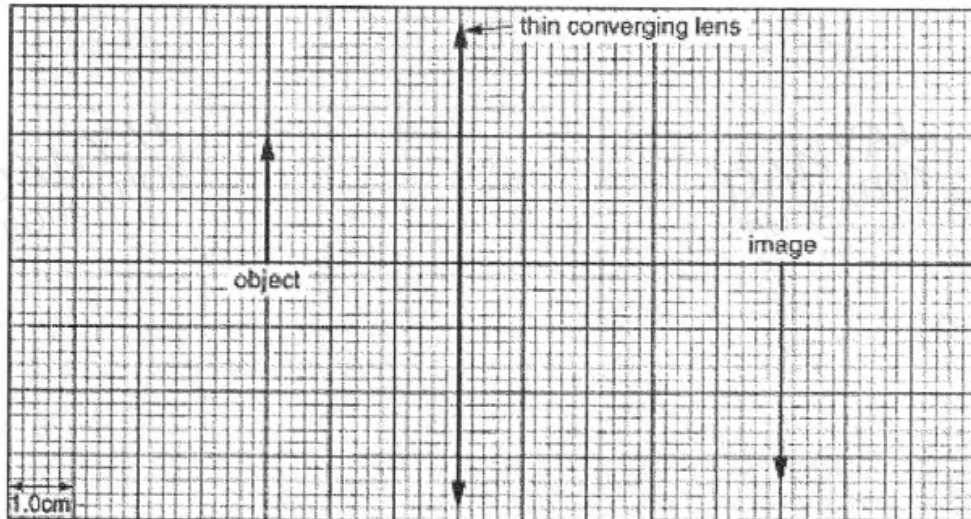


**O Level Pure Physics MCQs**

**Light Test 3.0**

Q1

31. The diagram below shows an image of an object formed by a thin converging lens.

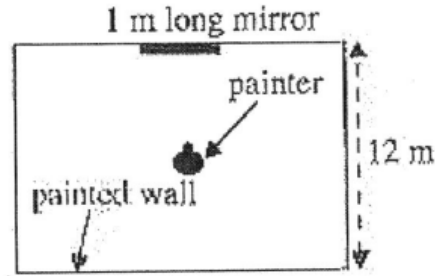


The object is now moved towards the left and its distance from the lens doubles. What are the properties of the new image?

- A real, inverted, enlarged
  - B real, inverted, diminished
  - C virtual, inverted, enlarged
  - D virtual, inverted, enlarged
- Q2
- A thin converging lens is used to focus the rays from the Sun onto a piece of paper, causing a hole to be burnt. The distance between the lens and the paper is
- A equal to half the focal length of the lens.
  - B equal to the focal length of the lens.
  - C equal to twice the focal length of the lens.
  - D less than half the focal length of the lens.

**Q3**  
 A painter standing in the centre of a rectangular room is looking into a 1 m long mirror at the opposite end of the room.

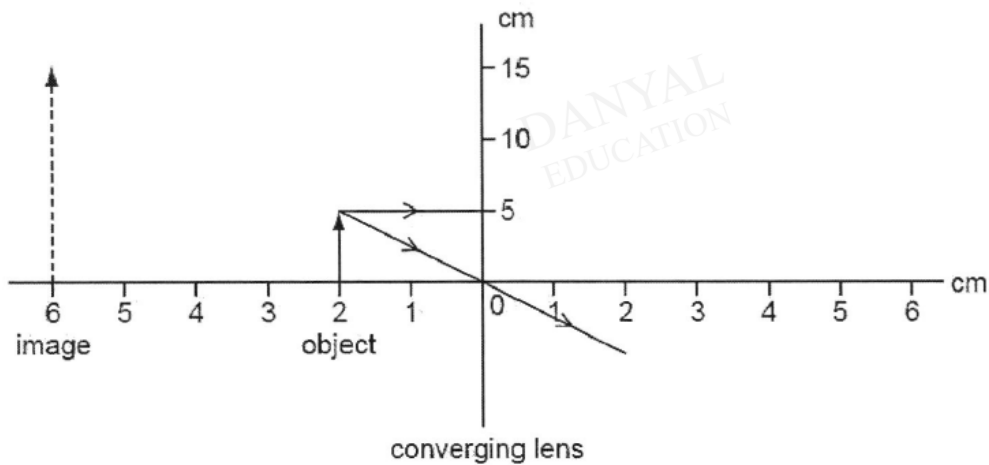
How much of the painted wall can he see through the 1 m long mirror?



- A** 1 m      **B** 2 m      **C** 3 m      **D** 6 m

**Q4**  
 An object 5.0 cm high is placed 2.0 cm from a converging (convex) lens which is being used as a magnifying glass.

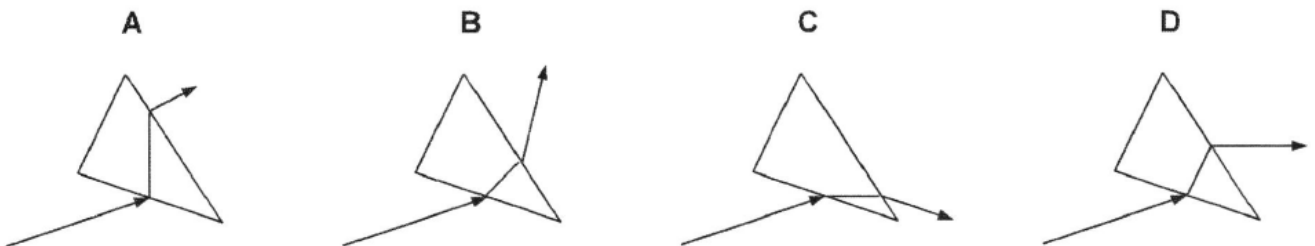
The image produced is 6.0 cm from the lens and is 15 cm high.



What is the focal length of the lens?

- A** 2.0 cm    **B** 3.0 cm    **C** 4.0 cm    **D** 6.0 cm

**Q5**  
 Which of the following shows the correct ray of light passing through the glass prism?



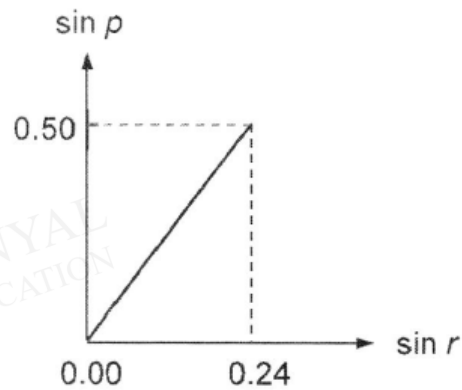
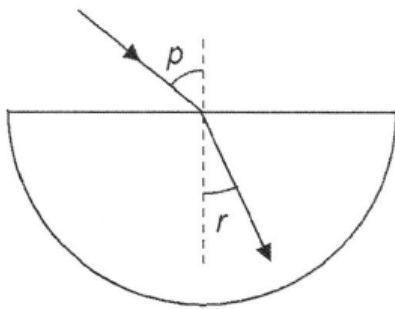
Q6

A monochromatic light refracts when it travels from water to air. Which of the following is correct about the speed and the frequency of the light ray?

- | speed              | frequency        |
|--------------------|------------------|
| A remains the same | remains the same |
| B increases        | remains the same |
| C decreases        | increases        |
| D decreases        | decreases        |

Q7

A light ray is refracted as it enters a semi-circular glass block as shown. A graph of  $\sin p$  against  $\sin r$  is plotted as shown.



What is the critical angle of the glass?

- A  $13.9^\circ$                       B  $28.7^\circ$                       C  $30.0^\circ$                       D  $31.3^\circ$

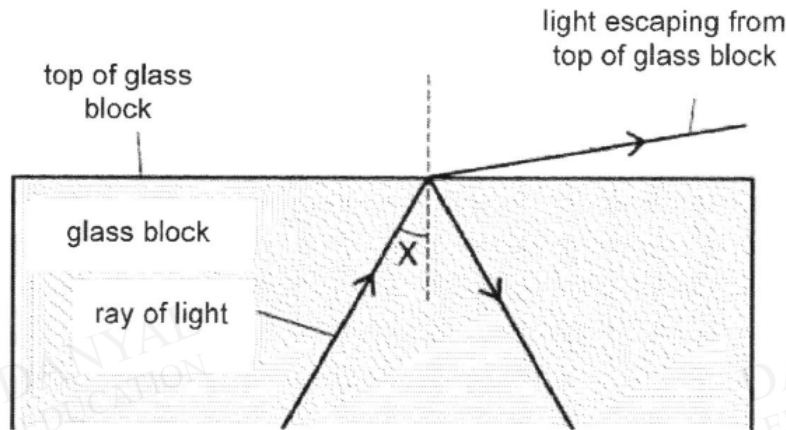
Q8

An object is placed 1.0 m in front of a plane mirror. Which of the following is **not** a characteristic of the image in the mirror?

- |           |                       |
|-----------|-----------------------|
| A real    | B virtual             |
| C upright | D same size as object |

Q9

A scientist tries to direct a ray of light in a glass block so that no light escapes from the top of the block.



However, some light does escape.

The scientist changes angle  $X$  and stops the light escaping from the top. Which option correctly describes the change to angle  $X$  and the name of the effect produced?

	change to angle $X$	name of effect produced
A	decrease	total internal reflection
B	decrease	total internal refraction
C	increase	total internal reflection
D	increase	total internal refraction

Q10

A shoe shop puts a mirror on the wall so that customers can look at their shoes.



The length of the mirror is 50 cm. A customer has eyes 150 cm above ground level. The bottom of the mirror is at height  $h$  above the ground.

What is the smallest value of  $h$  that allows the customer to see an image of his shoes in the mirror?

- A** 10 cm      **B** 25 cm      **C** 50 cm      **D** 75 cm

**Answers**

**Light Test 3.0**

- Q1 B
- Q2 B
- Q3 C
- Q4 B
- Q5 B
- Q6 B
- Q7 B
- Q8 A
- Q9 C
- Q10 B

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