

Topical Worksheet

SECTION A – MCQ

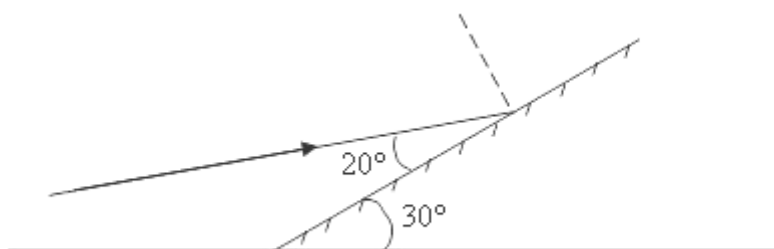
Each question is provided with **four** possible answers (**A**, **B**, **C** and **D**). Select the most appropriate answer and **write** your choice in the **brackets** provided.

- 1 A person stands 80 cm in front of a plane mirror.

Which one of the following is true about the image of the person seen in the mirror?

- A It is real and 80 cm away from the person.
- B It is real and 160 cm away from the person.
- C It is virtual and 80 cm away from the person.
- D It is virtual and 160 cm away from the person. ()

- 2 A mirror is tilted at an angle of 30° to a bench. A ray of light is directed so that it hits the mirror at an angle of 20° to the surface of the mirror as shown in the diagram.



What is the angle of reflection?

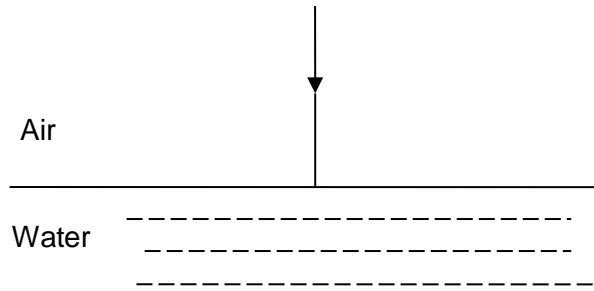
- | | | |
|--------------|--------------|----------|
| A 20° | B 30° | () |
| C 50° | D 70° | |

- 3 Edward's shop had been shoplifted on several occasions. He was given advice to install a security mirror in his shop.

Which one of the following is most suitable for use as a security mirror?

- | | | |
|------------------|---------------------|----------|
| A Plane mirror | B Convex mirror | () |
| C Concave mirror | D Magnifying mirror | |

- 4 The diagram shows a light ray entering the water.

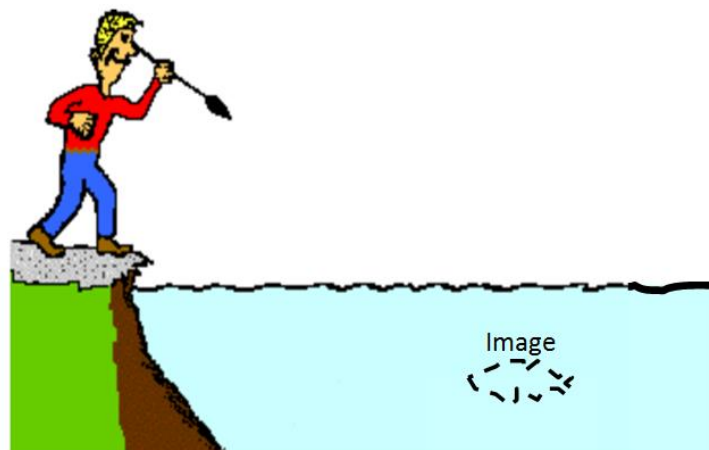


What will happen to the light ray?

- A The light ray will go straight through.
- B The light ray will bend towards the left.
- C The light ray will bend towards the right.
- D The light ray will bend at an angle to the normal.

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- 5 A man sees the image of a fish in the water and wants to use a spear to catch it as shown in the diagram.



Where should he aim so that he can catch the fish?

- A Directly above
- B Above and slightly behind
- C Above and slightly in front
- D Below and slightly behind

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SECTION B - Structured Questions

Answer **ALL** questions in this section. Show your working and write your answers in the space provided.

1 Suggest a reason for the following observations.

(a) Light is seen before thunder can be heard.

.....
.....

[1]

(b) Tourists visiting a snow-covered mountain are advised to wear sun glasses.

.....
.....

[2]

2 (a) State the **two** laws of reflection.

.....
.....
.....
.....

[2]

(b) For each of the following, write down **two** characteristics of the image formed:

(i) Plane mirror

.....

[2]

(ii) Convex mirror

.....

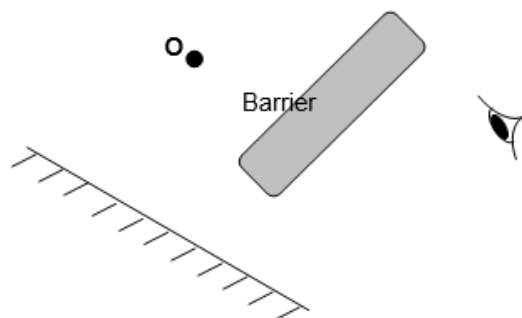
[2]

(iii) Concave mirror

.....

[2]

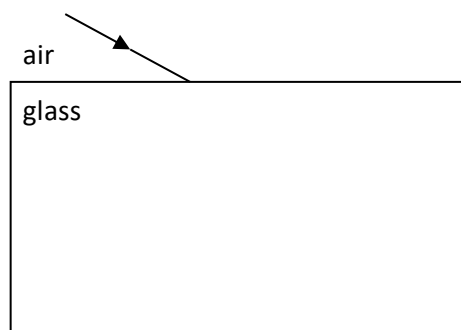
- 3 The diagram shows an object **O** positioned behind a barrier away from the observer's eye as shown in the diagram.



- (a) In the diagram, locate the image of the object seen in the mirror and label the image **I**. [1]

- (b) By drawing two light rays from the object, complete ray diagram to show how the observer is able to see the image of the object in the mirror. [2]

- 4 A ray of light travelled from air into a block of glass and into air again. The diagram shows the light ray just before it entered the glass block.

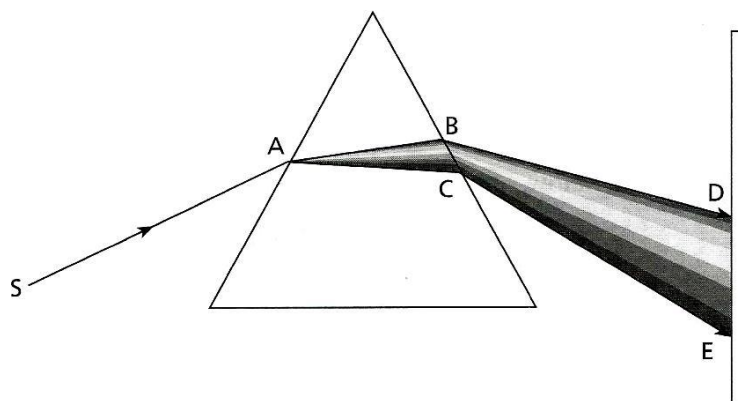


- (a) Draw and label the normal where the light ray is about to enter the glass block and when the light ray is about to leave the glass block. [2]

- (b) Draw and label the refracted ray. [2]

- (c) Draw and label the emergent ray. [2]

- 5 **S** is a slit allowing a source of white light to send a beam **SA** to fall onto the side of a triangular glass prism as shown in the diagram.



- (a) The beam **SA** carries rays of many different colours. Name the seven colours carried by the beam.

..... [1]

- (b) State the colour of the light ray **AC**.

..... [1]

- (c) Which light ray **AB** or **AC** has a higher speed? Explain your answer.

.....
 [2]

- (d) In the space provided, draw a diagram to one way which the seven colours can be combined back into white light.

[2]