3. Waves

3.2 Light

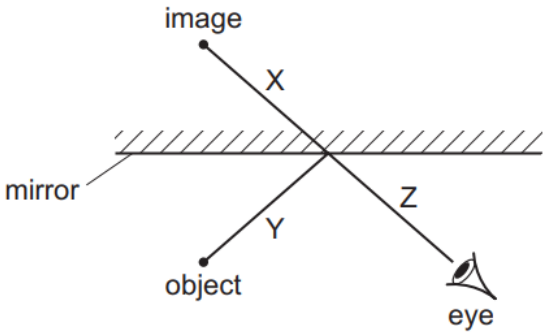
Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 The ray diagram shows the formation of an image when light is reflected by a plane mirror.

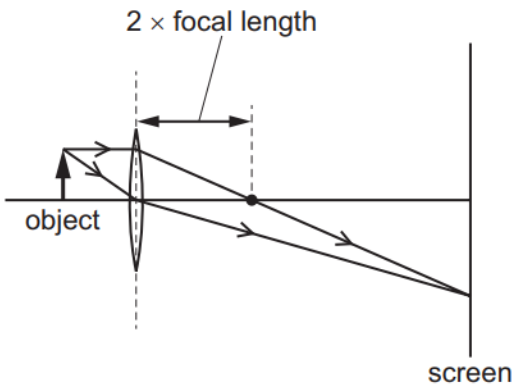


Which lines represent light rays?

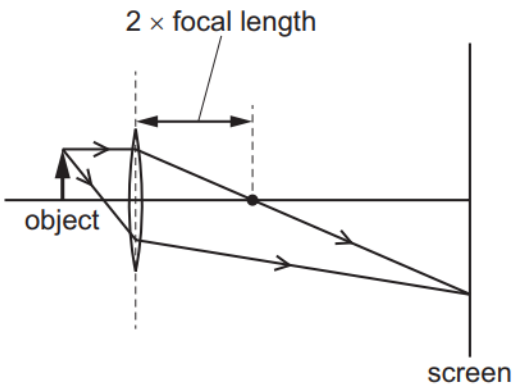
A X, Y and Z **B** X and Y only **C** X and Z only **D** Y and Z only

2 Which diagram shows how an image of an object is formed on a screen by a converging lens?

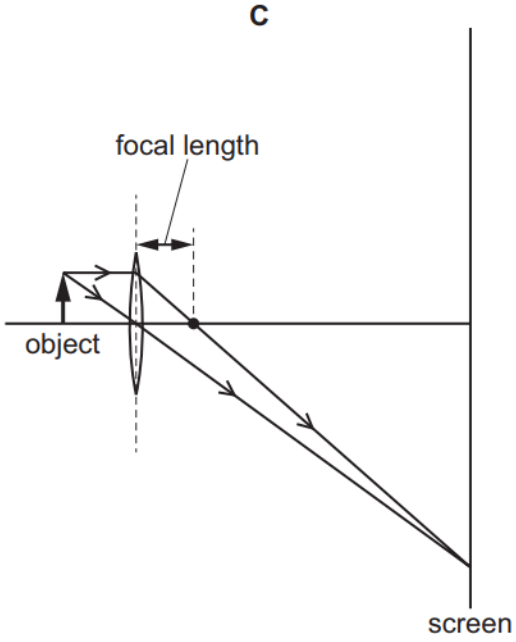
A



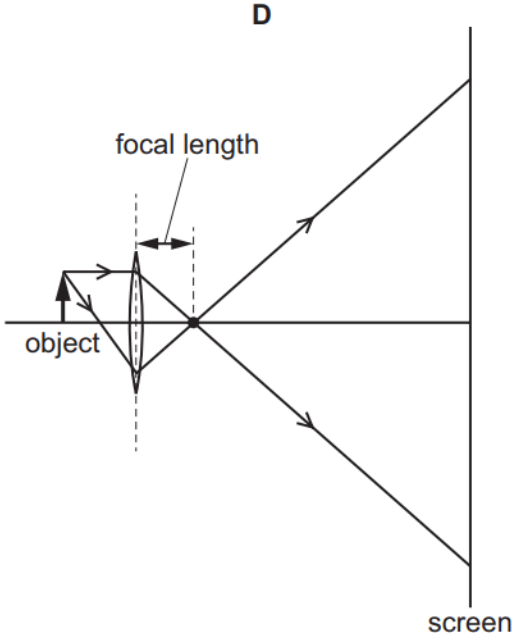
B



C

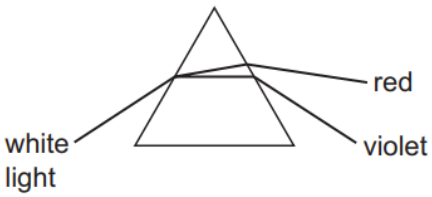


D

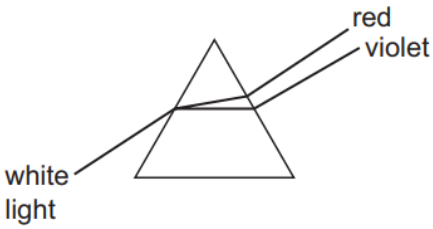


3 Which diagram shows the dispersion of white light by a glass prism?

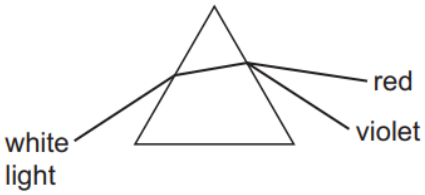
A



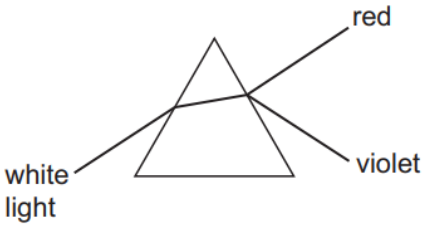
B



C

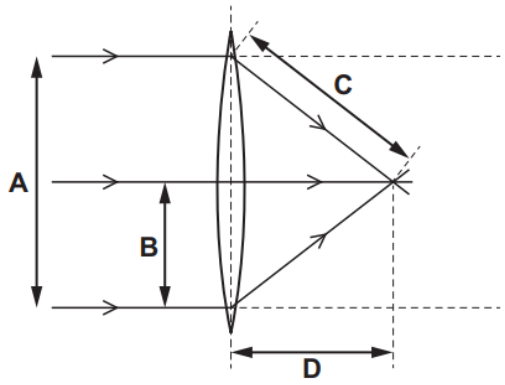


D

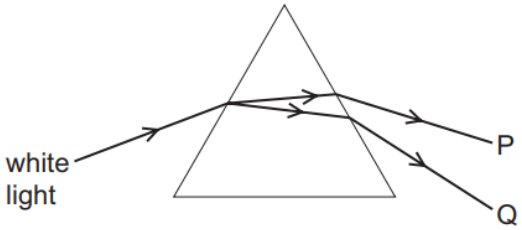


4 The diagram shows rays of light passing through a converging lens.

Which labelled arrow represents the focal length of the lens?



5 The diagram shows a narrow beam of white light being dispersed by a glass prism to produce a visible spectrum.



Which statement describes what happens to the frequency and wavelength of the light in observing from P to Q across the spectrum?

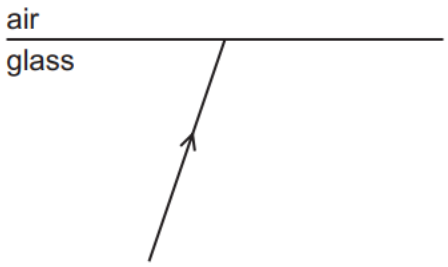
A The frequency and the wavelength both increase.

B The frequency and the wavelength both decrease.

C The frequency decreases but the wavelength increases.

D The frequency increases but the wavelength decreases.

6 The diagram shows a ray of light in glass incident on the surface between the glass and air.



What happens if the angle of incidence is made larger than the critical angle for the glass?

A The angle of refraction becomes equal to 90°.

B There is a refracted ray and a ray reflected inside the glass.

C There is a refracted ray only.

D There is only a ray reflected inside the glass.

7 Red light of frequency 430×10^{12} Hz has a wavelength of 700×10^{-9} m.

What is possible for blue light?

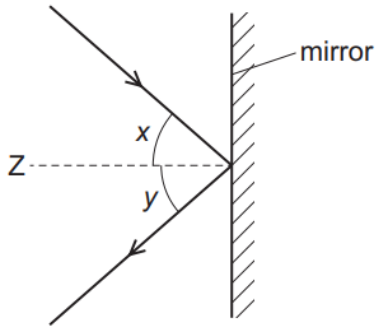
A a frequency of 190×10^{12} Hz and a wavelength of 450×10^{-9} m

B a frequency of 190×10^{12} Hz and a wavelength of 950×10^{-9} m

C a frequency of 670×10^{12} Hz and a wavelength of 450×10^{-9} m

D a frequency of 670×10^{12} Hz and a wavelength of 950×10^{-9} m

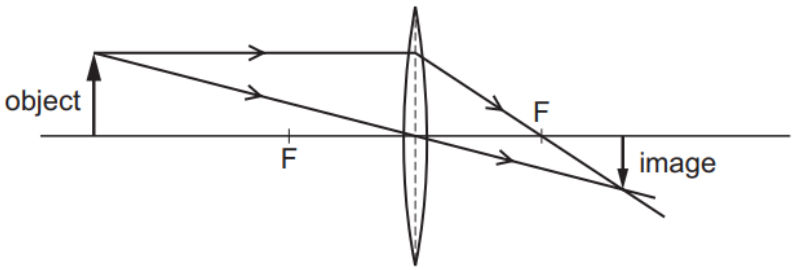
8 The diagram shows a ray of light reflecting from a mirror.



Which row shows the correct names for *x*, *y* and Z?

	x	*y*	Z
A	angle of incidence	angle of reflection	normal
B	angle of incidence	angle of reflection	principal focus
C	angle of reflection	angle of refraction	normal
D	angle of reflection	angle of refraction	principal focus

9 A converging lens forms an image of an object placed in front of it.



What are the characteristics of the image?

A real, inverted, diminished

B real, upright, enlarged

C virtual, inverted, diminished

D virtual, upright, enlarged

10 White light can be split into different colours by passing it through a prism.

What is the name of this process?

A diffraction

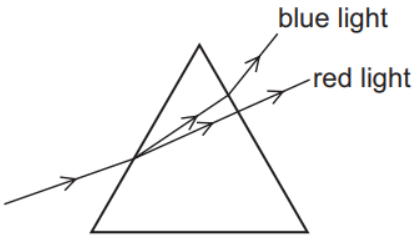
B dispersion

C reflection

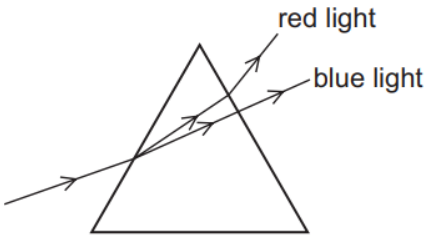
D refraction

11 Which diagram correctly shows the dispersion of white light through a glass prism?

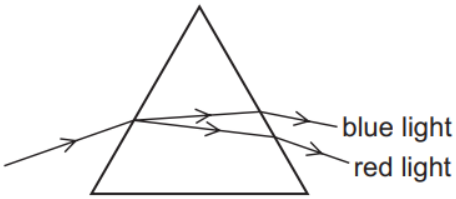
A



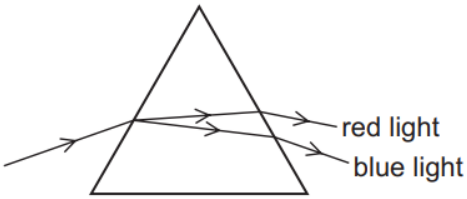
B



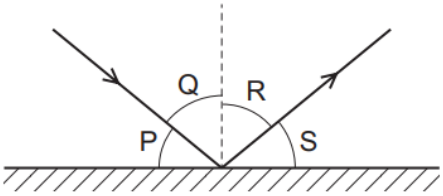
C



D



12 A ray of light is reflected by a plane mirror.



Which row shows the angle of incidence and the angle of reflection?

	angle of incidence	angle of reflection
A	P	Q
B	P	S
C	Q	R
D	R	S

13 A thin converging lens is used to produce a real image of an object.

Which statement about the real image is always correct?

A It is nearer to the lens than the object.

B It is on the opposite side of the lens to the object.

C It is the same size as the object.

D It is upright.

14 Red, green and violet lights are part of the visible spectrum of light.

What is the order of colours from shortest to longest wavelength?

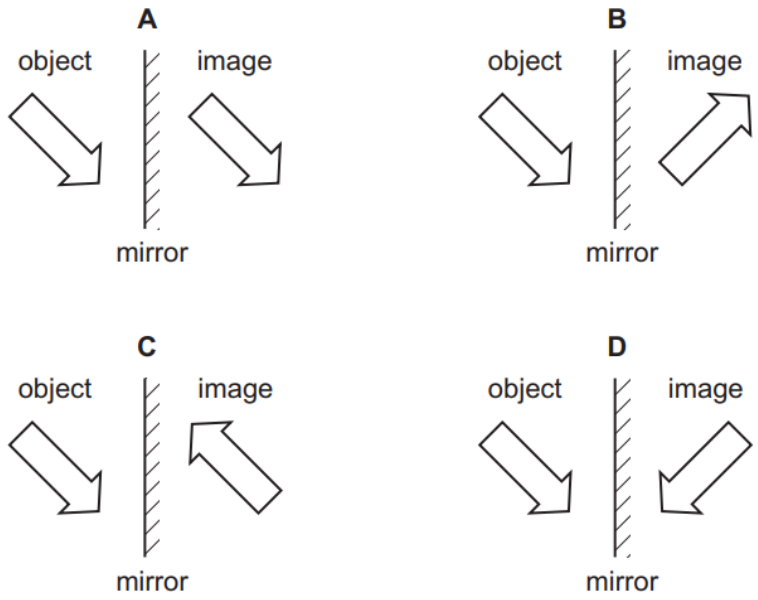
A red → green → violet

B red → violet → green

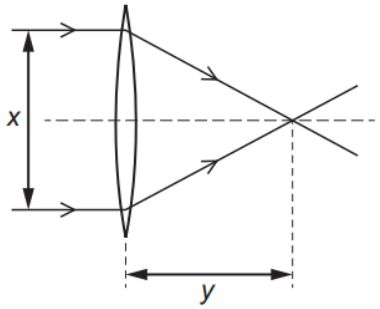
C violet → red → green

D violet → green → red

15 Which diagram shows the image correctly formed by reflection?



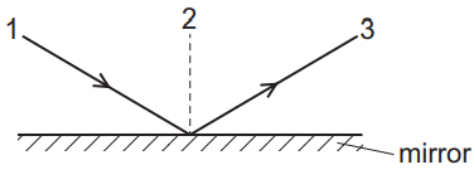
16 A student passes parallel rays of light through four different converging lenses. He measures the distance *x* and the distance *y* for each experiment.



Which lens has the longest focal length?

	x / cm	*y* / cm
A	4.6	2.0
B	5.1	3.1
C	5.9	2.3
D	6.1	2.4

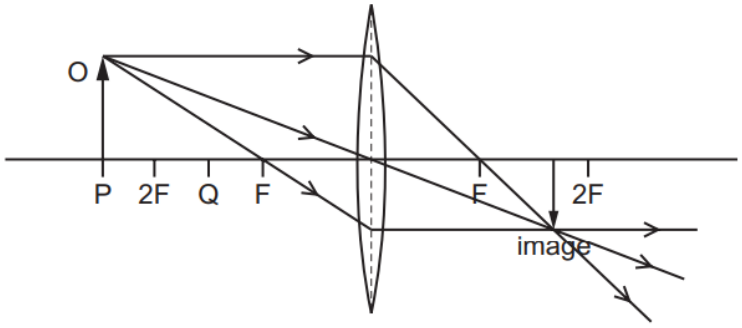
17 A student draws a diagram to show the directions of a light ray reflecting off a plane mirror.



What are the correct terms for the lines drawn?

	normal	incident ray	reflected ray
A	1	2	3
B	1	3	2
C	2	1	3
D	2	3	1

18 An object O is placed at point P near to a thin converging lens. The diagram shows three rays from the top of O passing through the lens. Each point F is one focal length from the centre of the lens. Each point 2F is two focal lengths from the centre of the lens.



The object O is moved to point Q on the diagram.

Which type of image is produced when the object O is at point Q?

A inverted and the same size as the object

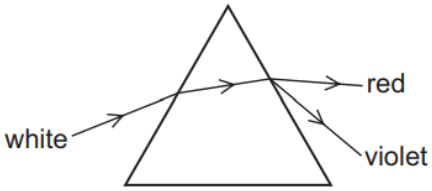
B inverted and enlarged

C upright and the same size as the object

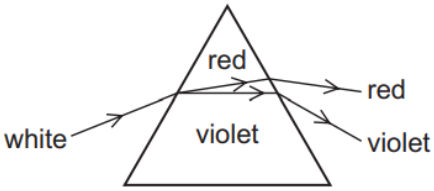
D upright and enlarged

19 Which diagram shows the dispersion of white light by a glass prism?

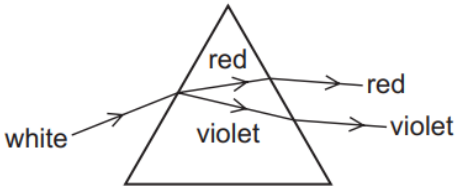
A



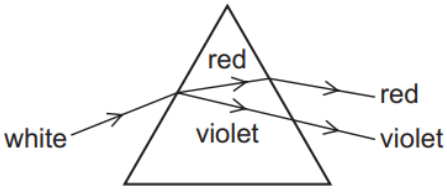
B



C



D



20 A light ray strikes a plane mirror and is reflected.

Which angle is always equal in size to the angle of reflection?

A the angle between the incident ray and the mirror

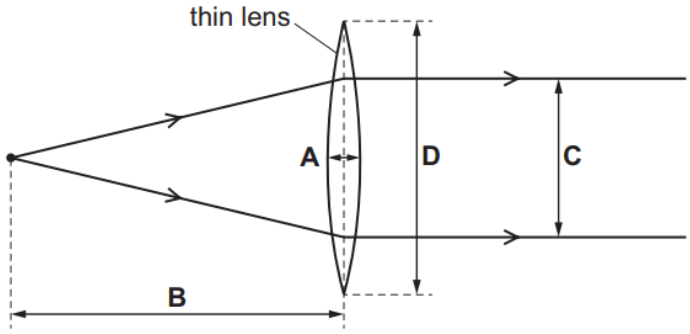
B the angle between the incident ray and the normal to the mirror

C the angle between the reflected ray and the mirror

D the angle between the reflected ray and the incident ray

21 The diagram shows two diverging rays of light passing through a lens and emerging parallel to each other.

Which labelled distance is the focal length of the lens?

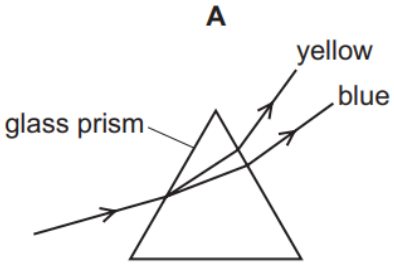


22 A beam of light consists of yellow and blue light.

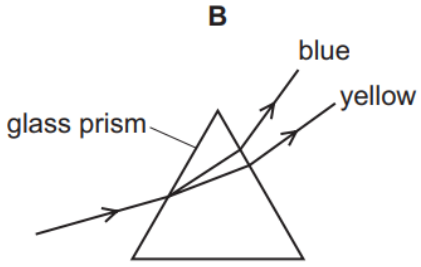
The beam of light is incident on a glass prism.

Which diagram is correct?

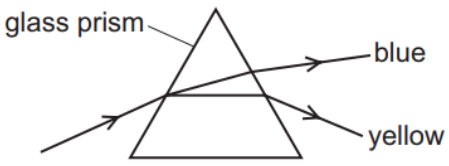
A



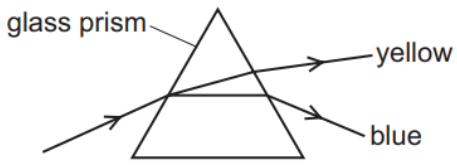
B



C



D



23 What is the correct order of the colours in a spectrum of white light?

A blue → green → yellow

B blue → yellow → green

C yellow → blue → green

D green → blue → yellow

24 An object is placed 30 cm in front of a plane mirror.

Which statement describes the image of the object?

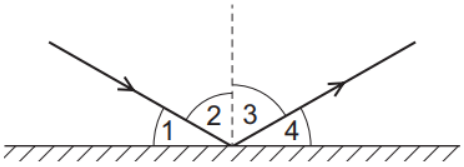
A The image is the same size and 30 cm from the object.

B The image is the same size and 60 cm from the object.

C The image is smaller and 30 cm from the object.

D The image is smaller and 60 cm from the object.

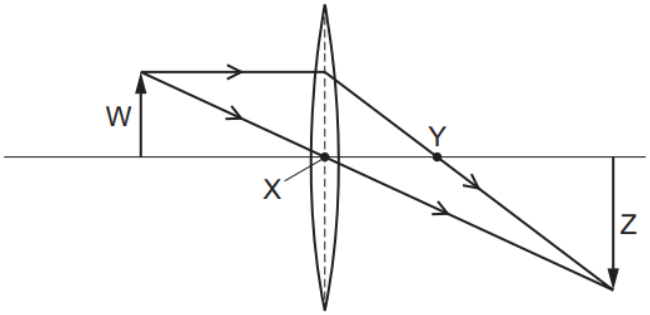
25 A ray of light is shone onto the surface of a mirror.



Which two angles represent the angle of incidence and the angle of reflection?

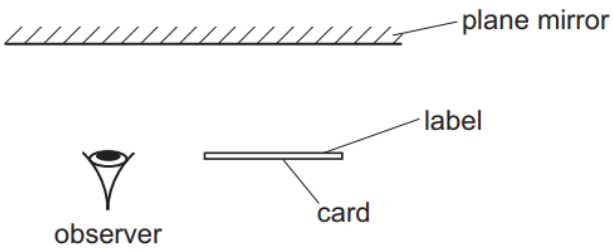
A 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

26 What are the correct labels for the ray diagram?



	object	image	principal focus
A	W	X	Y
B	W	Z	Y
C	X	Y	Z
D	X	Z	W

27 A card is placed in front of a plane mirror so that its label is facing the mirror, as shown.



The label is shown.

How does the image of the label formed by the mirror appear to the observer?

A

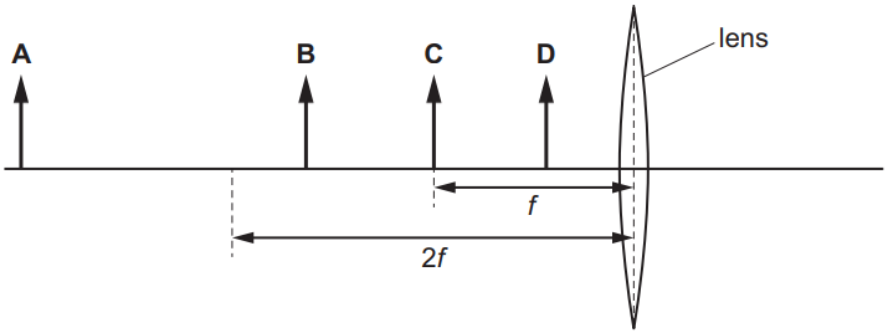
B

C

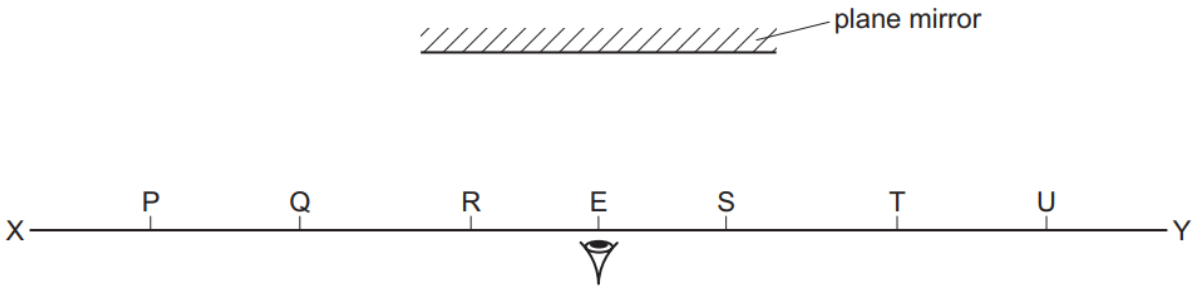
D

28 An object is placed in front of a converging lens. The lens has a focal length *f*.

In which labelled position should the object be placed in order to produce a real image that is smaller than the object?



29 A student uses one eye to look at images in a plane mirror.



Objects are placed on the line XY.

Which objects give rise to images that can be seen by the eye at E?

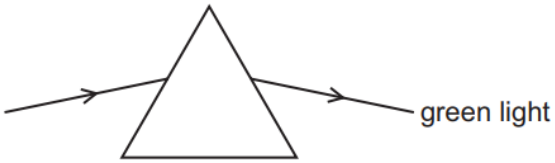
A P, Q, R, S, T and U

B Q, R, S and T only

C P and U only

D R and S only

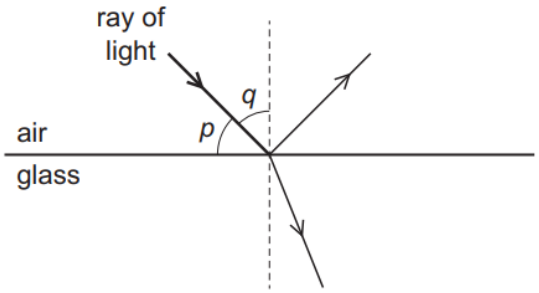
30 A ray of green light passes through a glass prism as shown.



Which colours of light refract as shown in the table?

	refract more than green	refract less than green
A	red	blue
B	red	yellow
C	violet	blue
D	violet	yellow

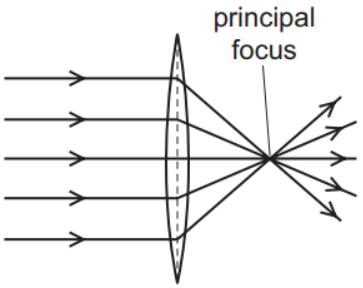
31 The diagram shows a ray of light in air incident on a glass block. Some of the light is refracted and some of the light is reflected. Two angles, *p* and *q*, are marked on the diagram.



Which row gives the angle of incidence and states whether total internal reflection occurs?

	angle of incidence	total internal reflection
A	*p*	no
B	*p*	yes
C	*q*	no
D	*q*	yes

32 A thin, converging lens causes parallel rays of light to converge to a single point known as the principal focus.



Which statement explains this?

A The light diffracts.

B The light disperses.

C The light reflects.

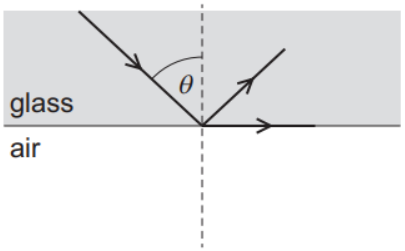
D The light refracts.

33 The letter F is reflected in a mirror.

What does the optical image look like?

A **B** **C** **D**

34 The diagram shows a narrow beam of light incident on a glass-air boundary. Some of the light emerges along the surface of the glass and some is reflected back into the glass.

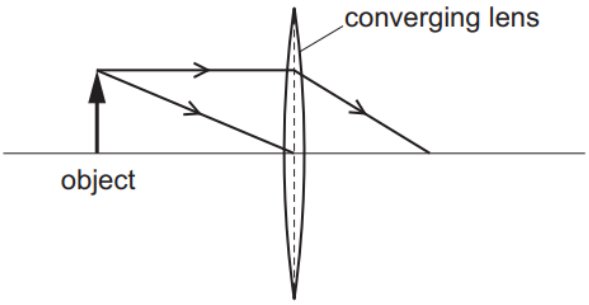


Which row is correct?

	this is an example of total internal reflection	angle θ is the critical angle
A	no	yes
B	no	no
C	yes	no
D	yes	yes

35 An object is placed in front of a thin converging lens.

The diagram shows the paths of two rays from the top of the object.



An image of the object is formed on a screen to the right of the lens.

How does this image compare with the object?

A It is larger and inverted.

B It is larger and the same way up.

C It is smaller and inverted.

D It is smaller and the same way up.

36 Which statement about the image of an object formed in a plane mirror is correct?

A It is smaller than the object.

B It is the same size as the object.

C It is larger than the object.

D It is inverted.

37 The table shows information about different colours of light.

colour of light	frequency / Hz
violet	7.2×10^{14}
blue	6.3×10^{14}
yellow	5.2×10^{14}
red	4.5×10^{14}

Using the data, what is the frequency of orange light?

A 4.0×10^{14} Hz

B 5.0×10^{14} Hz

C 6.0×10^{14} Hz

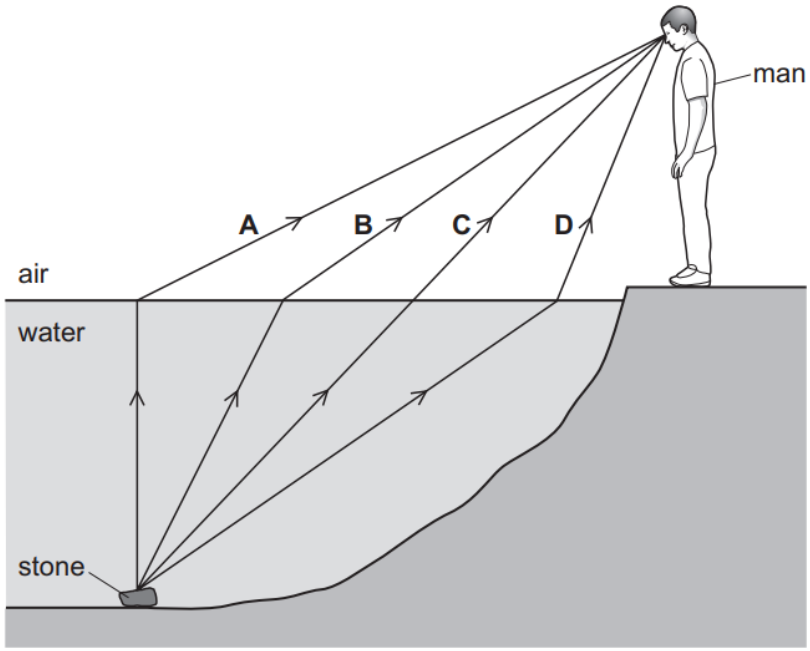
D 7.0×10^{14} Hz

38 Which row correctly describes light waves?

	wave type	direction of vibrations
A	longitudinal	parallel to direction of wave travel
B	longitudinal	perpendicular to direction of wave travel
C	transverse	parallel to direction of wave travel
D	transverse	perpendicular to direction of wave travel

39 A man sees a stone at the bottom of a pool of water.

Which path could be taken by light from the stone to the man?



40 Which statement about a thin converging lens is correct?

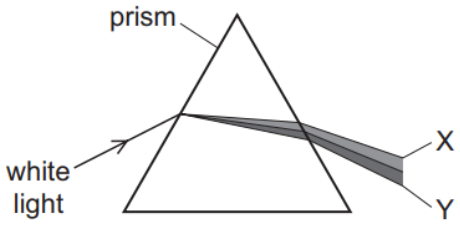
A All rays of light refracted by the lens pass through the principal focus.

B All rays initially parallel to the principal axis of the lens are refracted through the principal focus.

C The focal length of the lens is the distance between the image and the principal focus.

D The focal length of the lens is the distance between the object and the image.

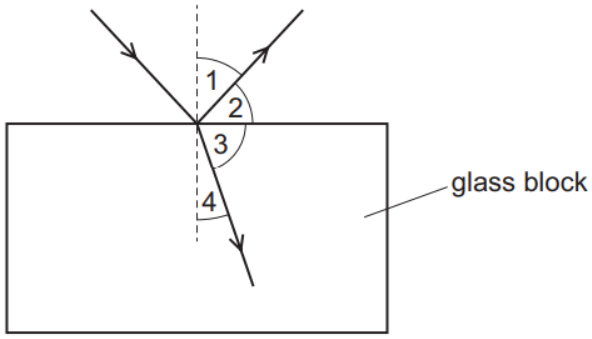
41 The diagram shows a beam of white light passing through a triangular prism. A spectrum is produced.



Which row correctly shows a wave property involved in producing the colours at X and Y?

	wave property	X	Y
A	diffraction	red	violet
B	dispersion	red	violet
C	reflection	violet	red
D	refraction	violet	red

42 The diagram shows a ray of light incident on the surface of a glass block.

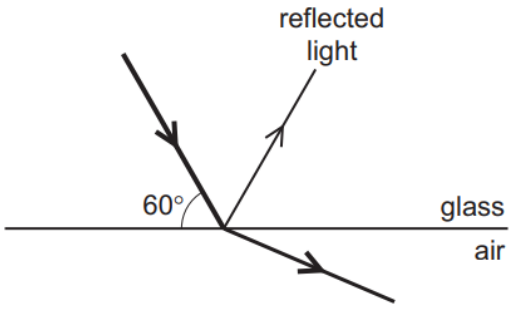


The ray of light is partially reflected back into the air and partially refracted into the glass block.

Which row correctly identifies the angle of reflection and the angle of refraction?

	angle of reflection	angle of refraction
A	1	3
B	1	4
C	2	3
D	2	4

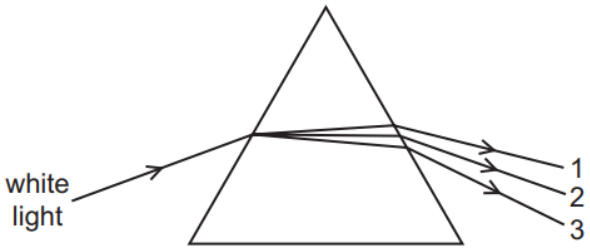
43 The diagram shows a beam of light travelling through glass and meeting a glass-air interface.



Which row correctly describes what is happening at the glass-air interface?

	angle of incidence at the interface	observation
A	30°	some internal reflection
B	30°	total internal reflection
C	60°	some internal reflection
D	60°	total internal reflection

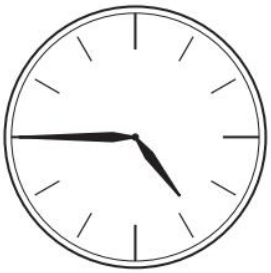
44 A narrow beam of white light passes through a prism and is dispersed into a spectrum.



Which row is correct?

	colour 1	colour 2	colour 3
A	blue	yellow	red
B	red	blue	yellow
C	red	yellow	blue
D	yellow	blue	red

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



Which is the actual time?

A 04:15 **B** 04:45 **C** 07:15 **D** 07:45

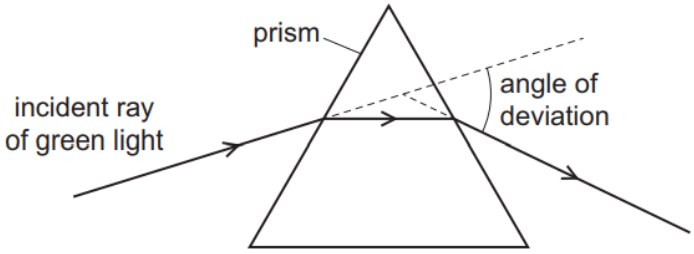
46 Total internal reflection may occur when light reaches an air-glass boundary.

Under which conditions is light totally internally reflected?

	medium in which light travels towards the boundary	angle of incidence
A	air	greater than the critical angle
B	air	less than the critical angle
C	glass	greater than the critical angle
D	glass	less than the critical angle

47 The diagram shows the path of a ray of green light through a glass prism.

The angle of deviation is the angle between the incident ray and the ray leaving the prism.



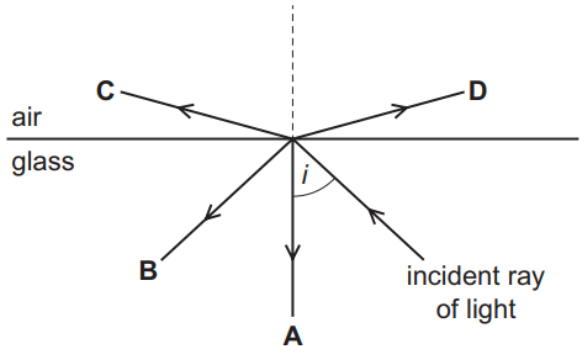
When a ray of white light is incident on the prism, it separates into the colours of the visible spectrum.

What is the name of this effect and which colour of light has the smallest angle of deviation?

	name of effect	colour with smallest angle of deviation
A	diffraction	red
B	diffraction	violet
C	dispersion	red
D	dispersion	violet

48 The diagram shows light incident at a glass-air boundary. The angle of incidence *i* of the ray is greater than the critical angle.

Which line shows the path of the light after it meets the boundary?



49 Which conditions are necessary for light to be totally internally reflected?

	the incident light is in	angle of incidence
A	the less dense medium	less than the critical angle
B	the less dense medium	greater than the critical angle
C	the more dense medium	less than the critical angle
D	the more dense medium	greater than the critical angle

50 The table describes white light that passes through a prism and forms a spectrum.

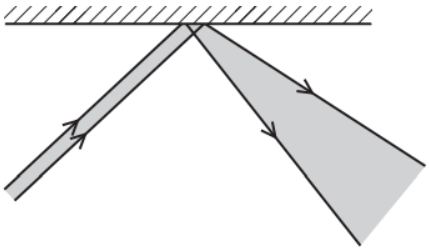
Which row is correct?

	colour refracted the most	colour next to the red
A	red	orange
B	red	yellow
C	violet	orange
D	violet	yellow

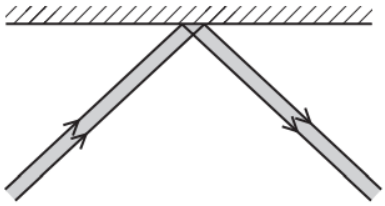
51 A parallel beam of light is incident on a plane mirror.

Which diagram shows how the beam is reflected by the mirror?

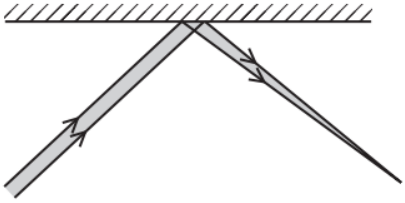
A



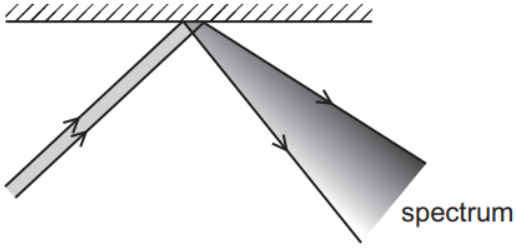
B



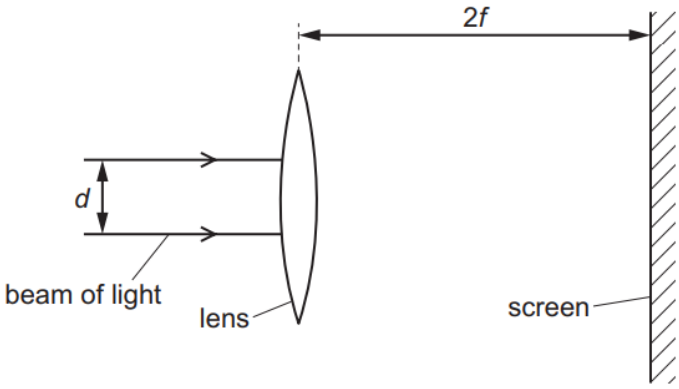
C



D



52 The diagram shows a parallel, cylindrical light beam of diameter *d* incident on a thin converging lens. A screen is placed a distance equal to two focal lengths 2*f* from the lens.

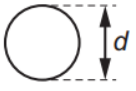


Which diagram shows the size of the spot of light seen on the screen?

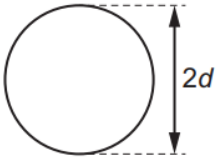
A

B

C

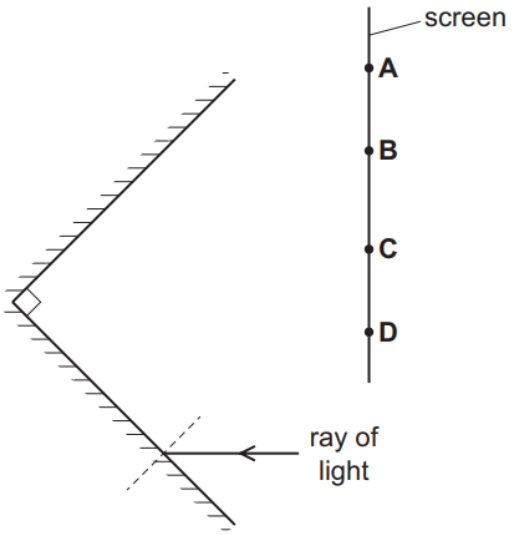


D

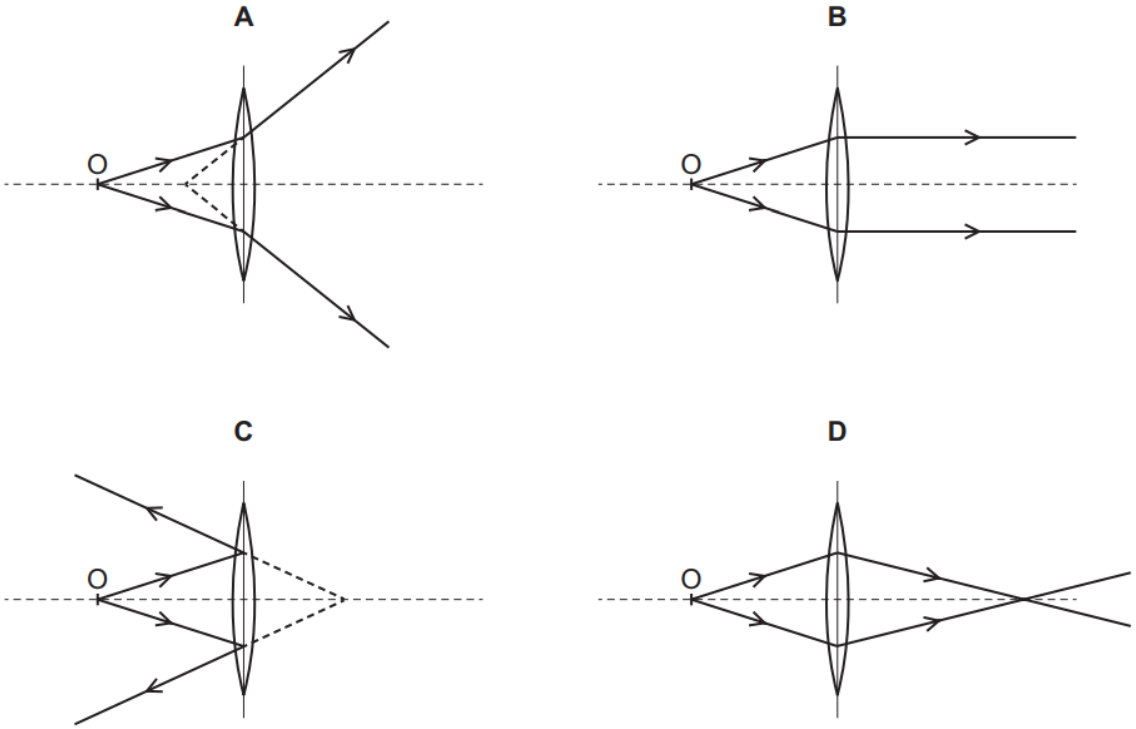


53 The diagram shows two plane mirrors at 90° to each other. A ray of light is incident on one of the mirrors. The ray reflects off both mirrors before reaching a screen.

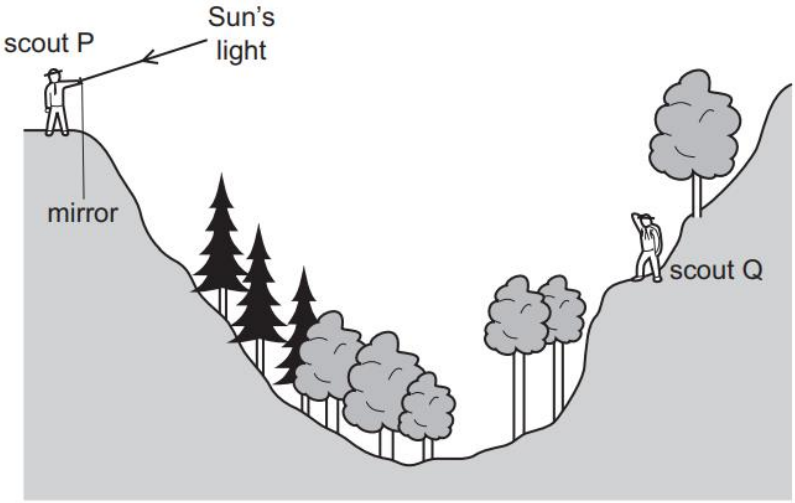
At which labelled point does the ray reach the screen?



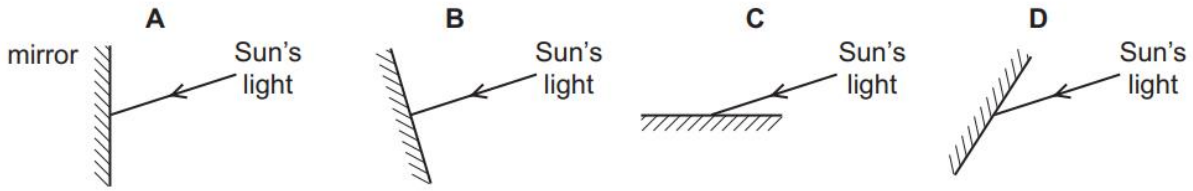
54 Which diagram shows the formation of a real image of an object O placed in front of a converging lens?



55 Scout P signals to scout Q on the other side of a valley by using a mirror to reflect the Sun's light.

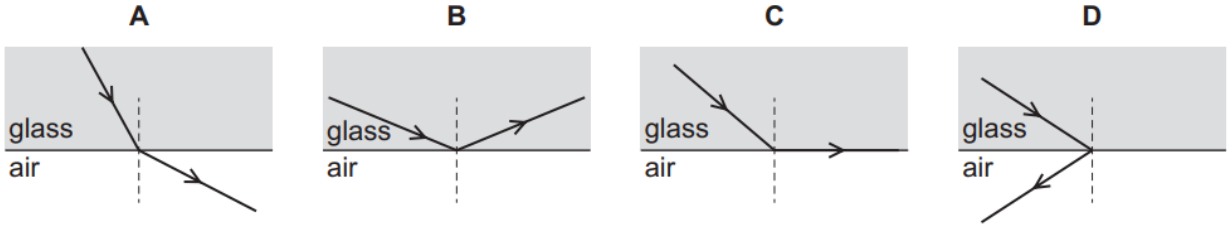


Which mirror position allows the Sun's light to be reflected to scout Q?



56 Light passes from glass into air.

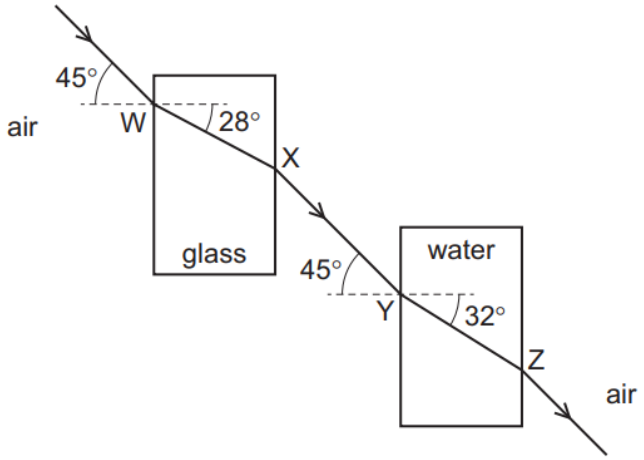
Which diagram shows a ray of light incident at the critical angle on the air-glass boundary?



Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

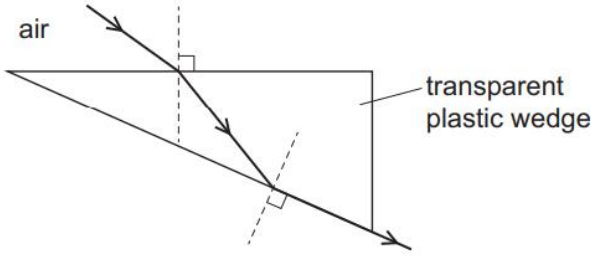
57 A light ray is passed through air, glass and water.



At which points does the light speed decrease?

A W and X **B** W and Y **C** X and Z **D** Y and Z

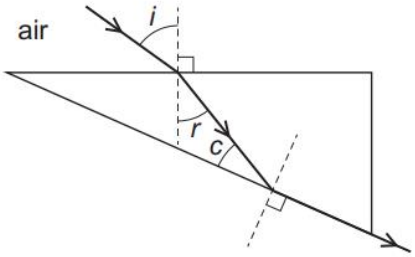
58 A ray of light enters a transparent plastic wedge from air and is incident on the lower surface at the critical angle, as shown.



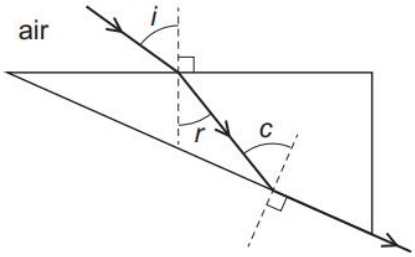
The angle of incidence is *i*, the angle of refraction is *r*, and the critical angle is *c*.

In which ray diagram are the angles labelled correctly?

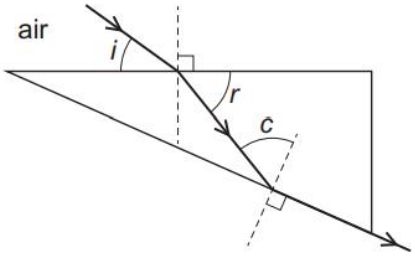
A



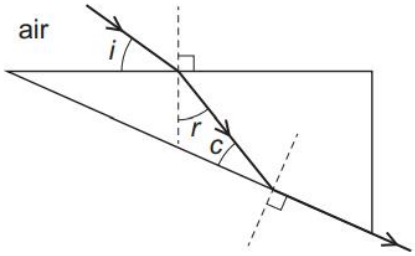
B



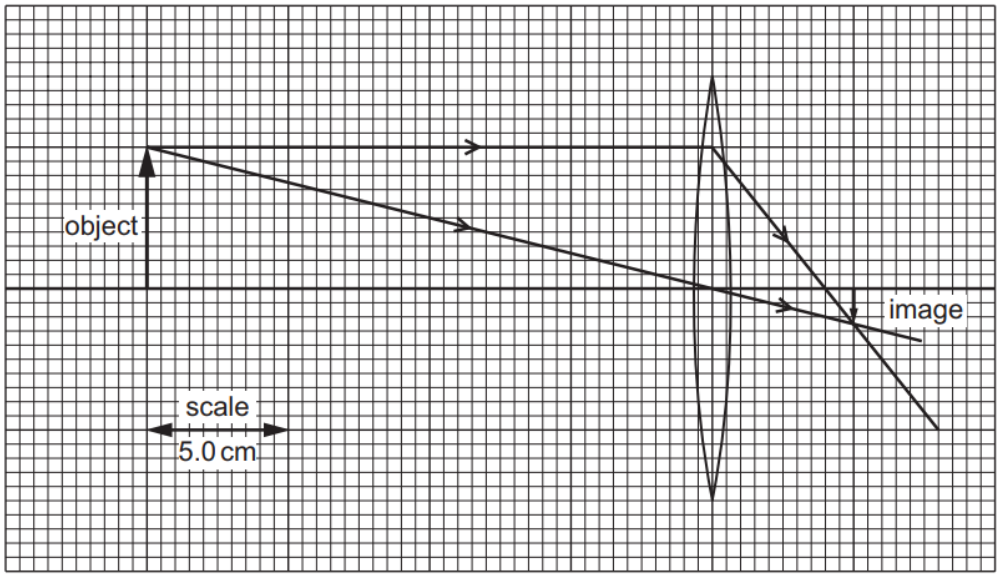
C



D



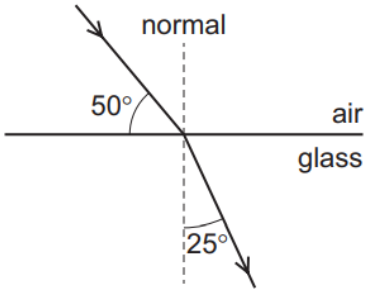
59 An object is placed 20 cm in front of a thin converging lens. The scale diagram shows how the lens forms a real, inverted image.



Which row gives the focal length of the lens and the distance of the image from the lens?

	focal length of lens / cm	distance of image from lens / cm
A	4.0	5.0
B	5.0	4.0
C	8.0	10.0
D	10.0	8.0

60 A ray of light passes from air into glass.



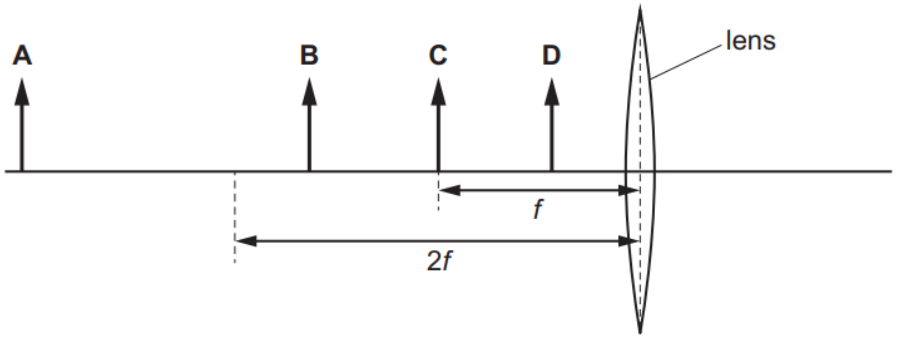
What are the angles of incidence and refraction of the ray?

	angle of incidence / °	angle of refraction / °
A	40	25
B	40	65
C	50	25
D	50	65

61 An object is placed in front of a converging lens. The lens has a focal length *f*.

The lens produces a real, enlarged image of the object.

In which labelled position is the object placed?

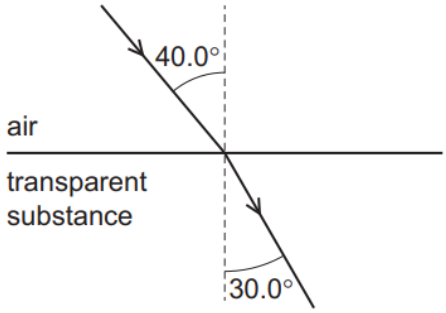


62 The angle of incidence of a ray of light incident on a plane mirror is gradually increased.

To the nearest degree, what is the maximum possible angle between the incident and reflected rays?

A 0° **B** 45° **C** 90° **D** 180°

63 The diagram shows a ray of light passing from air into a transparent substance. **(extended only)**



What is the refractive index of the transparent substance?

A 1.33 **B** 1.29 **C** 0.778 **D** 0.750

64 Light travels from air into glass. **(extended only)**

What is the relationship between the refractive index n of the glass, the angle of incidence i and the angle of refraction r?

A $n = \frac{i}{r}$ **B** $n = \frac{r}{i}$ **C** $n = \frac{\sin i}{\sin r}$ **D** $n = \frac{\sin r}{\sin i}$

65 The diagram shows a ray of light in an optical fibre. **(extended only)**

Which statement correctly explains the condition for the maximum transmission of light by the optical fibre?

A The glass must slow the light as little as possible to make the critical angle for the fibre as large as possible.

B The glass must slow the light as little as possible to make the critical angle for the fibre as small as possible.

C The glass must slow the light as much as possible to make the critical angle for the fibre as large as possible.

D The glass must slow the light as much as possible to make the critical angle for the fibre as small as possible.

66 Diagram 1 shows the page of a book in front of a plane mirror.

An eye is looking at the image of the page.

Diagram 2 shows a large letter G on the page facing the mirror.

diagram 1

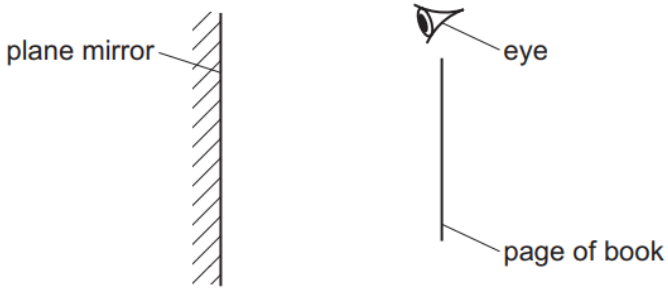
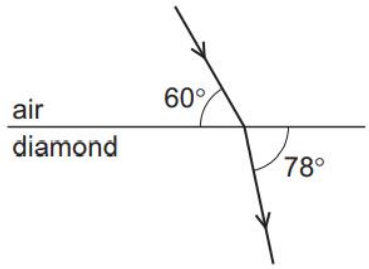


diagram 2

What is the appearance of the image of G seen by the eye?

A **B** **C** **D**

67 The diagram shows a ray of light passing from air into diamond. **(extended only)**



What is the refractive index of the diamond?

A 0.89 **B** 1.1 **C** 2.4 **D** 2.5

68 The ray diagrams show the formation of an image by two different converging lenses.

diagram 1

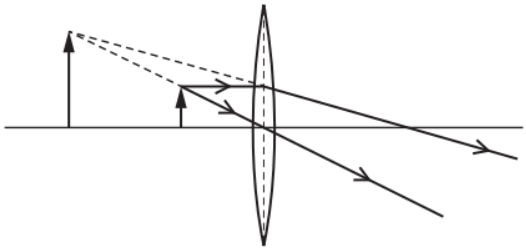
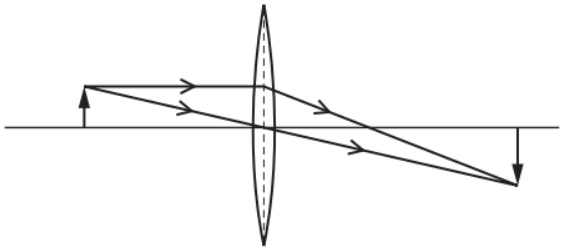


diagram 2



Which row describes the images produced?

	diagram 1	diagram 2
A	real	real
B	real	virtual
C	virtual	real
D	virtual	virtual

69 White light enters a glass prism. The light leaving the other side of the prism is separated into colours.

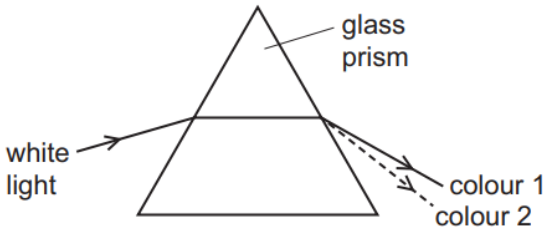


diagram 1

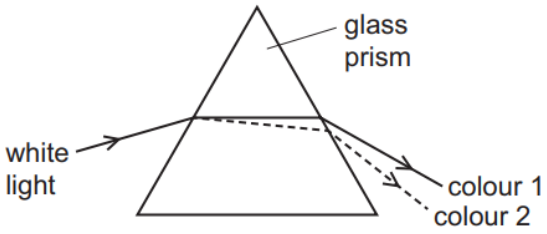


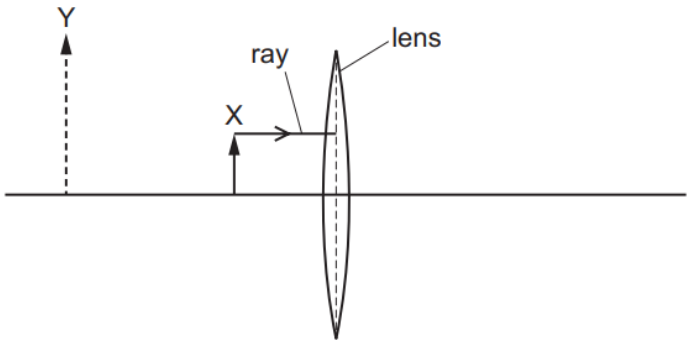
diagram 2

Which row correctly describes what happens?

	path taken by the light	colour 1	colour 2
A	diagram 1	red	violet
B	diagram 1	violet	red
C	diagram 2	red	violet
D	diagram 2	violet	red

70 The diagram shows part of a ray diagram that demonstrates the formation of a virtual image Y of object X by a converging lens.

(extended only)

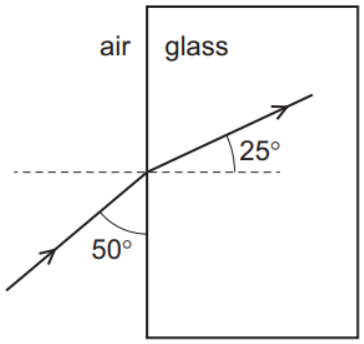


One ray of light from X is shown approaching the lens.

Which arrow shows the direction of this ray as it leaves the lens?

A **B** **C** **D**

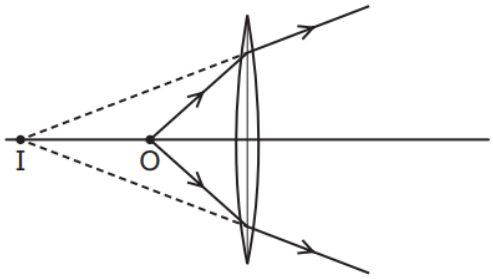
71 The diagram shows a ray of light entering a glass block. **(extended only)**



Which calculation gives the refractive index of the glass?

A $\frac{\sin 40°}{\sin 25°}$ **B** $\frac{\sin 40°}{\sin 65°}$ **C** $\frac{\sin 50°}{\sin 25°}$ **D** $\frac{\sin 50°}{\sin 65°}$

72 A small object O is placed near a converging lens, as shown. The lens forms an image I. **(extended only)**



Which statement is correct?

A The image I is diminished.

B The image I is inverted.

C The image I is real.

D The object O is closer to the lens than its principal focus.

73 Light is travelling through air. The light strikes a glass block at an angle of incidence of 45°. The glass has a refractive index of 1.4. **(extended only)**

What is the angle of refraction of the light as it enters the glass?

A 29° **B** 30° **C** 32° **D** 82°

74 Which statement describes monochromatic light? **(extended only)**

A light of a single frequency

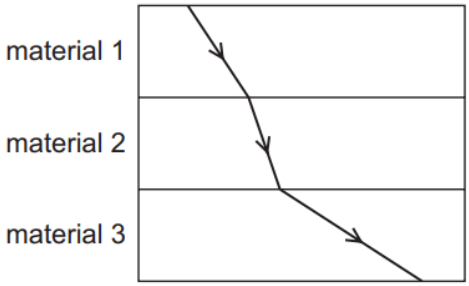
B light transmitted by a transparent prism

C visible light

D white light

75 A composite block is made by joining together three transparent materials.

The diagram shows a ray of light passing through the composite block.



Which list gives the three materials in order of the speeds of light in the materials, from slowest to fastest?

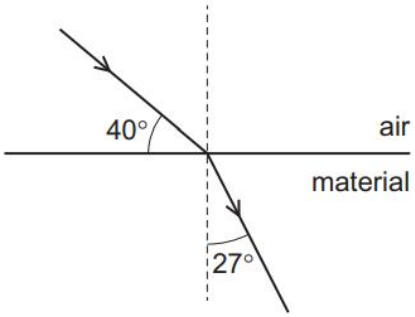
A $1 \rightarrow 2 \rightarrow 3$ **B** $1 \rightarrow 3 \rightarrow 2$ **C** $2 \rightarrow 1 \rightarrow 3$ **D** $2 \rightarrow 3 \rightarrow 1$

76 A thin converging lens can produce both real and virtual images.

Which row describes a real and a virtual image?

	real image	virtual image
A	rays converge to form the image	image can be projected onto a screen
B	rays converge to form the image	image cannot be projected onto a screen
C	rays diverge to form the image	image can be projected onto a screen
D	rays diverge to form the image	image cannot be projected onto a screen

77 A ray of light travels from air into a material, as shown. **(extended only)**

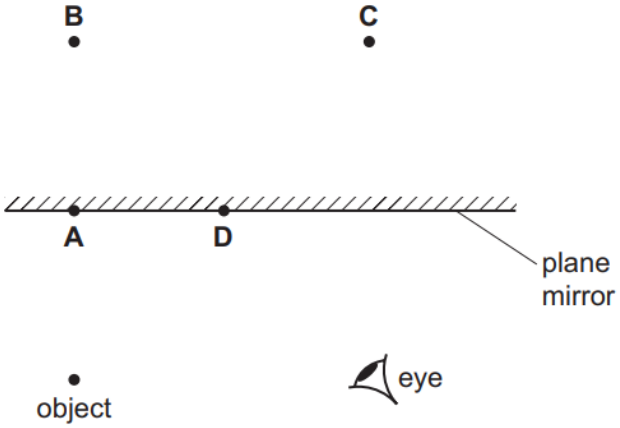


What is the refractive index of the material?

A 1.4 **B** 1.5 **C** 1.7 **D** 1.9

78 The diagram shows an object in front of a plane mirror.

At which labelled position is the image of the object formed?



79 The angle between an incident ray and the surface of a plane mirror reflecting the ray is 70°.

What is the angle of incidence?

A 20° **B** 40° **C** 70° **D** 140°

80 An object is reflected in a plane mirror.

Which description of the image is correct?

A diminished and real

B enlarged and virtual

C same size and real

D same size and virtual

81 Which statement is correct? **(extended only)**

A The speed of light in glass is equal to the speed of light in a vacuum multiplied by the refractive index of glass.

B The incident angle of a light ray at an air-glass surface is the angle between the ray and the glass surface.

C The sine of the critical angle at an air-glass surface is equal to $\frac{1}{\text{refractive index of glass}}$.

D The angle of refraction for light passing through an air-glass surface is proportional to the angle of incidence at that surface.

82 An object is placed in front of a converging lens of focal length 15 cm.

Which row describes the image of the object?

	distance of object from lens / cm	nature of the image
A	40	real, upright, diminished
B	30	virtual, inverted, enlarged
C	20	real, inverted, diminished
D	10	virtual, upright, enlarged

83 The speed of light in air is 3.0×10^8 m/s. **(extended only)**

The critical angle for light in a transparent plastic material placed in air is 37°.

What is the speed of light in the plastic material?

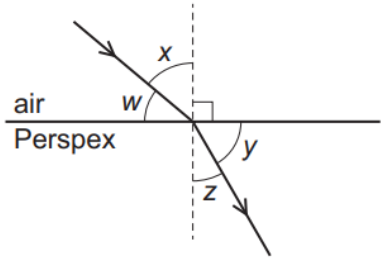
A 1.8×10^8 m/s

B 2.4×10^8 m/s

C 3.8×10^8 m/s

D 5.0×10^8 m/s

84 The diagram shows how a ray of light refracts when going from air to Perspex. **(extended only)**



The critical angle of Perspex is *c*.

Which expression is correct?

A $\frac{\sin x}{\sin z} = \sin c$

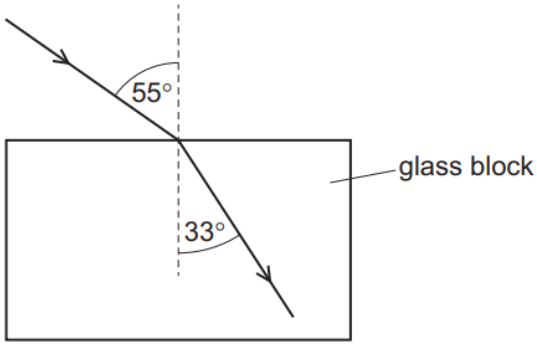
B $\frac{\sin z}{\sin x} = \sin c$

C $\frac{\sin w}{\sin y} = \sin c$

D $\frac{\sin y}{\sin w} = \sin c$

85 Light travelling at a speed of 3.0×10^8 m/s strikes the surface of a glass block and undergoes refraction as it enters the block.

The diagram shows a ray of this light before and after it enters the block. **(extended only)**



What is the speed of light in the glass?

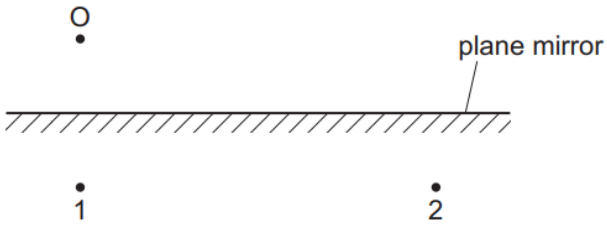
A 1.8×10^8 m/s

B 2.0×10^8 m/s

C 4.5×10^8 m/s

D 5.0×10^8 m/s

86 An object O is placed in front of a plane mirror as shown.



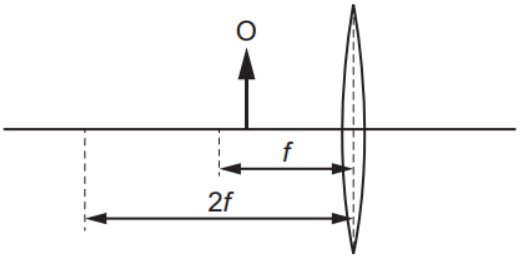
Which row is correct?

	position of the image	nature of the image
A	1	real
B	1	virtual
C	2	real
D	2	virtual

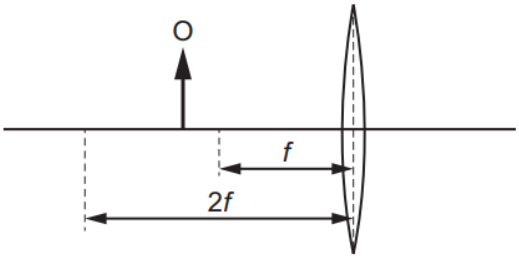
87 A converging lens produces an image of an object O. The focal length of the lens is *f*.

Which position of the object produces a virtual image? **(extended only)**

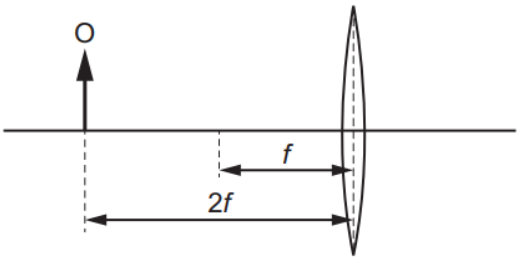
A



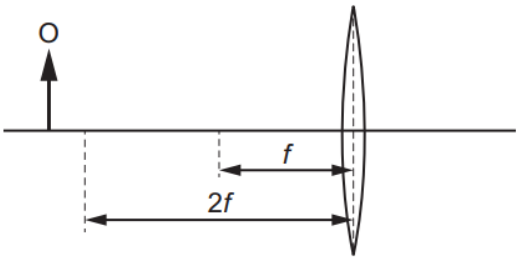
B



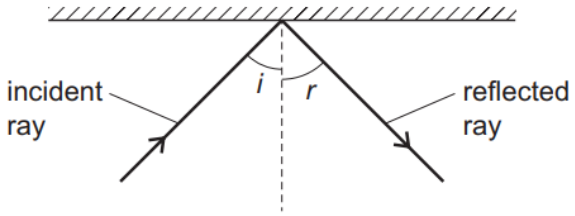
C



D

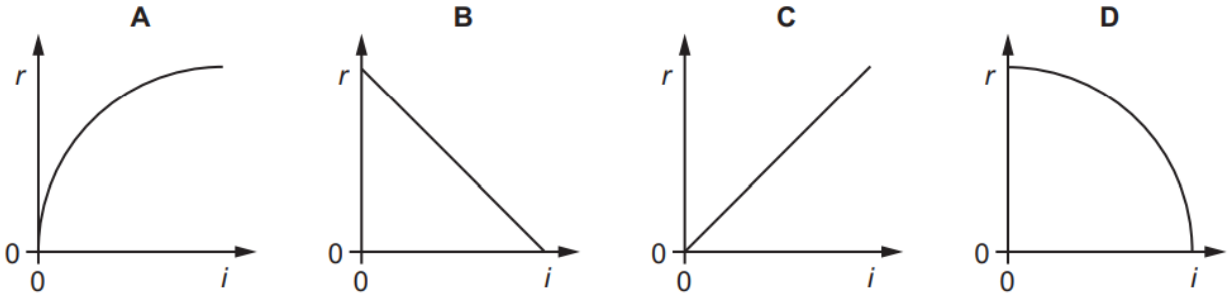


88 A ray of light is incident on a plane mirror. A student measures the angle of incidence *i* and th angle of reflection *r*.



The student varies the angle of incidence and then plots a graph of *r* against *i*.

What does the graph look like?



89 What is monochromatic light? **(extended only)**

A light of a single amplitude

B light of a single frequency

C light of more than one colour

D light which travels with constant velocity

90 Which statement about the image formed by a plane mirror is correct?

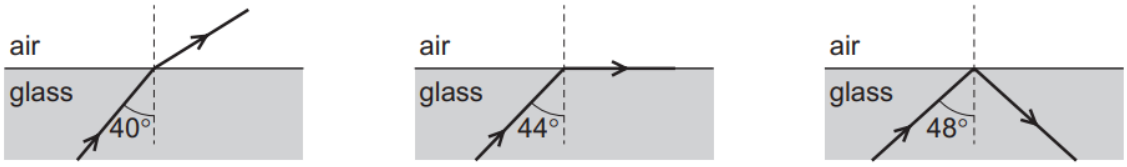
A The image is larger than the object.

B The image is smaller than the object.

C The image is twice as far from the mirror as the object.

D The image is virtual.

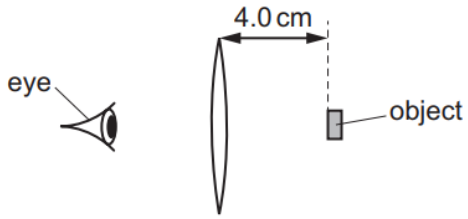
91 A ray of light is incident on a glass-air surface. The diagrams show the ray of light at different angles of incidence in the glass. **(extended only)**



What is the refractive index of the glass?

A 1.35 **B** 1.44 **C** 1.50 **D** 1.55

92 A thin converging lens has a focal length of 6.0 cm. An observer looks through the lens at an object which is placed 4.0 cm from the lens.



Which description of the image that is observed is correct?

A diminished and inverted

B diminished and virtual

C enlarged and inverted

D enlarged and virtual

93 A scientist describes light as being monochromatic. **(extended only)**

What does this tell you about the light?

A It has a single frequency.

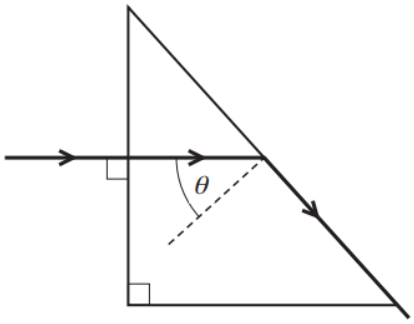
B It has more than one wavelength.

C It travels at a single speed in a single direction.

D It travels at different speeds in different directions.

94 A prism is made from transparent plastic. In this plastic, light travels at 0.80 *c*, where *c* is its speed in air. Light enters one face of the prism at right-angles as shown.

(extended only)



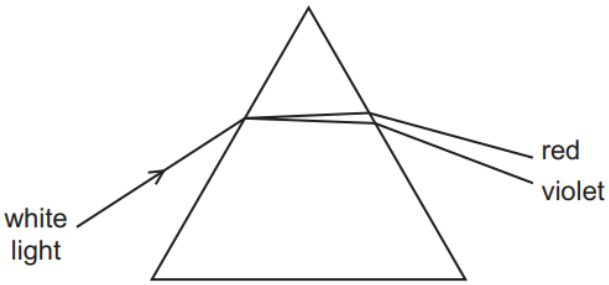
NOT TO SCALE

The light just escapes from the sloping face of the prism.

What is angle θ?

A 37° **B** 39° **C** 51° **D** 53°

95 The diagram shows white light passing through a prism.



Which description of what happens as the light passes into the prism is correct?

A The speed of the red light is less than the speed of the violet light and the red light is the least refracted.

B The speed of the red light is greater than the speed of the violet light and the red light is the least refracted.

C The speed of the violet light is less than the speed of the red light and the violet light is the least refracted.

D The speed of the violet light is greater than the speed of the red light and the violet light is the least refracted.