

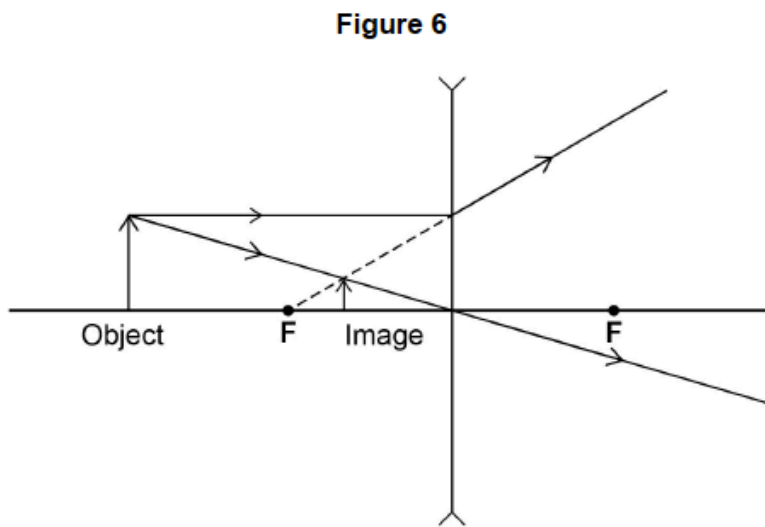
Waves

Past Paper Questions AQA Physics GCSE

Lenses are used to form images of objects.

01.

Figure 6 shows how a concave lens forms an image of an object.



The image of the object in **Figure 6** is upright.

Give **two** other words that describe the image.

[1 mark]

1 _____

2 _____

02.

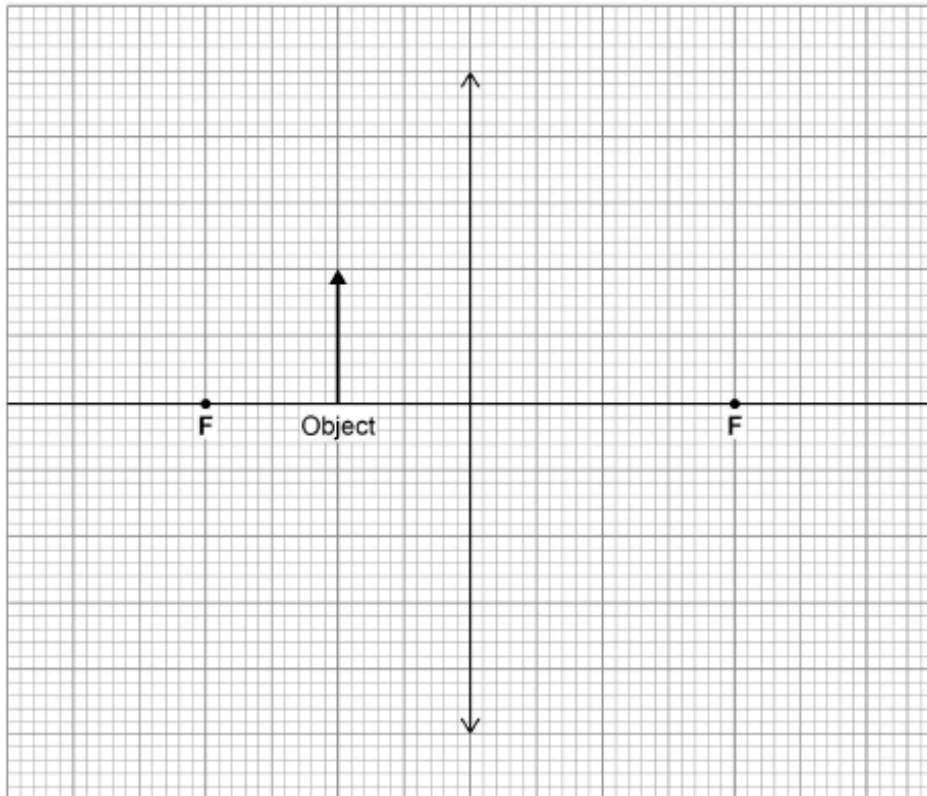
Figure 7 shows an object near to a convex lens.

Complete the ray diagram to show how the image is formed.

Use an arrow to represent the image.

[3 marks]

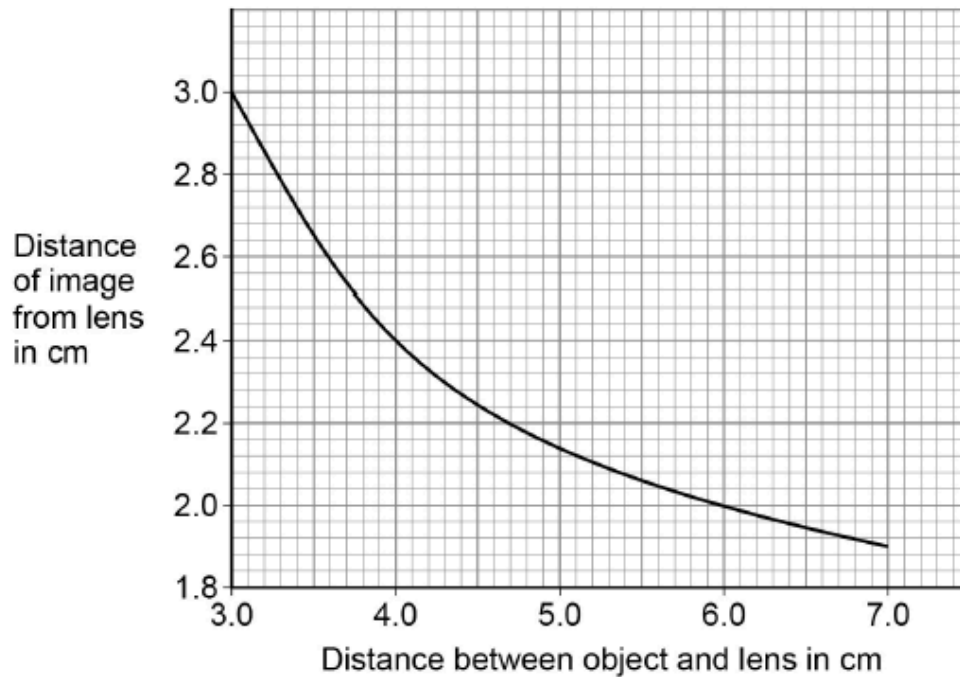
Figure 7



The position of an image formed by a convex lens varies with the distance between the object and the lens.

Figure 8 shows the results of a student's investigation using a convex lens.

Figure 8



03.

Describe how the distance of the image from the lens decreases as the distance between the object and the lens increases.

[1 mark]

04.

The student measured the distance from the image to the lens four times.

The distance between the object and the lens did not change.

The 4 measurements from the image to the lens were:

1.9 cm 1.7 cm 2.2 cm 1.4 cm

Calculate the uncertainty in the measurements.

[2 marks]

Uncertainty = \pm _____ cm

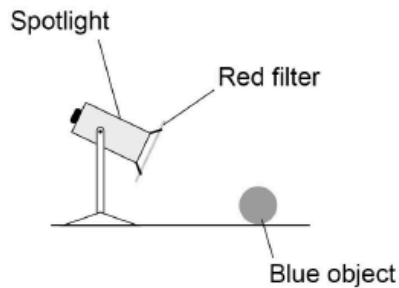
05.

Figure 9 shows a spotlight containing a convex lens.

A red filter is placed in front of the spotlight.

The spotlight is directed at a blue object.

Figure 9



Explain why the blue object appears black.

[3 marks]

Ultraviolet is a type of electromagnetic wave.

06.

Give **one** use of ultraviolet.

[1 mark]

07.

An ultraviolet wave has a wavelength of 300 nanometres.

Which of the following is equal to 300 nanometres?

[1 mark]

Tick (✓) **one** box.

3×10^7 m

3×10^{-7} m

3×10^9 m

3×10^{-9} m

08.

The speed of ultraviolet waves is 3×10^8 m/s.

Calculate the frequency of the ultraviolet wave.

Use your answer to Question **05.2**

[3 marks]

Frequency = _____ Hz

09.

Table 1 gives the wavelength of an ultraviolet wave and three other electromagnetic waves.

Table 1

	Ultraviolet	Wave E	Wave F	Wave G
Wavelength in nanometres	300	0.1	600	100 000

Draw **one** line from each wave to the name of the wave.

[1 mark]

Wave	Name
Wave E	Infrared
Wave F	Visible light
Wave G	X-rays

10.

Electromagnetic waves are transverse.

Some other types of wave are longitudinal.

Describe the difference between transverse and longitudinal waves.

[2 marks]
