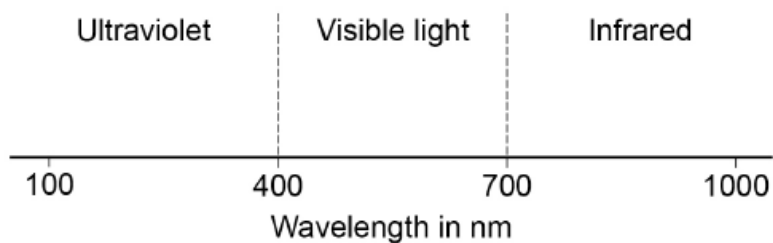


Electromagnetic induction – GCSE Physics Paper 2

1. No.6

0	6
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Figure 10 shows the wavelengths of some types of electromagnetic radiation.

Figure 10

0	6	.	1
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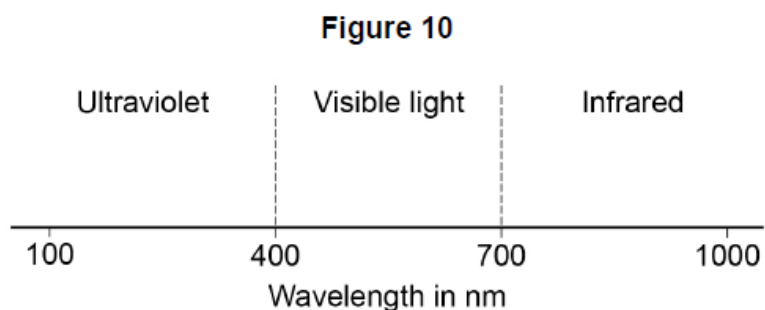
Suggest **one** piece of equipment that can be used to detect infrared radiation.**[1 mark]**

0	6	.	2
---	---	---	---

Which of the following values is a wavelength of red light?

[1 mark]Tick (✓) **one** box.320 nm ☐410 nm ☐690 nm ☐750 nm ☐

Figure 10 is repeated below.



0 6 . 3

The eyes of a bee can detect electromagnetic radiation with wavelengths between 300 nm and 600 nm.

Give **two** ways the radiation detected by the eyes of a bee is different from the radiation detected by human eyes.

[2 marks]

1 _____

2 _____

0 6 . 4

Complete the sentences.

Choose the answers from the box.

[2 marks]

absorbed

emitted

reflected

refracted

When sunlight shines on a red flower, the red light
is _____.

All other colours of light shining on the red flower
are _____.

06.5

A gardener looks at a red flower through a green filter.

How does the flower appear to the gardener?

[1 mark]

Tick (✓) **one** box.

Black

☐

Green

☐

Red

☐

White

☐

06.6

The leaves of the plant reflect light.

The leaves have a rough surface.

What type of reflection happens at the leaf surface?

[1 mark]

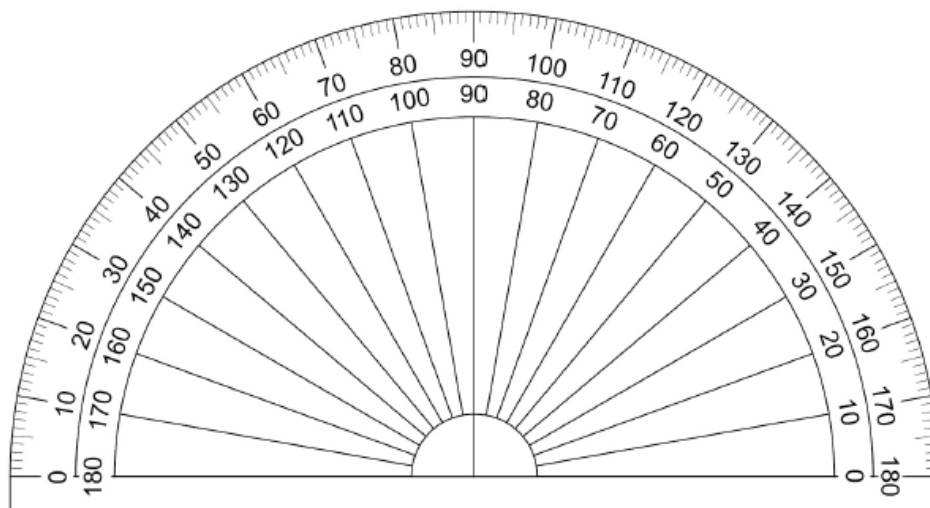
2. No.8

0 8

A student investigated the refraction of light by a glass block.

Figure 13 shows the protractor used to measure the angles of incidence and the angles of refraction.

Figure 13



0 8 . 1

What is the resolution of the protractor used to measure the angles?

[1 mark]

Resolution = _____ °

Table 1 shows the results.

Table 1

Angle of incidence in degrees	Angle of refraction in degrees
10	6
20	12
30	18
40	23
50	28
60	32

0	8	.	2
---	---	---	---

Describe a method the student could have used to obtain the data in Table 1.

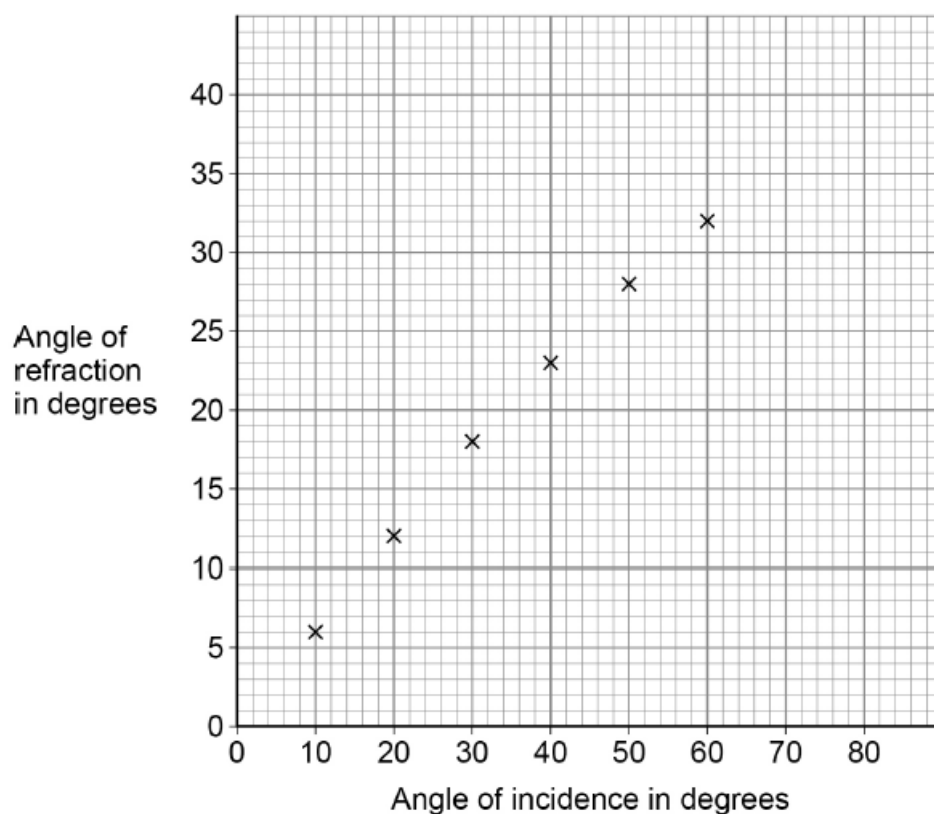
You may include a labelled diagram.

[6 marks]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Figure 14 shows some of the results.

Figure 14



The student measured the angles of refraction for two additional angles of incidence.

Table 2 shows the additional results.

Table 2

Angle of incidence in degrees	Angle of refraction in degrees
70	35
80	37

08.3

Complete **Figure 14**.

You should:

- plot the results from **Table 2**
- draw the line of best fit.

[2 marks]

08.4

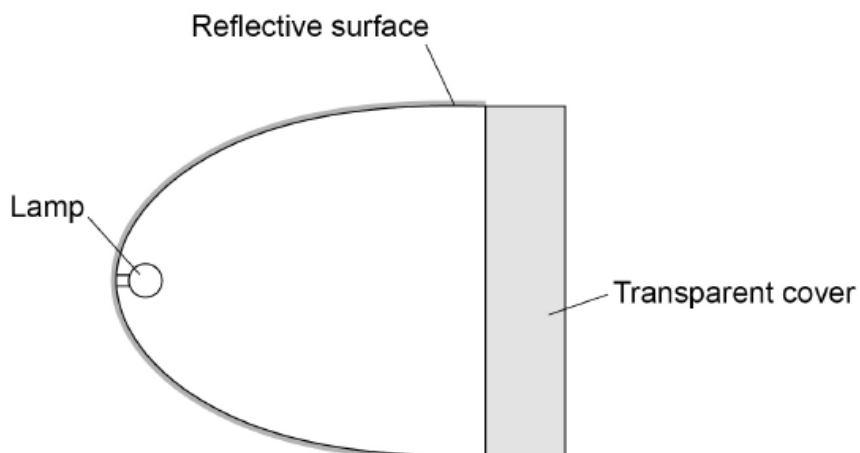
How does **Figure 14** show that the angle of refraction is **not** directly proportional to the angle of incidence?

[1 mark]

Figure 15 shows a diagram of a car headlight.

The headlight has a lamp, a reflective surface and a transparent cover.

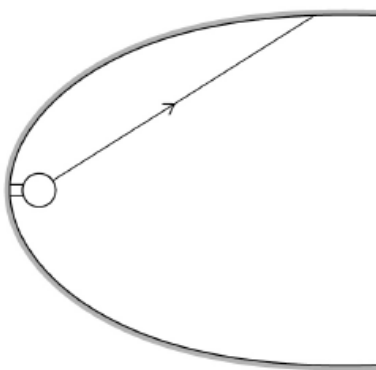
Figure 15



0 8 . 5

Figure 16 shows a ray of light incident on the reflective surface.

Figure 16



Complete **Figure 16** to show the reflected ray of light.

You should include the normal line at the point where the incident ray meets the reflecting surface.

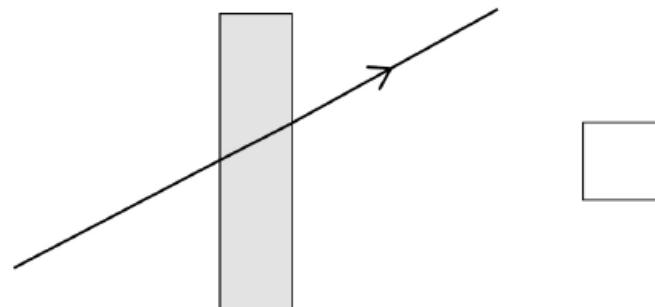
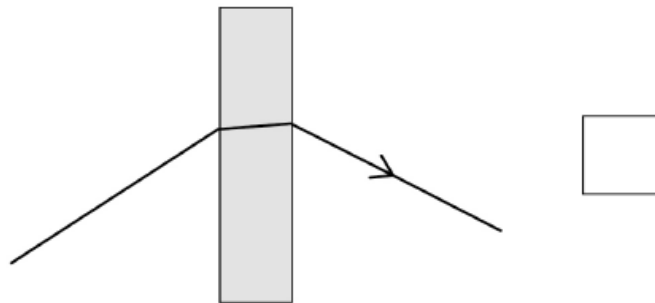
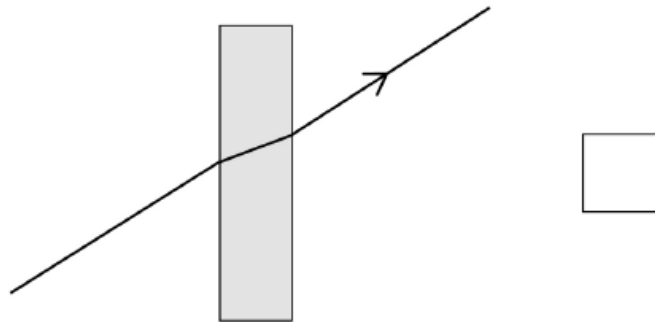
[2 marks]

08.6

Rays of light pass through the transparent cover of the headlight.

Which diagram shows how a ray of light passes through the transparent cover?

[1 mark]

Tick (✓) **one** box.

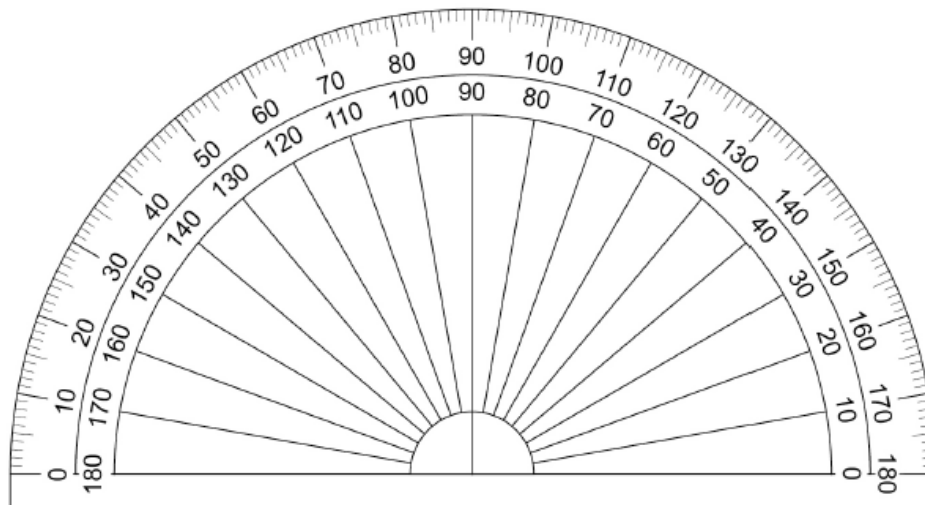
3. No.1

0 1

A student investigated the refraction of light by a glass block.

Figure 1 shows the protractor used to measure the angles of incidence and the angles of refraction.

Figure 1



0 1 . 1

What is the resolution of the protractor used to measure the angles?

[1 mark]

Resolution = _____ °

Table 1 shows the results.

Table 1

Angle of incidence in degrees	Angle of refraction in degrees
10	6
20	12
30	18
40	23
50	28
60	32

0	1	.	2
---	---	---	---

Describe a method the student could have used to obtain the data in **Table 1**.

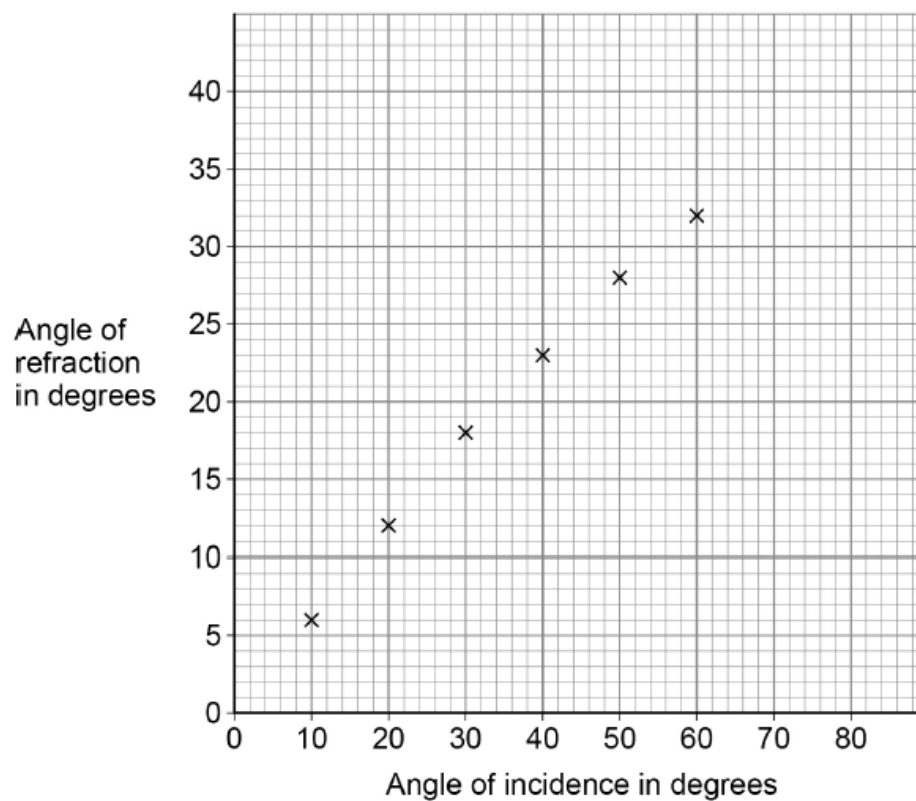
You may include a labelled diagram.

[6 marks]

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Figure 2 shows some of the results.

Figure 2



The student measured the angles of refraction for two additional angles of incidence.

Table 2 shows the additional results.

Table 2

Angle of incidence in degrees	Angle of refraction in degrees
70	35
80	37

0 1 . 3

Complete **Figure 2**.

You should:

- plot the results from **Table 2**
- draw the line of best fit.

[2 marks]

0 1 . 4

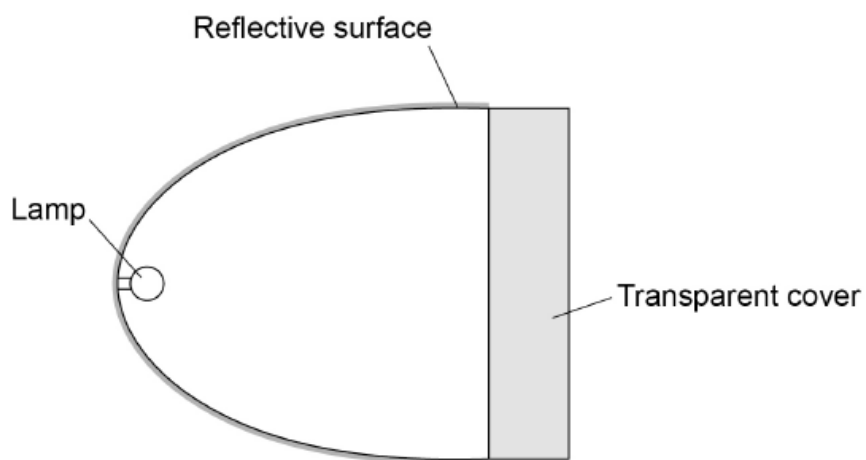
How does **Figure 2** show that the angle of refraction is **not** directly proportional to the angle of incidence?

[1 mark]

Figure 3 shows a diagram of a car headlight.

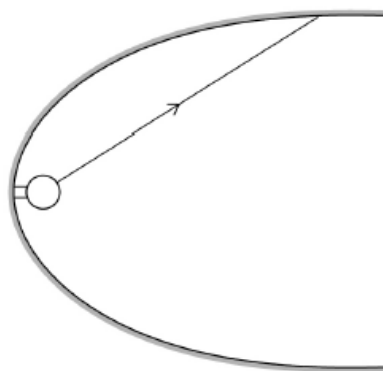
The headlight has a lamp, a reflective surface and a transparent cover.

Figure 3



0 1 . 5 **Figure 4** shows a ray of light incident on the reflective surface.

Figure 4



Complete **Figure 4** to show the reflected ray of light.

You should include the normal line at the point where the incident ray meets the reflecting surface.

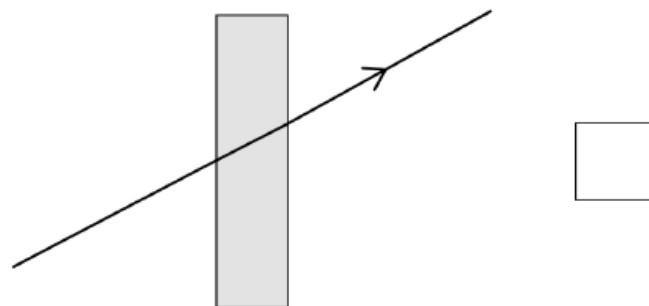
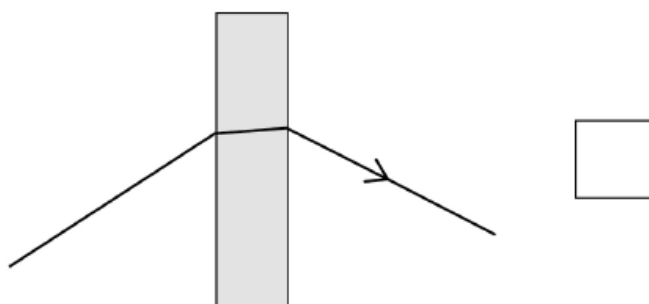
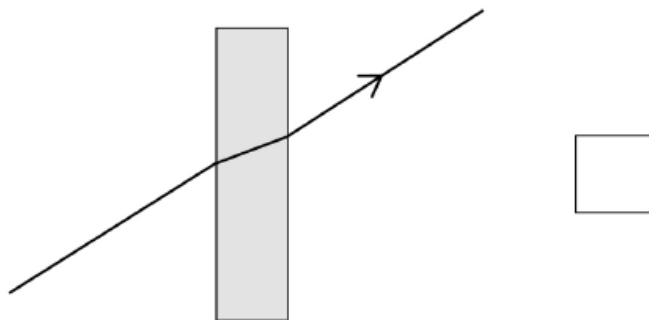
[2 marks]

0 1 . 6

Rays of light pass through the transparent cover of the headlight.

Which diagram shows how a ray of light passes through the transparent cover?

[1 mark]

Tick (✓) **one** box.

4. No.6

0	6
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Radio waves and gamma rays both transfer energy.

0	6	.	1
---	---	---	---

Give **three** other similarities between radio waves and gamma rays.**[3 marks]**

1 _____

2 _____

3 _____

Both radio waves and gamma rays are used in medicine.

0 6 . 2

Give **one** medical use of gamma rays.

[1 mark]

0 6 . 3

Explain why exposure to gamma rays can be harmful but exposure to radio waves is **not** harmful.

[2 marks]

0 6 . 4

Some medical scanners produce radio waves at a specific frequency.

Explain how radio waves are produced at a specific frequency.

[2 marks]
