

GCSE Physics B (Twenty First Century Science)
J259/04 Depth in physics (Higher Tier)

Question Set 9

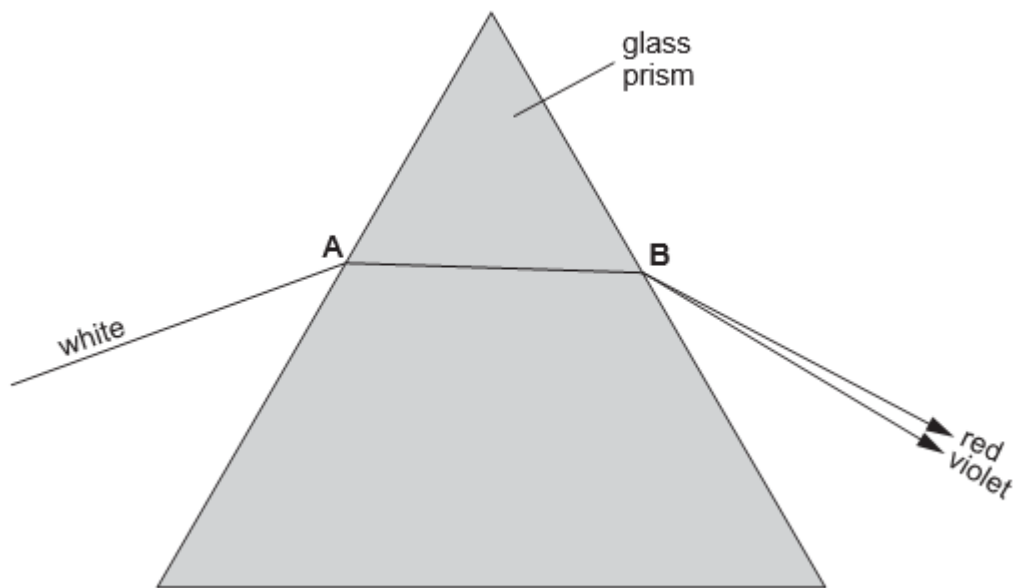
Multiple Choice Questions

1 This question is about the refraction of waves.

(a) Layla uses a ray-box to send a ray of white light into a triangular glass prism at point **A**.

She cannot see clearly what happens inside the prism, but she sees a spectrum of colours coming out at point **B**.

The diagram shows the paths taken by the colours at the two ends of the spectrum.



(diagram to scale)

Which statements about the physics of this refraction are correct?

Tick (✓) **two** boxes.

Red light and violet light both slow down when going from air into glass.

Red light travels slower than violet light in air.

Violet light travels faster than red light in glass.

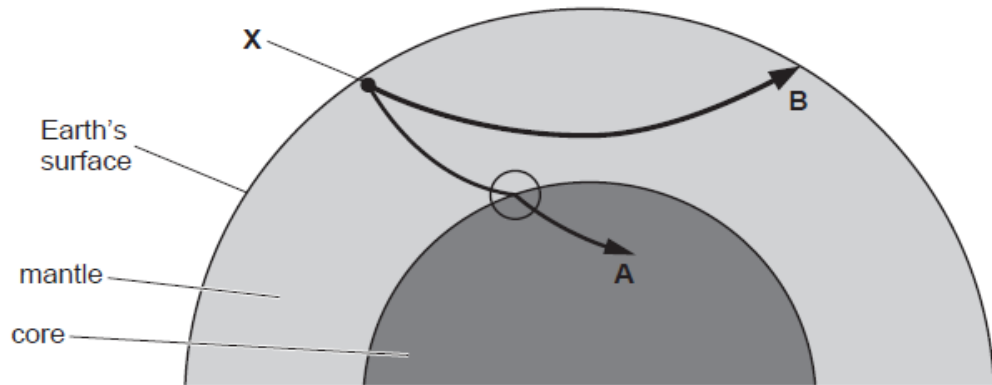
When they go from glass into air, both red light and violet light decrease in wavelength.

When they go from glass into air, violet light speeds up more than red light.

[2]

(b) The diagram below is a section through part of the Earth.

Following an earthquake at **X**, earthquake waves travel through the Earth. Two wave paths, **A** and **B**, are shown on the diagram.



(i) Look at path **A**.

The wave direction changes suddenly at the place ringed.

Explain what this shows about the speed of the earthquake wave as it moves from the mantle into the core. [2]

(ii) Look at path **B**.

The wave direction changes continuously.

Explain what this shows about the speed of the earthquake waves in the mantle at different depths below the Earth's surface. [2]

Total Marks for Question Set 9: 6

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