ONTARIO SCIENCE, GRADE 10, ACADEMIC (SNC2D) · UNIT D · 25 QUESTIONS

Physics: Light and Geometric Optics — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **Light travels in a vacuum at a speed of about**



A 3.00×10^{8} m/s

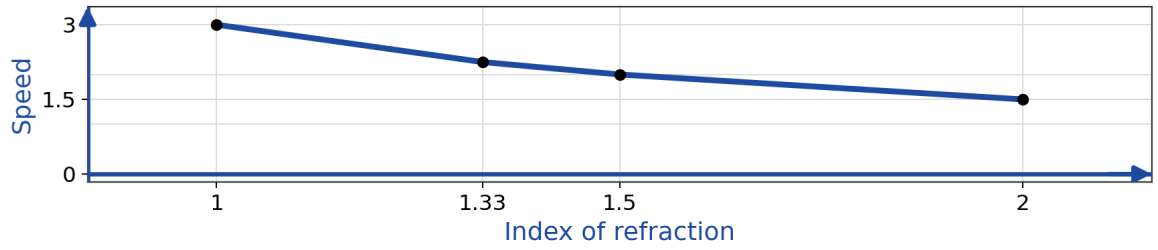
B 3.00×10^{6} m/s

C 340 m/s

D 3.00×10^{5} m/s

Understand It with Pulse | Flag a mistake

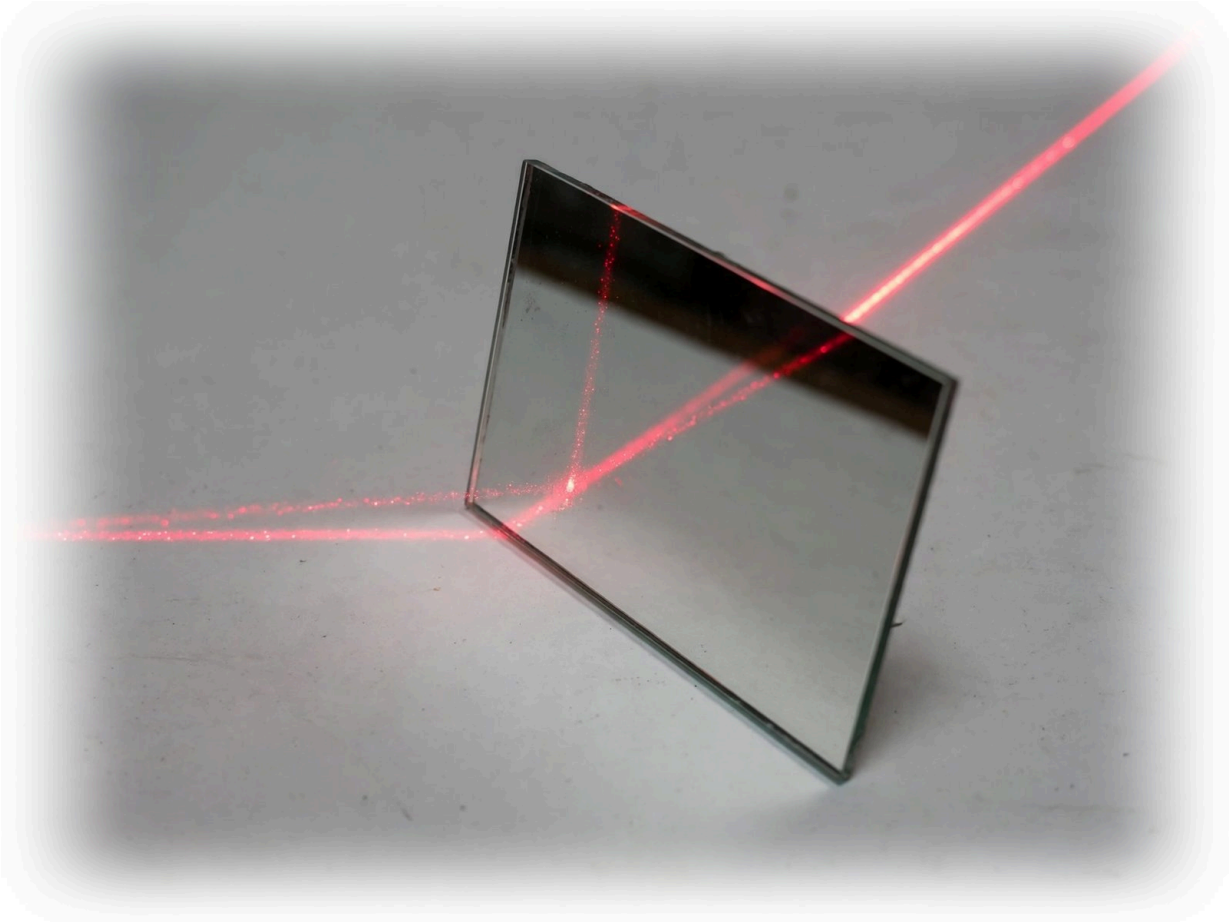
2 **The graph shows measured speeds of light in materials with different indices of refraction. The speed in a material with index 1.33 , in units of 10^8 m/s, is**



ANSWER

Understand It with Pulse | Flag a mistake

3 **Angles of incidence and reflection are measured from the**



A Mirror surface

B Normal

C Incident ray

D Reflected ray

Understand It with Pulse | Flag a mistake

4 **An object is 20 cm in front of a plane mirror. The image is how many centimetres behind the mirror?**

ANSWER _____

Understand It with Pulse | Flag a mistake

5 **Which description of an image in a plane mirror is correct?**

A Virtual, inverted, smaller than the object

B Real, upright, on the mirror surface

C Virtual, upright, the same size as the object

D Real, inverted, magnified

Understand It with Pulse | Flag a mistake

6 **A concave mirror is best described as a mirror that**

A curves outward and diverges reflected light

B is flat and reflects light unchanged

C absorbs all light that strikes it

D curves inward and converges reflected light

Understand It with Pulse | Flag a mistake

7 **Which use takes advantage of the wide field of view of a convex mirror?**

A Store security mirror

B Solar furnace

C Headlight reflector

D Makeup mirror

Understand It with Pulse | Flag a mistake

8 **When light passes from air into glass, it slows down and bends**



A so that it travels parallel to the surface

B toward the normal

C away from the normal

D back along its original path

Understand It with Pulse | Flag a mistake

9 **A right triangle is drawn using the incident ray as the hypotenuse and the normal as one side. The angle between the ray and the normal is the angle of incidence. The angle of reflection, in degrees, is**

ANSWER _____

Understand It with Pulse | Flag a mistake

10 **A lens that is thicker in the middle than at the edges is a**

A Prism

B Diverging lens

C Converging lens

D Plane mirror

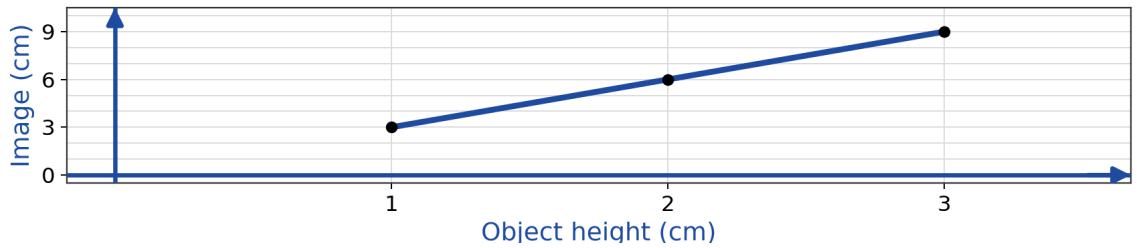
Understand It with Pulse | Flag a mistake

11 **Parallel rays passing through a converging lens are brought to a focus at the**

- **A** Optical centre
- **B** Vertex
- **C** Centre of curvature
- **D** Principal focus

Understand It with Pulse | Flag a mistake

12 **The graph shows measured image heights for objects of different heights. For an object 2 cm tall, the magnification is**



ANSWER _____

Understand It with Pulse | Flag a mistake

13 **Nearsightedness (myopia) is corrected with a**

A Diverging lens

B Plane mirror

C Concave mirror

D Converging lens

Understand It with Pulse | Flag a mistake

14 **Farsightedness (hyperopia) is corrected with a**

A Concave mirror

B Converging lens

C Convex mirror

D Diverging lens

Understand It with Pulse | Flag a mistake

15 **In a camera, the lens forms an image on the sensor that is**



A real and upright

B virtual and inverted

C real and inverted

D virtual and upright

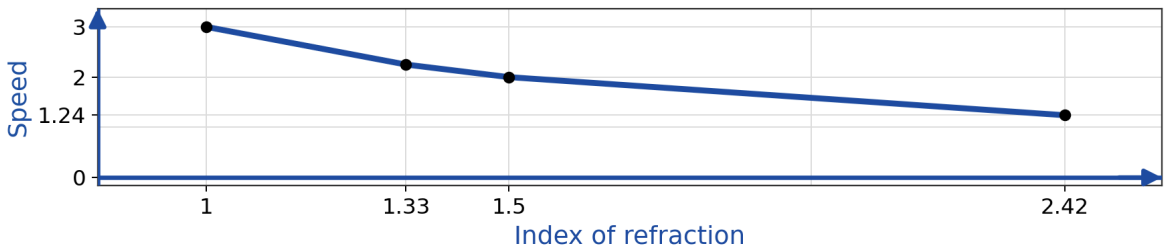
Understand It with Pulse | Flag a mistake

16 **Total internal reflection in an optical fibre occurs when light inside the fibre strikes the boundary at an angle**

- **A** smaller than the critical angle
- **B** equal to zero
- **C** along the normal
- **D** greater than the critical angle

Understand It with Pulse | Flag a mistake

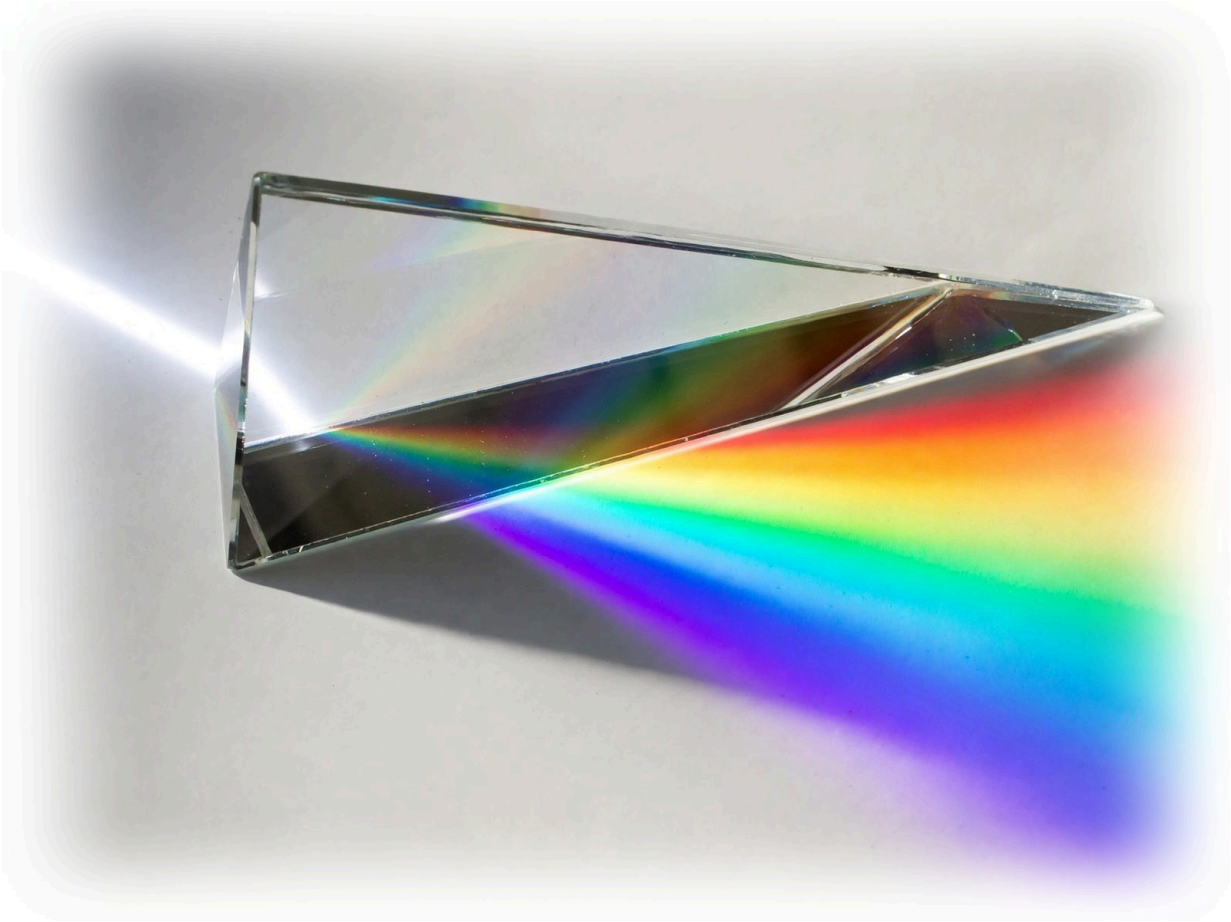
17 **The graph shows measured speeds of light in materials with different indices of refraction. The speed in a material with index 2.42 , in units of 10^8 m/s, is**



ANSWER

Understand It with Pulse | Flag a mistake

18 **When white light passes through a prism, it separates into colours because different colours are**



A refracted by different amounts

B reflected equally by the prism

C absorbed by the prism

D travelling at the speed of sound

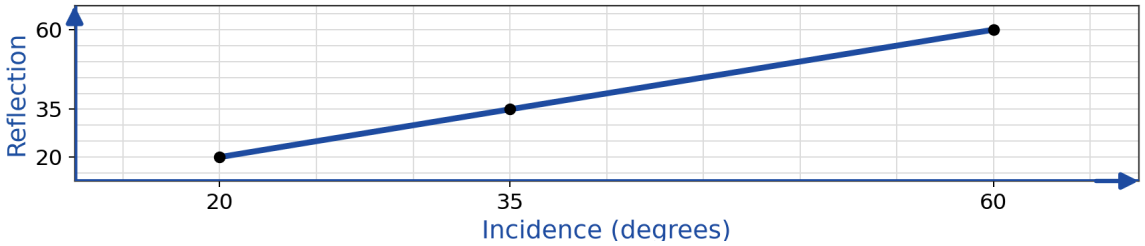
Understand It with Pulse | Flag a mistake

19 **An object is 8 cm tall. Its image is 4 cm tall. The magnification is**

ANSWER

Understand It with Pulse | Flag a mistake

20 **The graph shows measured angles of reflection for different angles of incidence. The angle of reflection for an angle of incidence of 35 degrees, in degrees, is**



ANSWER

Understand It with Pulse | Flag a mistake

21 **Which optical device uses two converging lenses to magnify a small, nearby object?**

A Periscope

B Compound microscope

C Plane mirror

D Telescope

Understand It with Pulse | Flag a mistake

22 **When light passes from glass into air, it speeds up and bends**

A Along the normal

B Toward the normal

C Away from the normal

D Back into the glass

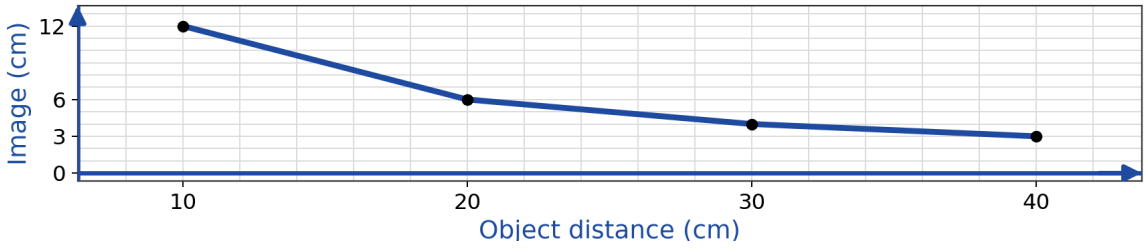
Understand It with Pulse | Flag a mistake

23 **A material has an index of refraction of 1.5 . Use $c = 3.00 \times 10^8$ m/s. The speed of light in the material, in units of 10^8 m/s, is**

ANSWER

Understand It with Pulse | Flag a mistake

24 **The graph shows measured image heights for a converging lens at different object distances. The image height for an object distance of 20 cm, in centimetres, is**



ANSWER

Understand It with Pulse | Flag a mistake

25 **In the eye, light is focused onto the retina mainly by the**



A Cornea and lens

B Iris only

C Pupil only

D Optic nerve

Understand It with Pulse | Flag a mistake

ANSWER KEY

1. A
2. 2.25
3. B
4. 20
5. C
6. D
7. A
8. B
9. 45
10. C
11. D
12. 3
13. A
14. B
15. C
16. D
17. 1.24
18. A
19. 0.5
20. 35
21. B
22. C
23. 2
24. 6
25. A

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