

Sri Lankan Junior Science Olympiad

1. A car travels 9 km southwards, followed by 5 km northwards. What is the magnitude of its distance and displacement?

- A. Distance: 4 km Displacement: 4 km
- B. Distance: 14 km Displacement: 14 km
- C. Distance: 14 km Displacement: 4 km
- D. Distance: 4 km Displacement: 14 km

2. An object is falling under gravity with terminal velocity. What is happening to its speed?

- A. It is decreasing to a lower value.
- B. It is decreasing to zero.
- C. It is increasing.
- D. It is staying constant.

4. What must change when a body is accelerating?

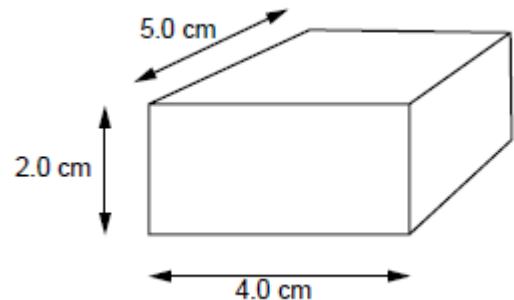
- A. the force acting on the body
- B. the velocity of the body
- C. the speed of the body
- D. the mass of the body

5. A student does an experiment to estimate the density of an irregularly-shaped stone. Which items of equipment are needed?

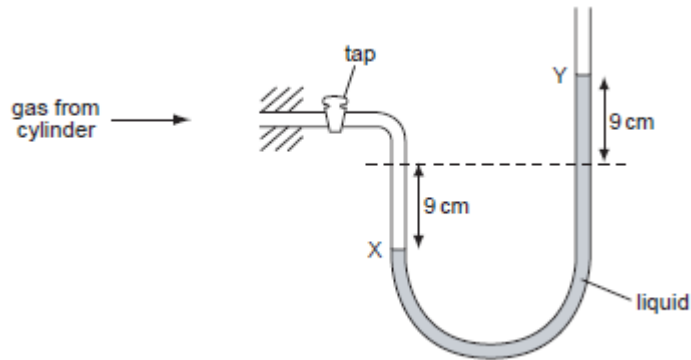
- A. only a measuring cylinder containing water
- B. a ruler and a measuring cylinder containing water
- C. a balance and a ruler
- D. a balance and a measuring cylinder containing water

6. The diagram shows a material with dimensions 5 cm \times 4 cm \times 2 cm. It has a mass of 100g. What is the density of the material?

- A. 2.5 g/cm³
- B. 5.0 g/cm³
- C. 0.40 g/cm³
- D. 10 g/cm³

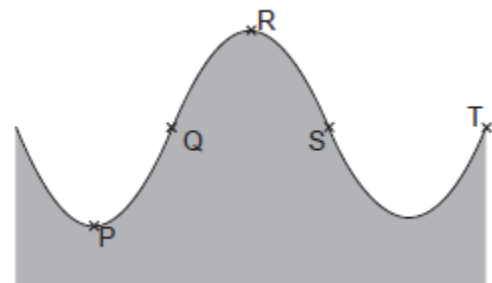


7. The diagram shows the levels X and Y in a liquid manometer when the gas tap is opened.



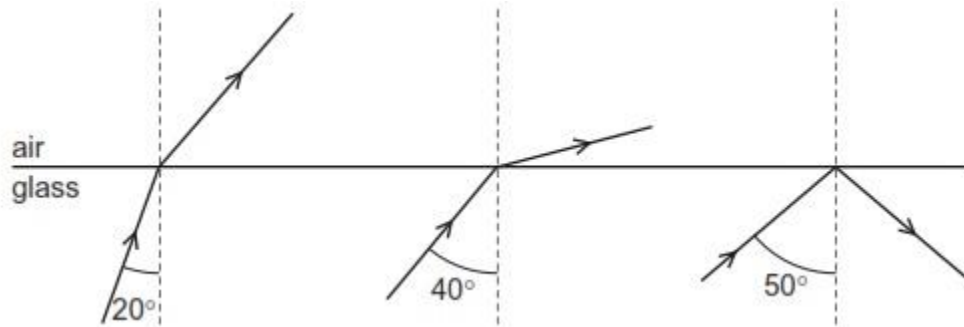
What is the pressure of the gas in the cylinder?

- A. 18 cm of liquid below atmospheric pressure
 - B. 9 cm of liquid below atmospheric pressure
 - C. 18 cm of liquid above atmospheric pressure
 - D. 9 cm of liquid above atmospheric pressure
8. When substance A and B are both heated with the same heater, the temperature of A rises faster than that of B. What can we conclude about A and B?
- A. A has a lower heat capacity than B.
 - B. A has a higher specific heat capacity than B.
 - C. A has a lower specific heat capacity than B.
 - D. A has a higher heat capacity than B.
9. Which of the following does not produce a sound wave?
- A. a gun fired in a room with no echoes
 - B. an explosion in outer space
 - C. a bell ringing under water
 - D. a hammer hitting a block of rubber
10. The diagram shows waves travelling on the sea. Which points are one wavelength apart?



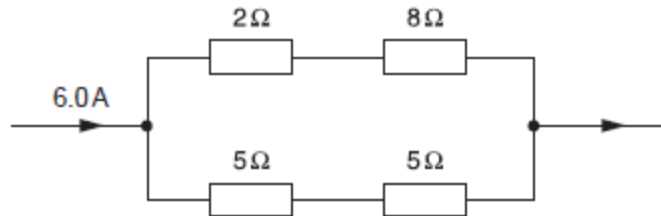
- A. Q and S
- B. Q and T
- C. S and T
- D. P and R

11. Three rays of light are incident on the boundary between a glass block and air. The angles of incidence are different.



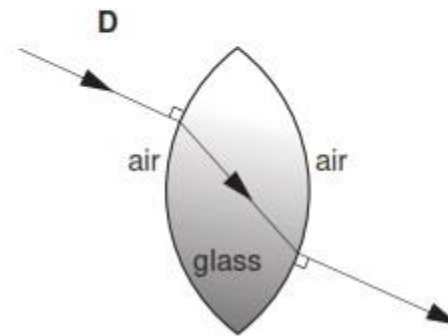
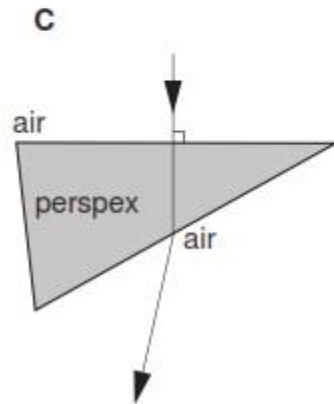
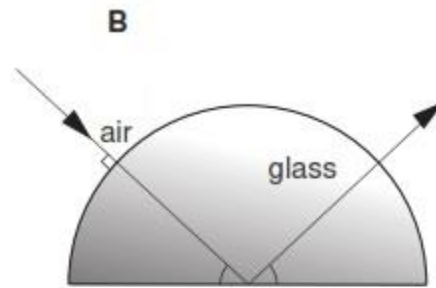
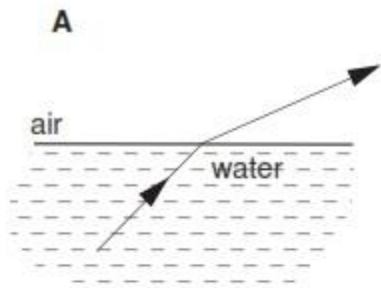
What is a possible critical angle for light in the glass?

- A. 15°
 - B. 60°
 - C. 30°
 - D. 45°
- 12 A student stands 50 m from a wall and knocks two wooden blocks together. When the frequency of knocking is 3 knocks per second, the echo of a knock is heard at the instant of the next one. What is the speed of sound in air?
- A. 200 m/s
 - B. 150 m/s
 - C. 300 m/s
 - D. 350 m/s
13. The diagram shows part of an electric circuit.



What is the current in the $2\ \Omega$ resistor?

- A. 6.0 A
 - B. 1.2 A
 - C. 0.6 A
 - D. 3.0 A
- 14 . In which of the diagrams is the path of light ray not correct?



(A) C

(B) B

(C) D

(D) A

15. A body is moving in a straight line under the action of a constant force. What change will occur to the body?

- (A) Change in inertia
- (B) Change in acceleration
- (C) Change in kinetic energy
- (D) Change in mass