

Question 1

A skier is standing still on a flat area of snow.



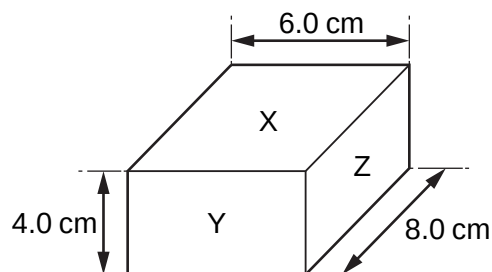
The weight of the skier is 550 N. The total area of his skis in contact with the ground is 0.015 m^2 .

What is the pressure exerted on the ground by the skier?

- A** 0.83 N/m^2 **B** 8.3 N/m^2 **C** 3700 N/m^2 **D** 37000 N/m^2

Question 2

The diagram shows a box of dimensions $6.0 \text{ cm} \times 8.0 \text{ cm} \times 4.0 \text{ cm}$.



The box rests on a flat horizontal surface.

On which face must the box rest in order to exert the least pressure?

- A** face X
B face Y
C face Z
D The pressure is the same for all the faces.

Question 3

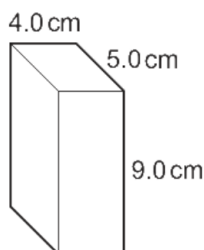
An object is at rest on a horizontal surface.

Which equation is used to calculate the pressure that the object exerts?

- A** $\frac{\text{mass of the object}}{\text{area of contact}}$
- B** $\frac{\text{weight of the object}}{\text{area of contact}}$
- C** mass of the object $\times$ area of contact
- D** weight of the object $\times$ area of contact

Question 4

The diagram shows a rectangular block of weight 16 N. It is resting on a flat surface.

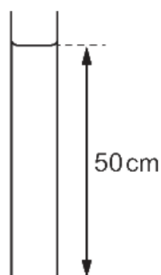


What is the pressure at the base of the block due to its weight?

- A** 0.089 N/cm^2
- B** 0.36 N/cm^2
- C** 0.80 N/cm^2
- D** 320 N/cm^2

Question 5

The diagram shows a column of liquid. The pressure, due to the liquid, at the bottom of the liquid is 6000 N/m^2 .

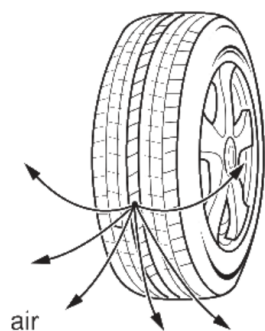


What is the density of the liquid?

- A 310 kg/m^3
- B 1200 kg/m^3
- C 29000 kg/m^3
- D 120000 kg/m^3

Question 6

A car tyre runs over a nail that makes a hole in it. The air in the tyre leaks out.

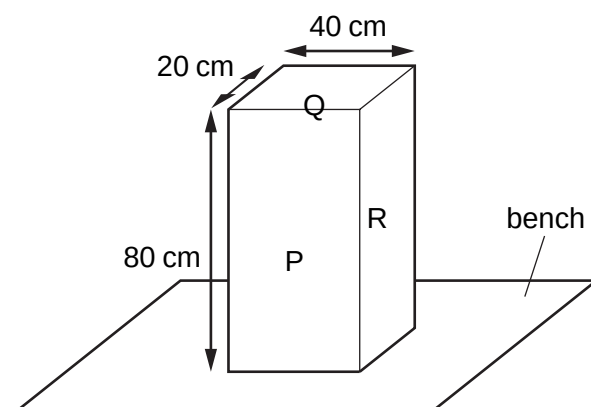


Why does the air leave the tyre?

- A The pressure inside the tyre is greater than the pressure outside.
- B The pressure inside the tyre is less than the pressure outside.
- C The temperature inside the tyre is greater than the temperature outside.
- D The temperature inside the tyre is less than the temperature outside

Question 7

The diagram shows a solid block resting on a bench. The dimensions of the block are shown.



On which labelled surface should the block rest to produce the smallest pressure on the bench?

- A P
- B Q
- C R
- D P, Q and R produce the same pressure

Question 8

The pressure due to the liquid on an object immersed in that liquid is 4500 Pa.

The density of the liquid is 900 kg / m^3 .

What is the depth of the object below the surface of the liquid?

- A 0.5 cm
- B 2.0 cm
- C 50 cm
- D 200 cm

Question 9

An object is 60 cm below the surface of a liquid. The pressure due to the liquid at this depth is 9000 Pa.

What is the density of the liquid?

- A 15 kg/m^3
- B 540 kg/m^3
- C 1500 kg/m^3
- D 54000 kg/m^3

Question 10

A pipe full of water connects a water supply on a hill to a tap lower down the hill.

The length of the pipe is 500 m. The height of the supply above the tap is 100 m.

The density of the water is 1000 kg/m^3 . The effect of atmospheric pressure is negligible.

What is the water pressure at the tap?

- A** 100 000 Pa
- B** 500 000 Pa
- C** 1 000 000 Pa
- D** 5 000 000 Pa

Question 11

A book has a mass of 400 g.

The surface of the book in contact with a table has dimensions $0.10 \text{ m} \times 0.20 \text{ m}$.

The gravitational field strength g is 10 N/kg .

What is the pressure exerted on the table due to the book?

- A** 0.08 N/m^2 **B** 8.0 N/m^2 **C** 20 N/m^2 **D** 200 N/m^2