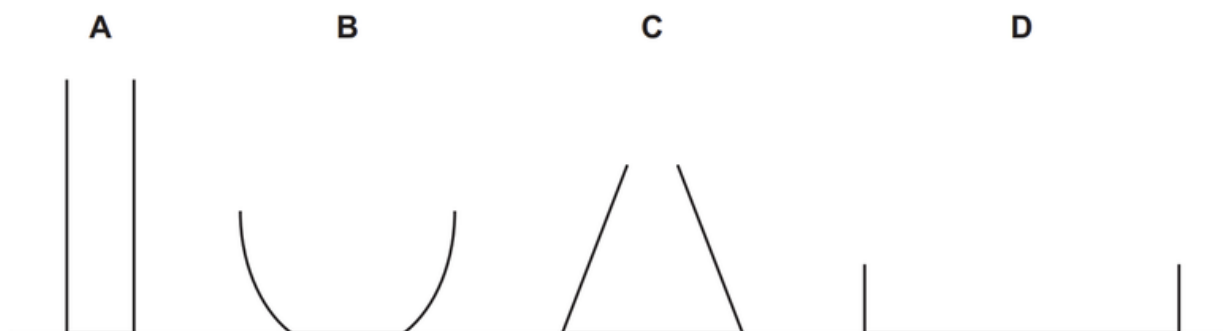


Question 1

11 Four containers are filled to the top with the same liquid. The base of each container is circular.

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Which container has the greatest pressure exerted by the liquid at its base?



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Question 2

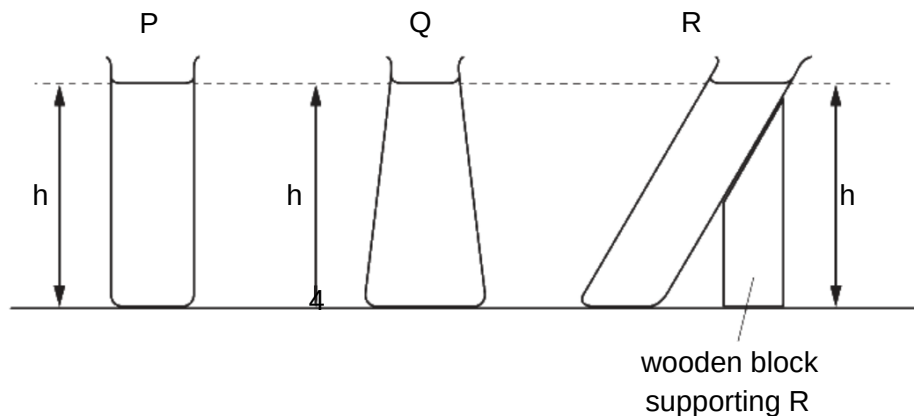
Which equation can be used to calculate the pressure at a depth h beneath the surface of a liquid?

- A** $p = \frac{h}{\rho g}$
 B $p = \frac{h\rho}{g}$
 C $p = h\rho g$
 D $p = \frac{1}{h\rho g}$

Question 3

The diagram shows three glass containers.

All three contain water filled to the same vertical height h .



The base area of P is equal to the base area of R.

The base area of Q is larger than the other two.

Students are asked to compare the water pressure at the bottom of each container.

Student 1 says that the pressure at base R is more than the pressure at base P.

Student 2 says that the pressure at base Q is less than the pressure at base P.

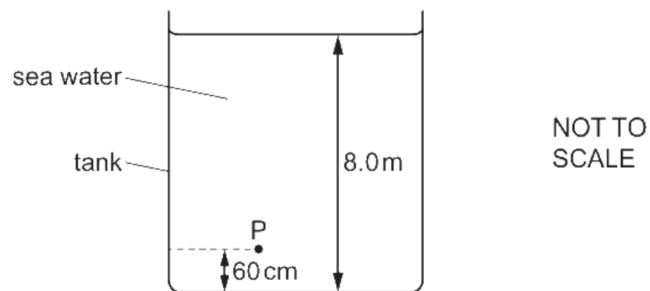
Student 3 says that the pressures at all three bases are the same.

Which students are correct?

- A** none are correct
- B** 1 only
- C** 2 only
- D** 3 only

Question 4

The diagram shows a tank containing sea water.



The density of the sea water is 1020 kg/m^3 .

What is the pressure at point P relative to atmospheric pressure?

- A 7400 Pa above atmospheric pressure
- B 7500 Pa above atmospheric pressure
- C 75000 Pa above atmospheric pressure
- D 82000 Pa above atmospheric pressure

Question 5

A measuring cylinder of cross-sectional area 4.0 cm^2 contains 224 cm^3 of liquid.

The pressure of the liquid at the base of the measuring cylinder due to the liquid is 8800 Pa.

What is the density of the liquid?

- A 224 kg/m^3
- B 385 kg/m^3
- C 1600 kg/m^3
- D 2200 kg/m^3

Question 6

An object is a depth h below the surface of a liquid. The pressure due to the liquid at this depth is p . The gravitational field strength is g .

What is the density ρ of the liquid?

- A $\rho = pgh$
- B $\rho = \frac{pg}{h}$
- C $\rho = \frac{ph}{g}$
- D $\rho = \frac{p}{hg}$

Question 7

An object is immersed in a liquid of density ρ . The pressure at this depth due to the liquid is p . The gravitational field strength is g .

What is the equation for the depth h of the object beneath the surface?

- A** $h = p\rho g$ **B** $h = \frac{\rho g}{p}$ **C** $h = \frac{p}{\rho g}$ **D** $h = \frac{\rho g}{\rho}$

Question 8

An elephant of weight 45 000 N stands with all four feet on the floor.

The average pressure on the floor due to the elephant foot in contact with it is 34 000 Pa.

What is the area of each foot of the elephant?

- A** 0.19 m² **B** 0.33 m² **C** 0.76 m² **D** 1.3 m²

Question 9

Some altimeters use the change in air pressure to measure height.

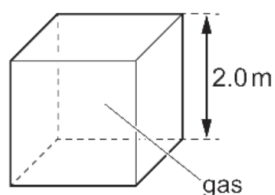
If the pressure is 100 kPa at sea level on a particular day, what will the pressure be at the top of an 830 m hill?

(Take the density of air to be constant at 1.3 kg/m³.)

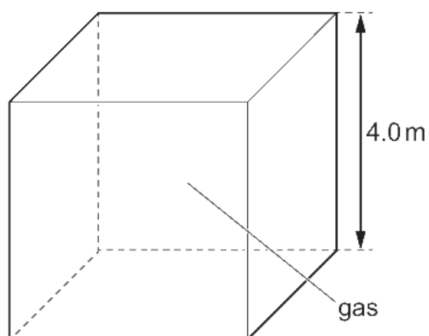
- A** 1.1 kPa **B** 11 kPa **C** 89 kPa **D** 110 kPa

Question 10

A cube has sides 2.0 m long. The cube contains a gas at a pressure of 8000 N/m^2 .



A second cube has sides 4.0 m long. This cube contains the same mass of the same gas as the first cube, at the same temperature.



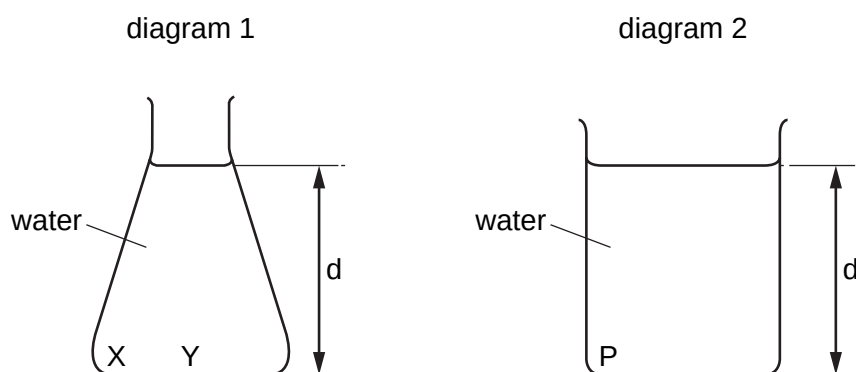
What is the pressure of the gas in the second cube?

- A** 1000 N/m^2 **B** 4000 N/m^2 **C** 16000 N/m^2 **D** 64000 N/m^2

Question 11

Diagram 1 shows a conical flask containing water.

Diagram 2 shows a beaker with the same base area as the flask and containing water of the same depth d .



Which statement is correct?

- A** The pressure at P is equal to the pressure at X.
- B** The pressure at P is greater than the pressure at Y.
- C** The pressure at P is greater than the pressure at X.
- D** The pressure at Y is greater than the pressure at X.