



MIRACLE Learning Centre



Pressure WS1

Name: _____

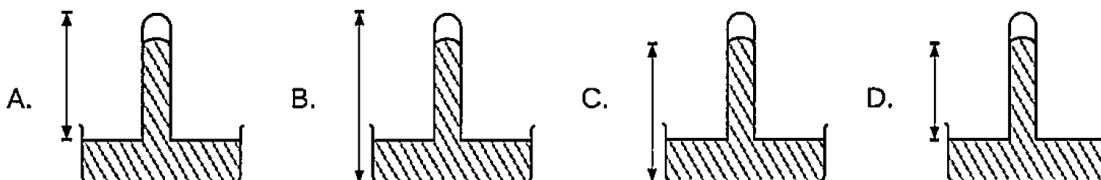
Class (Day and Time) : _____

Pressure WS1

Section A

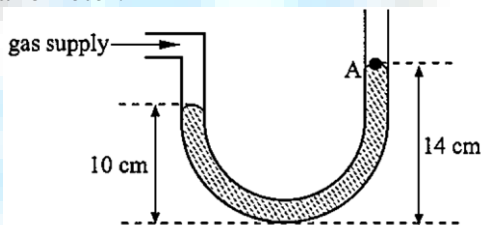
For each question, four options are given. Choose the most suitable option.

1. Which of the following simple mercury barometers correctly measures the atmospheric pressure?



2. Which of the following changes will not affect the height of mercury barometer?
- A. A change in atmospheric pressure.
 - B. A change in gravitational force.
 - C. A change in temperature of mercury.
 - D. A change in physical state of mercury when it evaporates from barometer reservoir.
3. A tourist of mass 60 kg stands on snow wearing snow-shoes. The total area of the shoes in contact with the snow is 0.6 m². What is the pressure exerted on the snow by the tourist when the gravitational force is 10N/kg?
- A. 36 Pa
 - B. 100 Pa
 - C. 600 Pa
 - D. 1000 Pa

4. The diagram below shows a manometer.



What is the pressure of water supply shown in the diagram?

- A. 10 cm of mercury from A
 - B. 4 cm of mercury from A
 - C. 14 cm of mercury from A
 - D. 24 cm of mercury from A
5. A rectangular object has the following dimensions:
- | | | | |
|---------------|--------------|---------------|----------------|
| Length: 3.0 m | Width: 1.2 m | Height: 0.6 m | Weight: 2500 N |
|---------------|--------------|---------------|----------------|
- Which of the following pressures is not possible to be exerted by the base of the object when it is placed on the surface of water in Pa?
- A. 694
 - B. 1157
 - C. 1389

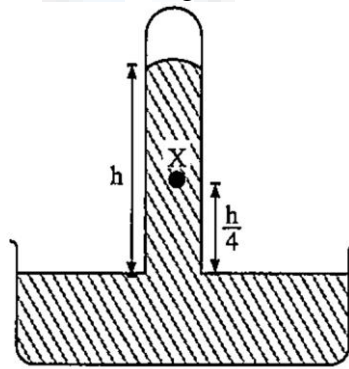
D. 3472

6. Which of the following examples demonstrates the greatest pressure exerted when the same amount of force is applied?
- A. A carpet on the floor
 - B. A nail hammering into a wall
 - C. A book resting on a table
 - D. A plate on a table

7. Which of the liquid columns exerts the greatest pressure on the base of its container?

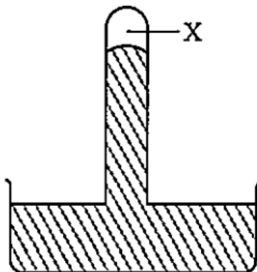
	A	B	C	D
Type of liquid	Water	Mercury	Paraffin	Oil
Height of liquid column (cm)	30	20	40	50
Density (g/cm^3)	1.0	13.6	0.8	0.92

8. The diagram below shows a barometer with a height h at atmospheric pressure.



If h has a pressure of 1×10^5 Pa, what is the pressure at X in Pa?

- A. 0
 - B. 25000
 - C. 75000
 - D. 100000
9. What will be the change to the length X , when the mercury barometer is brought to the top of a mountain, where the atmospheric pressure is less than that of the sea level?



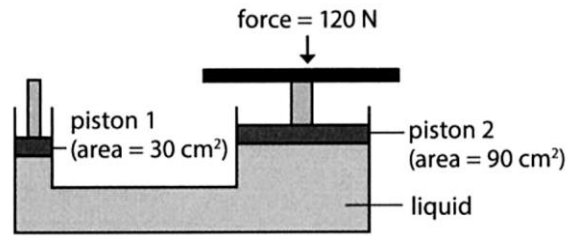
- A. Decrease
 - B. Increase
 - C. Decrease then increase
 - D. Remain the same
10. On which principle are hydraulic brakes based on?
- A. Pressure is different at the same level in a fluid.
 - B. Pressure is transmitted equally to all directions in a liquid.

- C. The pressure increases when it is transmitted from one piston to another.
 D. The pressure reduces the weight of a load.

11. Which object exerts the greatest pressure on the floor?

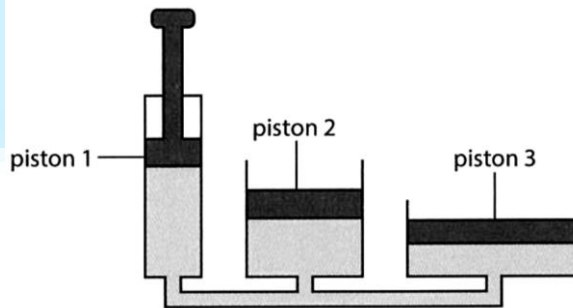
	Weight / N	Contact Area / cm ²
A.	30	1
B.	66	3.5
C.	500	20
D.	1000	440

12. 1 shark swims 20 m below the surface of the ocean. What is the total pressure acting on the shark at this depth? (Taking density of seawater = 1030 kg/m³, gravitational field strength = 10 N/kg and atmospheric pressure = 100 kPa.)
 A. -106 kPa
 B. 106 kPa
 C. 206 kPa
 D. 306 kPa
13. The system contains an incompressible liquid.



The area of piston 1 is 30 cm² and the area of piston 2 is 90 cm². If a force of 120 N is applied on piston 2, what is the upward force F on piston 1?

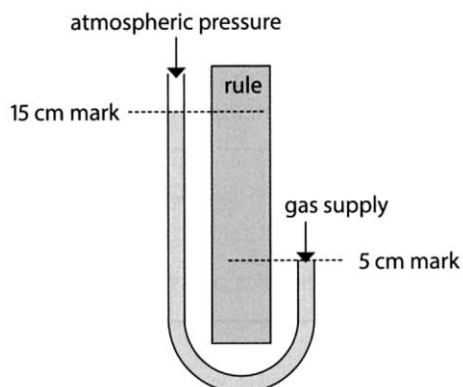
- A. 1.33 N
 B. 4 N
 C. 40 N
 D. 360 N
14. Figure shows a system containing an incompressible liquid.



The ratio of the area of piston 1 to the area of piston 2 is 1;2. The ratio of the area of piston 2 to the area of piston 3 is 1;15. If a 10 N force is applied on piston 1, what is the upward force on piston 3?

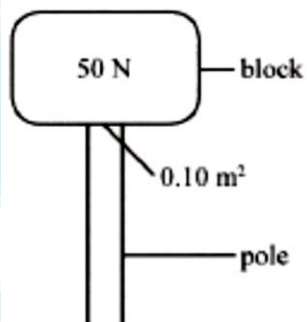
- A. 15 N
 B. 20 N
 C. 25 N
 D. 30 N

15. Figure shows a manometer connected to a gas supply.



What is the difference in the pressure of the gas supply and the atmospheric pressure?

- A. 5 mm water
 - B. 10 mm water
 - C. 15 mm water
 - D. 100 mm water
16. A block weighing 50 N is balanced on a pole in contact with a surface area of 0.10 m².



What is the pressure exerted on the pole?

- A. 5.0 Pa
 - B. 50 Pa
 - C. 500 Pa
 - D. 5000 Pa
17. Which of the following will increase the pressure of a system?
- A. Heating up a sealed gas tube
 - B. Increasing the surface area of contact of a weight and the floor
 - C. Releasing air from a filled balloon
 - D. Decreasing the force exerted when hammering a nail