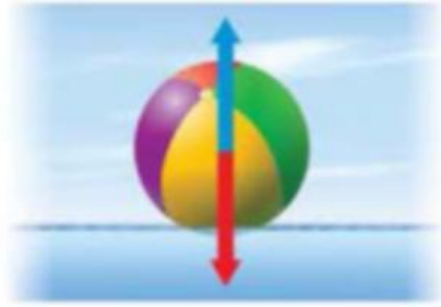


- 1 Which is NOT a fluid?
- A. helium
 - B. ice
 - C. milk
 - D. water
- 2 If you poured the following fluids into a container, which would float on top?
- A. maple syrup, with a density of 1.33 g/cm^3
 - B. olive oil, with a density of 0.9 g/m^3
 - C. seawater, with a density of 1.03 g/cm^3
 - D. water, with a density of 1.0 g/cm^3
- 3 What pressure does Adam apply to a ball of dough when he pushes on it with a 25-N force? The area of his hand is 0.01 m^2 .
- A. 0.0004 Pa
 - B. 0.5 Pa
 - C. 25 Pa
 - D. $2,500 \text{ Pa}$
- 4 Which of these has the greatest pressure applied to it from the surrounding fluid?
- A. a fish swimming 20 m below the surface
 - B. a hawk flying 300 m above sea level
 - C. a mountain climber at an altitude of 4,400 m
 - D. a person fishing off the coast of California

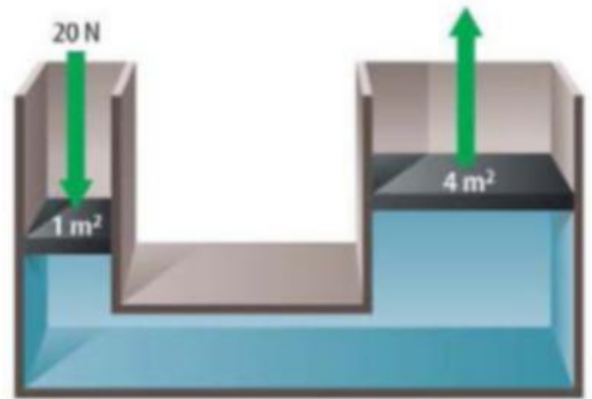
- 5 In the diagram of the beach ball floating on water below, what force does the blue arrow represent?



- A. pressure
 - B. weight
 - C. buoyant force
 - D. drag force
- 6 Joseph weighs 290 N and displaces 300 N of water as he swims under water in a pool. What is the buoyant force on Joseph?
- A. 10 N upward
 - B. 300 N upward
 - C. 290 N downward
 - D. 590 N downward

- 7 Which statement about boats is correct?
- A. A boat cannot be made from metal because metal has a greater density than water.
 - B. A boat floats if its overall density is less than that of water.
 - C. A boat floats only if its overall mass per volume is more than water's mass per volume.
 - D. A boat floats only if the weight of water it displaces is less than the boat's weight.

- 8 In the diagram below, how large a force is applied by the piston on the right?



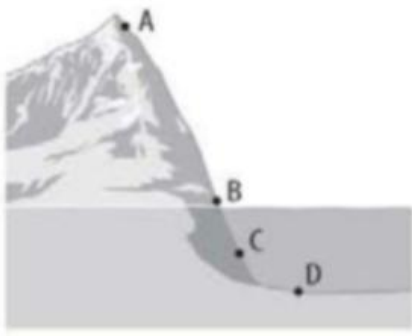
- A. 10 N
- B. 20 N
- C. 40 N
- D. 80 N

9 A leaf enters a drainpipe, and the pressure in the water increases from 10 Pa to 30 Pa. What happens to the leaf's speed?

- A. It decreases.
- B. It increases.
- C. It becomes exactly 30 m/s.
- D. It does not change.

1 The same force is applied over two areas that differ in size. Which is true of the pressure over these areas?

- A The pressure is equal to the force multiplied by the area.
- B The pressure on both areas is the same.
- C The pressure on the larger area is greater.
- D The pressure  is equal to the force divided by the area.



- 2 The figure shows a side view of a mountain that extends below the water's surface. At which point would the pressure be 100 kPa?

A A
B B
C C
D D

- 3 Which characteristics determine the density of a fluid?

A mass and energy of the particles
B mass of particles and distance between them
C number of particles and distance between them
D shape and energy of the particles

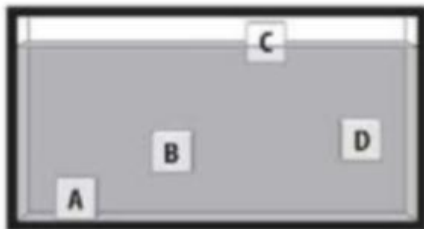
4 Which changes as a solid object moves downward within a fluid?

- A the buoyant force acting on the object
- B the mass of the object
- C the pressure acting on the object
- D the volume of the object

5 Which explains how the buoyant force on an object changes with the weight of the fluid it displaces?

- A Archimedes' principle
- B definition of density
- C definition of pressure
- D Pascal's principle

Use the figure to answer question 6.



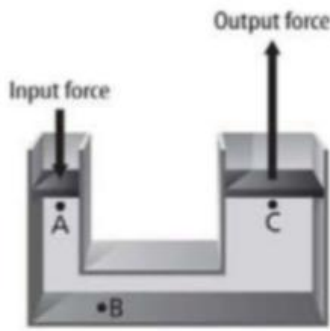
- 6 The figure shows an aquarium filled with water. Four cubes made out of different materials have been placed in the aquarium. For which object is the buoyant force acting on it equal to the object's weight?

A A
B B
C C
D D

- 7 Why are drag forces greater in water than they are in air?

A Air is denser than water.
B Air is a fluid, but water is not.
C Water is denser than air.
D Water is a fluid, but air is not.

Use the figure to answer questions 8 and 9.



8 When an input force is applied above point A, which is true of the change in fluid pressure at points A, B, and C?

- A The fluid pressure increases the most at point A.
- B The fluid pressure increases the most at point B.
- C The fluid pressure increases the most at point C.
- D The fluid pressure increases by the same amount at all three points.

9 Which describes how the input force affects the fluid pressure at different points in the hydraulic lift?

- A Bernoulli's principle
- B definition of buoyant force
- C equation for density
- D Pascal's principle