



1

The correct answer is **D** because:

- Pressure = force / area. It is the same person, so the force (weight) is the same in each situation, but the area is different.
- The situation with the smallest area will generate the greatest pressure.
- Standing on one foot is the situation with the smallest area.

A is incorrect as the area is not the smallest

B is incorrect as the area is the largest

C is incorrect as the area is not the smallest.

2

The correct answer is **B** because:

- Pressure = force / area.
- **B** is the only example where the area is being made as small as possible

A is incorrect as skis increase the contact area

C is incorrect as wider tyres increase the contact area

D is incorrect as lying down increases the contact area compared to standing on two feet.

3

The correct answer is **B** because:

- The base of the tank is the **area** needed to calculate the pressure the tank exerts on the table
 - The area of the base = $1.0 \times 0.5 = 0.5 \text{ m}^2$

The area referred to in the pressure equation is the **cross-sectional area**. This is an example of such area.

4

The correct answer is **A** because:

- Pressure in liquids is caused by two properties - the density and the depth of the liquid
 - Distilled water is less dense than a concentrated sugar solution since the sugar solution contains sugar molecules as well as water
 - Therefore for a given depth, there will be less pressure when distilled water is used
 - This eliminates both **C** and **D**
- Pressure increases with depth
 - Therefore the shallowest option from **A** and **B** is the correct answer
- This is option **A**

5

The correct answer is **C** because:

- The equation to calculate the pressure in a liquid is:
 - $P = \rho g h = 1000 \times 9.8 \times 0.6 = 5880 \text{ Pa}$
 - This answer rounds most closely to 6000 Pa