

Short Answer Questions

Q. 1. The figure above shows a man with a parachute. Name the force which is responsible for his downward motion. Will he come down with the same speed without the parachute? [NCERT Exemplar]



Ans. Force of gravity. No, without the parachute his speed will be higher.

Q. 2. Two persons are applying forces on two opposite sides of a moving cart. The cart still moves with the same speed in the same direction. What do you infer about the magnitudes and direction of the forces applied? [NCERT Exemplar]

Ans. Both the forces are of equal magnitudes and applied in the opposite directions.

Q. 3. A force of 200 N is applied to an object of area 4 m². Calculate the pressure.

Ans.

$$\text{Force} = 200 \text{ N}$$

$$\text{Area} = 4 \text{ m}^2$$

so,
$$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$$
$$= \frac{200}{4}$$
$$= 50 \text{ N/m}^2$$

Q. 4. Two thermocol balls held close to each other move away from each other. When they are released, name the force which might be responsible for this phenomenon. Explain. [NCERT Exemplar]

Ans. Electrostatic force. The balls have similar charges. They move away due to repulsion between similar charges.

Q. 5. Figure shows a car sticking to an electromagnet. Name the forces acting on the car. Which one of them is larger? [NCERT Exemplar]

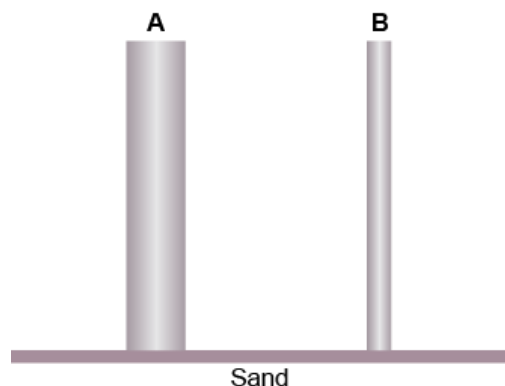


Ans. Magnetic force (in the upward direction) and force of gravity or the weight of the car (downward). Magnetic force is larger than the force of gravity.

Q. 6. It is difficult to cut cloth using a pair of scissors with blunt blades. Explain. [NCERT Exemplar]

Ans. Blunt blades have larger area compared to the sharp-edged blades. Thus, the applied force produces a lower pressure in case of blunt blades, which makes it difficult to cut the cloth.

Q. 7. Two rods of the same weight and equal length have different thickness. They are held vertically on the surface of sand as shown in figure. Which one of them will sink more? Why? [NCERT Exemplar]

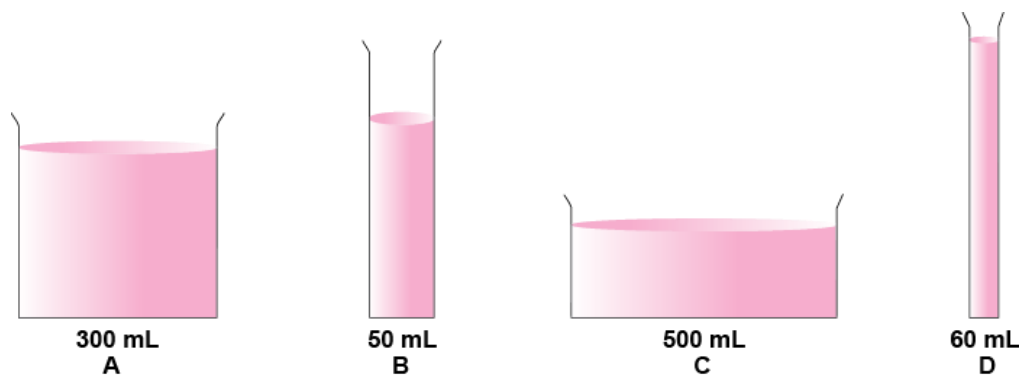


Ans. Rod B will go deeper as it has a smaller area of contact, therefore the same force (weight of the rod) produces more pressure. In case of rod A the same force produces less pressure.

Q. 8. It is much easier to burst an inflated balloon with a needle than by a finger. Explain. [NCERT Exemplar]

Ans. When we prick the surface of an inflated balloon with a needle it exerts a larger pressure because it has a smaller area of contact compared to the finger. The large pressure pieces the surface of the balloon easily.

Q. 9. Observe the vessels A, B, C and D shown in the figure below carefully.



Volume of water taken in each vessel is as shown. Arrange them in the order of decreasing pressure at the base of each vessel. Explain. [NCERT Exemplar]

Ans. D, B, A, C, because pressure of a liquid column depends upon the height of the liquid column and not on volume of the liquid.