

Very Short Answer Questions

Q. 1. A ball of dough is rolled into a flat chapati. Name the force exerted to change the shape of the dough. [NCERT Exemplar]

Ans. Muscular force

Q. 2. Where do we apply a force while walking? [NCERT Exemplar]

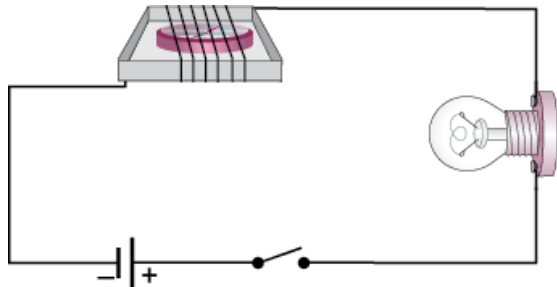
Ans. While walking we apply force on the ground.

Q. 3. A girl is pushing a box towards east direction. In which direction should her friend push the box so that it moves faster in the same direction? [NCERT Exemplar]

Ans. Towards east.

Q. 4. In the circuit shown above, when the key is closed, the compass needle placed in the matchbox deflects. Name the force which causes this deflection. [NCERT Exemplar]

Ans.



Ans. Magnetic force

Q. 5. During dry weather, clothes made of synthetic fibre often stick to the skin. Which type of force is responsible for this phenomenon? [NCERT Exemplar]

Ans. Electrostatic force

Q. 6. While sieving grains, small pieces fall down. Which force pulls them down? [NCERT Exemplar]

Ans. Force of gravity

Q. 7. Does force of gravity act on dust particles? [NCERT Exemplar]

Ans. Yes

Q. 8. A gas filled balloon moves up. Is the upward force acting on it larger or smaller than the force of gravity? [NCERT Exemplar]

Ans. Upward force is larger than the force of gravity.

Q. 9. Does the force of gravitation exist between two astronauts in space? [NCERT Exemplar]

Ans. Yes

Q. 10. A chapati maker is a machine which converts balls of dough into chapatis. What effect of force comes into play in this process? [NCERT Exemplar]

Ans. The force changes the shape of the dough.

Q. 11. Fruits detached from a tree fall down due to force of gravity. We know that a force arises due to interaction between two objects. Name the objects interacting in this case. [NCERT Exemplar]

Ans. Earth and fruits.

Q. 12. A man is pushing a cart down a slope. Suddenly the cart starts moving faster and he wants to slow it down. What should he do? [NCERT Exemplar]

Ans. He should apply a force to pull the cart up the slope.

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,

$$\begin{aligned}\text{Pressure} &= \frac{\text{Force}}{\text{Area}} \\ &= \frac{200}{4} \\ &= 50 \text{ N/m}^2\end{aligned}$$

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]

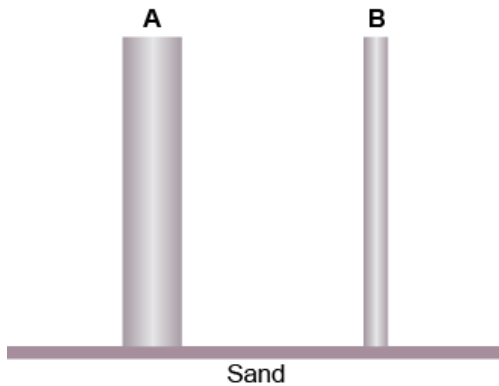


Ans. Magnetic force (in the upward direction) and force of gravity or the weight of the car (downward). Magnetic force is larger than the force of gravity.

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]

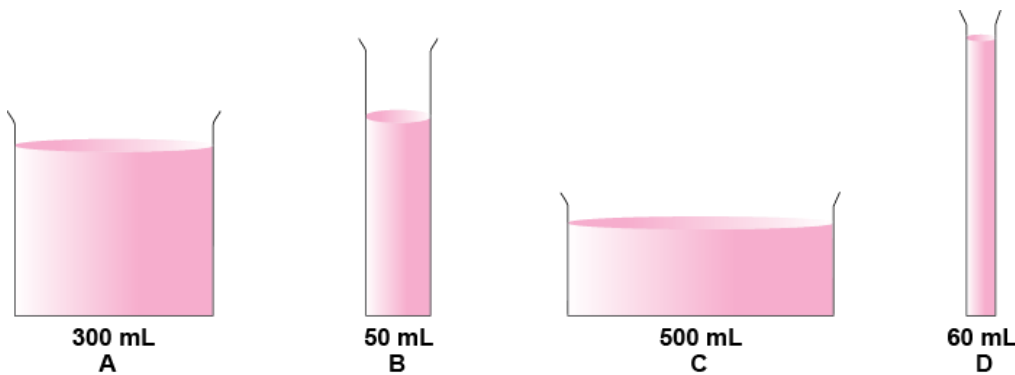


Ans. Rod B will go deeper as it has a smaller area of contact, therefore the same force (weight of the rod) produces more pressure. In case of rod A the same force produces less pressure.

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.

Long Answer Questions

Q. 1. An archer shoots an arrow in the air horizontally. However, after moving some distance, the arrow falls to the ground. Name the initial force that sets the arrow in motion. Explain why the arrow ultimately falls down. [NCERT Exemplar]

Ans. The archer stretches the string of the bow by applying muscular force. In the process the shape of the bow changes. When the string is released, it regains its original position that provides the initial force to set the arrow in motion. The force of gravity that acts on the arrow in the downward direction brings it to the ground.

Q. 2. Two women are of the same weight. One wears sandals with pointed heels while the other wears sandals with flat soles. Which one would feel more comfortable while walking on a sandy beach? Give reasons for your answer. [NCERT Exemplar]

Ans. The woman wearing sandals with flat soles will feel more comfortable while walking on the sandy beach. The flat soles have larger area compared to the sandals with pointed heels. Since the two women are of the same weight, they will apply same force on the ground. Therefore, the pressure exerted by the pointed heels will be more compared to that with sandals having flat soles. As a result the pointed heel sandals will sink more in the sand than the flat sole sandals. Hence, walking with flat sole sandals will be more comfortable.

Hots (Higher Order Thinking Skills)

Q. 1. Why do you need to breathe faster at the top of a tall mountain?

Ans. Because at higher altitudes, the molecules of oxygen decreases, therefore we need to breathe faster to bring the few oxygen molecules into the lungs to make up for the deficit.

Q. 2. Why does the high atmospheric pressure at sea level not squash us?

Ans. The atmospheric pressure acting on our body from outside is balanced by the blood pressure acting from inside. That is why, we do not get squashed at sea level.

Q. 3. When is the pressure on the ground more—when a man is lying or when a man is standing? Explain.

Ans. The pressure on the ground is more when a man is standing as the area of contact is smaller therefore pressure is larger.