Brainbox learn easy

Chapter 11

FORCE AND PRESSURE

Pressure:

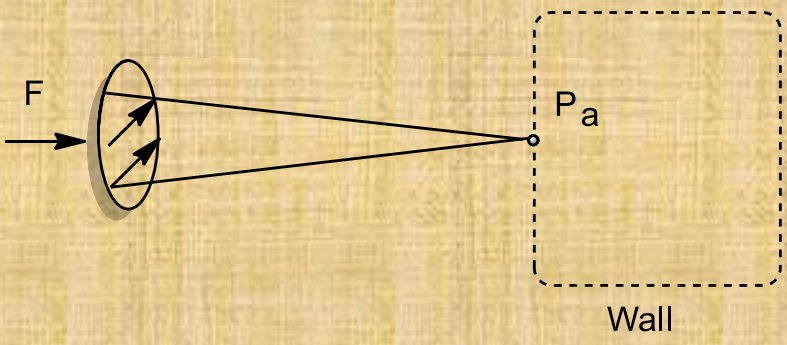
Force acting on unit area is called Pressure.

$$\text{Pressure} = \frac{\text{Force}}{\text{Area}}$$

$$\text{Units} = \frac{\text{Newton}}{m^2} \left(N/m^2 \right)$$

Note: N/m^2 also called as Pascal (Pa)

1. In both cases force applied is same pressure acting is different because area contact with wall is different.



1.

2.

Case 1:

$$P_1 = \frac{F}{(Area)_1}$$

Case 2:

$$P_2 = \frac{F}{(Area)_2}$$

We know that $(Area)_1 < (Area)_2$

$$\therefore P_1 > P_2$$

Due to high pressure needle will go into the wall as compare with rod.

(as shown case 2)

2. Camel can walk easily over a sand because of its wide feet but human cannot walk easily because of less surface area of feet.

i.e., Pressure due to human feet is more than feet will move into the sand,so it is not easy to walk on sand.

3. Tools that are used for cutting for vegetables always have sharp edges. Because for given force pressure will be more so that they can easily penetrate into the vegetable.

4. Vehicles with wider tyres can easily move on muddy fields than thin tyres because wider tyres means more

area of contact so pressure will be less. So, they will not penetrate into the field.

5. Shoulder bags with broad straps minimize the pressure on the shoulders because of its larger area rare than thin straps.