

CLASS 8

SUBJECT PHYSICS

TOPIC FORCE AND PRESSURE

WORKSHEET

1. Why does our nose bleed when we go to the mountains?

Atmospheric pressure in the mountains is lower than the pressure in our blood vessels so our nose bleeds .

2. Why does our school bag have a wide straps ?

Pressure decreases if the area is large hence a wider strap of

the school bag reduces the pressure on the shoulder.

3. How does a siphon work?

- When air is sucked out of the limb , that is inserted in the empty vessel, then there is a decrease in in pressure inside the tube.
- The atmospheric pressure pushes in water into the other limb of the tube.
- The two vessels are kept at different heights hence water from the

filled tank empties into the other tank .

- This process is known as siphoning.

4. Complete (A)short answer type questions.

1. It is difficult to open the door if the force is applied closer to the hinges of the door because the Torque acting on the door is less.

$$\text{Torque} = \text{force} \times \text{moment Arm.}$$

The length of the moment arm is small

when the force is applied closer to hinges.

2. When force is applied tangentially to the wheel the turning effect on the wheel is maximum because the perpendicular distance from the axis of rotation is Maximum

3. Mass of cubical block $m = 50\text{kg}$

Area of the cubical block

$$= L \times L = 0.05 \times 0.05$$

$$= 0.0025 \text{ m}^2$$

$$\text{Pressure} = \frac{mg}{\text{area}}$$

$$= 20000 \text{ Pa}$$

4. Piston A has less area hence pressure exerted is more than in piston B.

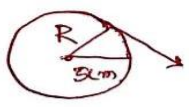
5. Pressure is defined as thrust by area hence weight is distributed if the area is large.

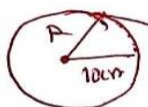
6. The force exerted by the earth's atmosphere for unit area of the earth's surface is called atmospheric pressure.

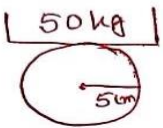
7. In rotatory motion there is no change of location of the body while in a translatory motion there is change in position of the body.

Torque causes rotatory motion while a force causes translatory motion.

Long answer type

4. (a)  $F = 10\text{N}$ Torque = $F \times R$
 $= 10 \times \frac{5}{100} \text{ N-m}$
 $= 0.5 \text{ N-m}.$

(b)  \rightarrow Maximum Torque.

a)  $x = \frac{5}{100} \text{ m} = 0.05 \text{ m}.$

(i) Pressure = $\frac{50}{\pi \text{ m}^2} = \frac{50}{\pi \times (0.05)^2} = \frac{50}{\pi \times 0.05 \times 0.05}$
 $= \frac{250 \times 100 \times 100}{\pi \times 5 \times 5}$
 $= \frac{20,000}{\pi} \text{ Pa}.$

(ii) Pressure = $\frac{50}{\pi \times (0.1)^2} = \frac{5000}{\pi} \text{ Pa}$

(iii) Pressure = $\frac{50}{\pi \times (0.15)^2} = \frac{50 \times 100 \times 100}{\pi \times 15 \times 15} = \frac{2222}{\pi} \text{ Pa}.$

(iii) < (ii) < (i) [Pressure].

5. Complete C, D, F, G, H, I

C pick the correct one

1. c both of these
2. c maximum turning effect
3. b perpendicular to the surface
4. c both of these
5. d. Both
6. d

D fill in the blanks

1. Translational motion
2. Force , moment arm
3. More
4. Distribute , decrease
5. Increase
6. Atmosphere
7. Tangentially

8. Perpendicular
9. Broader
10. Distributed, large

F : Mark the statement as true or false.

1. False
2. False
3. True
4. True
5. True

G : choose the odd one out
giving reason

1. Moving car has translatory motion.
2. Bicycle pedal doesn't work on the difference in atmospheric pressure.
3. Force is a separate physical quantity
4. Siphon does not show rotatory movement.

H : Match the following

4. Steering wheel-
force is applied
tangentially
5. Siphon – inverted
U- tube
6. Rotatory motion -
without complete
displacement of a
body
7. Translatory motion
- motion along a
straight line

8. Torque - turning effect of force.

I : give one word for the following

1. Atmospheric pressure
2. Torque
3. Rotational axis
4. Atmosphere
5. Translatory motion