



**Class : 10**

**Date: 29.04.20**

**Sub : Physics**

**Work sheet : 2**

**Topic : - Moment of Force**

**Ch. : - Moment of Force (part – 2)**

**Problem:**

On a see- saw two children of masses 30 kg and 50 kg are sitting on one side of it at distances 2m and 2.5m respectively from its middle.where should a man of mass 4 kg sit to balance it?

**Solution:**

Let two children be sitting on the left arm.They will produce anticlockwise moment due to their weights about the middle point of sea-saw.

**Total anticlockwise moment**

$$= 30\text{kgf} \times 2\text{m} + 50\text{kgf} \times 2.5\text{m}$$

$$= 60\text{kgf} \times \text{m} + 125\text{kgf} \times \text{m}$$

$$= 185\text{kgf} \times \text{m}$$

Let the distance from the middle be  $x$  m.

By principle of moments.

Anticlockwise moment = clockwise moment.

$$185 = 74x \text{ or } X = 185/74\text{m} = 2.5\text{m (on other side).}$$

### Exercise:

1. A screaming wheel of diameter 0.5 metre is rotate anticlockwise by applying two forces each of magnitude 5N. Draw the diagram to show the application of force and calculate the moment of couple applied.
2. A uniform meter rule is pivoted at its midpoint a weight of 50 gf is suspended at one end of it. Where should a weight of 150 gf be suspended to keep the rule horizontal?
3. When a boy weighing 20 kgf sits at one end of a 4 m long see -saw it gets depressed at this end. How can it be brought to the horizontal position by a man weighing 40 kgf.
4. A physical balance has its arms of length 60 cm and 40 cm. What weight kept on pan of longer arm will balance an object of weight 100 gf kept on other pan?
5. A uniform meter rule can be balanced at the 70 cm mark when a man 0.05 kg is hung from the 94 cm mark.
  - a. Draw a diagram of the arrangement.
  - b. Find the mass of the metre rule.
6. **Complete the sentences:**
  - a. The moon revolving around the earth is in \_\_\_\_\_equilibrium.
  - b. The CGS unit of moment of force is \_\_\_\_\_
7. State two conditions for a body acted upon by several forces to Be in equilibrium.

The work should be done on a clean sheet of paper and arranged date wise and must be submitted in a file when the school reopens.

