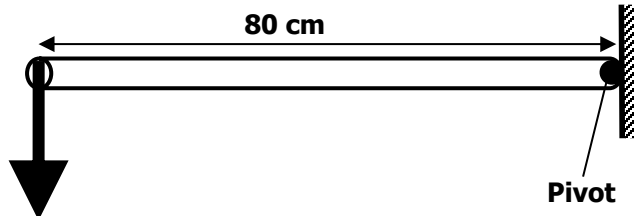
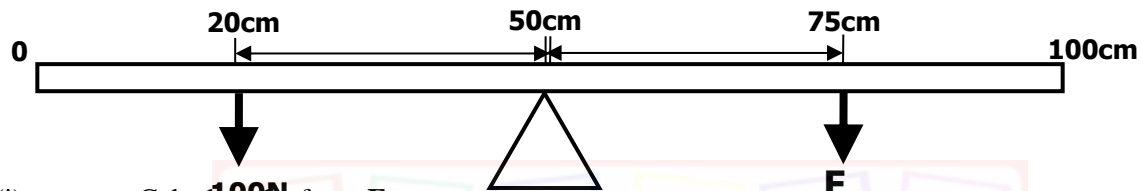


FORM 2 PHYSICS
APRIL HOLIDAY ASSIGNMENT - 2024

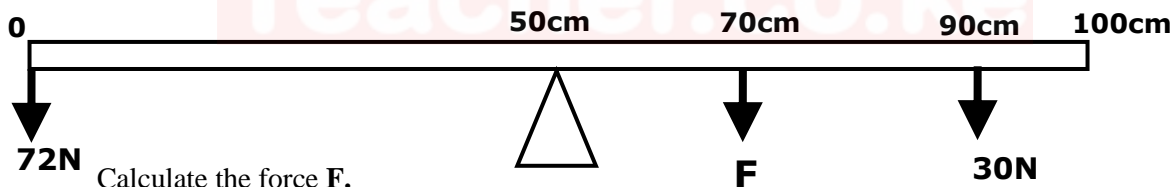
1. Define the term moments.
2. State the principle of moments.
3. Define the term moment of a force.
4. Name four activities which produce a turning effect
5. Why is it very difficult to open a door from a point too close to hinges?
6. **Explain** why it is difficult to steer a bicycle by gripping the centre of the handlebars. (2mks)
7. A load of **900N** is placed **3m** from a pivot. Calculate the moment due to the load.
8. A girl of mass **60kg** sits **4m** from a pivot. Calculate the moment due to the girl.
9. Calculate the moment due to the force **F** below.



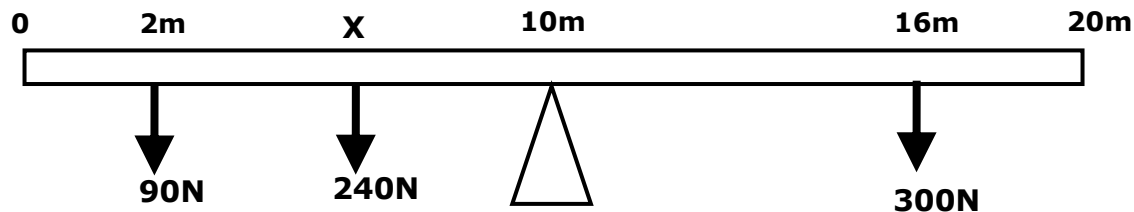
10. A uniform meter rule pivoted at its centre is balanced by a force of **100N** at **20cm** and another force of **F** at the **75cm** mark.



- (i) Calculate the force **F**.
 - (ii) What is the reaction at the pivot?
11. Three forces are applied on a meter-ruler as shown.

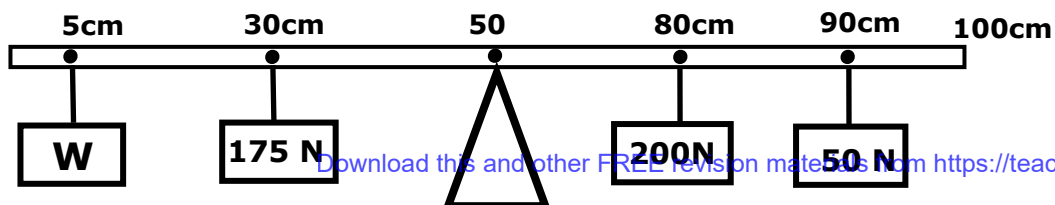


- (i) Calculate the force **F**.
 - (ii) What is the reaction at the pivot?
12. The figure below shows three forces applied on a uniform metal rod of length **20m**.



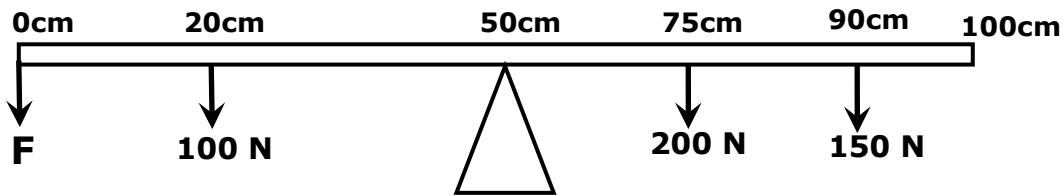
Calculate the position **X** where the force of **240N** is placed.

13. The figure below shows a meter rule balanced by four forces at its centre.

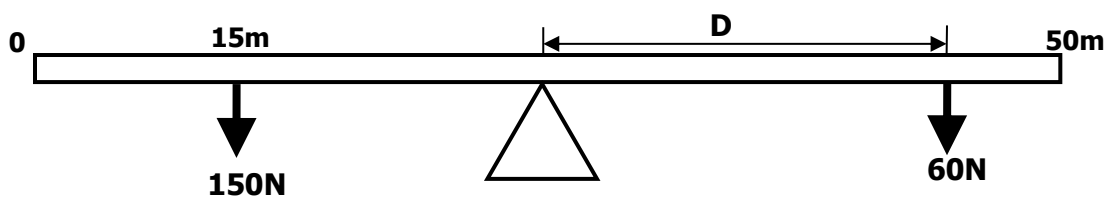


- (i) Determine the weight W .
- (ii) What is the reaction at the pivot?

14. The figure below shows a uniform balanced by four forces at its centre. Determine the value of force F .

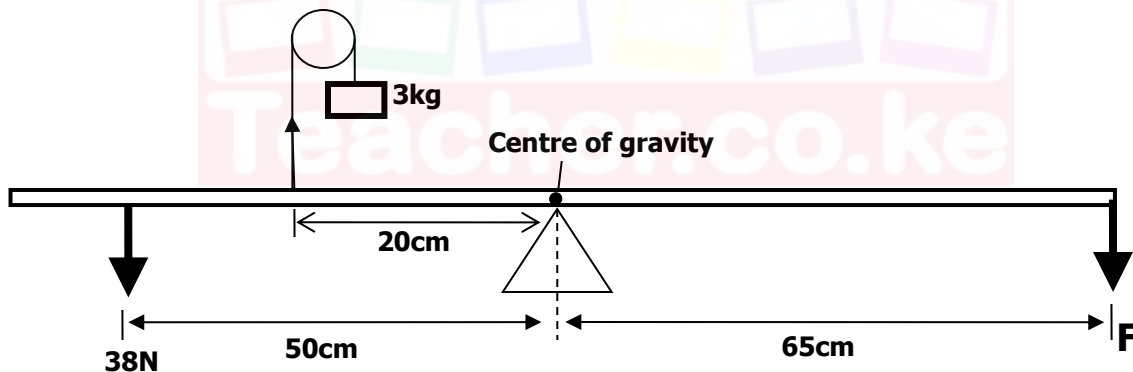


15. A uniform wooden plank of length 50m is pivoted at its centre and balanced by a force of 150N at 15m mark and another force of 60N on the other side at a distance D from the pivot.



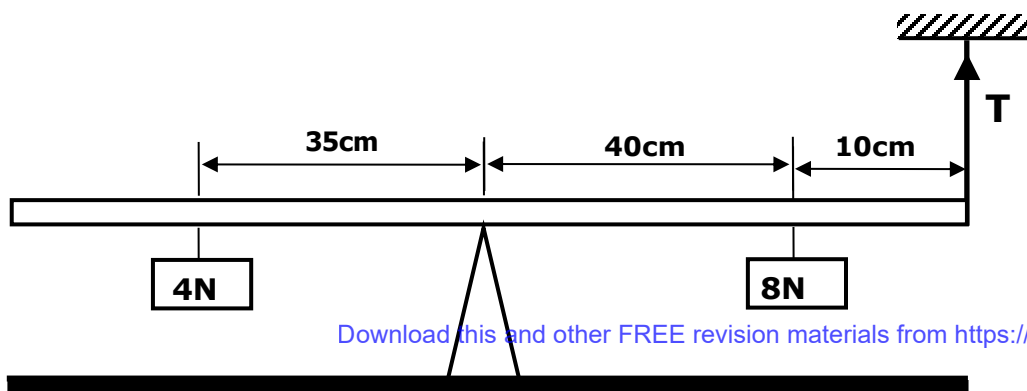
Determine the distance D

16. The diagram in figure represents a system in equilibrium.



Determine the force, F needed to keep the system in equilibrium.

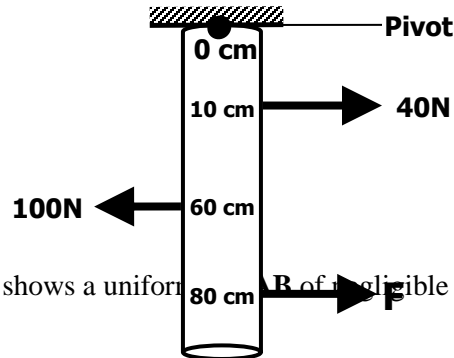
17. The figure below shows a uniform metal rod balanced at the centre by different forces.



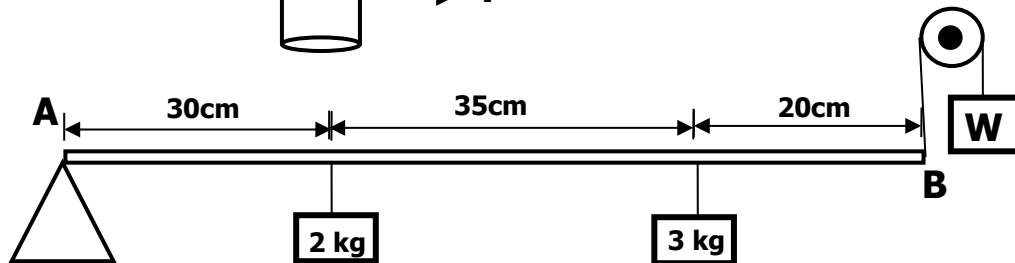
Determine the value of T .

(3mk)

18. A uniform meter ruler is suspended vertically from a pivot at the **0cm** mark and maintained vertically by three horizontal forces acting at the **10cm**, **60cm** and **80cm** as shown below. Calculate the force F acting at the **80cm** mark.

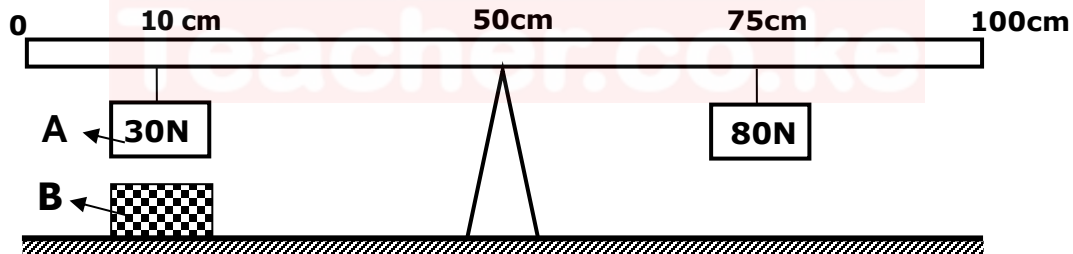


19. Figure below shows a uniform rod of negligible weight pivoted at A.



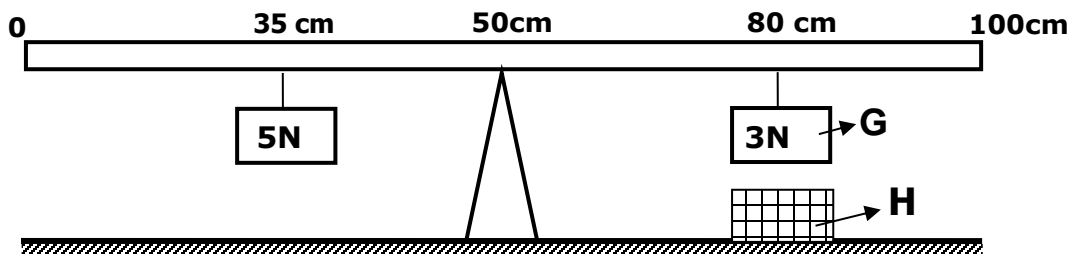
If the system is in equilibrium, determine the weight W shown in the diagram.

20. The figure below shows a uniform ruler balanced at the centre due to action of some forces as shown. **A** is a magnet of weight **30N** and **B** is a permanent magnet fixed on to the bench.



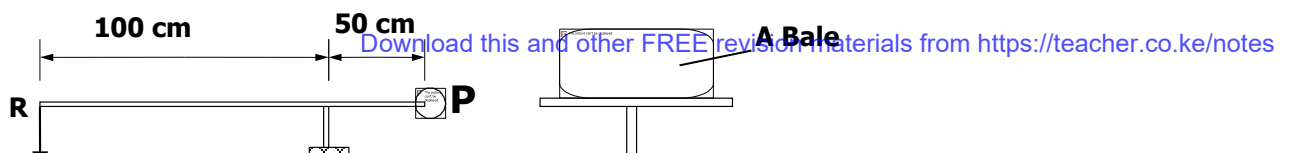
- Determine the force between **A** and **B**.
- State the nature of the magnetic force between **A** and **B**.

21. The figure below shows a uniform light rod balanced due to action of two forces shows. **G** is a magnet of weight **3N** and **H** is a permanent magnet fixed on to the bench.



- Determine the force between **G** and **H**.
- State the nature of the magnetic force between **G** and **H**.

22. Figure shows a hydraulic press system using a lever of negligible mass on the side of a small piston pivoted at point **P**. A force of **120N** is applied at **R**.



- (i) Calculate the force **F** exerted by small piston on the liquid.
- (ii) Find the weight of the Bale supported by the large piston.

23. The figure below shows two equal and opposite forces acting on a meter at the **15cm** mark and **75cm** marks respectively. If each of the forces has a magnitude of **80N**, calculate the moment on the meter rule about **35cm** mark.

