

2 (a) A student investigates the moment of a force.

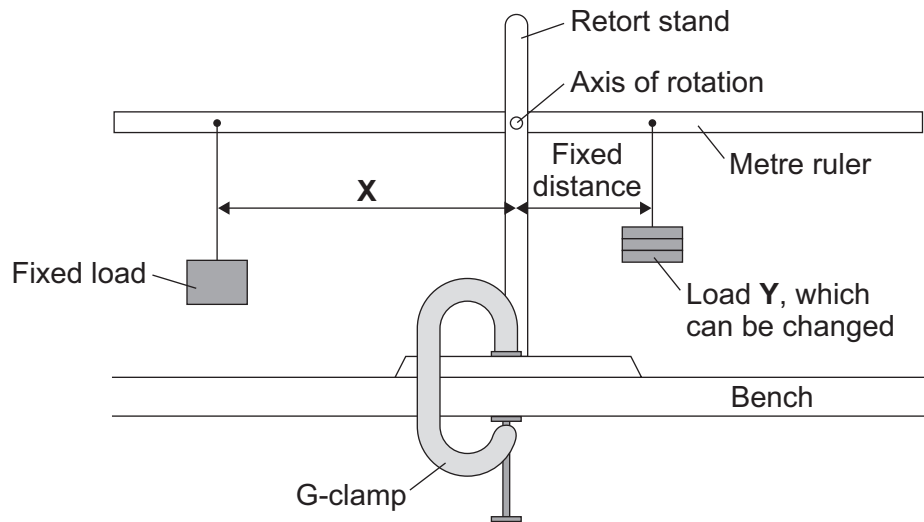
2 (a) (i) What does the word *moment* mean in this sentence?

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(1 mark)

2 (a) (ii) The diagram shows how she sets up her apparatus.



Suggest the purpose of the G-clamp.

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(1 mark)



- 2 (a) (iii)** A horizontal rod fits into a hole at the centre of the metre ruler. This is the axis of rotation. The student changes the load **Y** and adjusts the distance **X** until the metre ruler is horizontal. She takes six pairs of measurements which are shown in the table.

Load Y in newtons	Distance X in centimetres
1	7
2	14
3	21
4	28
5	35
6	42

Explain fully how distance **X** varies with load **Y**.

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(2 marks)

- 2 (a) (iv)** The weight of the ruler can be ignored in this experiment.

Which statement gives the reason why?

Put a tick (✓) in the box next to your answer.

The weight of the ruler is so small it is negligible.

The centre of mass of the ruler is at the axis of rotation.

The ruler is a symmetrical object.

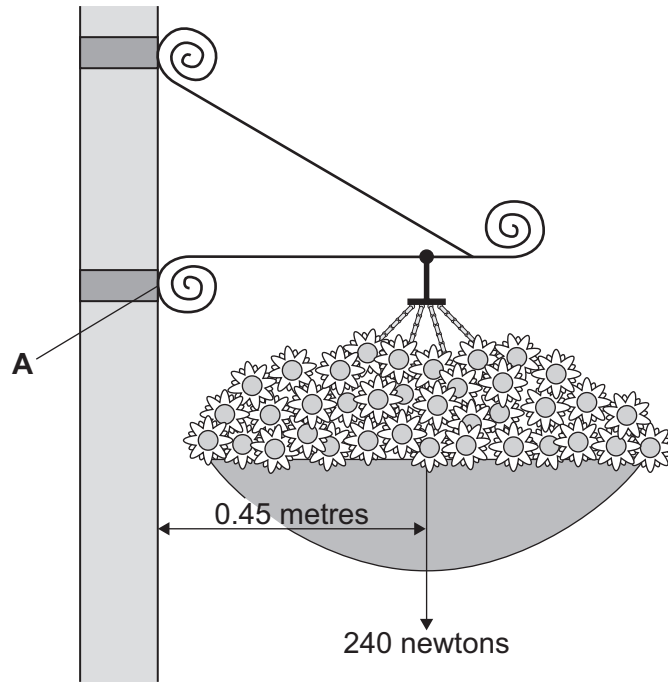
(1 mark)

Question 2 continues on the next page

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2 (b) In the summer, a town council fits hanging baskets to some of its lamp posts.



Use the information in the diagram and the equation in the box to calculate the moment produced by the weight of the hanging basket about an axis through point **A**.

$$\text{moment} = \text{force} \times \text{perpendicular distance from the line of action of the force to the axis of rotation}$$

Show clearly how you work out your answer **and** give the unit.

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Moment =

(3 marks)

8

