

2 (a) State the principle of moments.

(2)

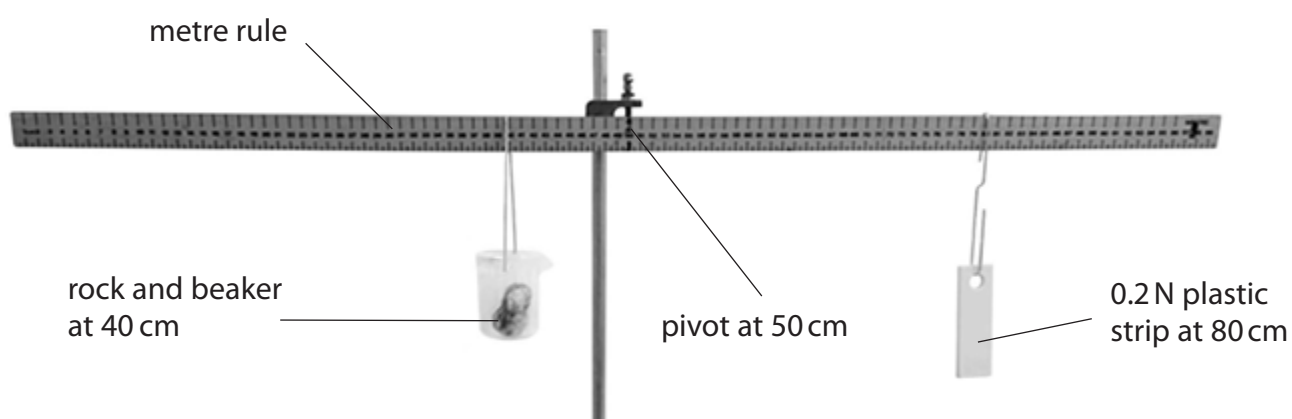
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(b) A student uses the principle of moments to find the weight of a rock. This is the student's method.

- he balances a metre rule at its mid-point on a pivot
- he hangs a beaker from the 40 cm mark on the rule
- he places the rock in the beaker
- he then hangs a 0.2 N plastic strip from the rule on the other side of the pivot
- he adjusts the position of the plastic strip until the rule balances



(i) Describe how the student could use an electronic balance to check that the plastic strip weighs 0.2 N.

(2)



- (ii) Suggest how the student could improve the precision of one of his measurements. (1)

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- (iii) State the equation linking moment, force and perpendicular distance from the pivot. (1)

- (iv) Use the principle of moments to calculate the force acting on the metre rule at the 40 cm mark.

(3)

force = N

- (v) Suggest a reason why the weight of the rock will be different from your calculated force.

(1)

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(Total for Question 2 = 10 marks)



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