

LAB 9: MOMENTS

AIM: To determine the unknown weight, W , using moments

APPARATUS & MATERIALS:

metre rule pivot
spring balance retort stand
unknown mass

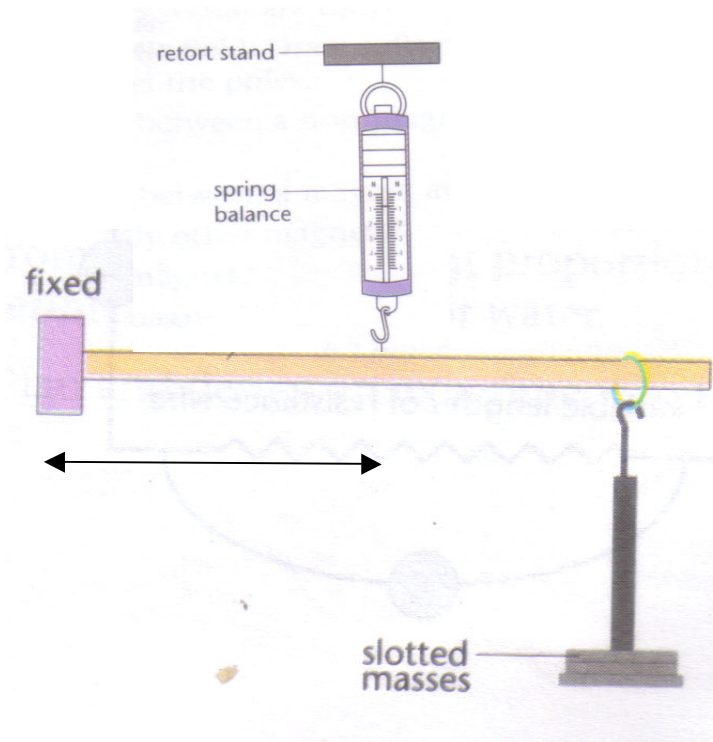


Diagram: Apparatus for finding the unknown weight, W , using moments

METHOD:

- Set up the apparatus as shown in the diagram above.
- Attach the spring balance to the metre rule at the **50 cm** mark.
- Attach the unknown weight to the metre rule at the metre rule at the **70 cm** mark.
- Hold the spring balance so that the metre rule is in the horizontal position.
- Record the distance, y , and the corresponding reading on the spring balance, F .
- Vary the position the unknown mass on either side of the spring balance to obtain **six (6)** additional pairs of y and F values.

THEORY:

- Define a moment. State the formula and units.
- State the formula for the moments in balance.

RESULTS:

- Record all results in table below (showing all headings and units)

Length y / (cm)	Force F / (N)

- Plot a graph of length, **y**, against Force, **F**.

CALCULATIONS:

- Calculate the gradient, **G**, of the line, showing clearly how you have obtained your answer.
- Find the unknown weight, **W**, given that

$$G = 45/W$$

CONCLUSION:

- State the value of the unknown weight.