

MINISTRY OF EDUCATION
SECONDARY ENGAGEMENT PROGRAMME
GRADE 10
PHYSICS

WEEK 8: Equilibrium and Stability

WORKSHEET

Exam Style Questions

1. A uniform rod of length 50cm carries two masses of 300g and 500g respectively at its ends, A and B. If the mass of the rod is 100g, where must the rod be pivoted so that it balanced? Draw a carefully labelled diagram showing clearly the forces acting on the system.
2. Describe how you would find, by experiment, the centre of gravity of a thin, irregularly shaped sheet of metal.
3. Explain why a minibus is more likely to topple over when the roof rack is heavily loaded than when the roof rack is empty.
4. By giving THREE examples, one for each, of bodies in different states of equilibrium, explain what is meant by
 - a) Stable equilibrium
 - b) Unstable equilibrium
 - c) Neutral equilibrium

In each case, state what happens to the centre of gravity of the body when the body's equilibrium is disturbed.

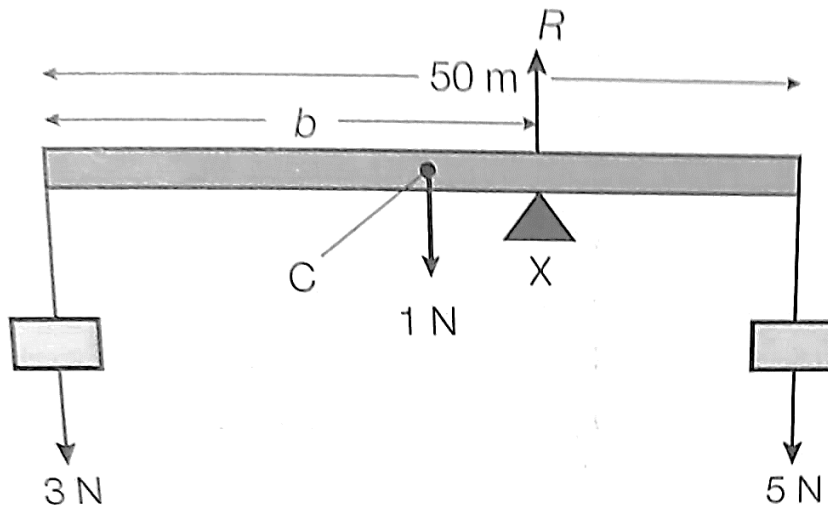
5. Describe how any TWO factors have the potential to affect the stability of an object.

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Worksheet - Answer Sheet

Q1. $b = 30.6\text{cm}$



Q3. It is more likely to topple since the position of its centre of gravity is higher. Placing heavy objects at the top of the bus distorts the centre of gravity/mass position. This will more than likely result in a toppling moment created when a force is applied.

Q5. Explain how any of the following affect stability: weight, height of centre of gravity and width of base