

Course Code: ESC106A

Course Title: Construction Materials and Engineering Mechanics

Lecture No. 52:

Problems on Wedge Friction

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Lecture Intended Learning Outcomes

At the end of this lecture, students will be able to:

- Draw Free Body diagrams of wedge in the given problems
- Evaluate frictional forces or find the force needed to lift the wedge



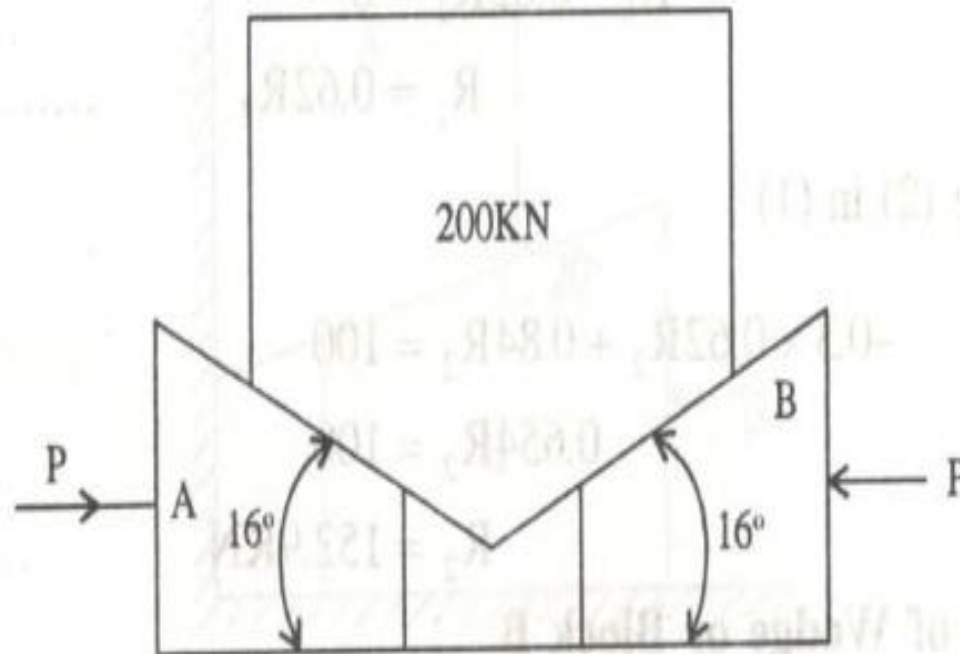
Contents

- Numerical problems on wedges



Wedge Friction: Problem 1

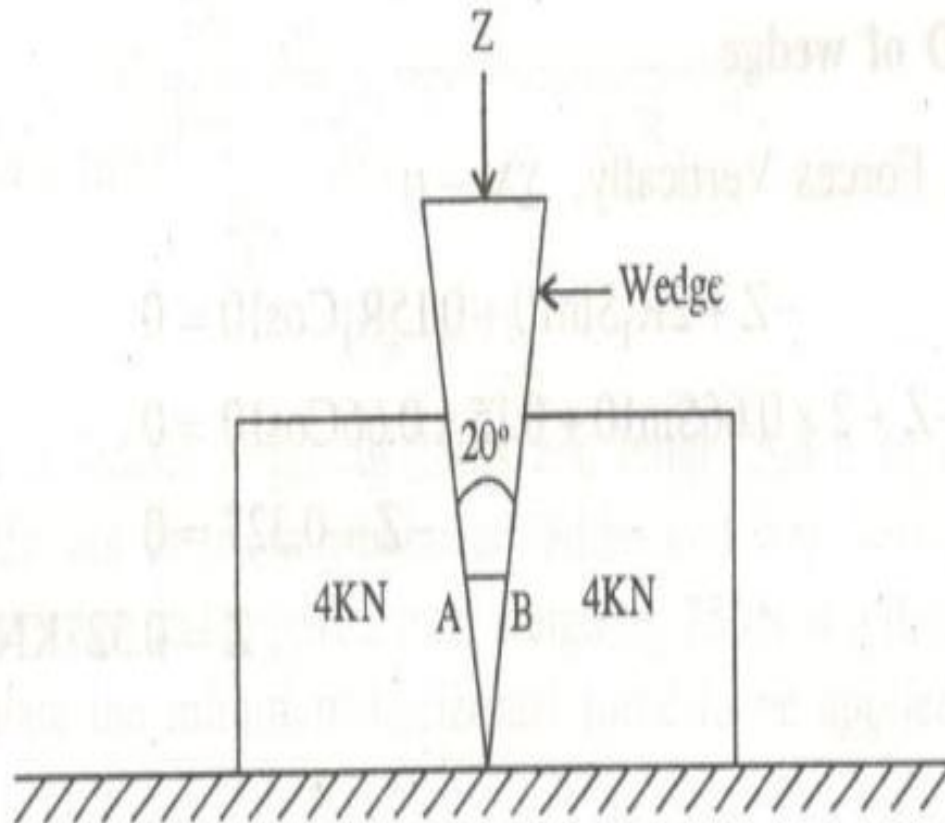
Example: A body of weight 200kN is to be raised by means of the same wedges A and B as shown in figure. Find the force P for impending motion of block C upwards if the coefficient friction is 0.2 for all contact surfaces; neglect weight of wedge.



$$P = 71.6 \text{ kN}$$

Wedge Friction: Problem 2

Example: Determine the force Z required to start the wedge downwards. Take μ for all contact surface $=0.15$. Neglect weight of wedge.



Summary

- A wedge is used to produce small adjustments in the position of the body or to apply large forces
- Based on the concept of wedge friction, problems are solved

