

**Course Code: ESC106A**

**Course Title: Construction Materials and Engineering  
Mechanics**

**Lecture No. 11:  
Problems on Moment and Couple**

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# Lecture Intended Learning Outcomes

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

- Find the components of a force
- Deduce the moment and couple for a given force system
- Calculate the moments about given reference points in different structures



# Contents

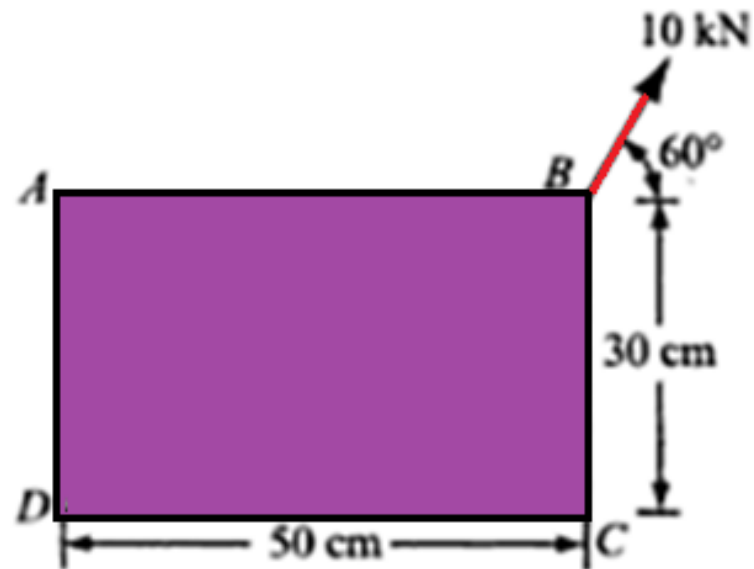
- **Engineering Mechanics**

Numerical problems on moment of forces and couples



# Problems on Moments

1. Find the moment of the forces about A and D

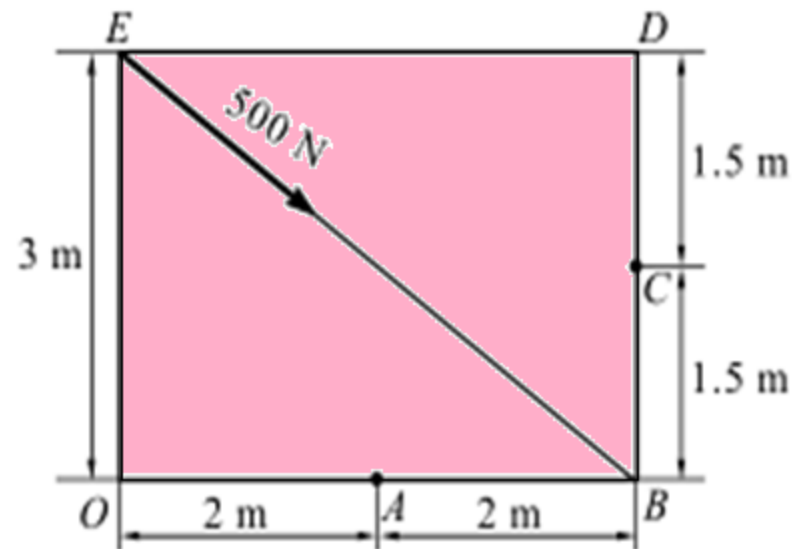


$$M_A = -4.33 \text{ kNm}$$



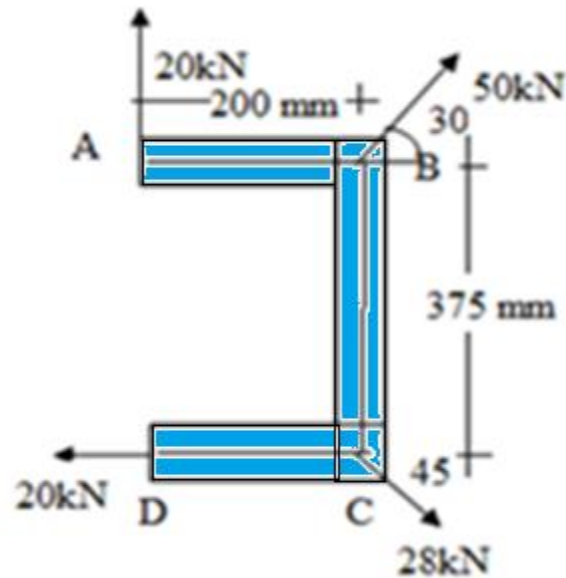
# Problems on Moments

2. Find the moment of 500N force about points O, A, B and C as shown in the figure



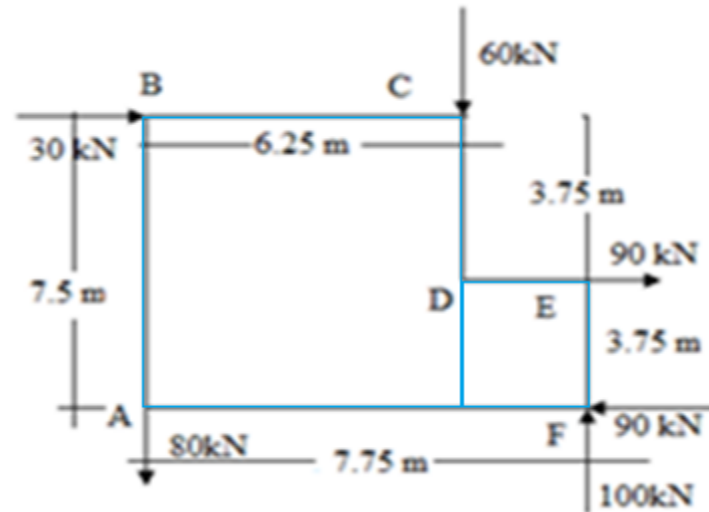
# Problems on Moments

3. Find the moment of the forces about A



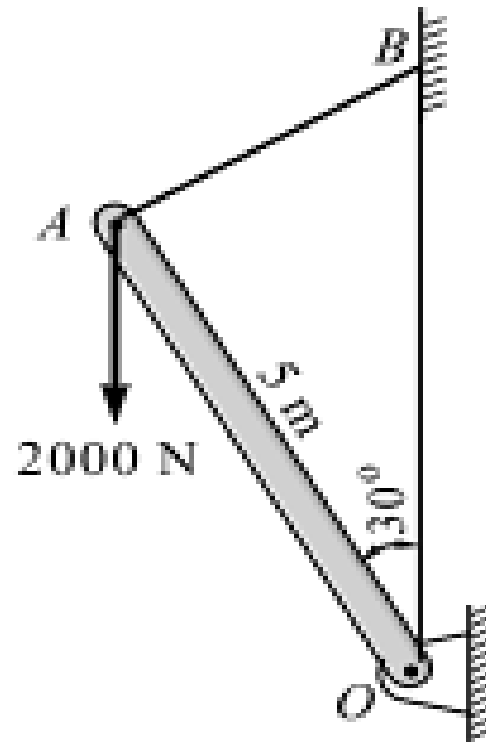
# Problems on Moments

4. Find the moment of the forces about A



# Problems on Moments

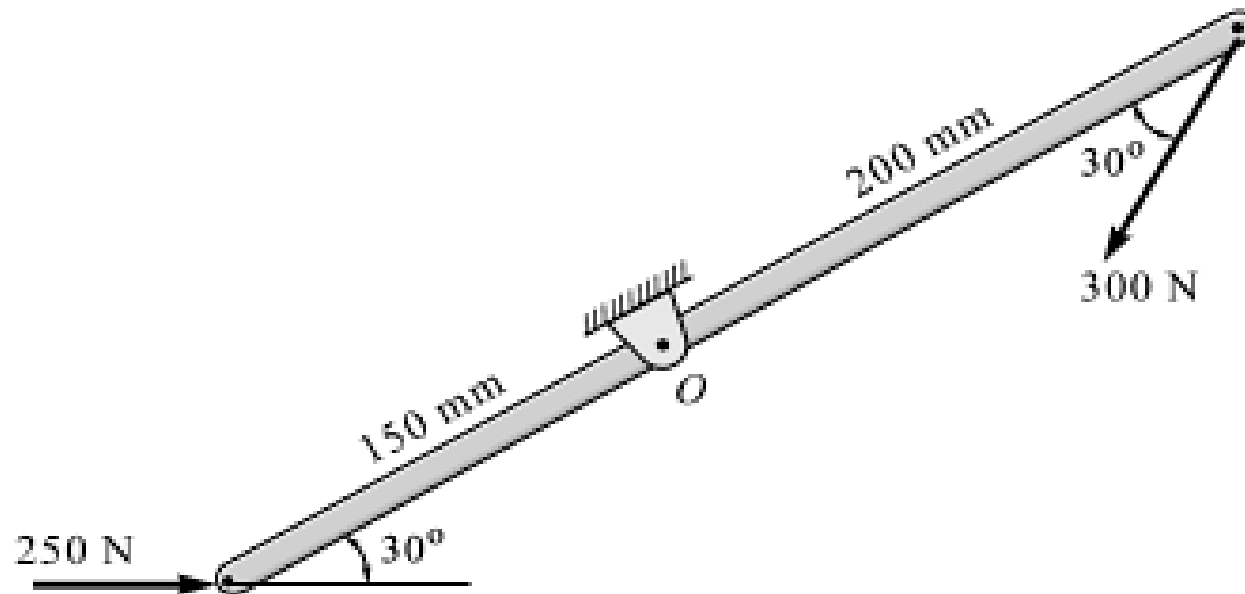
5. Find the moment of the force 2000N about point O





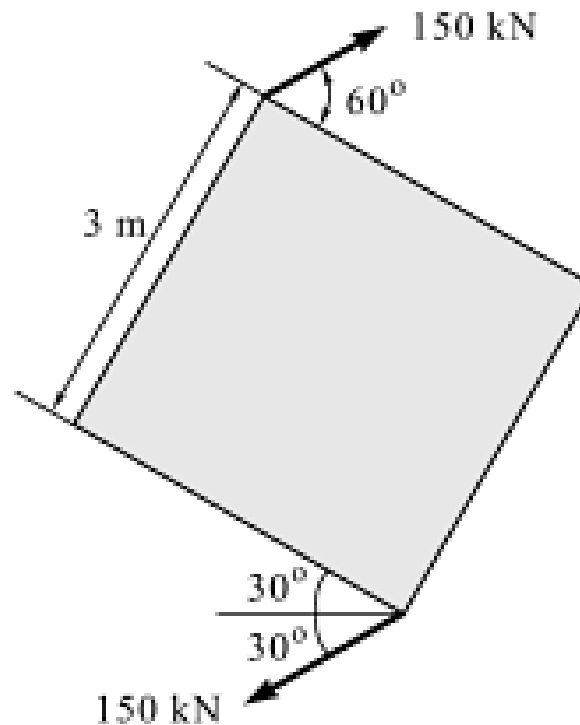
# Problems on Moments

6. Find the moment of forces shown in the figure about the lever



# Problems on Moments

7. A square plate is subjected to forces as shown in the figure. Determine the moment of the Couple



# Summary

- Moment of a force is a measure of its tendency to cause a body to rotate about a specific point or axis
- Moment arm is the perpendicular distance from an axis to the line of action of a force
- A pair of equal unlike parallel forces separated by a distance is known as a couple
- A couple produces rotation or moment

