

YILDIZ TECHNICAL UNIVERSITY

FACULTY OF CIVIL ENGINEERING / CIVIL ENGINEERING DEPARTMENT

2022-2023 Spring Semester / INS1322 Statics / Homework

Submission Deadline / Time: 15.05.2023 Monday / 21:00

Name-Surname:

Signature:

Number:

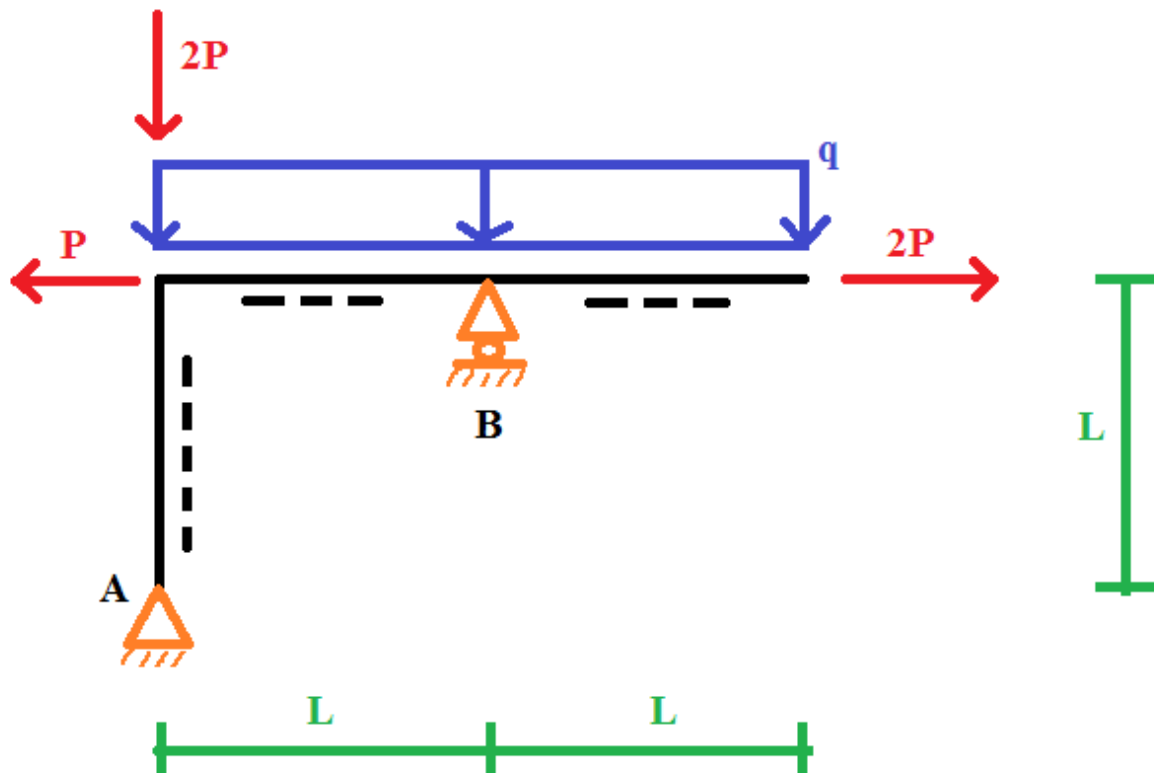
$\beta =$

Note: β is the last numerical character of your student number.

Question No	1	2	3	Total
Grading	40	30	30	100
Score				

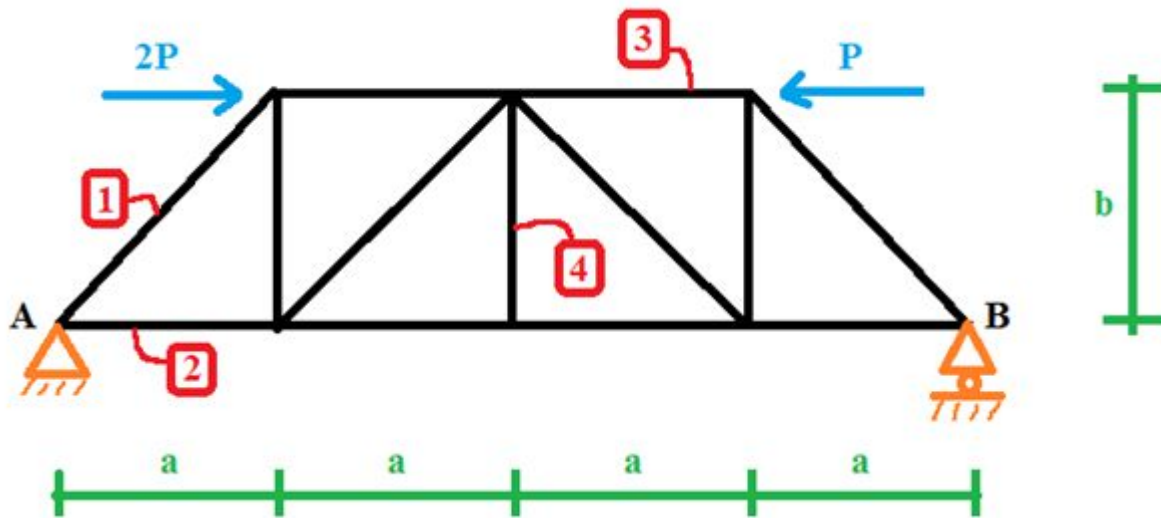
1) Find the support reactions, and draw M, N, V diagrams of the frame shown in the figure.

$$P = (4 + \beta) \text{ kN} \quad q = 3 \text{ kN/m} \quad L = 2 \text{ m}$$



2) Find the support reactions, and determine the forces in the members 1, 2, 3, and 4 of the plane truss shown in the figure.

$$P = (4 + \beta) \text{ kN} \quad a = 4 \text{ m} \quad b = 3 \text{ m}$$



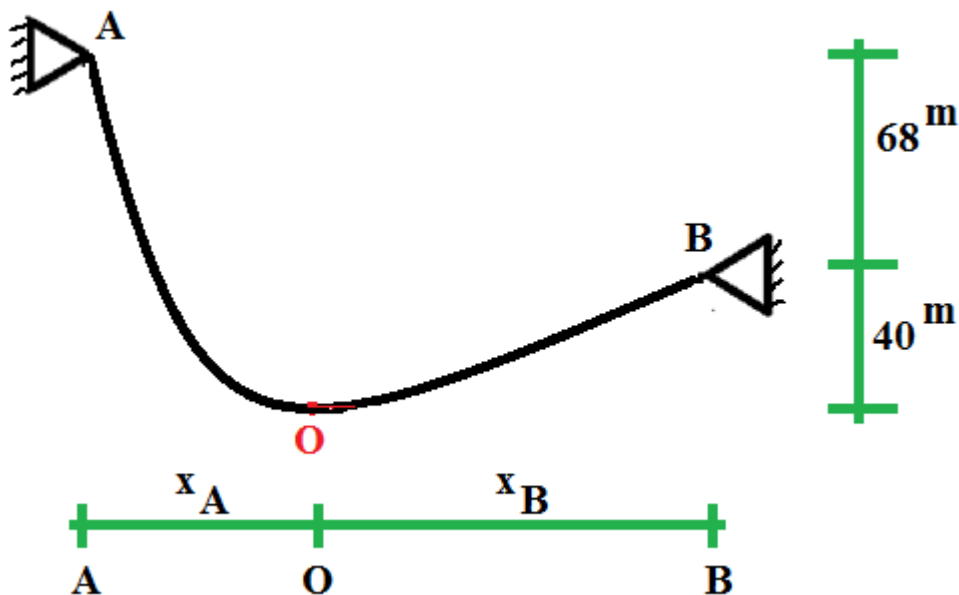
3) The weight per unit length of the homogeneous cable shown in the figure is w . Knowing that

$$\frac{T_{\min}}{T_{\max}} = \frac{1}{10}, \text{ and point O is the lowest point of the cable,}$$

3-a) Find the catenary constant c .

3-b) Determine x_A and x_B .

3-c) Calculate the tension at B.



$$w = (2 + \beta) \text{ kN/m}$$