

※ 考生請注意：本試題可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Determine the force in each member of the truss. State whether the members are in tension or compression. (25%)

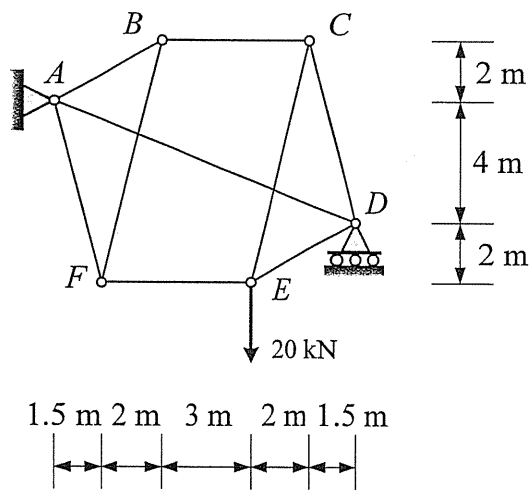


Fig. 1

2. Determine the equation of the influence line for the moment at B using the coordinate x , then use it to find the maximum negative moment at B due to a single concentrated live load P . The flexural rigidity EI of the beam is constant. (25%)

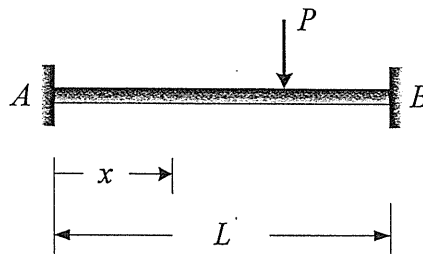


Fig. 2

3. Use the moment-distribution method to determine the moments acting at the ends of each member. EI is constant. (25%)

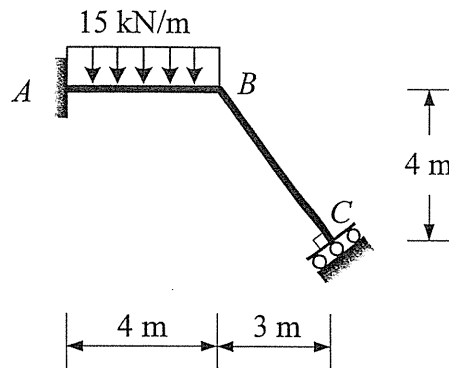


Fig. 3

4. Using the matrix stiffness method, determine the shears and moments acting at the both ends of member BC . $EI = 40(10^3) \text{ kN}\cdot\text{m}^2$ and the rotational spring at C has a stiffness $k = 16(10^3) \text{ kN}\cdot\text{m}/\text{rad}$. (25%)

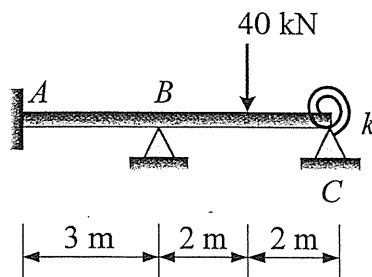


Fig. 4