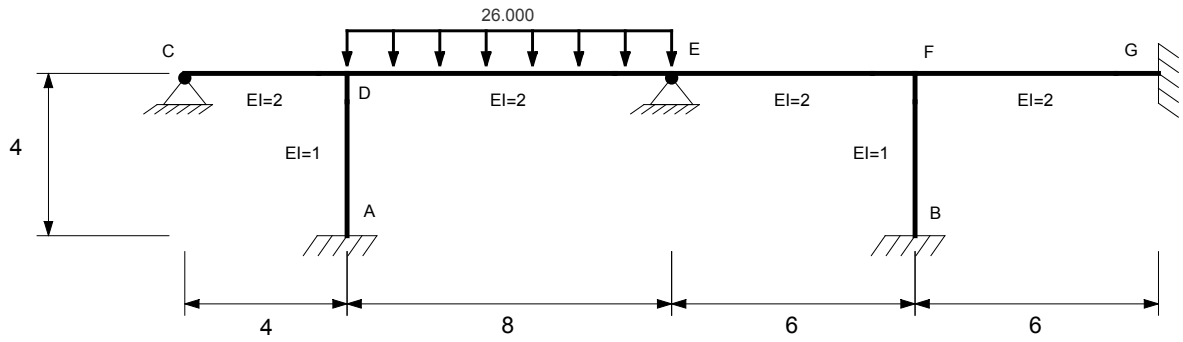
Problem 1

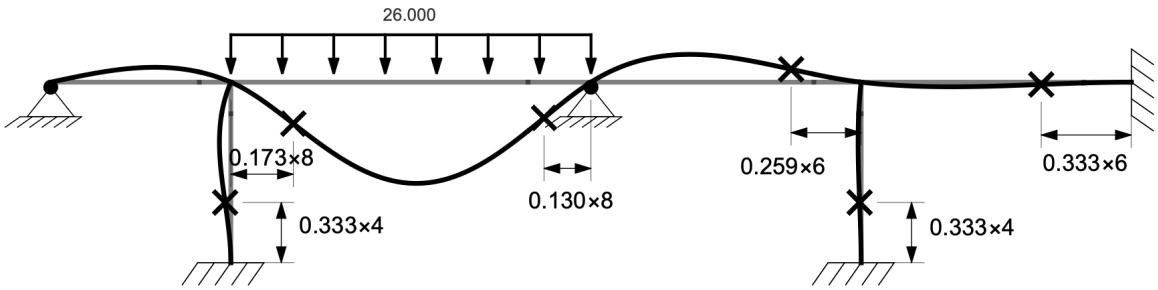


a) Sketch the deflected shape marking all locations of inflection points.

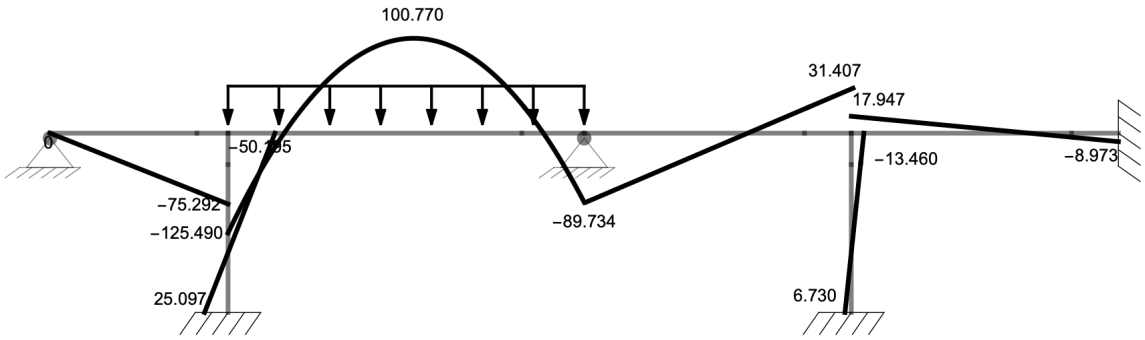
b) Sketch the moment diagram for all the frame members.

Solution

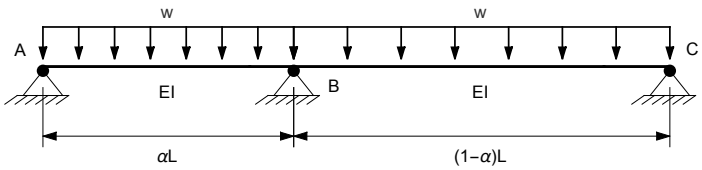
a) Sketch the deflected shape marking all locations of inflection points.



b) Sketch the moment diagram for all the frame members.



Problem 2



The total length of the two-span beam is "L" (αL + (1-α)L = L).

How do the following bending moments vary with α for $0 \le \alpha \le 1/2$:

a) Maximum positive moment in AB

b) Negative moment at B

Solution

a) Maximum positive moment in AB

The maximum positive moment in AB increases with α in the range $0 \le \alpha \le 1/2$

b) Negative moment at B

The maximum negative moment at B decreases with α in the range $0 \le \alpha \le 1/2$