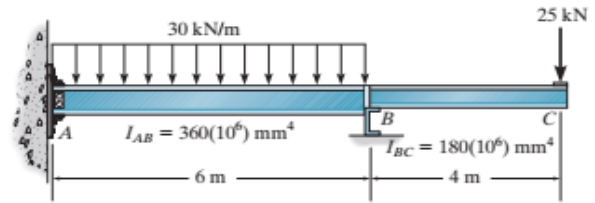CEE 3222 TUTORIAL SHEET QUESTIONS
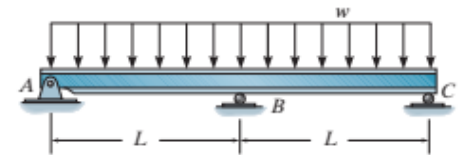
Q1

Determine the reactions at the supports. Assume the support at A is fixed and B is a roller. Take $E = 200$ GPa. The moment of inertia for each segment is shown in the figure.
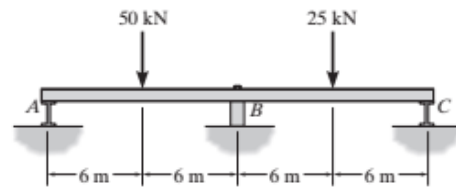

Q2

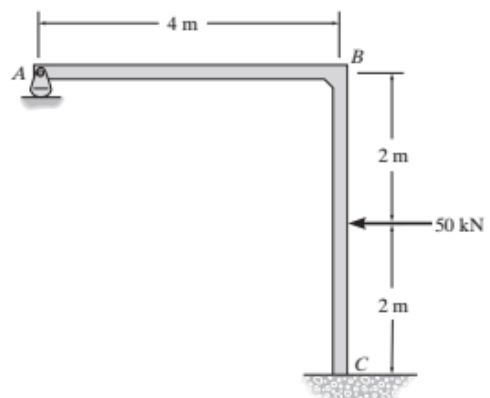Determine the reactions at the supports, then draw the shear and moment diagrams. EI is constant.

Q3

Draw the moment diagram. Assume A and C are rollers and B is pinned. EI is constant.
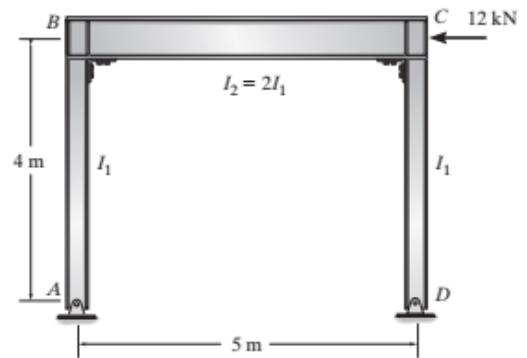

Q4

Determine the reactions at the supports, then draw the moment diagram for each member. EI is constant.
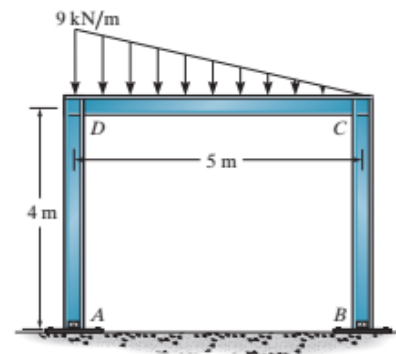
Q5

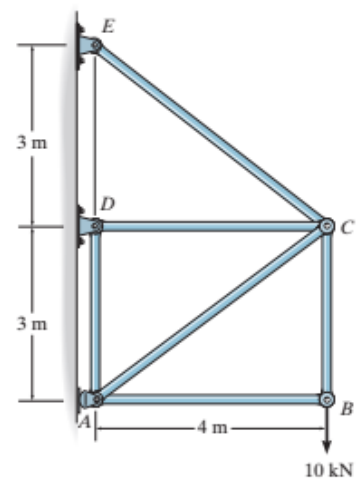Determine the reactions at the supports, then draw the moment diagram for each member. EI is constant.

B

C 12 kN

$I_2 = 2I_1$

4 m

I_1

I_1

A

D

5 m

Q6

Determine the reactions at the supports. Assume A and B are pins. EI is constant.

9 kN/m

D

C

5 m

4 m

A

B

Q7

Determine the force in member AC of the truss. AE is constant.
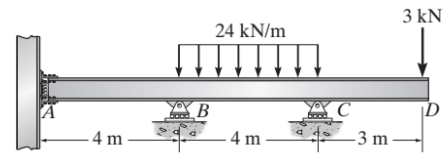

E

3 m

D

C

3 m

A

4 m

B

10 kN

Q8

Determine the moments at A and B, then draw the moment diagram for the beam. EI is constant.
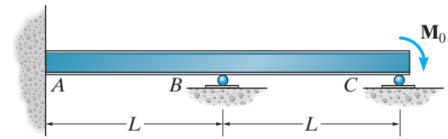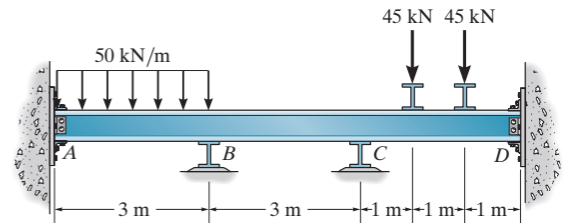

Q9

Determine the moments at A, B, and C, then draw the moment diagram. Assume A is fixed. EI is constant.
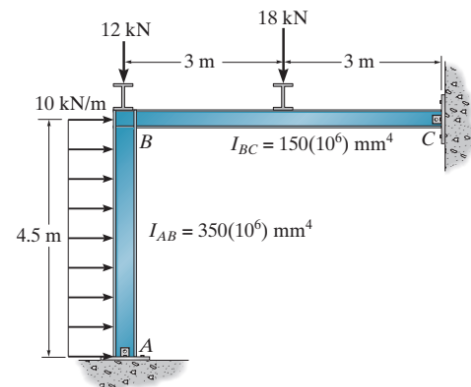

Q10

Determine the moments at A, B, C and D, then draw the moment diagram for the beam. Assume the supports at A and D are fixed and B and C are rollers. EI is constant.
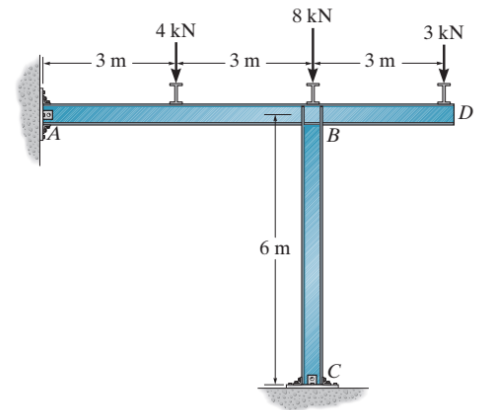

Q11

Determine the horizontal and vertical components of reaction at A and C. Assume A and C are pins and B is a fixed joint. Take $E = 200\,\text{GPa}$.

$I_{BC} = 150(10^6)\,\text{mm}^4$
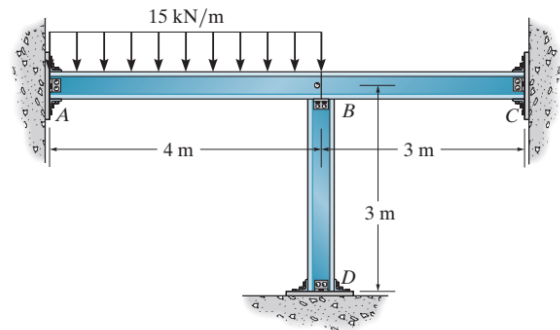
$I_{AB} = 350(10^6)\,\text{mm}^4$

Q12

Determine the moments at the ends of each member of the frame. The supports at A and C and joint B are fixed connected. EI is constant.

Q13

When the 15 kN/m load is applied to the three-member frame the support at D settles 10 mm. Determine the moment acting at each of the fixed supports $A, C,$ and D. The members are pin connected at B, $E = 200$ GPa, and $I = 800(10^6)$ mm^4.

Q14

Determine the moment that each member exerts on the joints at B and D, then draw the moment diagram for each member of the frame. Assume the supports at $A, C,$ and E are pins. EI is constant.