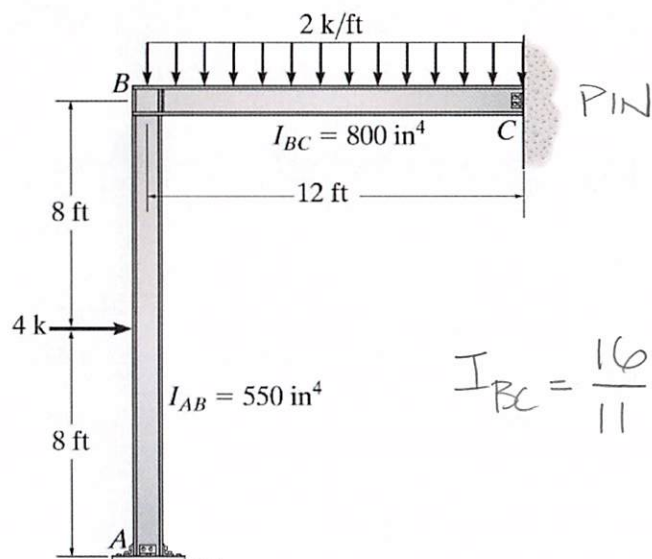


Problem 11-14 – Determine the moments at the end of each member in the frame. Assume A and B are fixed, C is pinned, $E = 29(10^3)$ ksi.



$$I_{BC} = \frac{16}{11} I_{AB}$$

$$FEM_{BC} = \frac{WL^2}{8} = \frac{2 \text{ k/ft} (12')^2}{8} = 36 \text{ kft}$$

$$FEM_{BC} = \frac{PL}{8} = \frac{4 \text{ k} (16 \text{ ft})}{8} = \pm 8 \text{ kft}$$

$$K_{BA} = \frac{4EI_{AB}}{16'} \quad K_{BC} = \frac{3E(\frac{16}{11} I_{AB})}{12'}$$

$$DF_{BA} = \frac{K_{BA}}{K_{BA} + K_{BC}} = \frac{\frac{1}{4}}{\frac{1}{4} + \frac{12}{33}} = \frac{33}{81} = \frac{11}{27}$$

$$DF_{BC} = \frac{16}{27}$$

JOINT	A	B		C
MEMBER	AB	BA	BC	CD
DF	0	$\frac{11}{27}$	$\frac{16}{27}$	1
FEM	-8	8	-36	0
DIST.		11.407	16.593	
CO	5.704			
DIST.				
Σ	-2.296	19.407	-19.407	0

kft