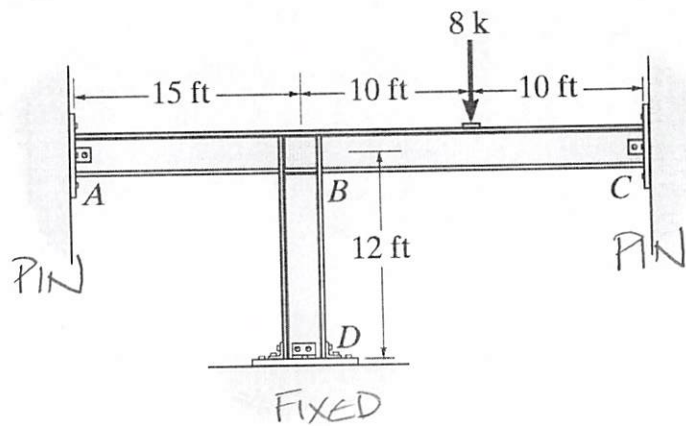


Problem 11b-3 – Determine the moments at B and D . Assume A and C are pinned, and B and D are fixed connected. EI is constant.



$$FEM_{BC} = \frac{3PL}{16} = \frac{3(8k)(20')}{16} = -30kft$$

$$DF_{AB} = DF_{CB} = 1$$

$$K_{BA} = \frac{3EI}{L_{AB}} = \frac{3EI}{15'}$$

$$K_{BC} = \frac{3EI}{L_{BC}} = \frac{3EI}{20}$$

$$K_{BD} = \frac{4EI}{L_{BD}} = \frac{4EI}{12}$$

$$DF_{BA} = \frac{K_{BA}}{K_{BA} + K_{BC} + K_{BD}} = \frac{1/5}{1/5 + 3/20 + 1/3} = 0.293$$

$$DF_{BC} = \frac{3/20}{1/5 + 3/20 + 1/3} = 0.220$$

$$DF_{BD} = 0.487$$

JOINT MEMBER	PIN	B			FIXED	PIN
	A				D	C
	AB	BA	BC	BD	DB	CB
DF	1	0.293	0.220	0.487	0	1
FEM			-30			
DIST.		8.790	6.600	14.610		
CO					7.305	
DIST.						
$\sum$	0	8.790	-23.400	14.610	7.305	0