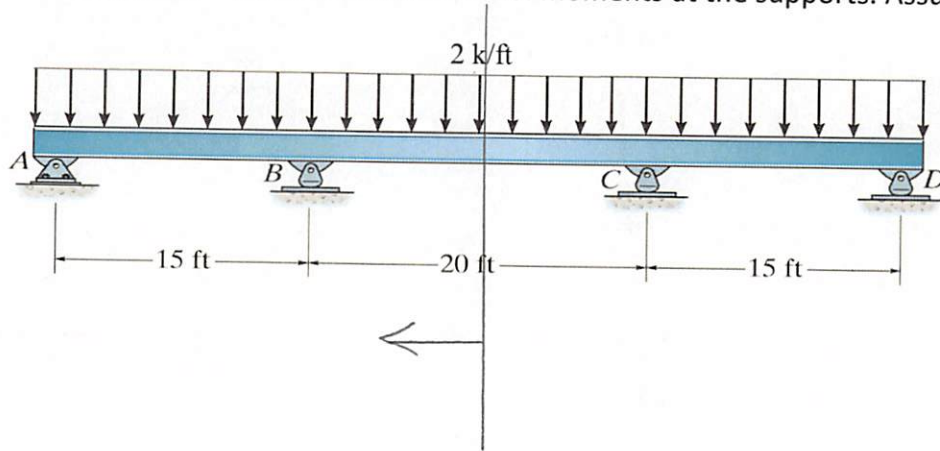


Problem 11a-5 – Determine the internal moments at the supports. Assume EI is constant.



BEAM SYMMETRY

$$FEM_{BA} = \frac{WL^2}{8} = \frac{2\text{ k/ft} (15\text{ ft})^2}{8} = 56.25\text{ kft}$$

$$FEM_{BC} = \frac{WL^2}{12} = \frac{2\text{ k/ft} (20\text{ ft})^2}{12} = -66.67\text{ kft}$$

$$DF_{AB} = 1$$

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

$$K_{BC} = \frac{2EI}{L_{BC}} = \frac{2EI}{20'}$$

$$DF_{BA} = \frac{K_{BA}}{K_{BA} + K_{BC}} = \frac{3/15}{3/15 + 2/20} = 2/3$$

$$DF_{BC} = 1/3$$

JOINT MEMBERS	A	B	
	AB	BA	BC
DF	1	$\frac{2}{3}$	$\frac{1}{3}$
FEM		56.25	-66.67
DIST		6.947	3.473
Σ	0	63.197 - 63.197	

-10.42