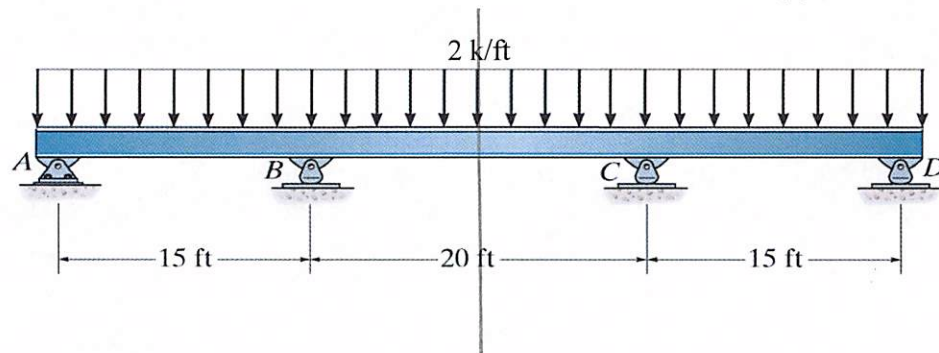


Problem 11a-5 – Determine the internal moments at the supports. Assume EI is constant.



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

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

PINNED

$$K_{PA} = \frac{3EI}{L_{AB}} = \frac{3EI}{15\text{ ft}} = \frac{EI}{5}$$

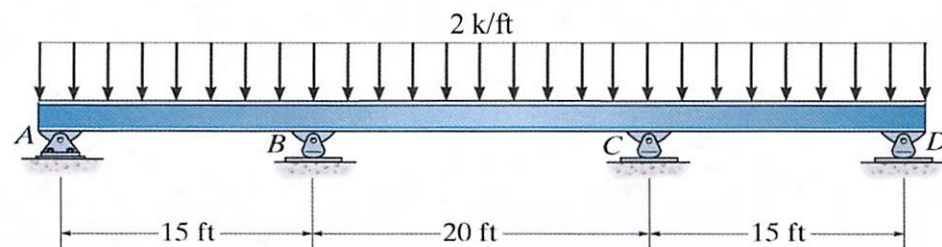
$$DF_{BA} = \frac{K_{BA}}{K_{BA} + K_{BC}} = \frac{1/5}{1/5 + 1/10} = \frac{2}{3}$$

SYMMETRY

$$K_{BC} = \frac{2EI}{L_{BC}} = \frac{2EI}{20\text{ ft}} = \frac{EI}{10}$$

$$DF_{BC} = \frac{K_{BC}}{K_{BA} + K_{BC}} = \frac{1/10}{1/5 + 1/10} = \frac{1}{3}$$

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



Joint	A	B	
Member	AB	BA	BC
DF	1	$\frac{2}{3}$	$\frac{1}{3}$
FEM	0	56.25	-66.67
Dist.		6.944	3.472

-10.4167

Σ

63.194 -63.195