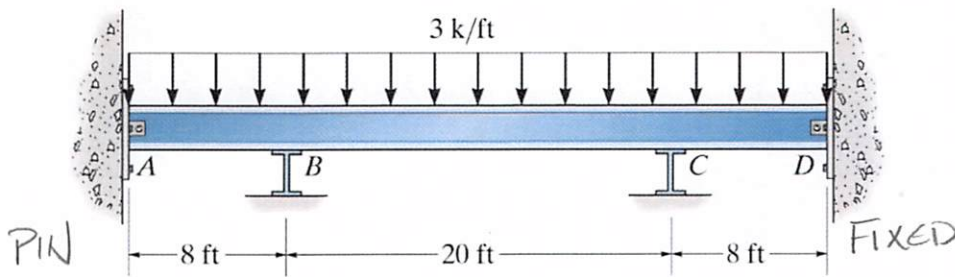


Determine the moments at B and C. EI is constant. Assume B and C are rollers, A is a pin, and D is a fixed support.



$$FEM_{BA} = \frac{WL^2}{8} = \frac{3k/ft (8')^2}{8} = 24 \text{ kft}$$

$$FEM_{BC} = \frac{WL^2}{12} = \frac{(3k/ft)(20')^2}{12} = \pm 100 \text{ kft}$$

$$FEM_{CD} = \frac{WL^2}{12} = \frac{(3k/ft)(8')^2}{12} = \pm 16 \text{ kft}$$

$$K_{BA} = \frac{3EI}{8'}$$

$$K_{BC} = \frac{4EI}{20'}$$

$$DF_{BA} = \frac{3/8}{3/8 + 1/5} = 15/23$$

$$DF_{BC} = 8/23$$

$$K_{CB} = \frac{4EI}{20'}$$

$$K_{CD} = \frac{4EI}{8'}$$

$$DF_{CB} = \frac{1/5}{1/5 + 1/2} = 2/7$$

$$DF_{CD} = 5/7$$

Joint	AB	B		C		D
Members	AB	BA	BC	CB	CD	DC
DF	1	0.652	0.348	0.286	0.714	0
FEM		24.000	-100.000	100.000	-16.000	16.000
Dist.		49.565	26.435	-24.000	-60.000	
CO			-12.000	13.217		-30.000
Dist.		7.826	4.174	-3.776	-9.441	
CO			-1.888	2.087		-4.720
Dist.		1.231	0.657	-0.596	-1.491	
CO			-0.298	0.328		-0.745
Dist.		0.194	0.104	-0.094	-0.235	
CO			-0.047	0.052		-0.117
Dist.		0.031	0.016	-0.015	-0.037	
CO			-0.007	0.008		-0.019
Dist.		0.005	0.003	-0.002	-0.006	
Sum	0.00	82.853	-82.853	87.209	-87.209	-19.602