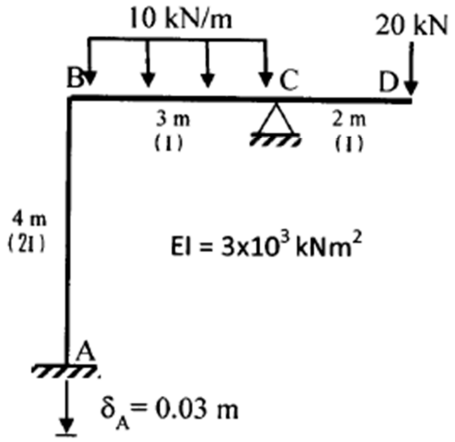
For the frame shown, determine the moments at member ends using the moment distribution method. E is constant for all members. Draw the bending moment diagram.



DF's

$DF_{AB} = 0$

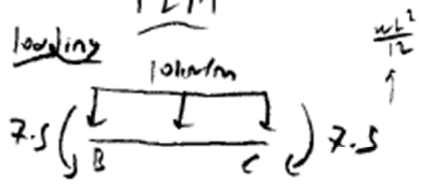
$DF_{BA} = \dfrac{4E*2I/4}{4E*2I/4 + 4EI/3} = 0.6$

$DF_{BC} = 1 - 0.6 = 0.4$

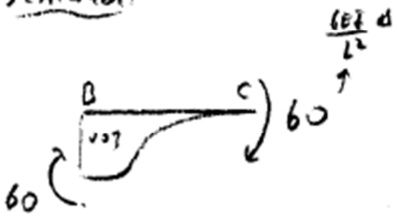
$DF_{CB} = \dfrac{k_{CB}}{k_{CB} + k_{CD}} = 1$ ($k_{CD} = 0$)

FEM

loading



settlement



final

	A		B		C
	0	0.6		0.4	1
					40
FEM			-52.5	-67.5	
Dist 1		31.5	21	27.5	
CO	15.75		13.75	10.5	
Dist 2	0	-8.25	-5.5	-10.5	
CO	-4.125		-5.25	-2.75	
Dist 3	0	3.15	2.1	2.75	
CO	1.575		1.375	1.05	
Dist 4	0	-0.825	-0.55	-1.05	
CO	-0.4125		-0.525	-0.275	
Dist 5	0	0.315	0.21	0.275	
	12.79		25.89	-25.89	-40