

Example 15a-1

Element 1

L = m

	5	6	4	2	
EI	0.096	0.24	-0.096	0.24	5
	0.24	0.8	-0.24	0.4	6
	-0.096	-0.24	0.096	-0.24	4
	0.24	0.4	-0.24	0.8	2

Element 2

L = m

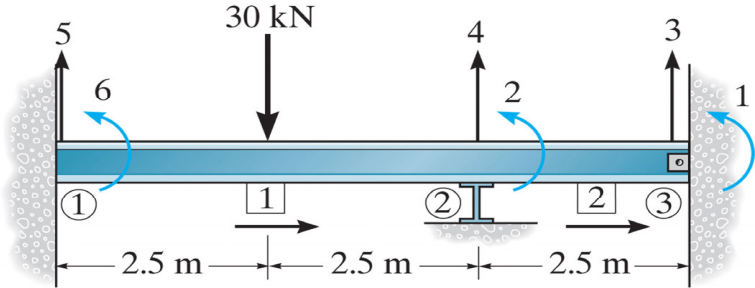
	4	2	3	1	
EI	0.768	0.96	-0.768	0.96	4
	0.96	1.6	-0.96	0.8	2
	-0.768	-0.96	0.768	-0.96	3
	0.96	0.8	-0.96	1.6	1

k1

	1	2	3	4	5	6	
EI		0.8		-0.24	0.24	0.4	1
							2
		-0.24		0.096	-0.096	-0.24	3
		0.24		-0.096	0.096	0.24	4
		0.4		-0.24	0.24	0.8	5
							6

k2

	1	2	3	4	5	6	
EI	1.6	0.8	-0.96	0.96			1
	0.8	1.6	-0.96	0.96			2
	-0.96	-0.96	0.768	-0.768			3
	0.96	0.96	-0.768	0.768			4
							5
							6



FEM PL/8

18.75 kNm
15 kN

K	EI	1	2	3	4	5	6	
		1.600	0.800	-0.960	0.960	0.000	0.000	1
		0.800	2.400	-0.960	0.720	0.240	0.400	2
		-0.960	-0.960	0.768	-0.768	0.000	0.000	3
		0.960	0.720	-0.768	0.864	-0.096	-0.240	4
		0.000	0.240	0.000	-0.096	0.096	0.240	5
		0.000	0.400	0.000	-0.240	0.240	0.800	6

K		Q		$D = K^{-1}Q$	
1	2	1	2	1	2
1.6	0.8	0		-4.6875	/EL
0.8	2.4	18.75		9.3750	/EL

K	EI	1	2	3	4	5	6		D/EL	KD		Q_0		Q
		1.600	0.800	-0.960	0.960	0.000	0.000	1	-4.6875	0		0		0
		0.800	2.400	-0.960	0.720	0.240	0.400	2	9.375	18.75		18.75		0
		-0.960	-0.960	0.768	-0.768	0.000	0.000	3	0	-4.5	-	0	=	-4.5
		0.960	0.720	-0.768	0.864	-0.096	-0.240	4	0	2.25		-15		17.25
		0.000	0.240	0.000	-0.096	0.096	0.240	5	0	2.25		-15		17.25
		0.000	0.400	0.000	-0.240	0.240	0.800	6	0	3.75		-18.75		22.5

Element 1		L = 5 m			
EI	5	6	4	2	d
	0.096	0.24	-0.096	0.24	0
	0.24	0.8	-0.24	0.4	0
	-0.096	-0.24	0.096	-0.24	0
					9.3750
					kd
					2.25
					3.75
					-2.25
					7.5
					q_0
					-15
					-18.75
					-15
					18.75
					q
					17.25
					22.5
					12.75
					-11.25

Element 2		L = 2.5 m			
EI	4	2	3	1	d
	0.768	0.96	-0.768	0.96	0
	0.96	1.6	-0.96	0.8	9.3750
	-0.768	-0.96	0.768	-0.96	0
					-4.6875
					kd
					4.5
					11.25
					-4.5
					0
					q_0
					0
					0
					0
					0
					q
					4.5
					11.25
					-4.5
					0