

CERCHA DE 6 BARRAS CON APOYO INCLINADO EN 4 POR EL METODO DE TRANSFORMACION DE COORDENADAS

L	
L	3
E	1.00E+00
A	1
BE/L	0.33333333

L	
L	5
E	36.86989702
A	1.00E+00
A	2
BE/L	0.4

L	
L	4
E	1.00E+00
A	1
BE/L	0.25

L	
L	4
E	1.00E+00
A	1
BE/L	0.25

L	
L	5
E	323.1301024
A	1.00E+00
A	1
BE/L	0.8

L	
L	90
E	1.00E+00
A	1
BE/L	0.33333333

Elemento 1-2
MATRIZ ELEMENTO ERES GLOBALES

	7	8	1	2
7	0	0	0	0
8	0	0.33333	0	-0.33333
1	0	0	0	0
2	0	-0.33333	0	0.33333

Elemento 1-3
MATRIZ ELEMENTO ERES GLOBALES

	7	8	3	4
7	0.256	0.192	-0.256	-0.192
8	0.192	0.144	-0.192	-0.144
3	-0.256	-0.192	0.256	0.192
4	-0.192	-0.144	0.192	0.144

Elemento 1-4
MATRIZ ELEMENTO ERES GLOBALES

	7	8	5	6
7	0.25	0	-0.25	0
8	0	0	0	0
5	-0.25	0	0.25	0
6	0	0	0	0

Elemento 2-3
MATRIZ ELEMENTO ERES GLOBALES

	1	2	3	4
1	0.25	0	-0.25	0
2	0	0	0	0
3	-0.25	0	0.25	0
4	0	0	0	0

Elemento 2-4
MATRIZ ELEMENTO ERES GLOBALES

	1	2	5	6
1	0.256	-0.192	-0.256	0.192
2	-0.192	0.144	0.192	-0.144
5	-0.256	0.192	0.256	-0.192
6	0.192	-0.144	-0.192	0.144

Elemento 3-3
MATRIZ ELEMENTO ERES GLOBALES

	5	6	3	4
5	0	0	0	0
6	0	0.33333	0	-0.33333
3	0	0	0	0
4	0	-0.33333	0	0.33333

ensamble

	0	1	2	3	4	5	6	7	8
0	0.506	-0.192	-0.25	0	-0.256	0.192	0	0	-0.192
1	-0.192	0.47733	0	0	0.192	-0.144	0.144	0	-0.33333
2	-0.25	0	0.506	0.192	0	0	-0.256	-0.192	0
3	0	0.192	0.47733	0	0	-0.33333	-0.192	-0.144	0
4	-0.256	0.192	0	-0.33333	0	-0.192	-0.25	0	0
5	0.192	-0.144	0	-0.33333	-0.192	0.47733	0	0	0
6	0	0	-0.256	-0.192	-0.25	0	0.506	0.192	0
7	0	-0.33333	-0.192	-0.144	0	0	0.192	0.47733	0
8	0	0	0	0	0	0	0	0	0

U

u2

v2

u3

v3

u4

v4

u1

v1

Inclinación del apoyo

Matriz de transformación de los apoyos

	1	2	3	4	5	6	7	8
1	1	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0
3	0	0	1	0	0	0	0	0
4	0	0	0	1	0	0	0	0
5	0	0	0	0	1	0	0	0
6	0	0	0	0	0.866025404	0.5	0	0
7	0	0	0	0	0	0	1	0
8	0	0	0	0	0	0	0	1

TRANSFORMACION DE LAS COLUMNAS

K**TA (U)

F	
X2	0
Y2	-20
X3	60
Y3	-40
X4	
Y4	
X1	
Y1	

=

	0	1	2	3	4	5	6	7	8
0	0.506	-0.192	-0.25	0	-0.256	0.192	0	0	-0.192
1	-0.192	0.47733	0	0	0.192	-0.144	0.144	0	-0.33333
2	-0.25	0	0.506	0.192	0	0	-0.256	-0.192	0
3	0	0.192	0.47733	0	0	-0.33333	-0.192	-0.144	0
4	-0.256	0.192	0	-0.33333	0	-0.192	-0.25	0	0
5	0.192	-0.144	0	-0.33333	0	0.47733	0	0	0
6	0	0	-0.256	-0.192	-0.25	0	0.506	0.192	0
7	0	-0.33333	-0.192	-0.144	0	0	0.192	0.47733	0
8	0	0	0	0	0	0	0	0	0

U

u2

v2

u3

v3

u4

v4

u1

v1

TRANSFORMACION DE LAS FILAS

FL*TA**K**TA (U)

F	
X2	0
Y2	-20
X3	60
Y3	-40
X4=	
Y4	
X1	
Y1	

=

	0	1	2	3	4	5	6	7	8
0	0.506	-0.192	-0.25	0	-0.256	0.192	0	0	-0.192
1	-0.192	0.47733	0	0	0.192	-0.144	0.144	0	-0.33333
2	-0.25	0	0.506	0.192	0	0	-0.256	-0.192	0
3	0	0.192	0.47733	0	0	-0.33333	-0.192	-0.144	0
4	-0.256	0.192	0	-0.33333	0	-0.192	-0.25	0	0
5	0.192	-0.144	0	-0.33333	0	0.47733	0	0	0
6	0	0	-0.256	-0.192	-0.25	0	0.506	0.192	0
7	0	-0.33333	-0.192	-0.144	0	0	0.192	0.47733	0
8	0	0	0	0	0	0	0	0	0

U

u2

v2

u3

v3

u4

v4

u1

v1

UN	
u2	116.960079
v2	18.20640393
u3	255.9937912
v3	-209.8579797
u4	-66.1248974
v4	-209.858

=

kNN Inv				FN	
3.658481114	1.328119859	2.019559474	-0.558773414	0.726338454	0
1.328119859	2.736181539	0.859060619	-0.53465994	-0.541622957	-20
2.019559474	0.859060619	3.54476308	-1.509230468	-0.236537174	-60
-0.558773414	-0.53465994	-1.509230468	3.249933644	1.569127206	-40
0.726338454	-0.541622957	-0.236537174	1.569127206	4.221003327	0

FN

FN

FA	
Y4	98.15
X1	-10.93
Y1	-25.00

=

KAN					UN
0.294276878	-0.220707658	0	-0.288672248	-0.108414474	116.9605078 18.20640393 255.9937912
0	0	-0.256	-0.192	-0.216506351	
0	-0.33333	-0.192	-0.144	0	

UN

UN

u4	-57.27
v4	-33.06

=

U	
116.960079	1
18.20640393	2
255.9937912	3
-209.8579797	4
-66.1248974	5
-209.858	6

Elemento 1-2

Fel=I**Fe	
-6.07	
0.00	
6.07	
0.00	

=

-17	1	0	0.00
-1	6.12574E-17	0	0.00
0	0	6.12574E-17	1
0	0	-1	6.12574E-17

Fe=Ke*Ue	
0	
-6.068740623	
0	
6.068740623	

Ue	
1	0.000
8	0.000
1	116.961
2	18.206

Elemento 1-3

Fel=I**Fe	
-31.55	
0.00	
31.55	
0.00	

=

0.8	0.6	0	0.00
0.6	0.8	0	0.00
0	0	0.8	0.6
0	0	-0.6	0.8

Fe=Ke*Ue	
-25.24167917	
-18.93125938	
25.24167917	
18.93125938	

Ue	
1	0.000
8	0.000
3	255.994
4	-209.858

Elemento 1-4

Fel=I**Fe	
14.32	
0.00	
-14.32	
0.00	

=

1	0	0	0.00
0	1	0	0.00
0	0	1	0
0	0	0	1

Fe=Ke*Ue	
14.31645205	
0	
-14.31645205	
0	

Ue	
1	0.000
8	0.000
5	-57.266
6	-33.062

Elemento 2-3

Fel=I**Fe	
-34.76	
0.00	
34.76	
0.00	

=

1	0	0	0.00
0	1	0	0.00
0	0	1	0
0	0	0	1

Fe=Ke*Ue	
-34.75832083	
0	
34.75832083	
0	

Ue	
1	116.961
2	18.206
3	255.994
4	-209.858

Elemento 2-4

Fel=I**Fe	
-43.45	
0.00	
-43.45	
0.00	

=

0.8	-0.6	0	0.00
0.6	0.8	0	0.00
0	0	0.8	-0.6
0	0	0.6	0.8

Fe=Ke*Ue	
34.75832083	
-26.06874062	
-34.75832083	
26.06874062	

Ue	
1	116.961
2	18.206
5	-57.266
6	-33.062

Elemento 3-3

Fel=I**Fe	
58.93	
0.00	
-58.93	
0.00	

=

6.12574E-17	1	0	0.00
0	6.12574E-17	0	0.00
0	0	6.12574E-17	1
0	0	-1	6.12574E-17

Fe=Ke*Ue	
	0
58.93125938	
	0
-58.93125938	