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Python

Stiffness and density 30000000.0 0.284
Area [5]
Element number and x_cosine and y_cosine 5 0.9982743731749958 -0.058722821951470346
length is 17.029386365926483
ck and cm are [12331024.60988877] [5.64240335]
Stiffness and density 30000000.0 0.284
Area [7]
Element number and x_cosine and y_cosine 6 0.9982743731749958 0.058722821951470346
length is 17.029386365926483
ck and cm are [10569961.95126466] [4.83634573]
Stiffness and density 30000000.0 0.284
Area [6]
Element number and x_cosine and y_cosine 7 0.9048187022009941 -0.4257970363298796
length is 18.788294228055936
ck and cm are [12773911.00989639] [7.11450075]
Stiffness and density 30000000.0 0.284
Area [8]
Element number and x_cosine and y_cosine 8 0.9048187022009941 0.4257970363298796
length is 18.788294228055936
ck and cm are [14370649.97613341] [8.08381334]
Stiffness and density 30000000.0 0.284
Area [9]
Element number and x_cosine and y_cosine 9 0.0 1.0
length is 9.0
ck and cm are [3333333.33333333] [4.26]
Stiffness and density 30000000.0 0.284
Area [10]
K_red
[[ 2.03320620e+07  3.34709004e+06  0.00000000e+00  0.00000000e+00
 -6.18037800e+06 -2.60226459e+06  0.00000000e+00  0.00000000e+00
  3.34709004e+06  2.51348017e+07  0.00000000e+00 -2.40000000e+07
 -2.60226459e+06 -1.09569035e+06  0.00000000e+00  0.00000000e+00
  0.00000000e+00  0.00000000e+00  1.55306331e+07 -1.63480348e+06
 -1.55306331e+07  1.63480348e+06  0.00000000e+00  0.00000000e+00
  0.00000000e+00 -2.40000000e+07 -1.63480348e+06  2.41728046e+07
  1.63480348e+06 -1.72804577e+05  0.00000000e+00  0.00000000e+00
 -6.18037800e+06 -2.60226459e+06 -1.55306331e+07  1.63480348e+06
  4.27024885e+07 -3.33431383e+06 -1.05335150e+07 -6.19618576e+05
 -2.60226459e+06 -1.09569035e+06  1.63480348e+06 -1.72804577e+05
 -3.33431383e+06  2.50807444e+07 -6.19618576e+05  3.64481516e+04
  0.00000000e+00  0.00000000e+00  0.00000000e+00  0.00000000e+00
 -1.05335150e+07 -6.19618576e+05  2.22987222e+07  6.15618627e+06
  0.00000000e+00  0.00000000e+00  0.00000000e+00  0.00000000e+00
 -6.19618576e+05 -3.64481516e+04  6.15618627e+06  3.59752251e+07]]
Force Vector
[ 0  0 100 -200 200 -400 300 -600]
Inv K
[[ 9.73434617e-08 -3.15129843e-07 -4.30152195e-08 -3.15129843e-07
 -1.03265570e-08 -4.53055727e-09 -5.15020257e-09  7.06087506e-10]
 [-3.15129843e-07  2.34327669e-06  4.33690189e-07  2.34327669e-06
  1.96909599e-07  8.60805802e-08  9.87294210e-08 -1.34302941e-08]
 [-4.30152195e-08  4.33690189e-07  1.94754941e-07  4.38076154e-07
  6.60746133e-08  1.73073564e-08  4.27463748e-08 -5.81484603e-09]
 [-3.15129843e-07  2.34327669e-06  4.38076154e-07  2.38494336e-06
```