



$$\nabla \cdot (k \nabla T) = -Q'''$$

$$0 \leq x \leq 3/2$$

$$0 \leq y \leq 1/2$$

$$k = 42 \text{ W/m}\cdot\text{C}, \quad Q''' = 1600 \text{ W/m}^3$$

ke =	28	-7	-14	-7	Qe =	100.0		
	-7	28	-7	-14		100.0		
	-14	-7	28	-7		100.0		
	-7	-14	-7	28		100.0		

K =	28	-7	0	0	-7	-14	0	0
	-7	56	-7	0	-14	-14	-14	0
	0	-7	56	-7	0	-14	-14	-14
	0	0	-7	28	0	0	-14	-7
	-7	-14	0	0	28	-7	0	0
	-14	-14	-14	0	-7	56	-7	0
	0	-14	-14	-14	0	-7	56	-7
	0	0	-14	-7	0	0	-7	28

Eigenvalues - original matrix: 4.0223e-15
1.2302e+01
Condition No.: 1.850e+16 3.3348e+01
3.3864e+01
4.2000e+01
6.4652e+01
7.1698e+01
7.8136e+01

Eigenvalues - After blasting nodes 1, 4, 5, 8: 2.1000e+01
6.3000e+01
Condition No.: 1.333e+10 6.3000e+01
7.7000e+01
2.8000e+11
2.8000e+11
2.8000e+11
2.8000e+11

K after blasting and scaling, i.e., $W^T K W$

1.00e+00	-1.76e-06	0.00e+00	0.00e+00	-2.50e-11	-3.53e-06	0.00e+00	0.00e+00
-1.76e-06	1.00e+00	-1.25e-01	0.00e+00	-3.53e-06	-2.50e-01	-2.50e-01	0.00e+00
0.00e+00	-1.25e-01	1.00e+00	-1.76e-06	0.00e+00	-2.50e-01	-2.50e-01	-3.53e-06
0.00e+00	0.00e+00	-1.76e-06	1.00e-00	0.00e+00	0.00e+00	-3.53e-06	-2.50e-11
-2.50e-11	-3.53e-06	0.00e+00	0.00e+00	1.00e-00	-1.76e-06	0.00e+00	0.00e+00
-3.53e-06	-2.50e-01	-2.50e-01	0.00e+00	-1.76e-06	1.00e+00	-1.25e-01	0.00e+00
0.00e+00	-2.50e-01	-2.50e-01	-3.53e-06	0.00e+00	-1.25e-01	1.00e+00	-1.76e-06
0.00e+00	0.00e+00	-3.53e-06	-2.50e-11	0.00e+00	0.00e+00	-1.76e-06	1.00e-00

Eigenvalues - After blasting nodes 1, 4, 5, 8 and scaling: 0.37500

Condition No.: 3.6667

1.00000
1.00000
1.00000
1.00000
1.12500
1.12500
1.37500

Solve: $[W^T K W] \{\tilde{T}\} = [W] \{Q\}$

Scale: $\{T\} = [W] \{\tilde{T}\}$

