

```

/comp7
!
! Set up element type (Plane strain coup
led)
!
! et, 1, plane13, 4,, 0
! Set up properties for HE
!
mp, kxx, 1, 5.0
mp, ex, 1, 1.0e9
mp, prxy, 1, 0.49
mp, alp, 1, 12.0e-5
mp, dens, 1, 1200.0
mp, C, 1, 1000.0
!
! Set up properties for 4340
!
mp, kxx, 2, 44.5
mp, ex, 2, 205.0e9
mp, prxy, 2, 0.29
mp, alp, 2, 12.6e-6
mp, dens, 2, 7850.0
!
! Inner Circle
k, 1, 5, 0
k, 2, 4.93844, 0.782172
k, 3, 4.75528, 1.54508
k, 4, 4.45503, 2.26995
k, 5, 4.04508, 2.93893
k, 6, 3.53553, 3.53553
k, 7, 2.93893, 4.04508
k, 8, 2.26995, 4.45503
k, 9, 1.54508, 4.75528
k, 10, 0.782172, 4.93844
k, 11, 0, 5
!
! Outer Circle
k, 12, 6, 0
k, 13, 5.92613, 0.938607
k, 14, 5.70634, 1.8541
k, 15, 5.34604, 2.72394
k, 16, 4.8541, 3.52671
k, 17, 4.24264, 4.24264
k, 18, 3.52671, 4.8541
k, 19, 2.72394, 5.34604
k, 20, 1.8541, 5.70634
k, 21, 0.938607, 5.92613
k, 22, 0, 6
!
! Star
k, 23, 0.783024, 1.86415
k, 24, 0.827768, 1.85079
k, 25, 0.876698, 1.84437
k, 26, 0.928779, 1.84648
k, 27, 0.983577, 1.85308
k, 28, 1.04276, 1.86437
k, 29, 1.10548, 1.88382
k, 30, 1.1709, 1.90555
k, 31, 1.24161, 1.93553
k, 32, 1.31347, 1.96731
k, 33, 1.38842, 2.00306
k, 34, 1.46645, 2.04271
k, 35, 1.54584, 2.08592
k, 36, 1.62624, 2.13078
k, 37, 1.70931, 2.17756
k, 38, 1.79183, 2.22755
k, 39, 1.87488, 2.2773
k, 40, 1.95665, 2.32654
k, 41, 2.03914, 2.37743
k, 42, 2.11841, 2.42757
k, 43, 2.19439, 2.47702
k, 44, 2.27039, 2.52443
k, 45, 2.34091, 2.56906
k, 46, 2.40956, 2.61143
k, 47, 2.47286, 2.65297
k, 48, 2.53189, 2.6883
k, 49, 2.58733, 2.72308
k, 50, 2.6366, 2.75145
k, 51, 2.682, 2.77743
k, 52, 2.72117, 2.79704
k, 53, 2.75621, 2.81239
k, 54, 2.78522, 2.82329
k, 55, 2.80819, 2.82973
k, 56, 2.82488, 2.82985
k, 57, 2.83505, 2.82179
k, 58, 2.83936, 2.81118
k, 59, 2.83902, 2.79264
k, 60, 2.83234, 2.76782
k, 61, 2.82144, 2.73885
k, 62, 2.80396, 2.70176
k, 63, 2.78222, 2.66054
k, 64, 2.75621, 2.6152
k, 65, 2.72569, 2.56391
k, 66, 2.69251, 2.50693
k, 67, 2.65313, 2.44568
k, 68, 2.61318, 2.38109
k, 69, 2.56861, 2.3103
k, 70, 2.52366, 2.23811
k, 71, 2.47429, 2.16203
k, 72, 2.42612, 2.0829
k, 73, 2.3756, 2.00207
k, 74, 2.32461, 1.91986
k, 75, 2.27312, 1.83633
k, 76, 2.22298, 1.75185
k, 77, 2.17259, 1.66797
k, 78, 2.1257, 1.58529
k, 79, 2.07857, 1.50333
k, 80, 2.03686, 1.42301
k, 81, 1.99494, 1.34353
k, 82, 1.95195, 1.26912
k, 83, 1.92704, 1.19619
k, 84, 1.89899, 1.12638
k, 85, 1.8751, 1.05965
k, 86, 1.85573, 0.997526
k, 87, 1.8446, 0.938916
k, 88, 1.83791, 0.883135
k, 89, 1.83604, 0.831572
k, 90, 1.84276, 0.783105
k, 91, 1.85846, 0.739005
k, 92, 1.87896, 0.697078
k, 93, 1.90858, 0.659078
k, 94, 1.94287, 0.621443
k, 95, 1.98636, 0.58732
k, 96, 2.03682, 0.554863
k, 97, 2.09219, 0.52375
k, 98, 2.1545, 0.494034
k, 99, 2.22358, 0.464139
k, 100, 2.29553, 0.436627
k, 101, 2.3742, 0.408792
k, 102, 2.45558, 0.383317
k, 103, 2.5415, 0.357352
k, 104, 2.62992, 0.332295
k, 105, 2.72079, 0.308185
k, 106, 2.81195, 0.285005
k, 107, 2.90546, 0.262875
k, 108, 2.99914, 0.240241
k, 109, 3.09093, 0.220223
k, 110, 3.18074, 0.199779
k, 111, 3.26857, 0.180532
k, 112, 3.3544, 0.162541
k, 113, 3.43609, 0.144239
k, 114, 3.51364, 0.127271
k, 115, 3.58704, 0.111169
k, 116, 3.65419, 0.0975317
k, 117, 3.71505, 0.0832093
k, 118, 3.77174, 0.0703926
k, 119, 3.82003, 0.0574564
k, 120, 3.86203, 0.044429
k, 121, 3.89774, 0.0329758
k, 122, 3.92295, 0.0214639
k, 123, 4.0, 0.0
k, 124, 0.0, 4.0
k, 127, 0.0347362, 3.95661
k, 128, 0.0462625, 3.93562
k, 129, 0.0577423, 3.90833
k, 130, 0.070801, 3.87265
k, 131, 0.0837654, 3.82857
k, 132, 0.096637, 3.78031
k, 133, 0.111008, 3.72367
k, 134, 0.125223, 3.66074
k, 135, 0.140896, 3.59366
k, 136, 0.157963, 3.52032
k, 137, 0.174762, 3.44073
k, 138, 0.192906, 3.35911
k, 139, 0.212311, 3.27339
k, 140, 0.232946, 3.18569
k, 141, 0.253137, 3.0939
k, 142, 0.27604, 3.00232
k, 143, 0.298417, 2.9088
k, 144, 0.321818, 2.81552
k, 145, 0.346175, 2.72254
k, 146, 0.369994, 2.6319
k, 147, 0.396268, 2.54383
k, 148, 0.421953, 2.4582
k, 149, 0.448647, 2.37725
k, 150, 0.476241, 2.29894
k, 151, 0.505014, 2.2275
k, 152, 0.534743, 2.15883
k, 153, 0.565798, 2.09711
k, 154, 0.596859, 2.04218
k, 155, 0.630777, 1.99237
k, 156, 0.664983, 1.94933
k, 157, 0.701335, 1.91524
k, 158, 0.741032, 1.88626
k, 160, 0, 0
!
! Create lines
ksel, s, , 124, 158 ! Line 1
bsplin, all
allsel
ksel, s, , 23, 123 ! Line 2
bsplin, all
allsel
ksel, s, , 1, 11 ! Line 3
bsplin, all
ksel, s, , 12, 22 ! Line 5
bsplin, all
ksel, s, , 12, 22 ! Line 5
ksel, s, , 124, 158 ! Line 6
!
! End of equation: 300+2*exp(3*(TIME))
!
! Set variable temp BCs
!
!sel, s, line, , 1, 3
dl, all, , temp, %tempbc%
allsel
! Create the temperature BC function
*SET,_FNAME,'tempbc'
*DIM,_FNAME$,TABLE,6,8,1
! Begin of equation: 300+2*exp(3*(TIME))
*SET,_FNAME$(0,0,1), 0.0, -999
*SET,_FNAME$(2,0,1), 0.0
*SET,_FNAME$(3,0,1), 0.0
*SET,_FNAME$(4,0,1), 0.0
*SET,_FNAME$(5,0,1), 0.0
*SET,_FNAME$(6,0,1), 0.0
*SET,_FNAME$(0,1,1), 1.0, -1, 0, 3, 0
, 0, 1
*SET,_FNAME$(0,2,1), 0.0, -2, 0, 1, -
1, 3, 1
*SET,_FNAME$(0,3,1), 0, -1, 7, 1, -
2, 0, 0
*SET,_FNAME$(0,4,1), 0.0, -2, 0, 2, 0
, 0, -1
*SET,_FNAME$(0,5,1), 0.0, -3, 0, 1, -
2, 3, -1
*SET,_FNAME$(0,6,1), 0.0, -1, 0, 300,
0, 0, -3
*SET,_FNAME$(0,7,1), 0.0, -2, 0, 1, -
1, 1, -3
*SET,_FNAME$(0,8,1), 0.0, 99, 0, 1, -
2, 0, 0
! End of equation: 300+2*exp(3*(TIME))
!
! Set variable temp BCs
!
!sel, s, line, , 1, 3
dl, all, , temp, %tempbc%
allsel
! Create lines
ksel, s, , 124, 158 ! Line 1
bsplin, all
allsel
ksel, s, , 23, 123 ! Line 2
bsplin, all
allsel
ksel, s, , 1, 11 ! Line 3
bsplin, all
ksel, s, , 12, 22 ! Line 5
bsplin, all
ksel, s, , 12, 22 ! Line 5
ksel, s, , 124, 158 ! Line 6
!
! End of equation: 300+2*exp(3*(TIME))
!
! Set variable temp BCs
!
!sel, s, line, , 1, 3
dl, all, , temp, %tempbc%
allsel

```