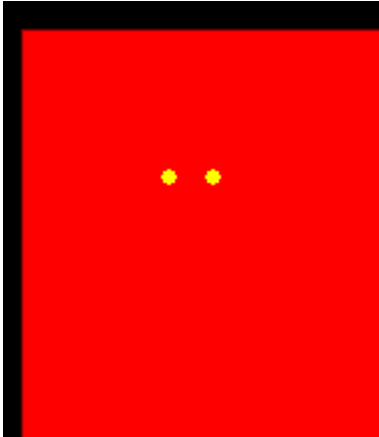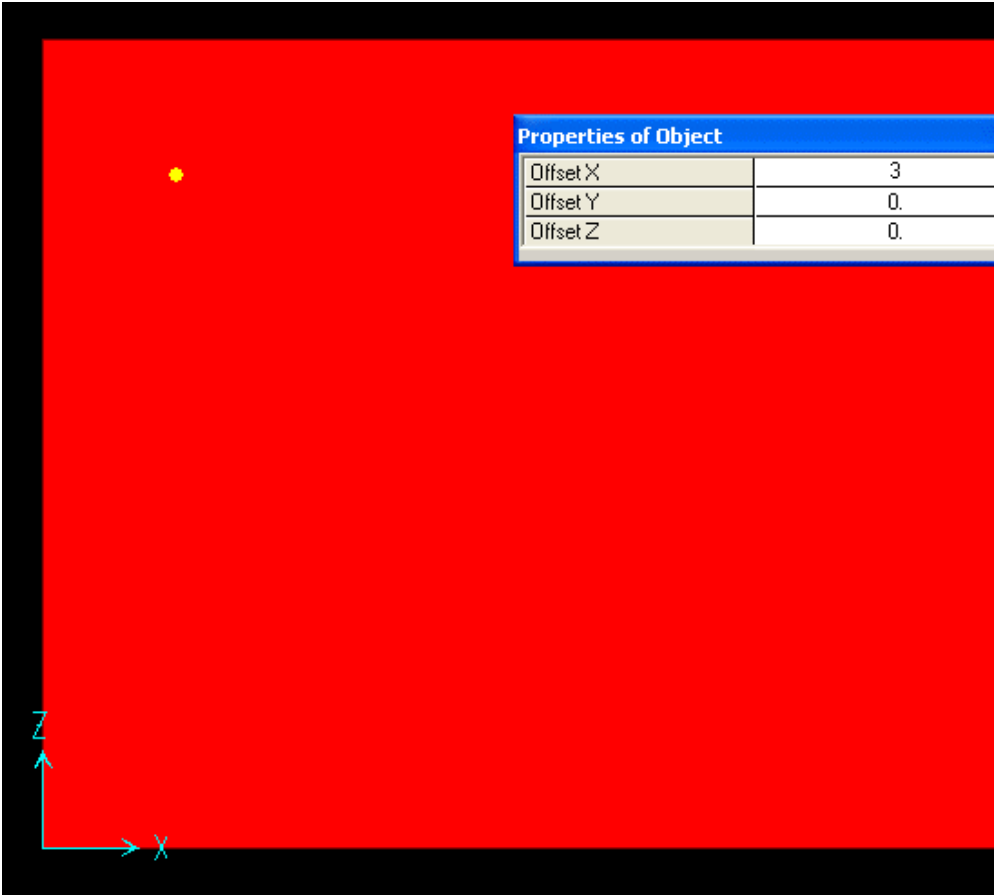Draw special joint. In this example, draw
a joint 3" away from wherever you click
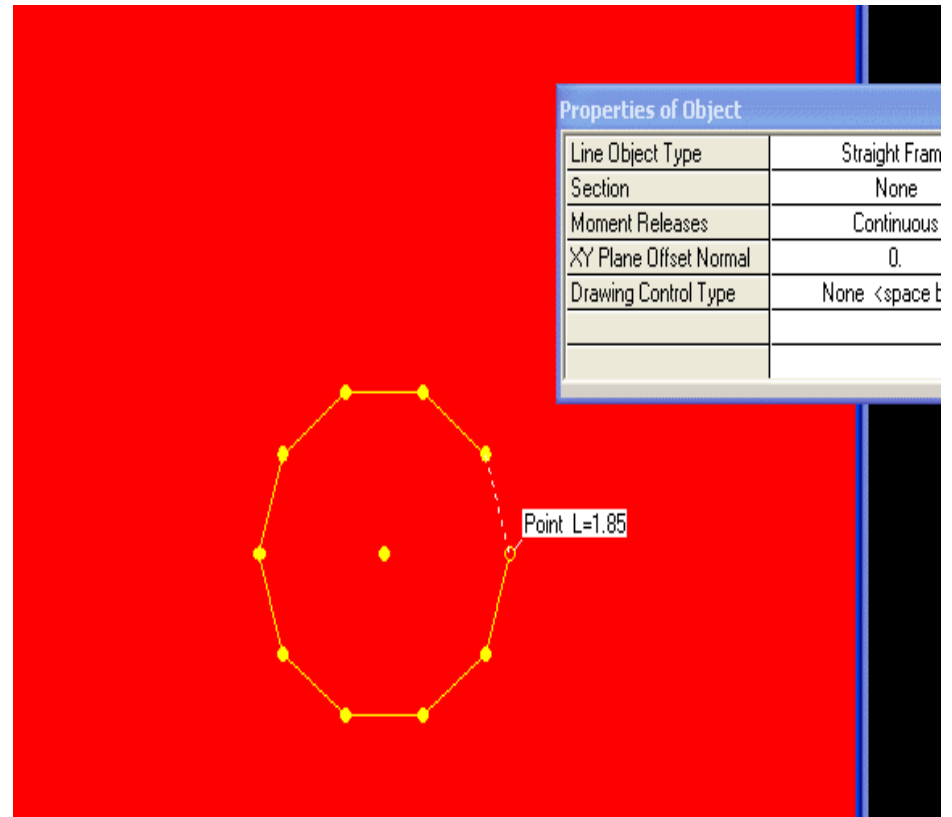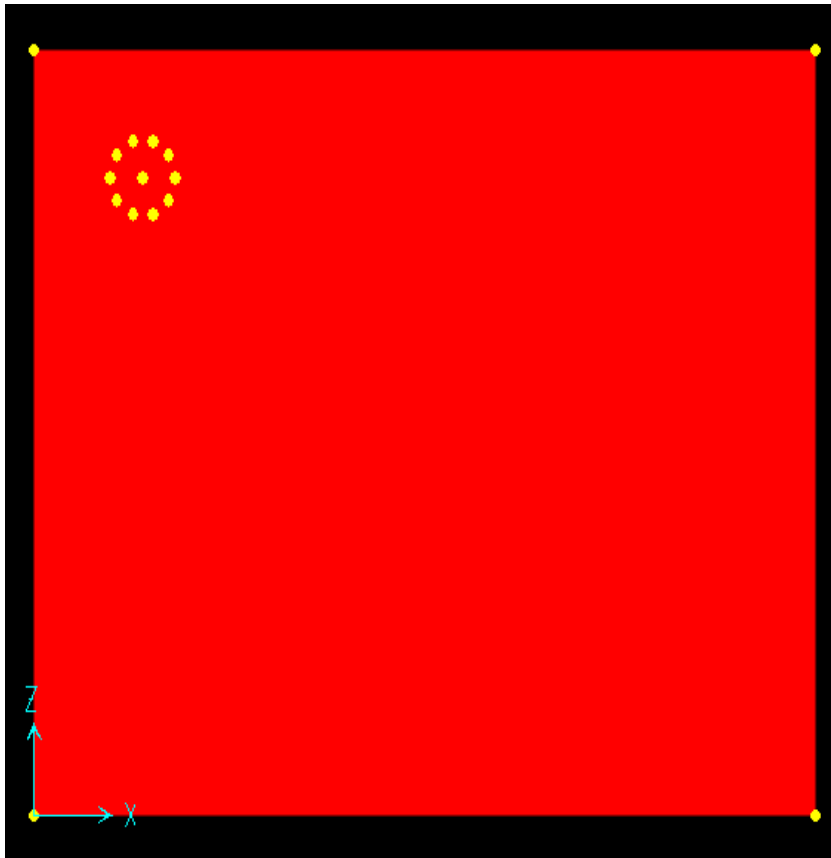
Joint added 3" away

Properties of Object

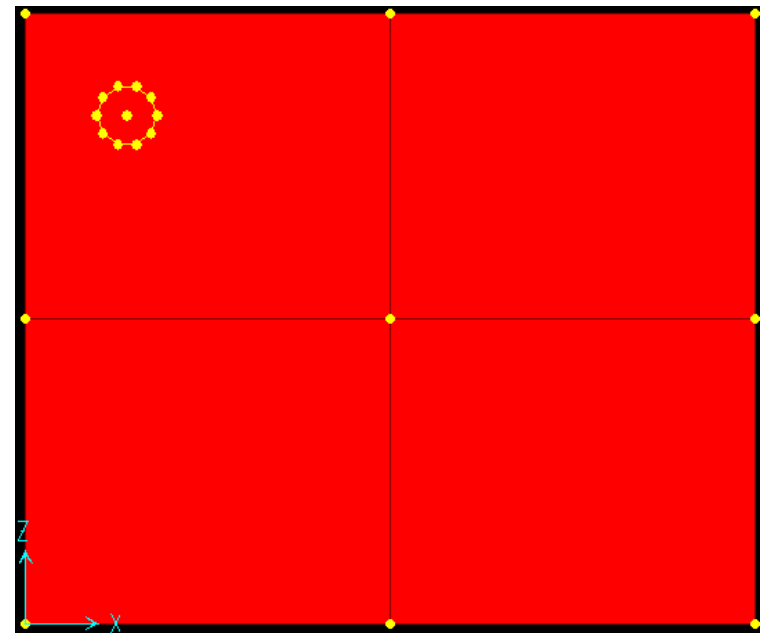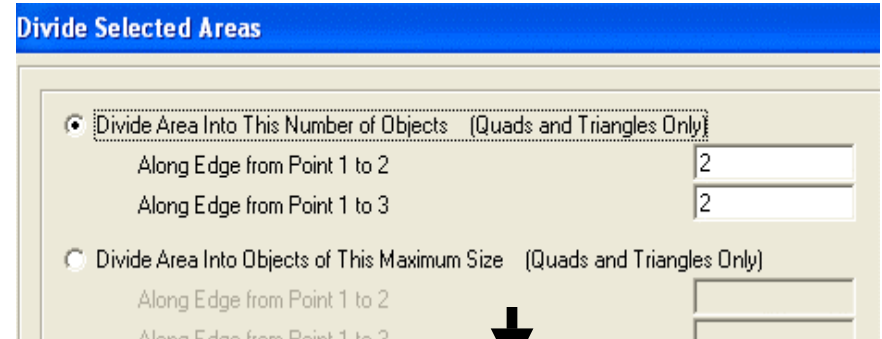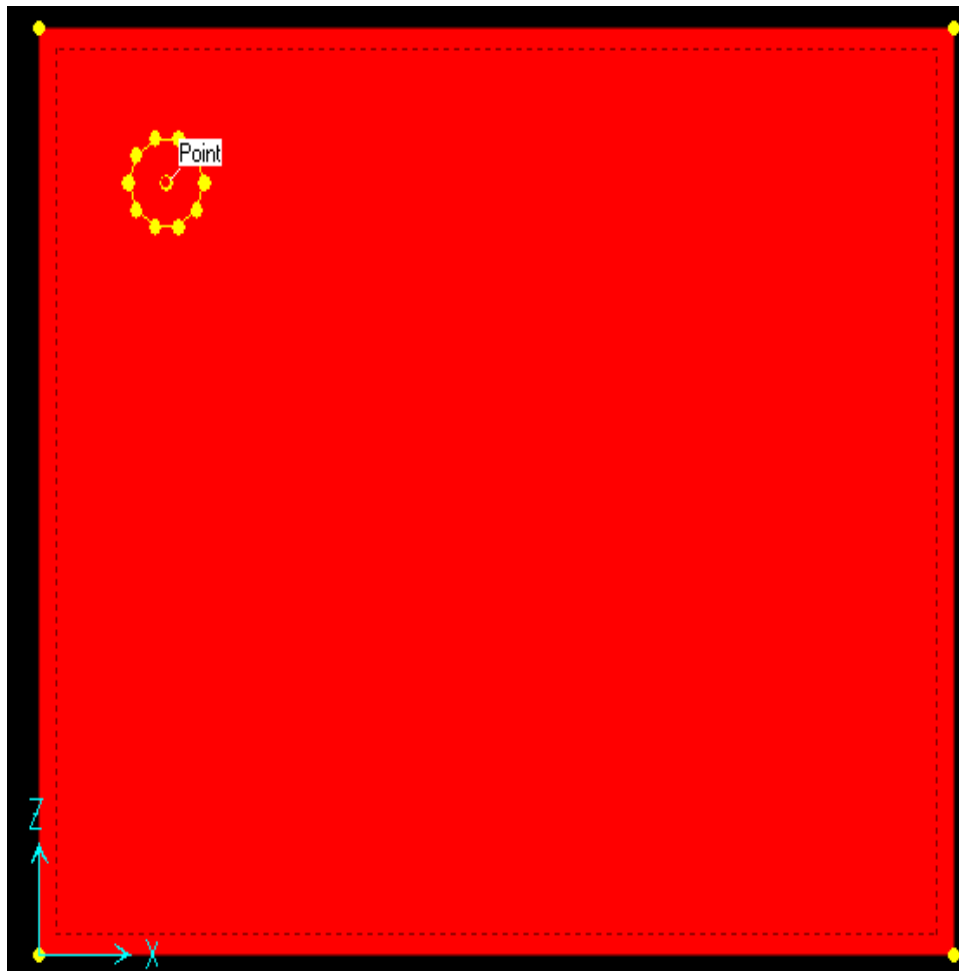| Offset X	3
Offset Y	0.
Offset Z	0.

Select the joint to be replicated, then Edit>Replicate, switch to Radial replication. Specify the coordinates of the point about rotation (X = 10 and Z = 50 in this example), then replicate number X angle which = 360 degrees to replicate a circle. In this example, since we have an existing joint, it works the same whether or not the number is 9 or 10 X 36 degrees
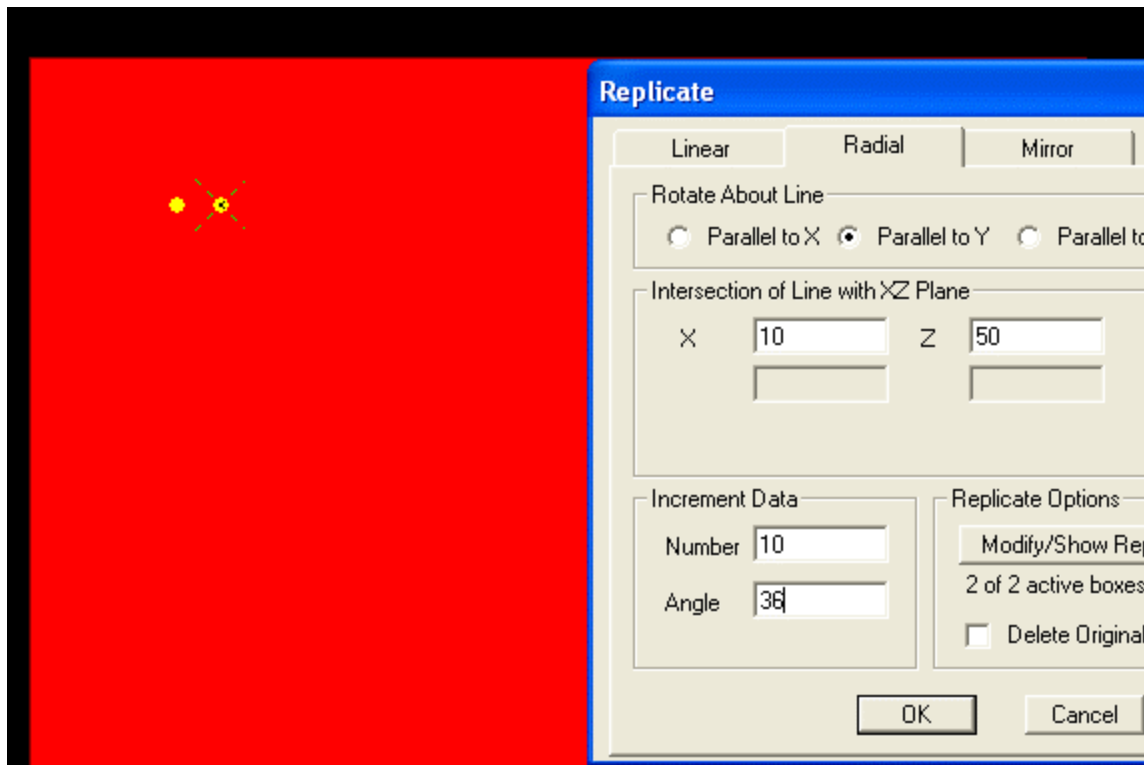
Connect the dots using Draw frame tool to draw a circle. In this example, Frame section 'None' was used, which has no stiffness

Properties of Object	
Line Object Type	Straight Fram
Section	None
Moment Releases	Continuous
XY Plane Offset Normal	0.
Drawing Control Type	None <space b

Point L=1.85

It's often a good idea to mesh the larger area to isolate the area where the hole will be meshed in order to avoid over meshing. Select the larger area then Edit>Edit areas>Divide areas. In this example, we'll divide the larger area 2X2.

Divide Selected Areas

⊙ Divide Area Into This Number of Objects   (Quads and Triangles Only)

    Along Edge from Point 1 to 2   2

    Along Edge from Point 1 to 3   2

○ Divide Area Into Objects of This Maximum Size   (Quads and Triangles Only)

    Along Edge from Point 1 to 2

    Along Edge from Point 1 to 3

Select the area , then the frames and joints, then Edit>Edit areas, but use the 'Divide areas using general divide tool' as shown below right
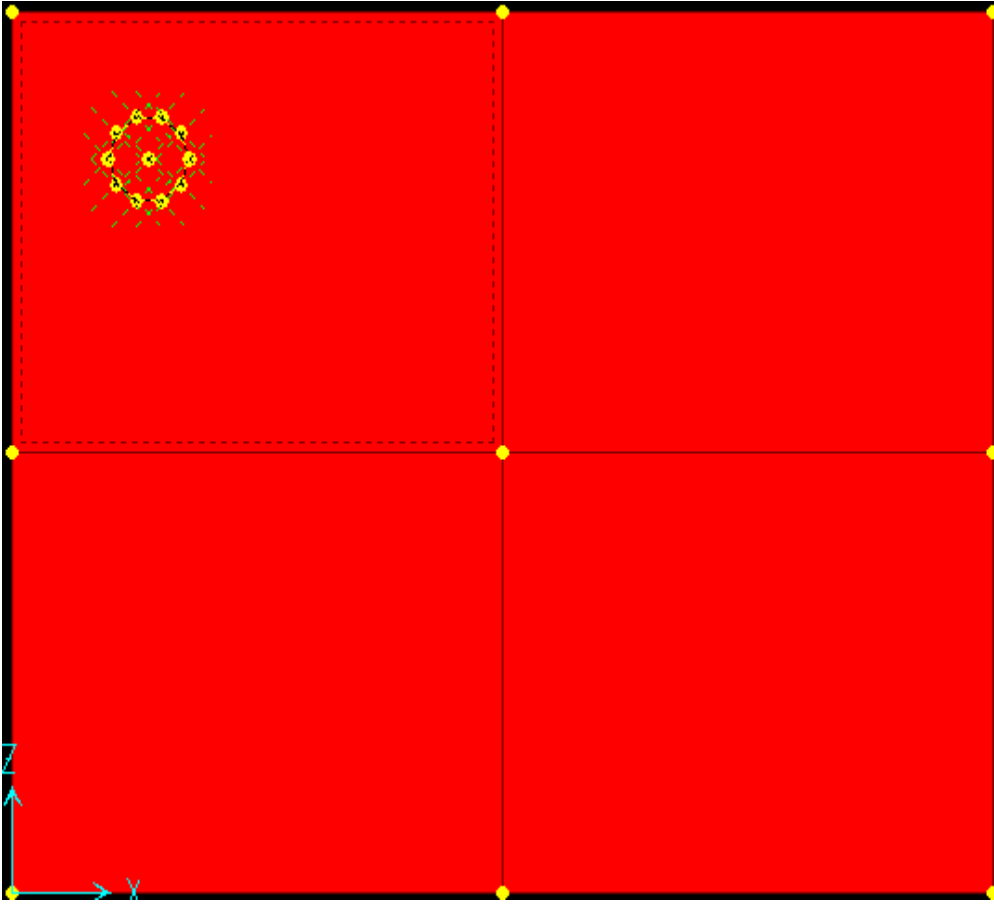
Divide Area Using Cookie Cut Based On Selected Straight Line Objects

☐ Extend All Lines To Intersect Area Edges

○ Divide Area Using Cookie Cut Based On Selected Point Objects

Rotation of Cut Lines From Area Local Axes (Deg)

⊙ Divide Area Using General Divide Tool Based On Selected Points and Lines

Maximum Size of Divided Object   96
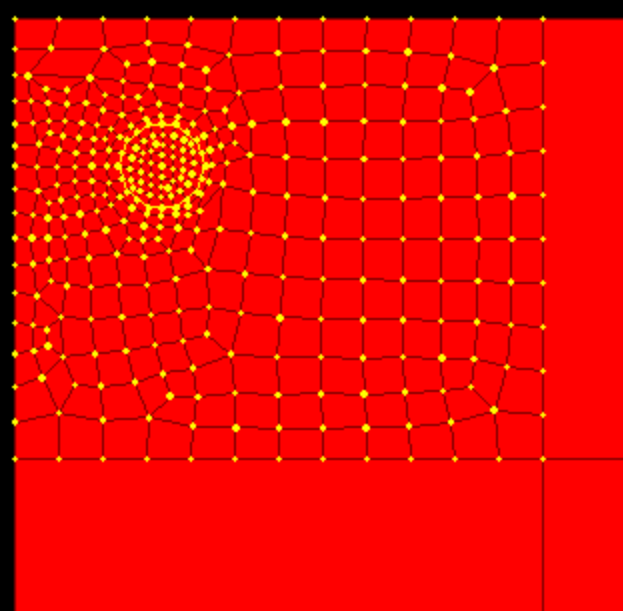
Zoom in to select the areas within the circle, and the frames themselves if they are a section property other than "None", and press delete key on your keyboard to create the circle opening. Next step is to adjust the meshes on adjacent areas.
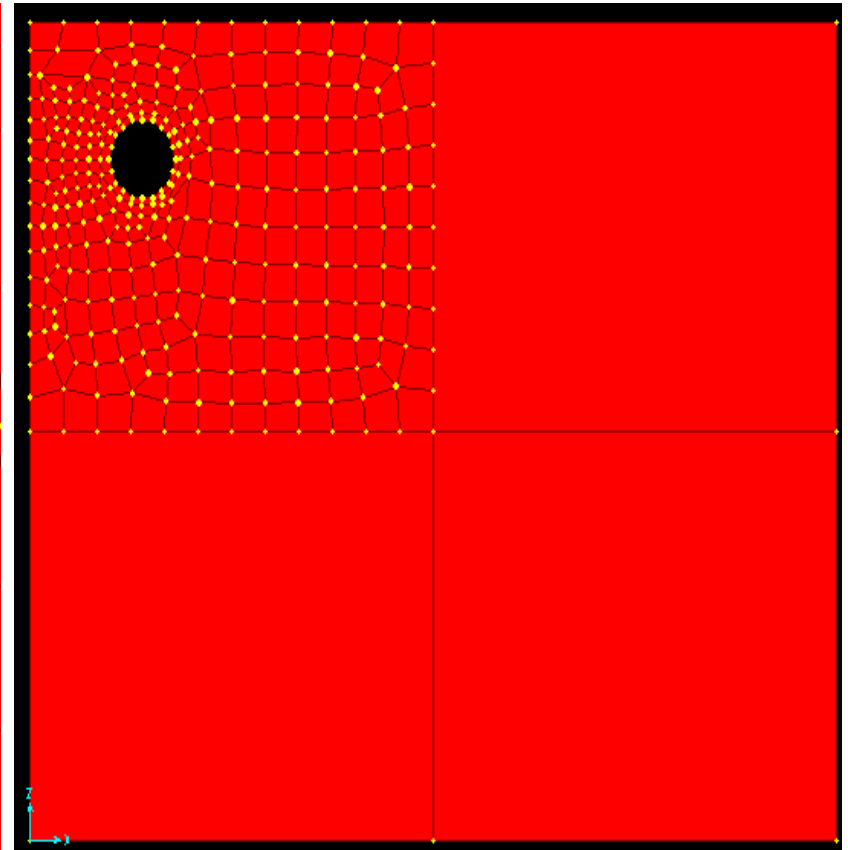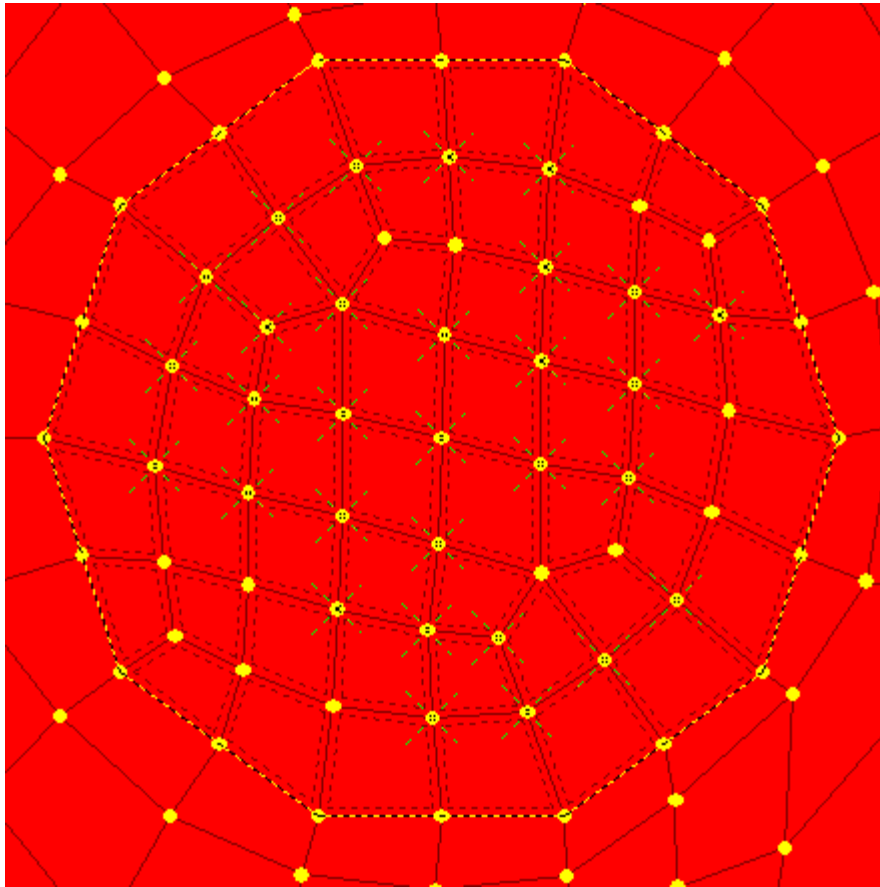
Mesh the adjacent areas to become a finer mesh (4X4 divide/mesh in this example), but not as fine as the quadrant with the hole. Select area elements then use Assign>Area>Generate edge constraints. Use of edge constraints 'zips together' adjacent elements which do not share mesh points using a displacement interpolation technique. That saves users from over meshing in areas where local effects are not so important

Assign Edge Constraints

Select Options

○ Do NOT Create Edge Constraints

● Create Constraints around Object Edges

[OK]   [Cancel]