NODES CIRCLE

Synopsis:
The NODES CIRCLE command is included in the UD_SCALAR computer program to facilitate the generation of nodal coordinates along a circular arc in the plane or in space.

Syntax:

\[ \text{NODEs CIRcle NUMber ## X1 #.# X2 #.## (X3 #.##)} \]
\[ \text{INCrement ## RATio #.## (X1\text{\_intermediate #.##})} \]
\[ (X2\text{\_intermediate #.##}) (X3\text{\_intermediate #.##}) \]

Explanatory Remarks:
The NUMBER keyword denotes the node number at which the coordinate generation will stop (the beginning point for the generation is the node NUMBER specified on the previous NODES CIRCLE or NODES LINE record). The keyword INCREMENT is used to specify the numbering increment to be used in generating the nodal coordinates. The default numbering increment is equal to zero (0). The spacing of the generated nodes is dictated by the real number supplied in conjunction with the RATIO keyword. The default spacing ratio is equal to 1.0. The values for X1_INTERMEDIATE, X2_INTERMEDIATE and/or X3_INTERMEDIATE represent the coordinates of an intermediate point through which the circular arc passes. This point need not be a node associated with the mathematical model. The default coordinates for X1, X2 and X3 are zero (0.0); as such, if a specific coordinate is equal to zero, the analyst need not supply the value explicitly.

Example:
To better illustrate the use of the NODES CIRCLE command, consider the generation of nodes along a circular arc the begins at node 2 and ends at node 44. The numbering increment is equal to 7, and a spacing RATIO of 1.0 is adopted. The coordinates of the intermediate point are (4.0, 4.745). The two command lines required to generate these nodes are thus
The above example of nodal generation is repeated, only assuming a spacing ratio of 0.80. The resulting arc of nodes is shown below.
Figure 3. Example of Nodal Generation Along Circular Arc (Spacing Ratio = 0.80)

See also:

The ELEMENT and GENERATE commands.