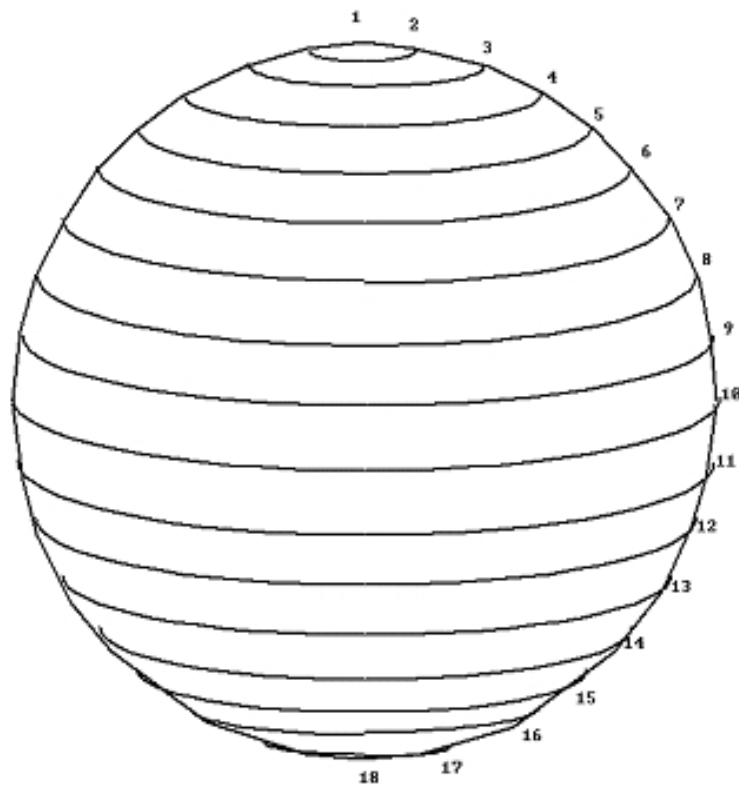


Representation of an axisymmetric surface by conical panels

Axisymmetric surfaces can be represented in the form of a set of truncated conical panels. The surface can be defined by specifying the points on the generator and sweeping through 360° . In order that the normal to the boundary points outward rather than inward the two nodes that define each element must be listed in the clockwise direction around the generator of the boundary, so that the normal is naturally outward when the nodes are passed consecutively to the NORM2 routine in GEOM2D¹. For example a sphere of unit radius can be represented by 18 truncated cone panels and has 19 vertices, as illustrated in the following diagram.



Representation of the sphere by truncated conical panels.

The boundary can be represented by the following two tables. The first table lists the (r, z) coordinates of the vertices and is identified by the real array VERTEX. The second table lists the index of the two vertices that define each panel and is identified by the integer array SELV.

¹ [GEOM2D](#)

Vertices of sphere generator (VERTEX)					
Index	r	z	Index	r	z
1	0.000	1.000	11	0.985	-0.174
2	0.174	0.985	12	0.940	-0.342
3	0.342	0.940	13	0.866	-0.500
4	0.500	0.866	14	0.766	-0.643
5	0.643	0.766	15	0.643	-0.766
6	0.766	0.643	16	0.500	-0.866
7	0.866	0.500	17	0.342	-0.940
8	0.940	0.342	18	0.174	-0.985
9	0.985	0.174	19	0.000	-1.000
10	1.000	0.000			

Panels that constitute the sphere (SELV)					
Index	Vertex 1	Vertex 2	Index	Vertex 1	Vertex 2
1	1	2	10	10	11
2	2	3	11	11	12
3	3	4	12	12	13
4	4	5	13	13	14
5	5	6	14	14	15
6	6	7	15	15	16
7	7	8	16	16	17
8	8	9	17	17	18
9	9	10	18	18	19