**Stella Octangula**

The Stella Octangula is inscribed in a sphere of radius equal to 1.

**Edge length**



**Vertices coordinates**



|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 0 | 0 | c1 |
| 2 | 0 | 0 | -c1 |
| 3 | c1 | 0 | 0 |
| 4 | -c1 | 0 | 0 |
| 5 | 0 | c1 | 0 |
| 6 | 0 | -c1 | 0 |
| 7 | c1 | c1 | c1 |
| 8 | c1 | c1 | -c1 |
| 9 | c1 | -c1 | c1 |
| 10 | c1 | -c1 | -c1 |
| 11 | -c1 | c1 | c1 |
| 12 | -c1 | c1 | -c1 |
| 13 | -c1 | -c1 | c1 |
| 14 | -c1 | -c1 | -c1 |

**Edges**

[(1,3), (1,4), (1,5), (1,6), (1,7), (1,9), (1,11), (1,13), (2,3), (2,4), (2,5), (2,6), (2,8), (2,10), (2,14), (3,5), (3,6), (3,7), (3,8), (3,9), (3,10), (4,5), (4,6), (4,11), (4,13), (4,14), (5,7), (5,8), (5,11), (6,9), (6,10), (6,13), (6,14), (12,2), (12,4), (12,5)]

**Faces**

[(7,1,3), (7,3,5), (7,5,1), (8,2,5), (8,5,3), (8,3,2), (9,1,6), (9,6,3), (9,3,1), (10,2,3), (10,3,6), (10,6,2), (11,1,5), (11,5,4), (11,4,1), (12,2,4), (12,4,5), (12,5,2), (13,1,4), (13,4,6), (13,6,1), (14,2,6), (14,6,4), (14,4,2)]

**Number of nodes from vertices**



**Number of nodes from each edge divisions**



**Node number from forward edge**

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**Node number from backward edge**



**Number of nodes from each face**



**Total number of nodes**



**Coordinates of points along an edge**



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**Face coordinate system**







**Global coordinate system**

 : face coordinate system



**Node number from face**







**Coordinates of points along a face radius in the face coordinate system**















**Coordinates in the global coordinate system**











**Number of elements from each face**

