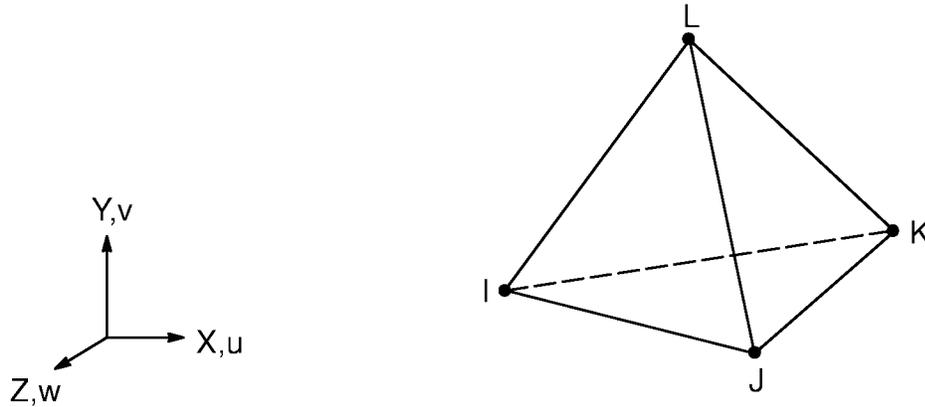


# 14.72 SOLID72 — 4-Node Tetrahedral Structural Solid with Rotations



Matrix or Vector	Shape Functions	Integration Points
Stiffness Matrix	Equations (12.8.3-1) thru (12.8.3-3)	5 (direct stress) 1 (shear stress)
Mass Matrix	Same as stiffness matrix	5
Stress Stiffness Matrix	Same as stiffness matrix	5
Thermal Load Vector	Same as stiffness matrix	Same as stiffness matrix
Pressure Load Vector	Equation (12.8.3-1) thru (12.8.3-3) specialized to the face	3

Load Type	Distribution
Element Temperature	Equation (12.8.1-20)
Nodal Temperature	Equation (12.8.1-20)
Pressure	Bilinear across each face

Reference: Yunus et al.(117)

## 14.72.1 Other Applicable Sections

Chapter 2 describes the derivation of structural element matrices and load vectors as well as stress evaluations. Section 13.1 describes integration point locations.