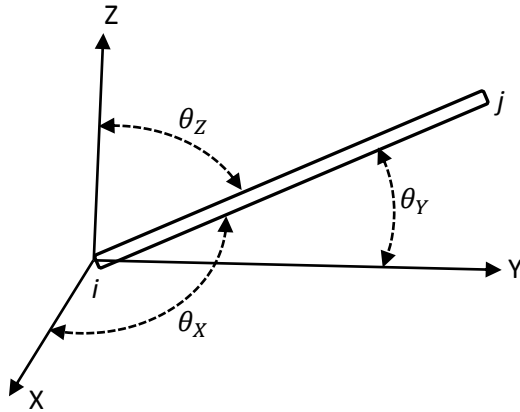


HOMEWORK #1

(DUE DATE: 09 March 2015)

Question 1. (Chapter 2, Problem 18) Derive transformation matrix, T for a member of 3D truss shown in the figure (You do not have to evaluate element stiffness matrix, $K^{(e)}$).

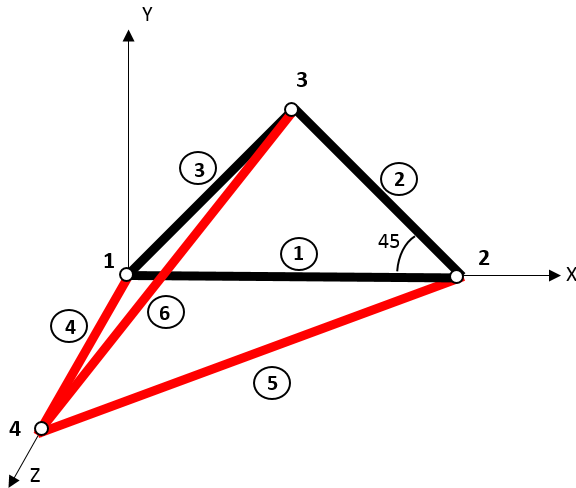


Question 2. Calculate stresses on each member of the following 3D truss structure (Node 3 is in XY plane).

$L_2 = L_3 = L_4 = 100 \text{ mm}, E = 200 \text{ GPa}, \text{Area: } A = 100 \text{ mm}^2,$

B.C's: $U_{1X} = U_{1Y} = U_{1Z} = U_{2Y} = U_{2Z} = U_{4X} = U_{4Y} = U_{4Z} = 0$

Load: 10 kN on node 3 along negative Y direction.



Element Connectivity		
Element No.	Nodes	
	1	1
2	2	3
3	1	3
4	1	4
5	2	4
6	3	4