

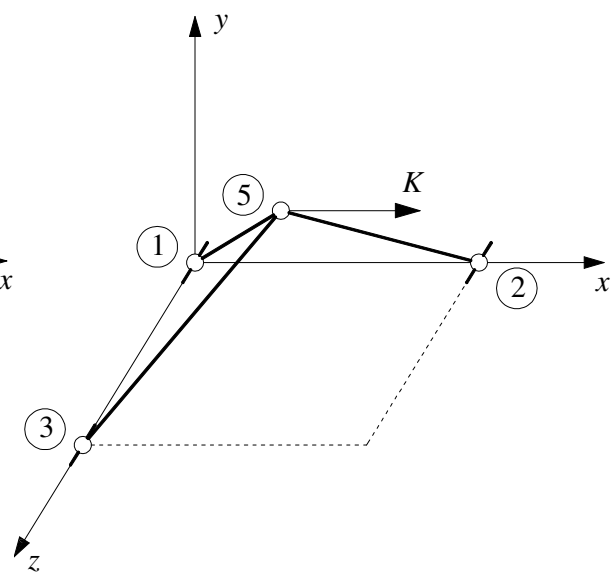
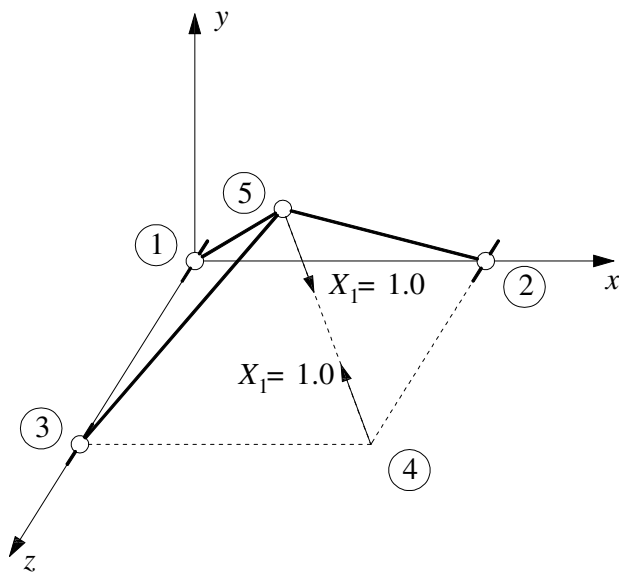
- ① (0, 0, 0)
- ② (4, 0, 0)
- ③ (0, 0, 4)
- ④ (4, 0, 4)
- ⑤ (2, 2, 2)

$$K = 100 \vec{i}$$

$S_{15}, S_{25}, S_{35}, S_{45} = ?$

$$L_{i5} = 2\sqrt{3}$$

$$X_1 = S_{45}$$

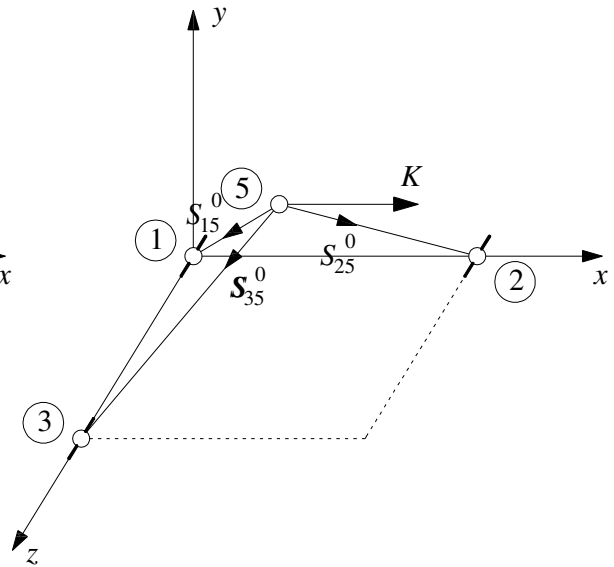
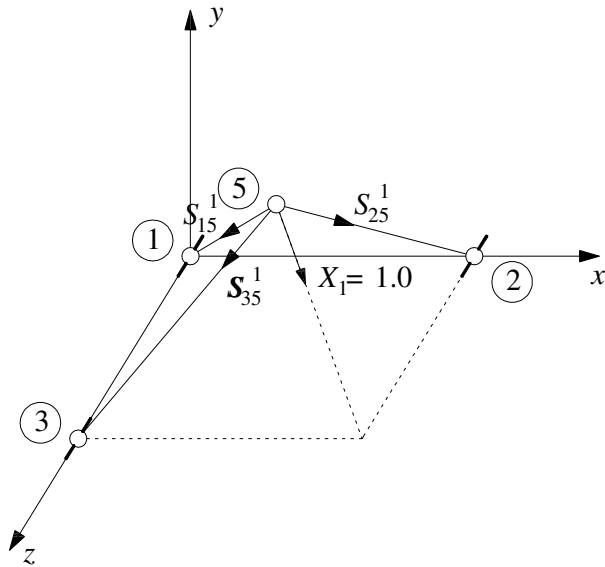


$$\bar{S}_{15} = |S_{15}|(-\vec{i} - \vec{j} - \vec{k}) \frac{1}{\sqrt{3}}$$

$$\bar{S}_{25} = |S_{25}|(\vec{i} - \vec{j} - \vec{k}) \frac{1}{\sqrt{3}}$$

$$\bar{S}_{35} = |S_{35}|(-\vec{i} - \vec{j} + \vec{k}) \frac{1}{\sqrt{3}}$$

$$\bar{S}_{45} = |S_{45}|(\vec{i} - \vec{j} + \vec{k}) \frac{1}{\sqrt{3}}$$



$$\sum F_x = 0:$$

$$-S_{15}^1 \frac{1}{\sqrt{3}} + S_{25}^1 \frac{1}{\sqrt{3}} - S_{35}^1 \frac{1}{\sqrt{3}} + \frac{1}{\sqrt{3}} = 0$$

$$\sum F_y = 0$$

$$-S_{15}^1 \frac{1}{\sqrt{3}} - S_{25}^1 \frac{1}{\sqrt{3}} - S_{35}^1 \frac{1}{\sqrt{3}} - \frac{1}{\sqrt{3}} = 0$$

$$\sum F_z = 0$$

$$-S_{15}^1 \frac{1}{\sqrt{3}} - S_{25}^1 \frac{1}{\sqrt{3}} + S_{35}^1 \frac{1}{\sqrt{3}} + \frac{1}{\sqrt{3}} = 0$$

$$\sum F_x = 0$$

$$-S_{15}^0 \frac{1}{\sqrt{3}} + S_{25}^0 \frac{1}{\sqrt{3}} - S_{35}^0 \frac{1}{\sqrt{3}} + 100 = 0$$

$$\sum F_y = 0$$

$$-S_{15}^0 \frac{1}{\sqrt{3}} - S_{25}^0 \frac{1}{\sqrt{3}} - S_{35}^0 \frac{1}{\sqrt{3}} = 0$$

$$\sum F_z = 0$$

$$-S_{15}^0 \frac{1}{\sqrt{3}} - S_{25}^0 \frac{1}{\sqrt{3}} + S_{35}^0 \frac{1}{\sqrt{3}} = 0$$

	$S_{i5}^1$	$S_{i5}^0$ [kN]	$S_{i5} = S_{i5}^0 + X_1 S_{i5}^1$ [kN]
$S_{15}$	1.0	86.6025	43.3
$S_{25}$	-1.0	-86.6025	-43.3
$S_{35}$	-1.0	0	43.3
$S_{45}$	1.0	0	-43.3

$$\delta_{11} = 1.0 \cdot 1.0 \cdot 2\sqrt{3} \cdot \frac{1}{EF} \cdot 4 = \frac{8\sqrt{3}}{EF}$$

$$\delta_{10} = 86.6025 \cdot 1.0 \cdot 2\sqrt{3} \cdot \frac{1}{EF} \cdot 2 = \frac{346.41\sqrt{3}}{EF}$$

$$\delta_{11} X_1 + \delta_{10} = 0 \quad \rightarrow \quad X_1 = -43.3 \text{ kN}$$