

Atir Software Development LTD

# STRAP - Space truss

## Verification

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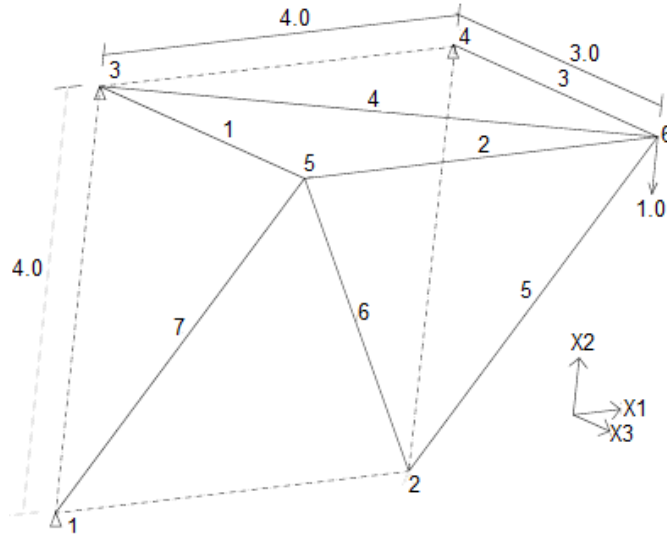
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## 1. Description

A statically indeterminate cantilever space truss as shown below, loaded with a joint load and a uniform temperature load.



## 2. Geometry

Modulus of Elasticity: 30,000 ksi

Thermal coefficient:  $11.7 \times 10^{-6}$  (in/in)/°C

Elements: beam elements, Area: 1.0 in<sup>2</sup>

Supports: Pinned

## 3. Loads

Joint load FX2 (node 6) = -1.0

Axial temperature change = +27.8°C (all beams)

## 4. Reference

S. P. Timoshenko & D. H. Young, *Theory of structures, Second Edition. (article 7.6, problems 1,2)*, McGraw – Hill book company.

## 5. Comparison of Results

Beam	Load	Result type	Result		Deviation
			Theoretical	STRAP	
4	Joint	Axial	0.056	0.056	-
4	Temperature	Axial	1.295	1.294	0.07%