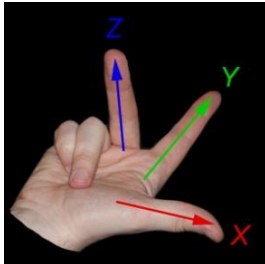




## Sign Conventions for Structural Model Axes

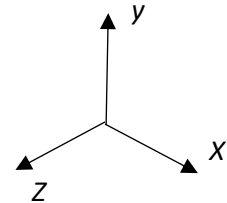
**The coordinate axes** Cartesian axes are at right angles to each other.

### Directions of Cartesian axes

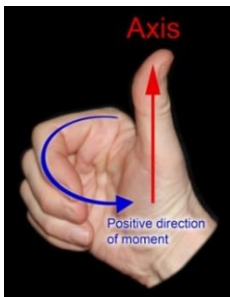


Cartesian axes in three dimension X,Y,Z normally have positive directions according to the *right hand rule*:

Using the thumb, index and middle fingers of the right hand, the thumb points in the direction of the positive X axis, the index finger points in the direction of the positive Y axis and the middle finger points in the direction of the positive Z axis.



### Directions of rotations and moments

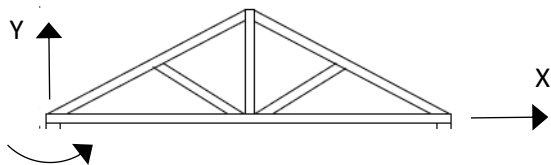


Rotations and moments normally have their positive direction defined according to the *right-hand rule*:

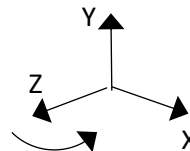
If the thumb of the right hand is in the positive direction of the axis then the fingers curl round in the direction of positive direction of rotation. This is equivalent to: positive clockwise looking in the positive direction of the axis.

### Structure/global axes

It is normal when working in a plane to use the XY plane

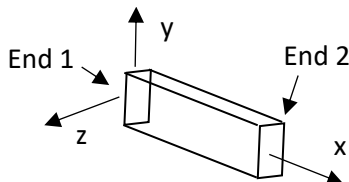


Moments and rotations - positive anticlockwise by the right-hand rule.



The position of the origin of the global axes is arbitrary

### Member/local axes



The x axis of a member is along the longitudinal axis of the member - positive from End 1 to End 2

When the member is in the XY plane, its xy axes are assumed to be in that plane.

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