Workplane

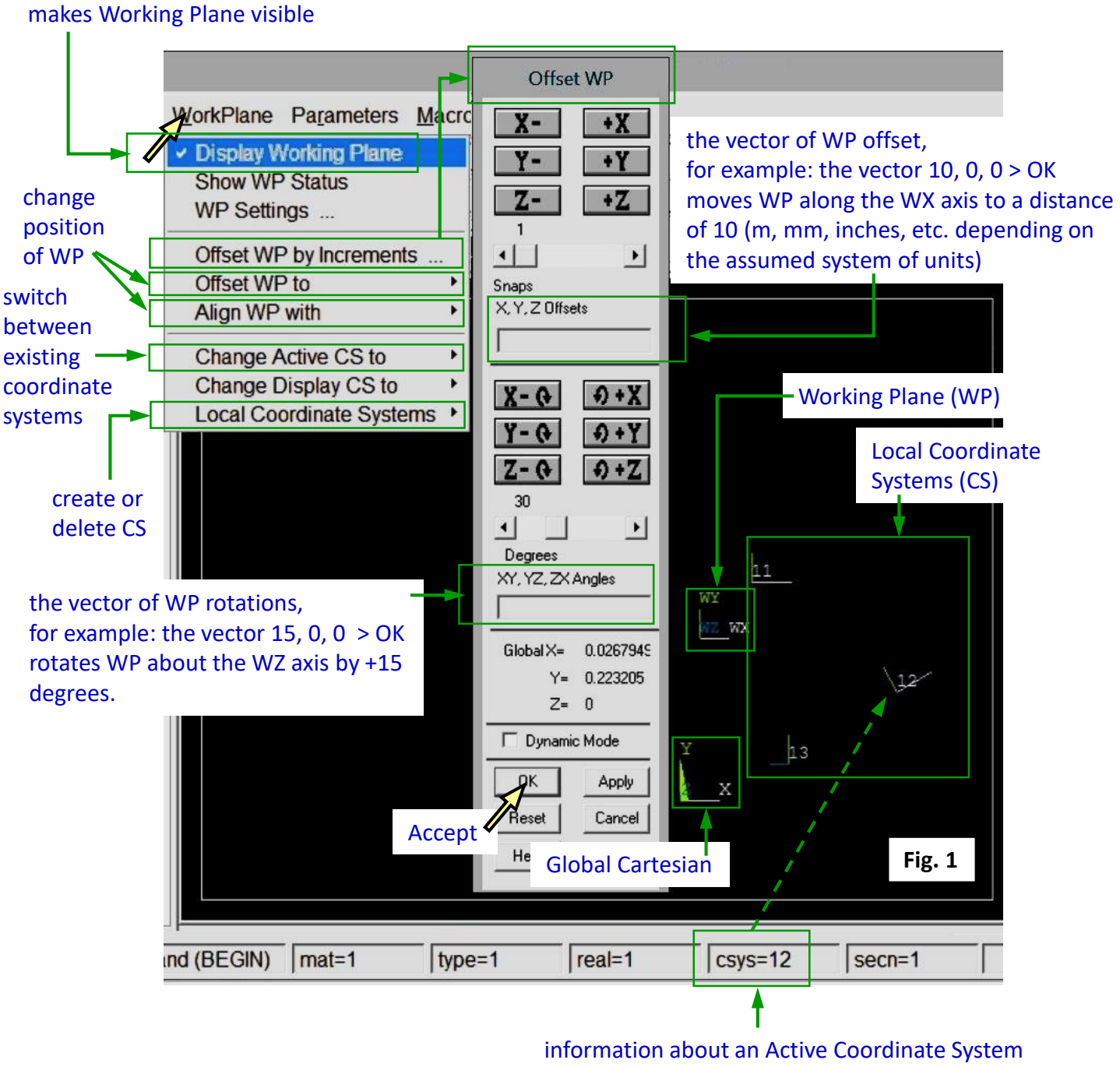


Fig. 1

Comments

WP is a single movable coordinate system no. 4.
WP may be aligned with any CS.
WP may be moved, aligned, and then used to create a new CS.
Some commands from Main Menu > Preprocessor > Modelling ... use an actual position of WP to create geometry.

Clear and start a new database

Utility Menu > File > Clear & Start New > Do not Read File > OK > CLEAR … EXECUTED? > Yes
Utility Menu > Plot > Replot

Display Working Plane

Utility Menu > Work Plane > Display Working Plane

Create a rectangle

Main Menu > Preprocessor > Modeling > Create > Areas > Rectangle > By Dimensions
X1, X2 → 0, 20
Y1, Y2 → 0, 10 → OK (Fig. 1)

Fig. 1

Move and rotate WP

Utility Menu > Work Plane > Offset WP by Increments …
X, Y, Z Offsets: 25,5,0 → Apply (Fig. 2)
XY, YZ, ZX Angles: 30,0,0 → OK (Fig. 3)

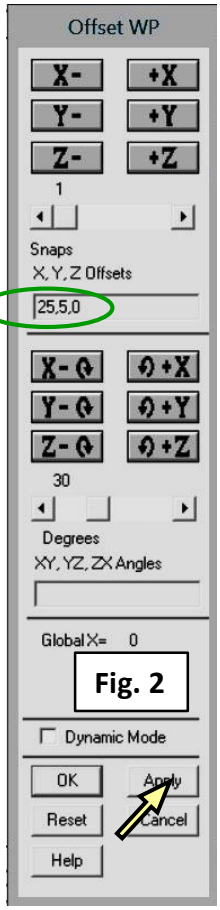


Fig. 2

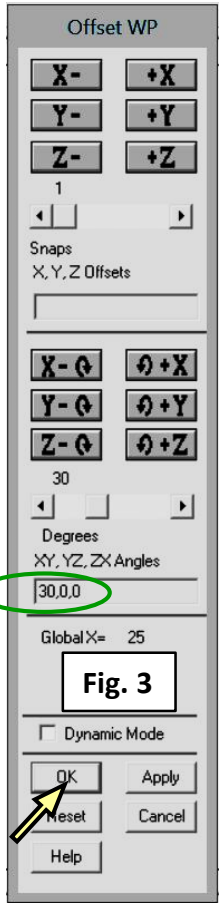


Fig. 3

Create the next rectangle

Main Menu > Preprocessor > Modeling > Create > Areas > Rectangle > By Dimensions
X1, X2 → 0, 20
Y1, Y2 → 0, 10 → OK
(Fig. 4)

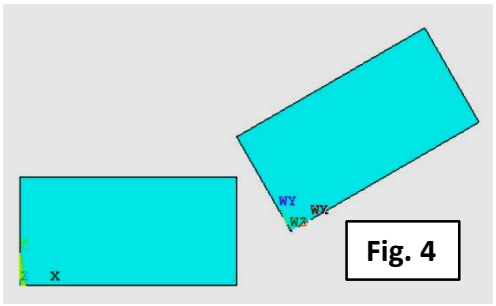


Fig. 4

Create a new Coordinate System (elliptical, no. 11)

Utility Menu > Work Plane > Local Coordinate Systems > Create Local CS > At WP Origin …
KCN= 11, KCS = Cylindrical 1, PAR1 = 1/2 → OK (Fig. 5)

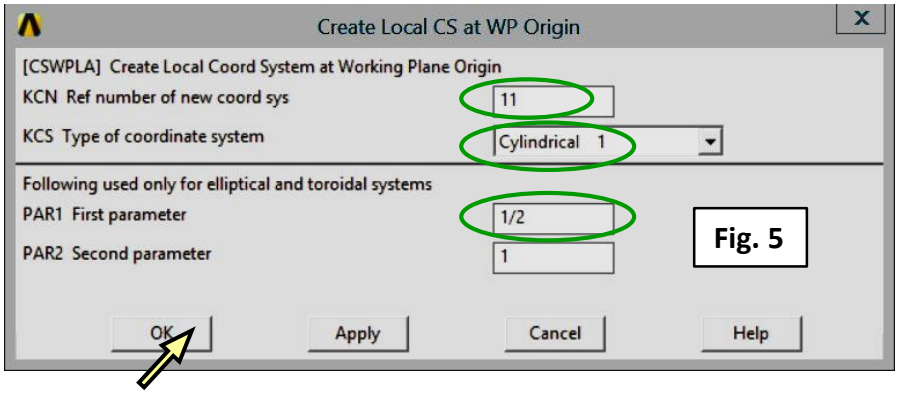


Fig. 5

Comment

A new created CS was set as an active coordinate system.

Turn WP off and plot keypoints with numbers

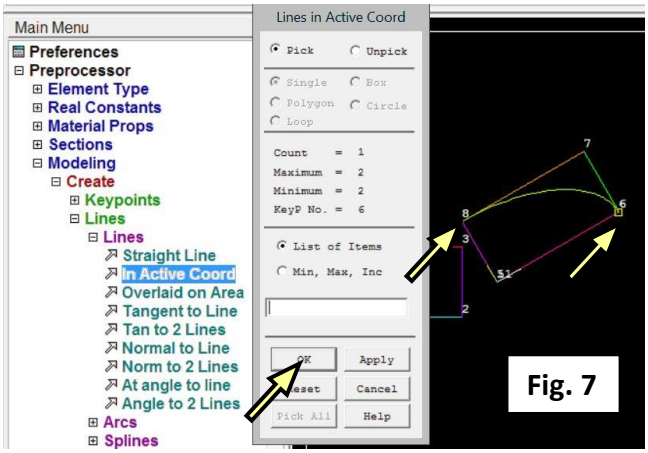
Utility Menu > Work Plane > Display Working Plane (X)
Utility Menu > PlotCtrls > Numbering… > Keypoints Numbers > On → OK
Utility Menu > Plot > Keypoints

Plot the triad of a CS no. 11

Utility Menu > PlotCtrls > Symbols > CS Local coordinate system > On → OK (Fig. 6)

Create a line in a CS no. 11

Utility Menu > Plot > Lines
Main Menu > Preprocessor > Modeling > Create > Lines > In Active Coord > pick keypoints 6 and 8 → OK (Fig. 7)



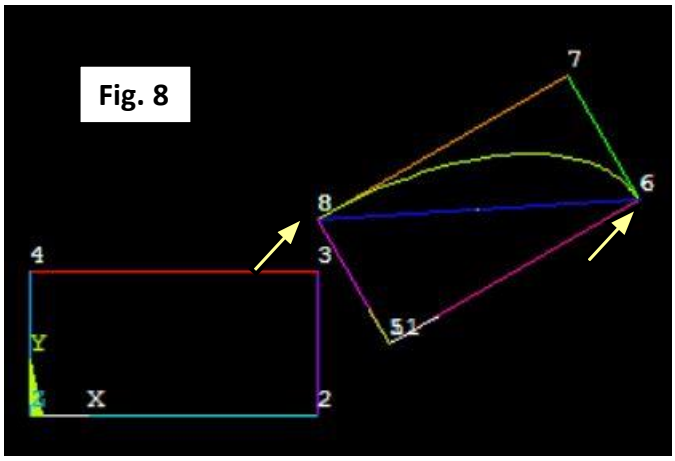
Change active CS to a Global Cartesian

Utility Menu > Work Plane > Change Active CS to > Global Cartesian

Create a line in a Global Cartesian

Main Menu > Preprocessor > Modeling > Create > Lines > In Active Coord > pick keypoints 6 and 8 → OK (Fig. 8)

Ratio of the rectangle edges is 10/20 = PAR1 (Fig.5) , so a new created line is ¼ of an ellipse.



Global Cartesian system was set as active, so a new created line is a straight line.

Comments

WP can be used as the cutting plane to divide a volume or an area into two pieces:
(Main Menu > Preprocessor > Modeling > Operete > Booleans > Divide > Volu by WrkPlane
(Main Menu > Preprocessor > Modeling > Operete > Booleans > Divide > Area by WrkPlane)

WP can also be used to define a virtual cross section to check model geometry or present results.
Utility Menu > PlotCtrls > Style > Hidden Line Options (Fig. 9)