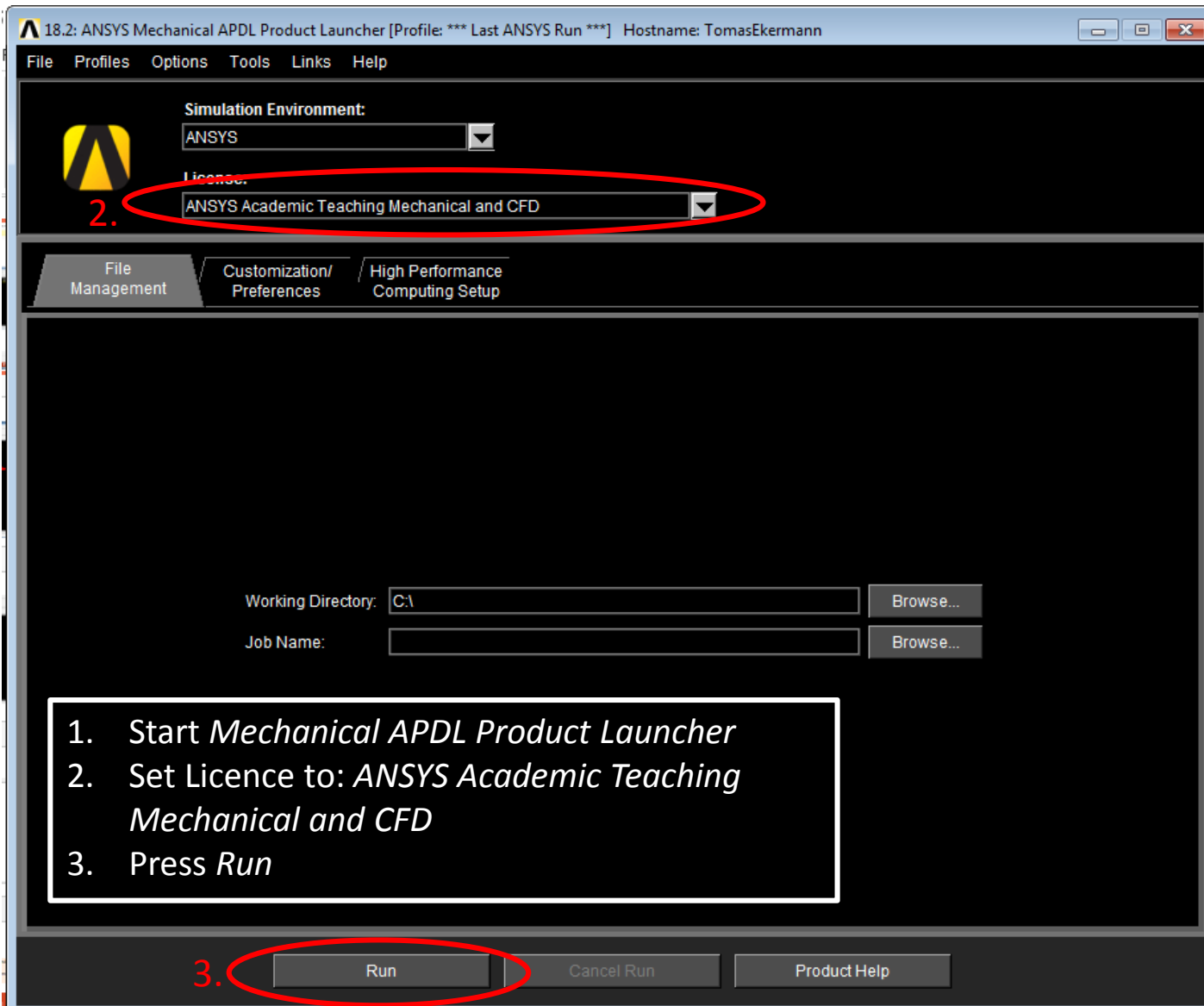
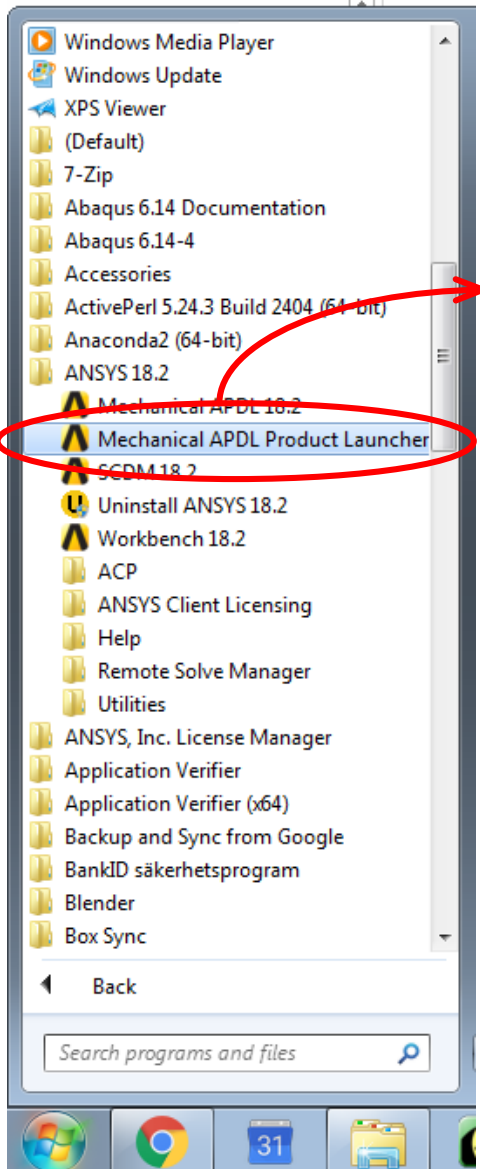




Introduction to ANSYS Classic

SD2411 Lightweight Structures and FEM

Starting ANSYS Classic



18.2: ANSYS Mechanical APDL Product Launcher [Profile: *** Last ANSYS Run ***] Hostname: TomasEkermann

File Profiles Options Tools Links Help

Simulation Environment:
ANSYS

License:
ANSYS Academic Teaching Mechanical and CFD

File Management Customization/Preferences High Performance Computing Setup

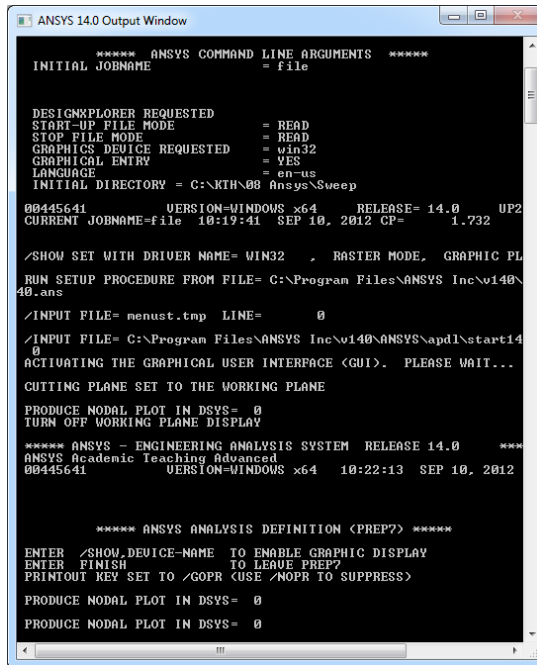
Working Directory: C:\ Browse...

Job Name: Browse...

1. Start *Mechanical APDL Product Launcher*
2. Set Licence to: *ANSYS Academic Teaching Mechanical and CFD*
3. Press *Run*

3. Run Cancel Run Product Help

At start up



ANSYS 14.0 Output Window

```
***** ANSYS COMMAND LINE ARGUMENTS *****
INITIAL JOBNAME = file

DESIGNXPLORER REQUESTED
START-UP FILE MODE = READ
STOP FILE MODE = READ
GRAPHICS DEVICE REQUESTED = win32
GRAPHICAL ENTRY = YES
LANGUAGE = en-us
INITIAL DIRECTORY = C:\KTH\00 Ansys\Sweep

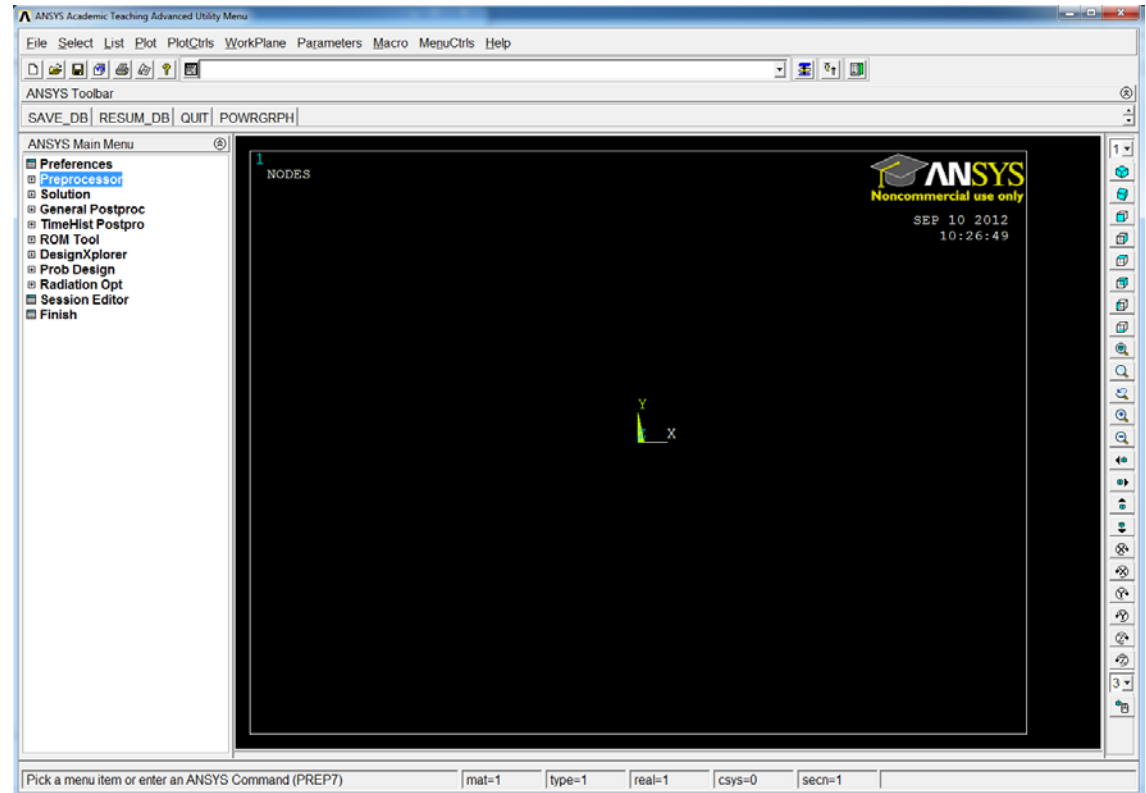
00445641 VERSION-WINDOWS x64 RELEASE= 14.0 UP2
CURRENT JOBNAME=file 10:19:41 SEP 10, 2012 CP= 1.732

/SHOW SET WITH DRIVER NAME= WIN32 , RASTER MODE, GRAPHIC PL
RUN SETUP PROCEDURE FROM FILE= C:\Program Files\ANSYS Inc\v140\
40.ans
/INPUT FILE= menust.tmp LINE= 0
/INPUT FILE= C:\Program Files\ANSYS Inc\v140\ANSYS\apdl\start14
0
ACTIVATING THE GRAPHICAL USER INTERFACE <GUI>. PLEASE WAIT...
CUTTING PLANE SET TO THE WORKING PLANE
PRODUCE NODAL PLOT IN DSYS= 0
TURN OFF WORKING PLANE DISPLAY

***** ANSYS - ENGINEERING ANALYSIS SYSTEM RELEASE 14.0 ***
ANSYS Academic Teaching Advanced
00445641 VERSION-WINDOWS x64 10:22:13 SEP 10, 2012

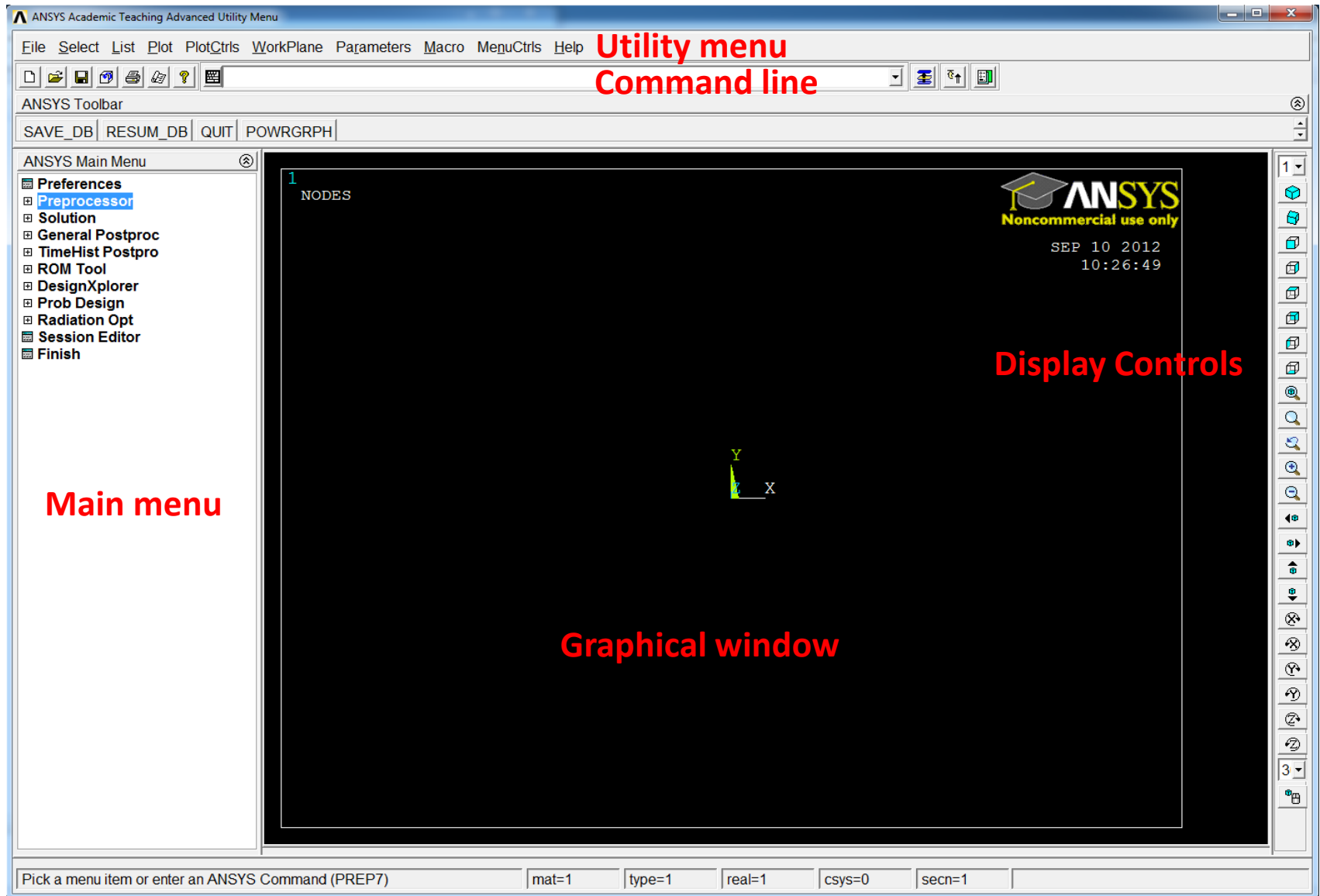
***** ANSYS ANALYSIS DEFINITION <PREP7> *****
ENTER /SHOW,DEVICE-NAME TO ENABLE GRAPHIC DISPLAY
ENTER FINISH TO LEAVE PREP7
PRINTOUT KEY SET TO /GOPR <USE /NOPR TO SUPPRESS>
PRODUCE NODAL PLOT IN DSYS= 0
PRODUCE NODAL PLOT IN DSYS= 0
```

Output window

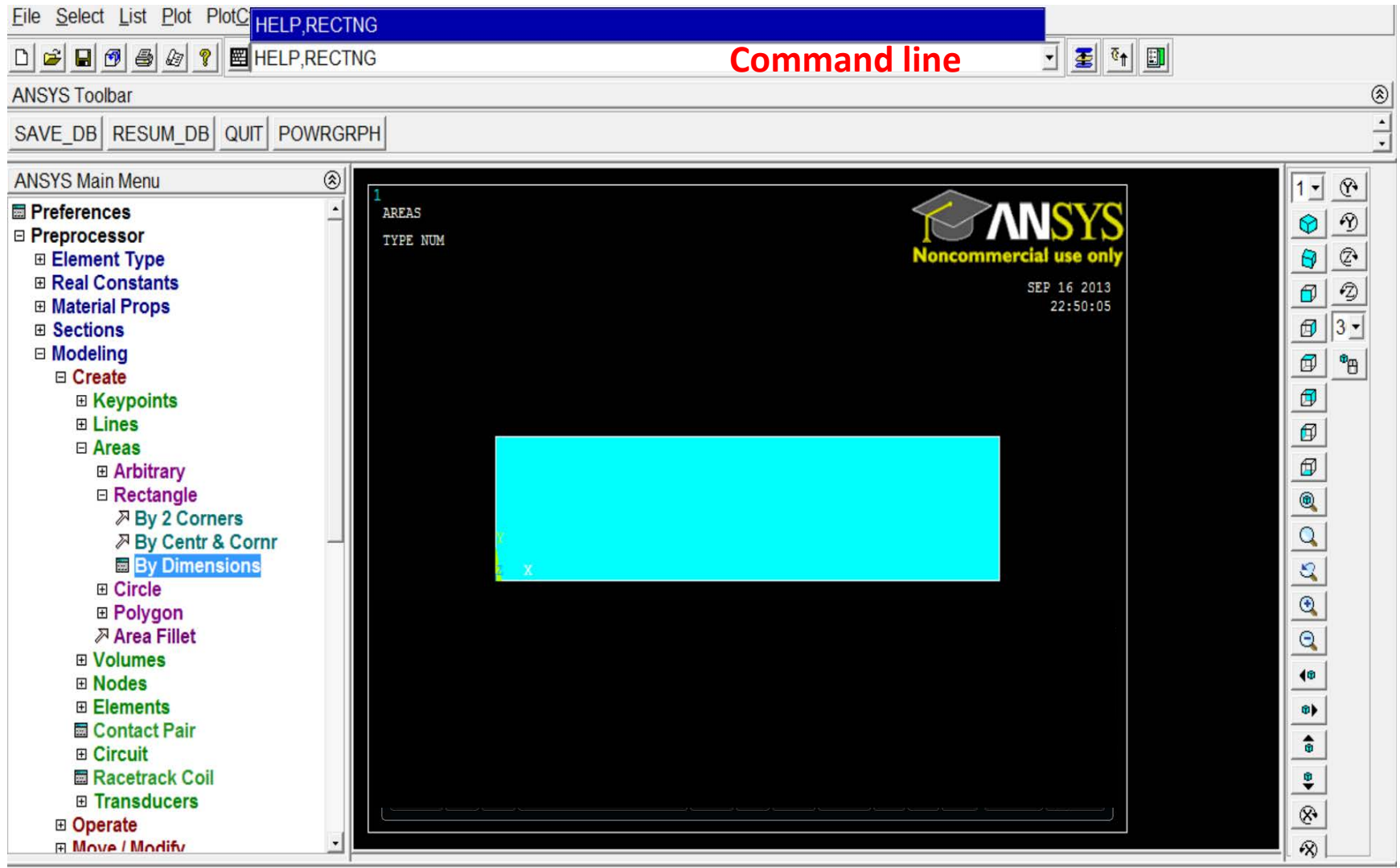


Main window

Main window



Main window



Main menu

ANSYS Main Menu

Preprocessor

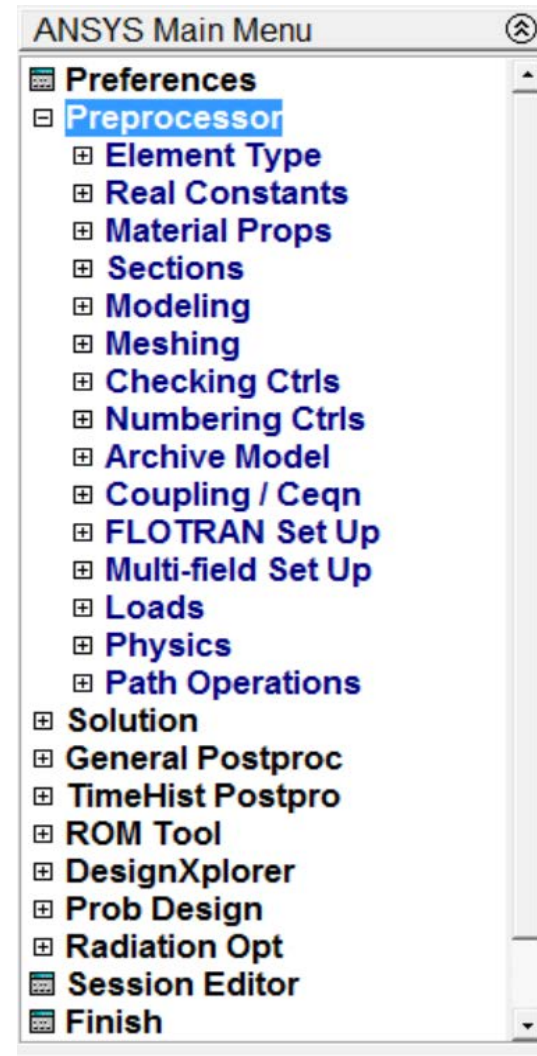
- 1) Define element type(s)
- 2) Define material properties (E,v)
- 3) Create the model geometry
- 4) Mesh the geometry
- 5) Apply loads

Solution

- 1) Solve

Postprocessor

- 1) Extract results
- 2) Check the validity of the solution

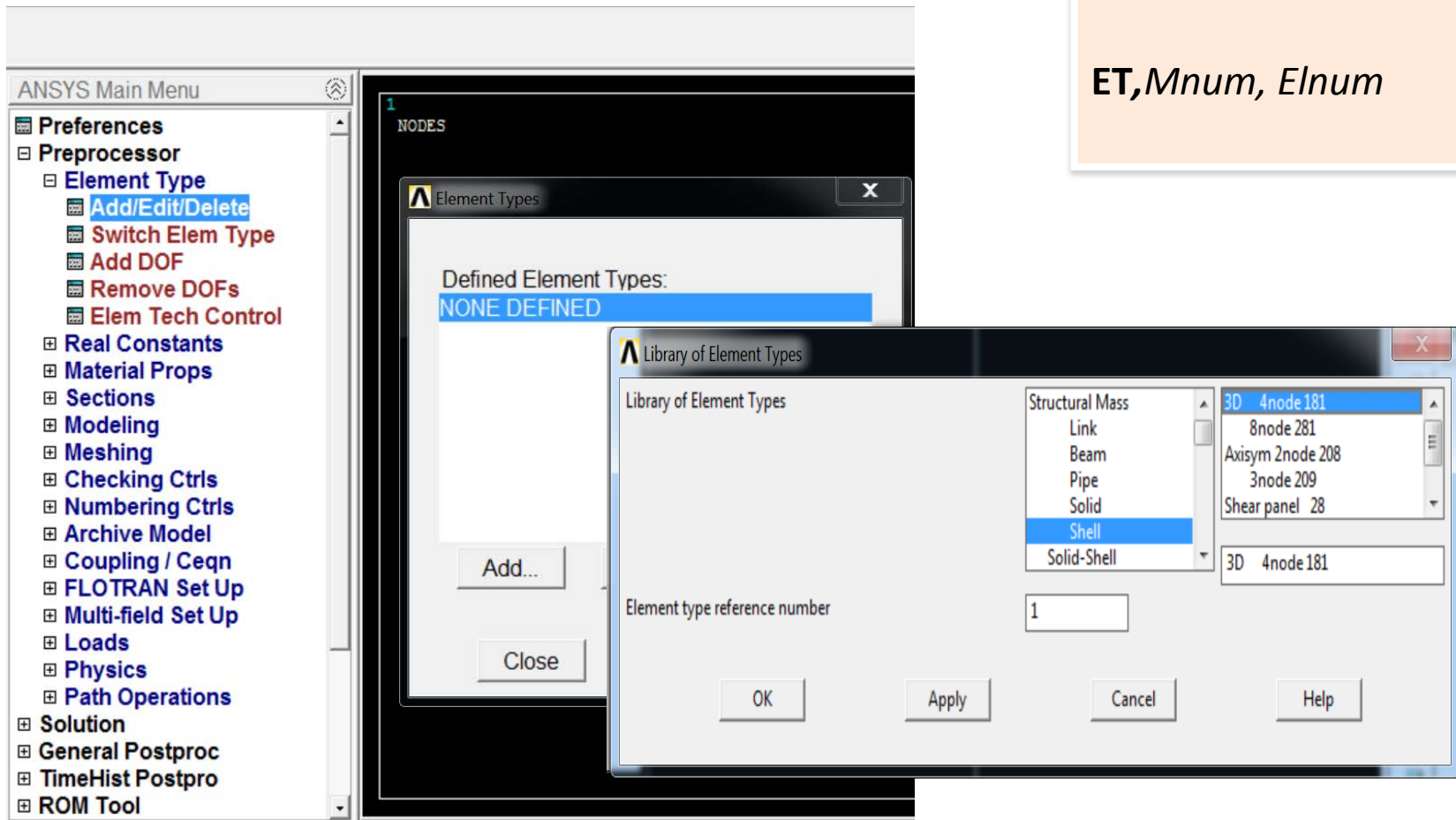


Preprocessing

1) Define element type(s)

ANSYS Command: **ET**

ET,*Mnum*, *Elnum*

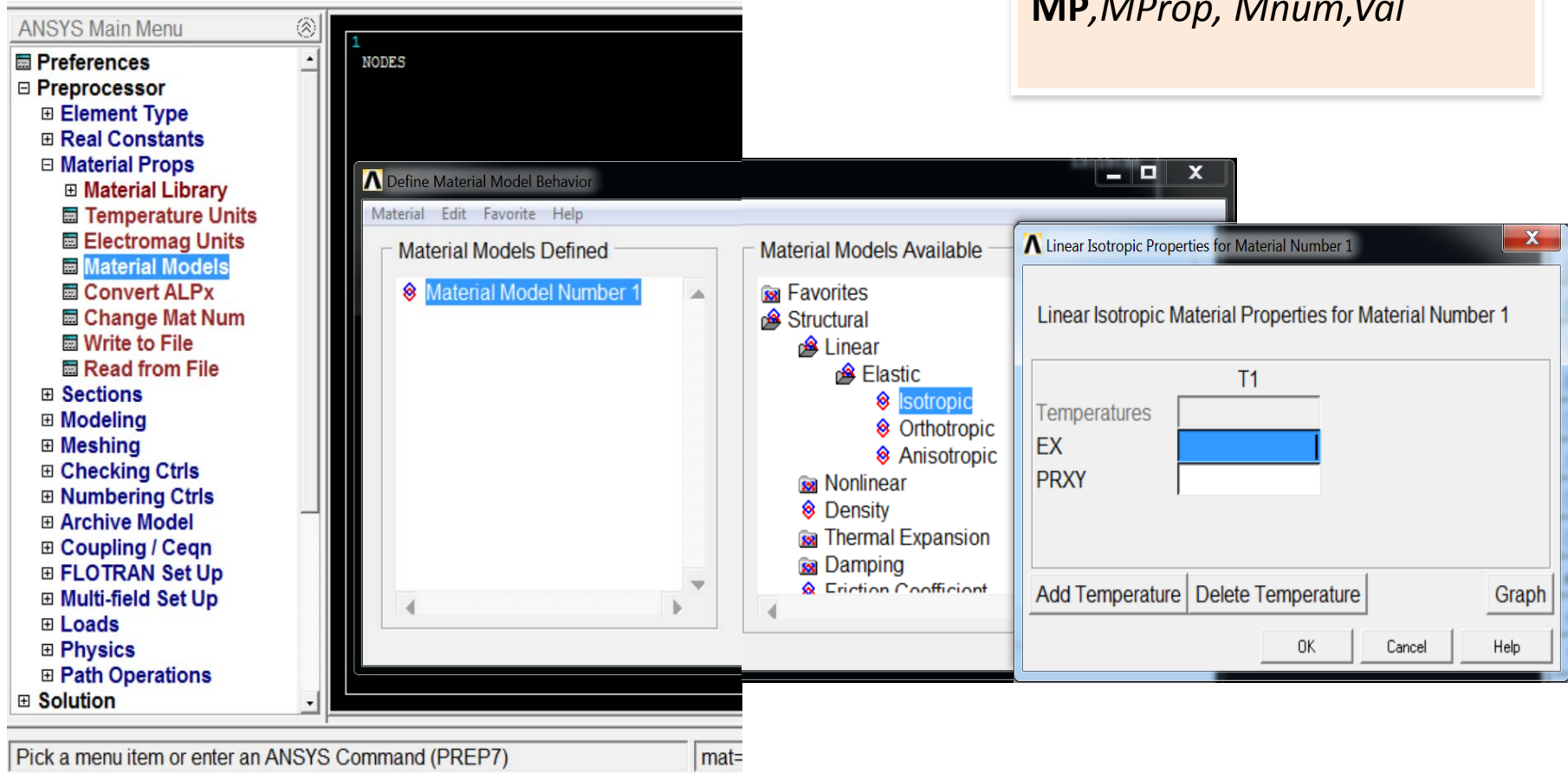


Preprocessing

2) Define material properties (E,v)

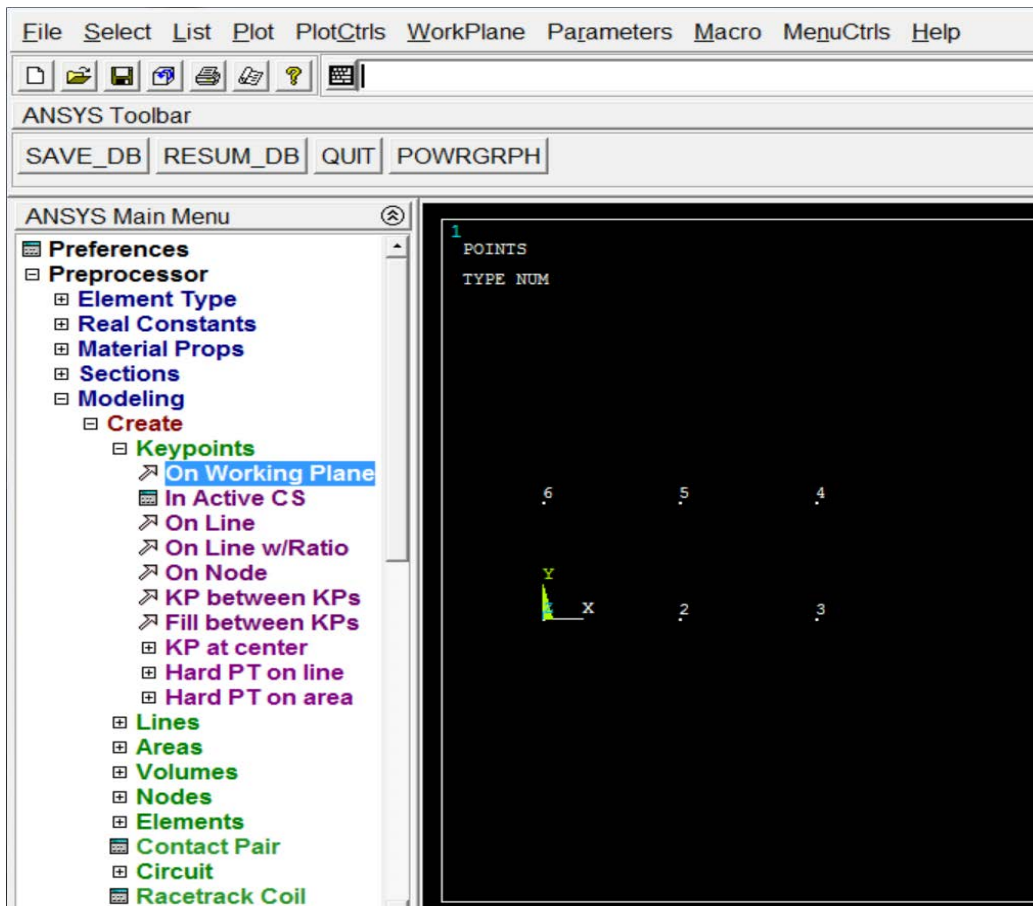
ANSYS Command: **MP**

MP,*MProp*, *Mnum*,*Val*



Preprocessing

3) Create the model geometry (keypoints)



ANSYS Command: K

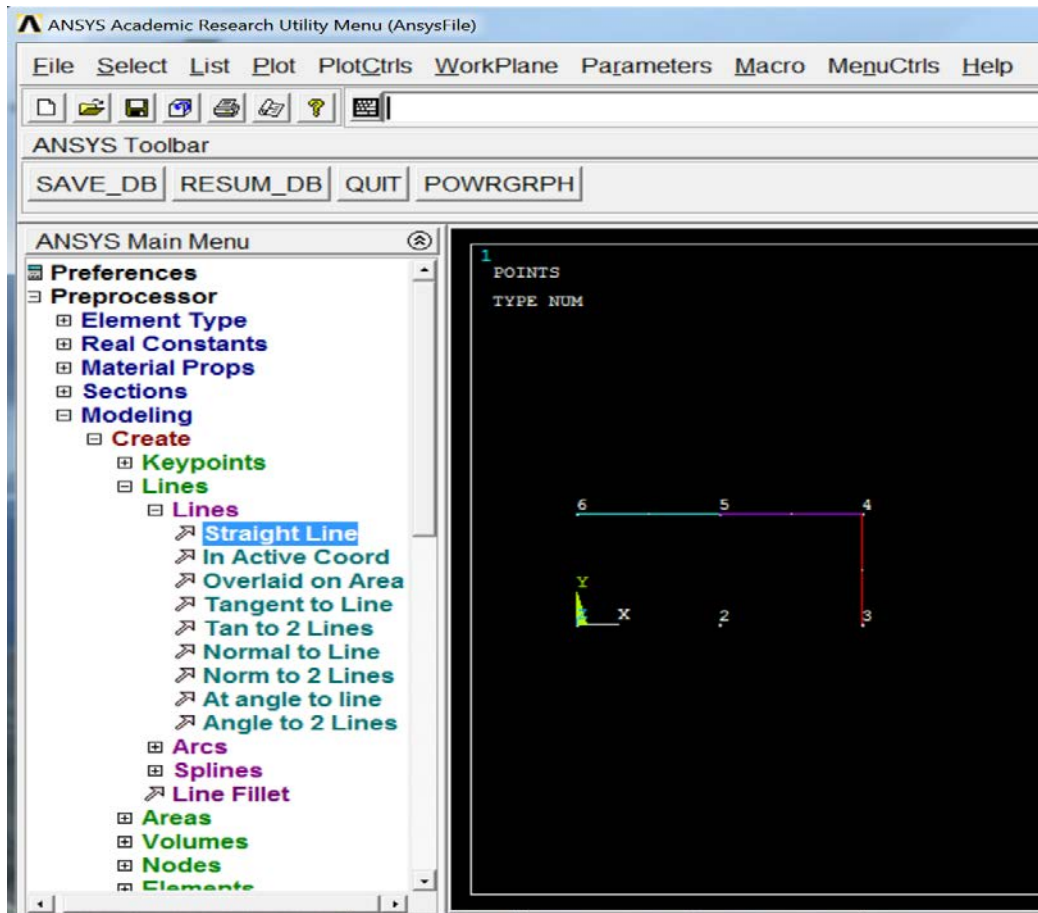
K, KPnum, Xcoord, Ycoord, Zcoord

Preprocessing

3) Create the model geometry (lines)

ANSYS Command: **L**

L,KP1,KP2

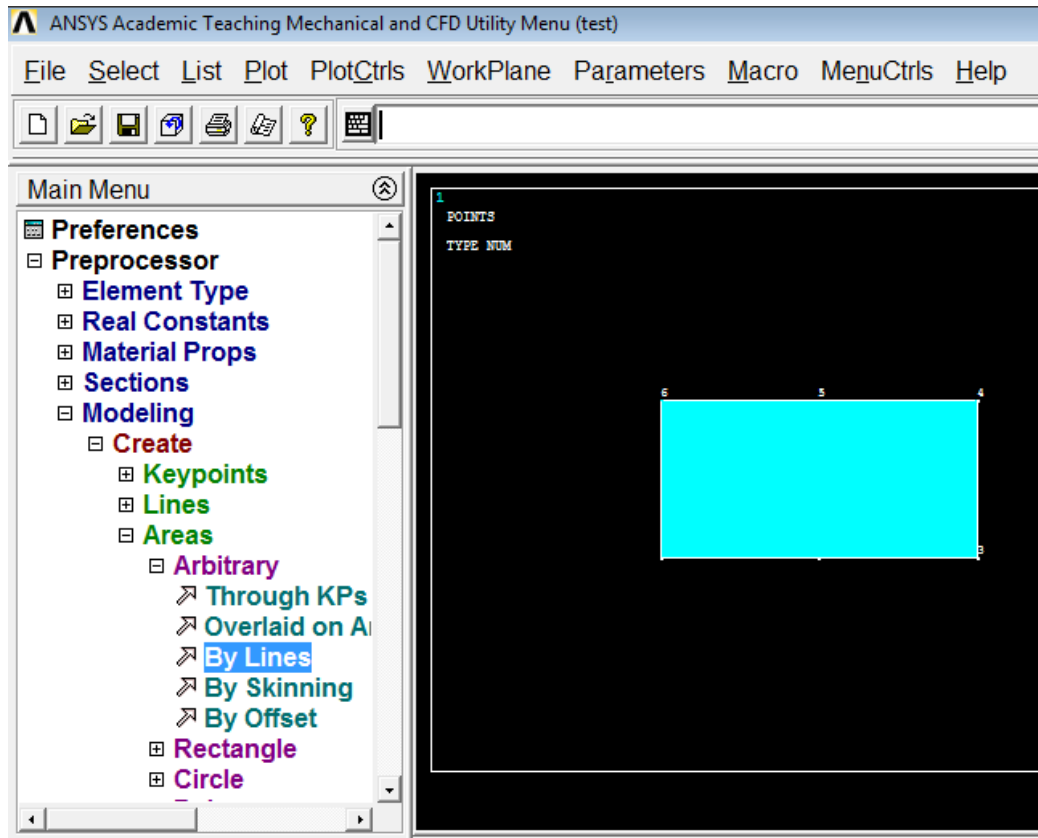


Preprocessing

3) Create the model geometry (areas)

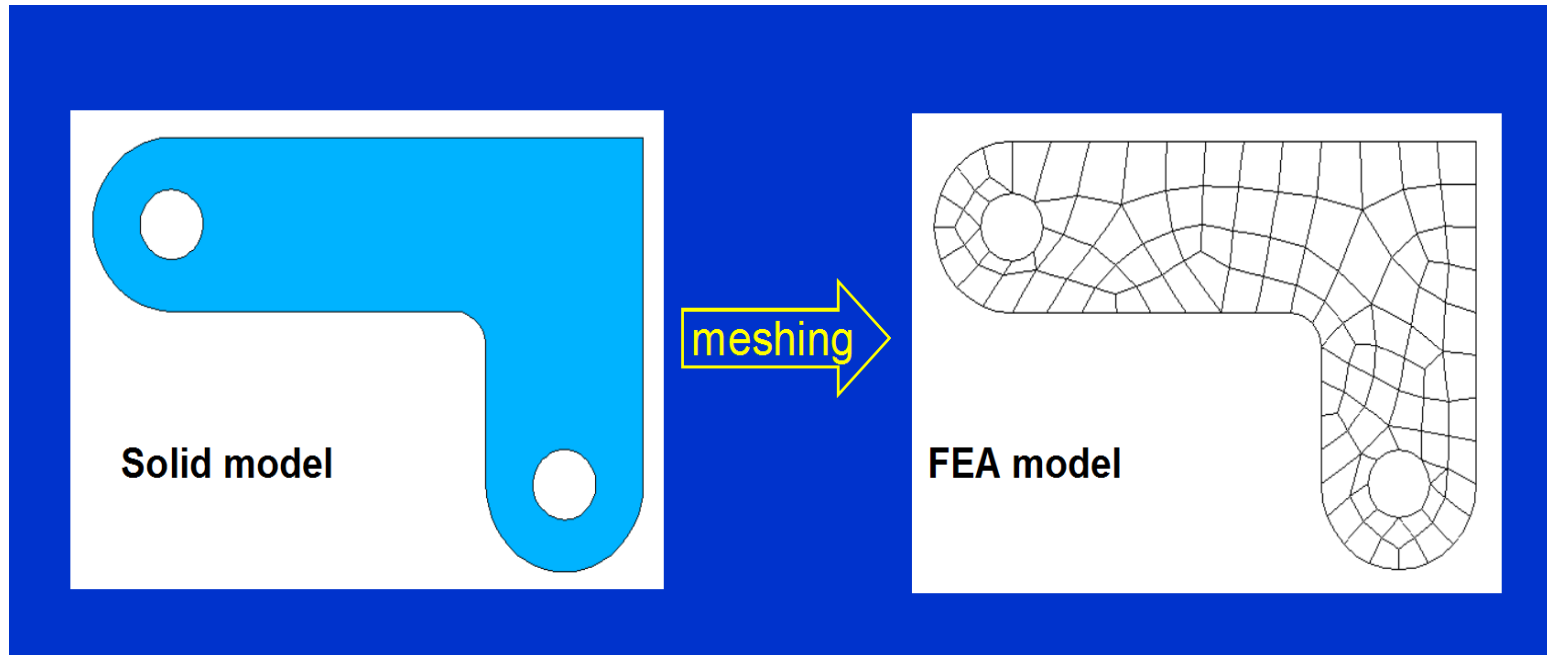
ANSYS Command: **AL**

AL,Line1,Line2,Line3,Line4



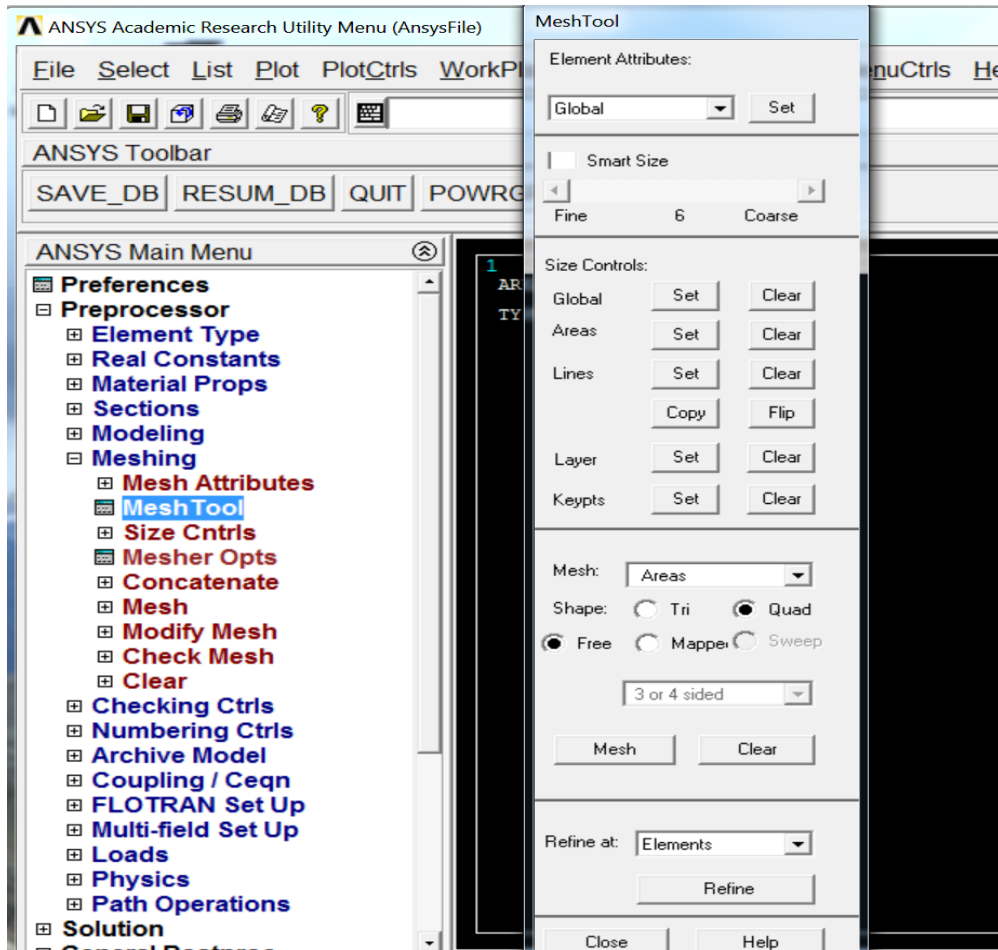
Preprocessing

4) Mesh the geometry



Preprocessing

4) Mesh the geometry



ANSYS Command: **LESIZE**

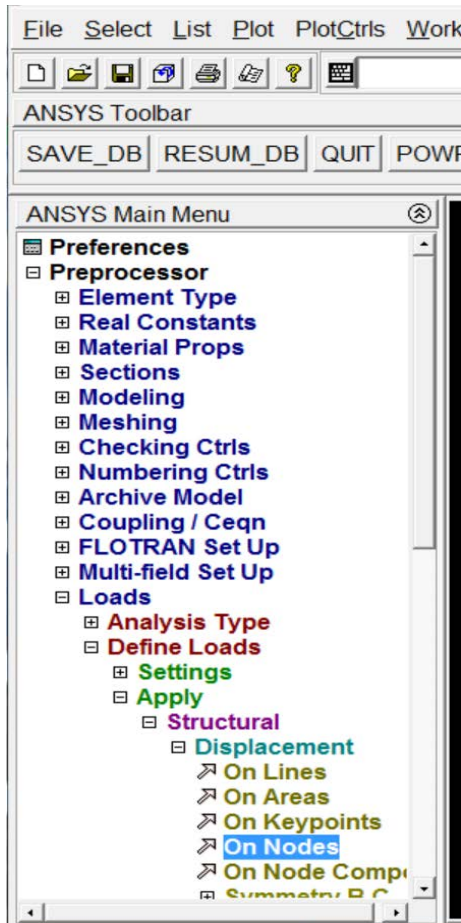
LESIZE, *Linenum*, , , *Ndiv*, *Space*

ANSYS Command: **AMESH**

AMESH, *Areanum*

Preprocessing

5) Apply Loads

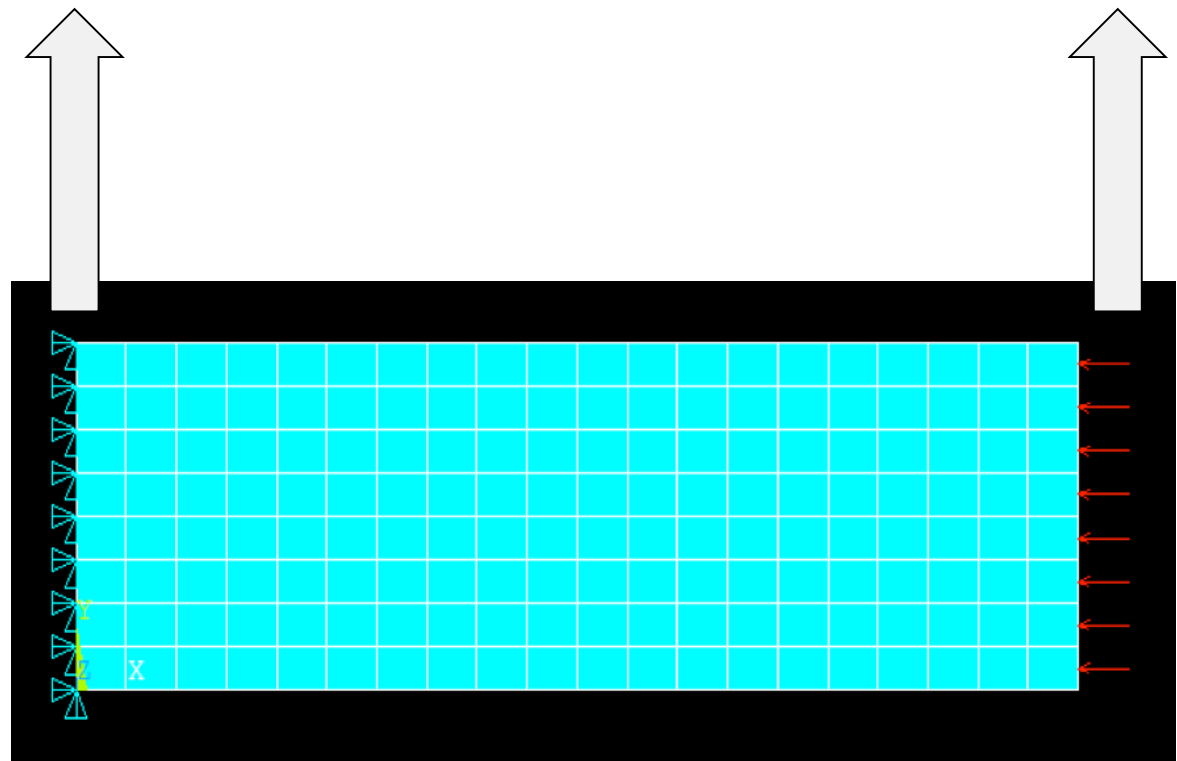


ANSYS Command: **D**

D,node ,lab,value

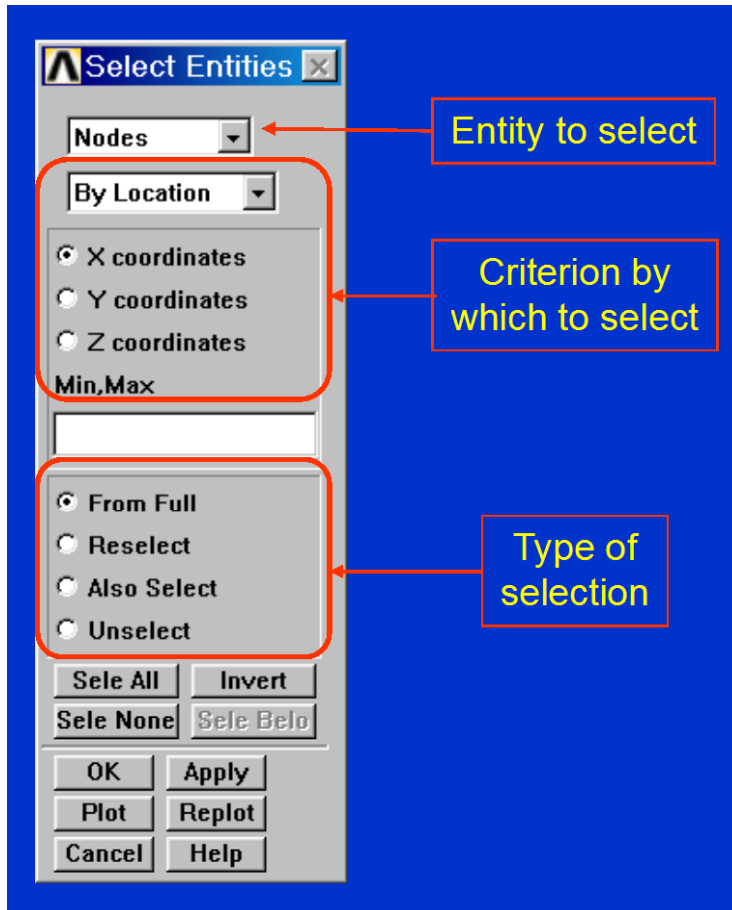
ANSYS Command: **F**

F,node,lab,value



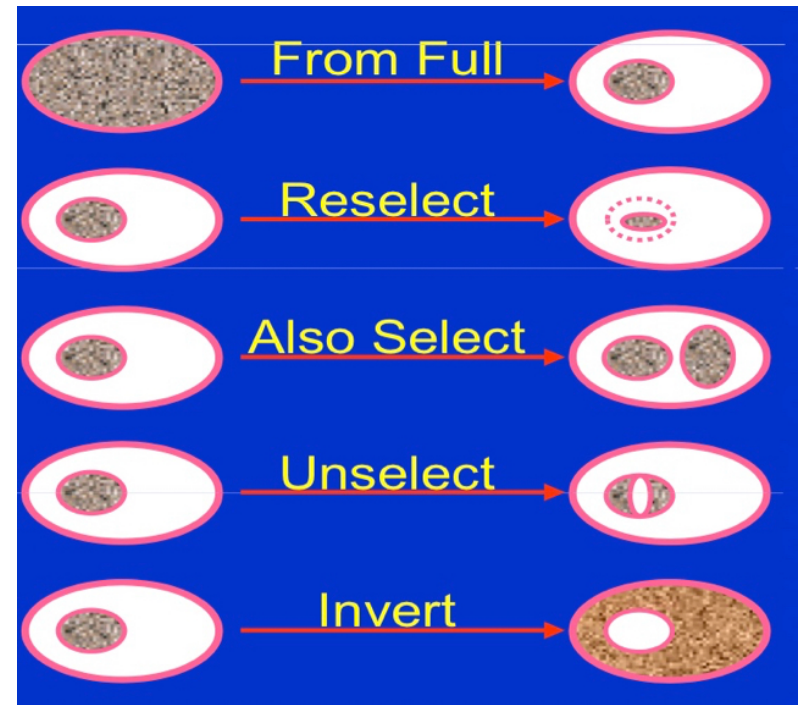
How to select objects?

Select Entities



ANSYS Command: **NSEL**

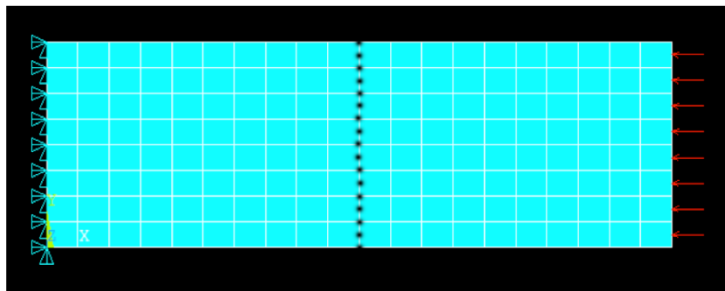
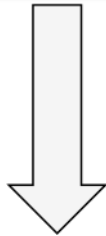
NSEL,Type,Item,Comp,VMIN,VMAX



How to select objects?

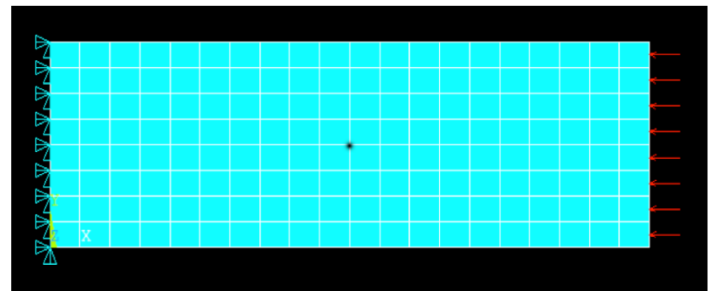
ANSYS Command:

NSEL,S,LOC,X,L/2



ANSYS Command:

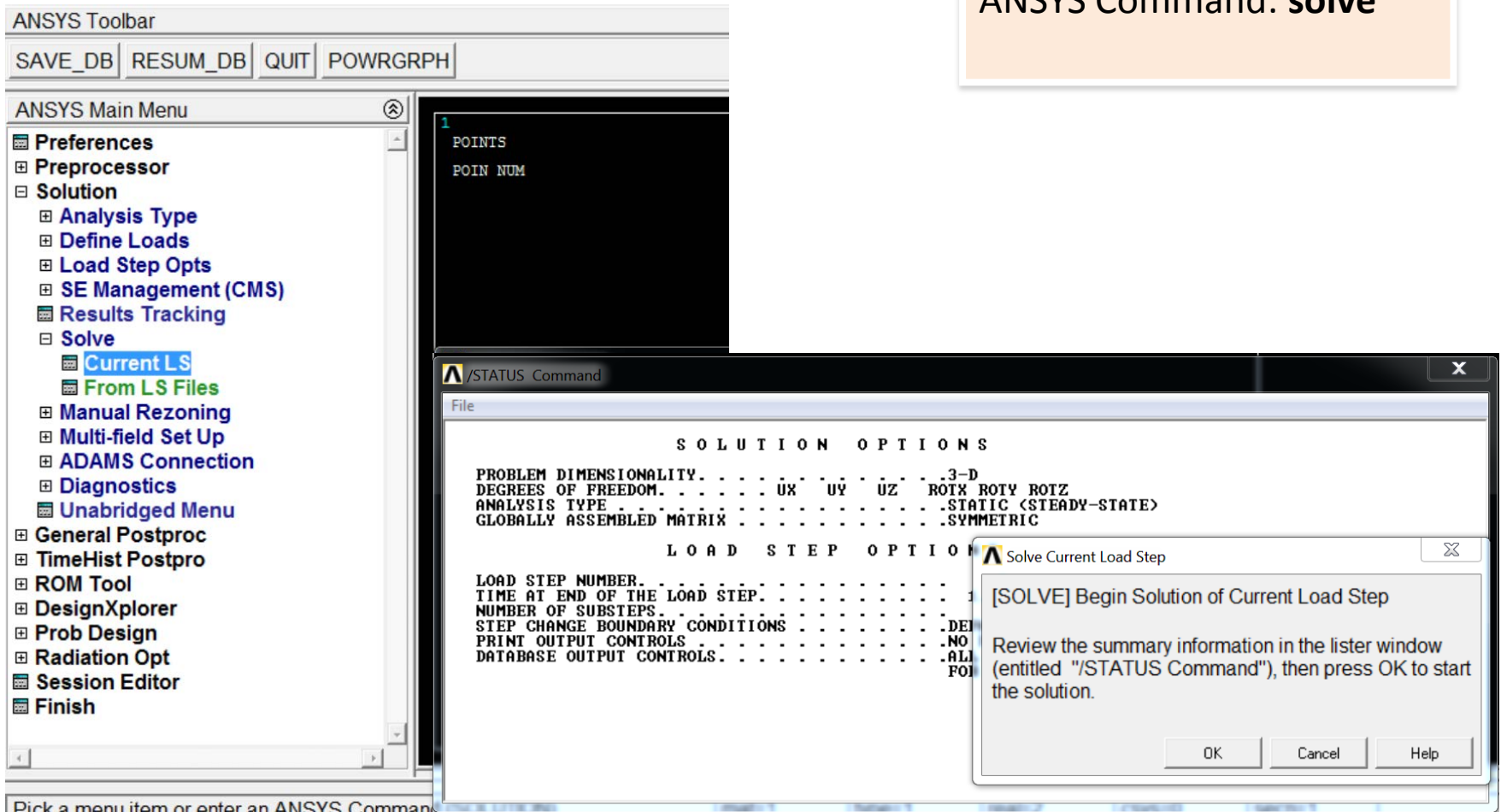
NSEL,S,LOC,X,L/2
NSEL,R,LOC,Y,W/2



Solution processor

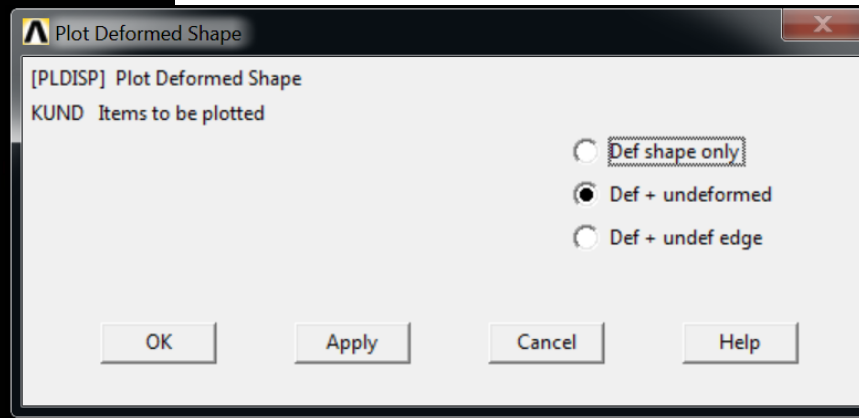
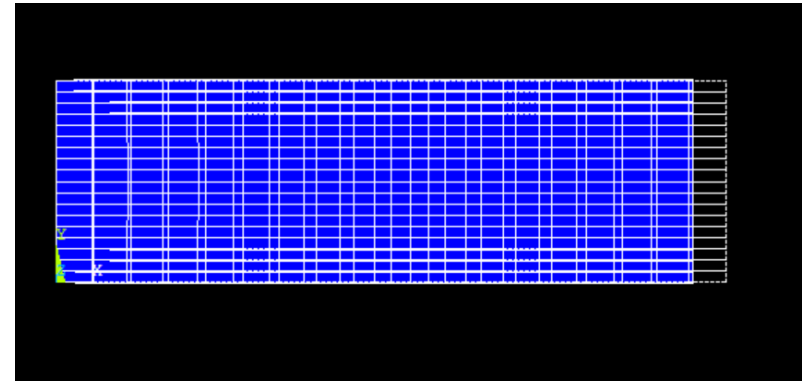
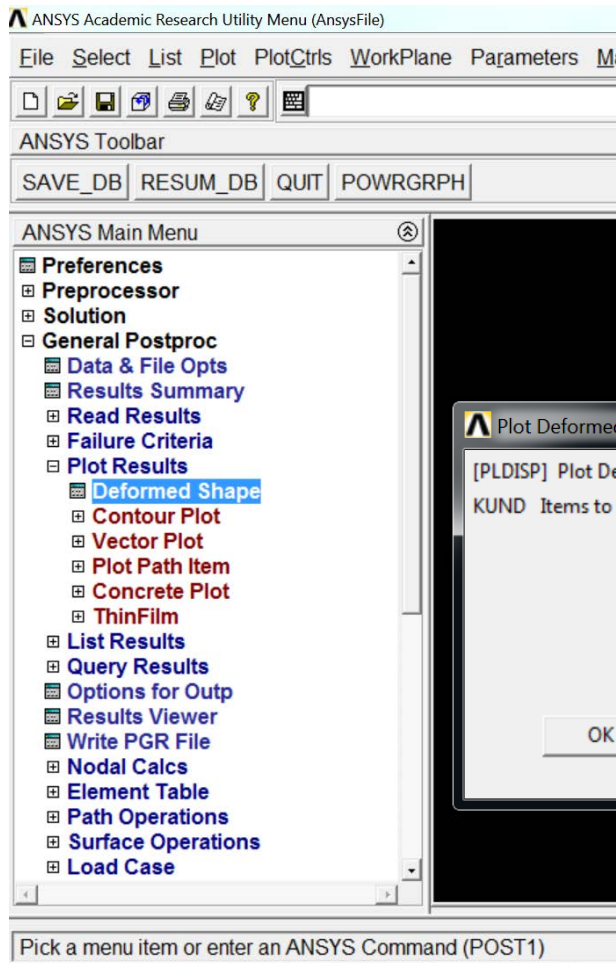
1) Solve

ANSYS Command: **solve**



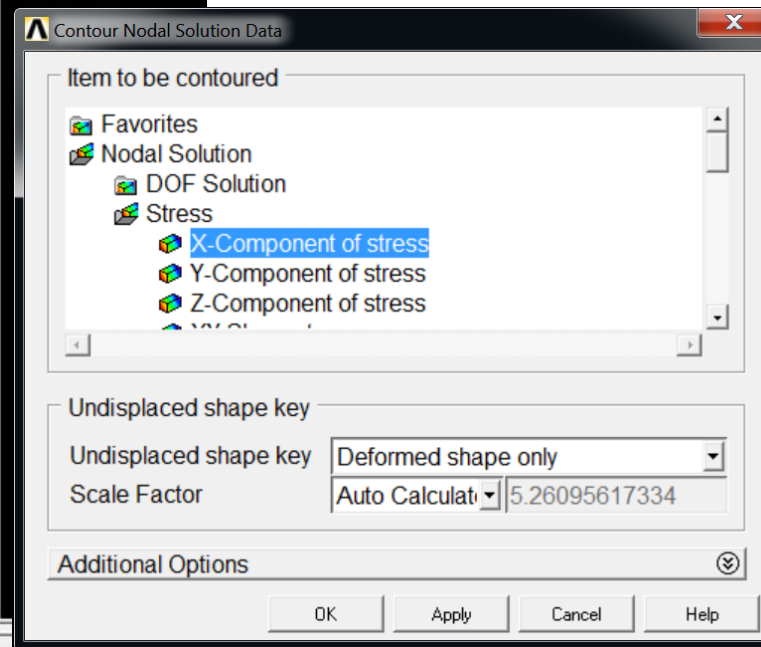
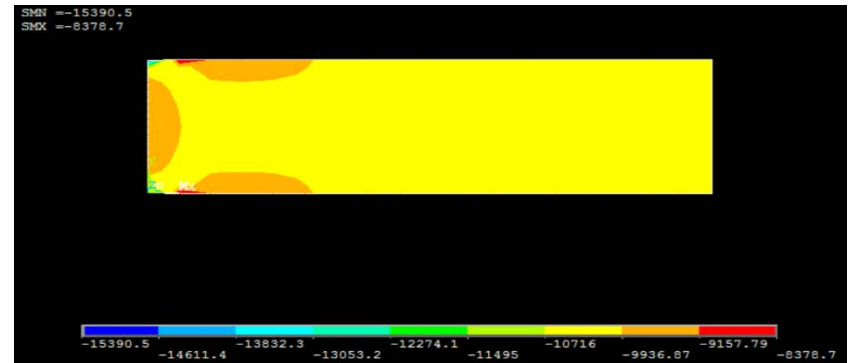
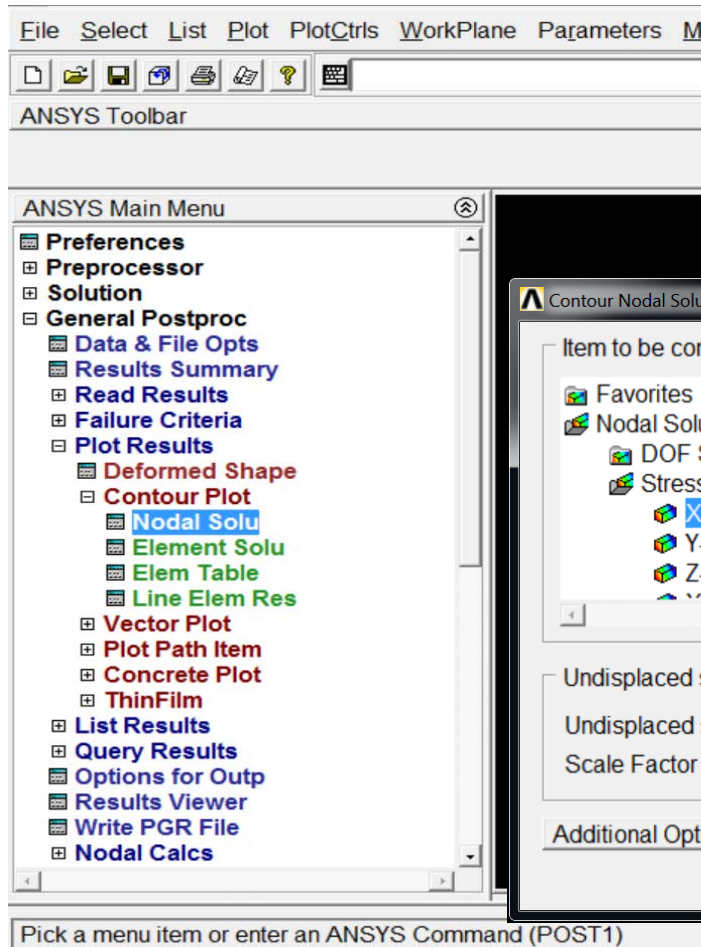
Post processor

1) Extract Results (deformed shape)



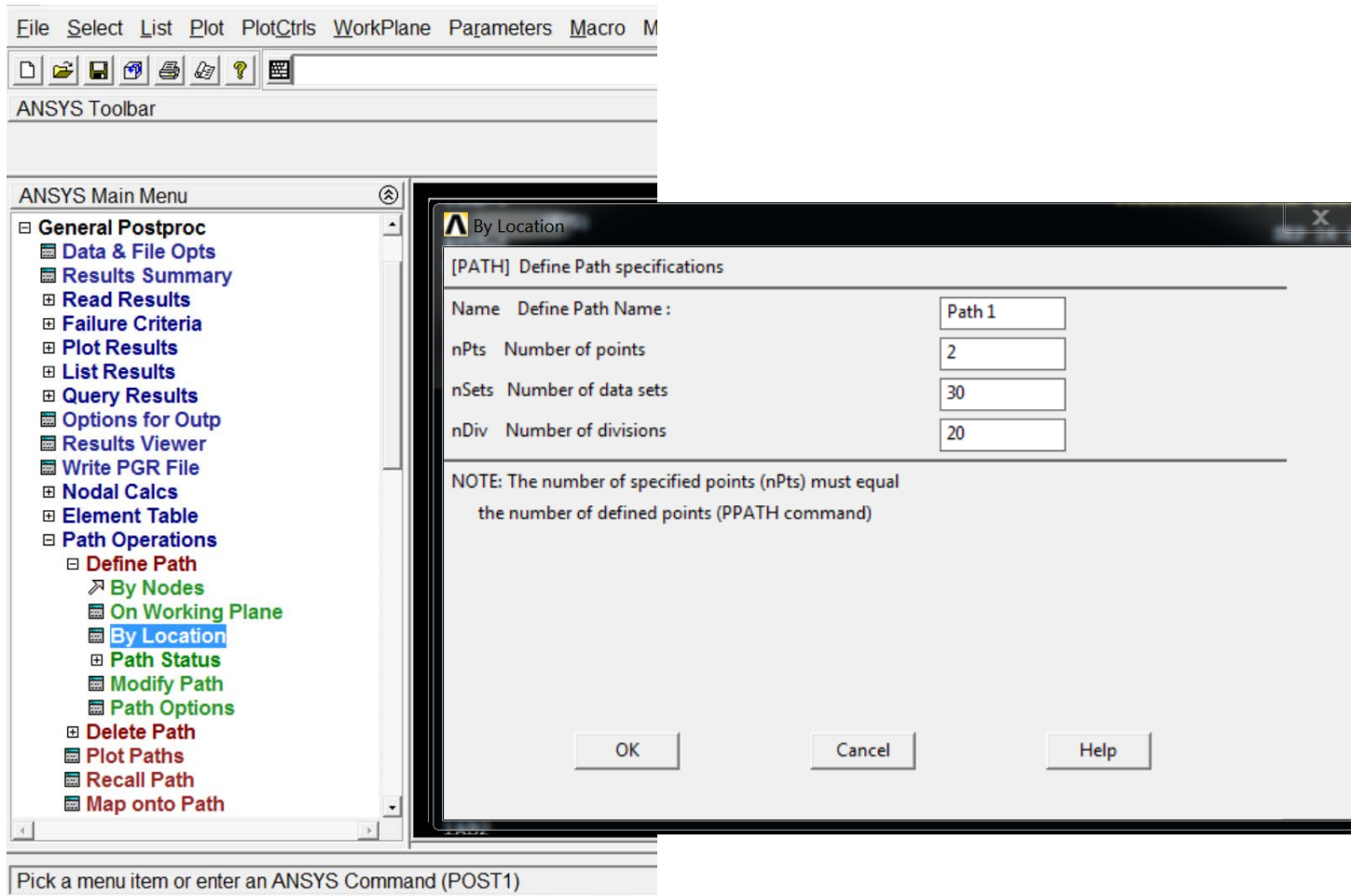
Post processor

1) Extract Results (plot results)



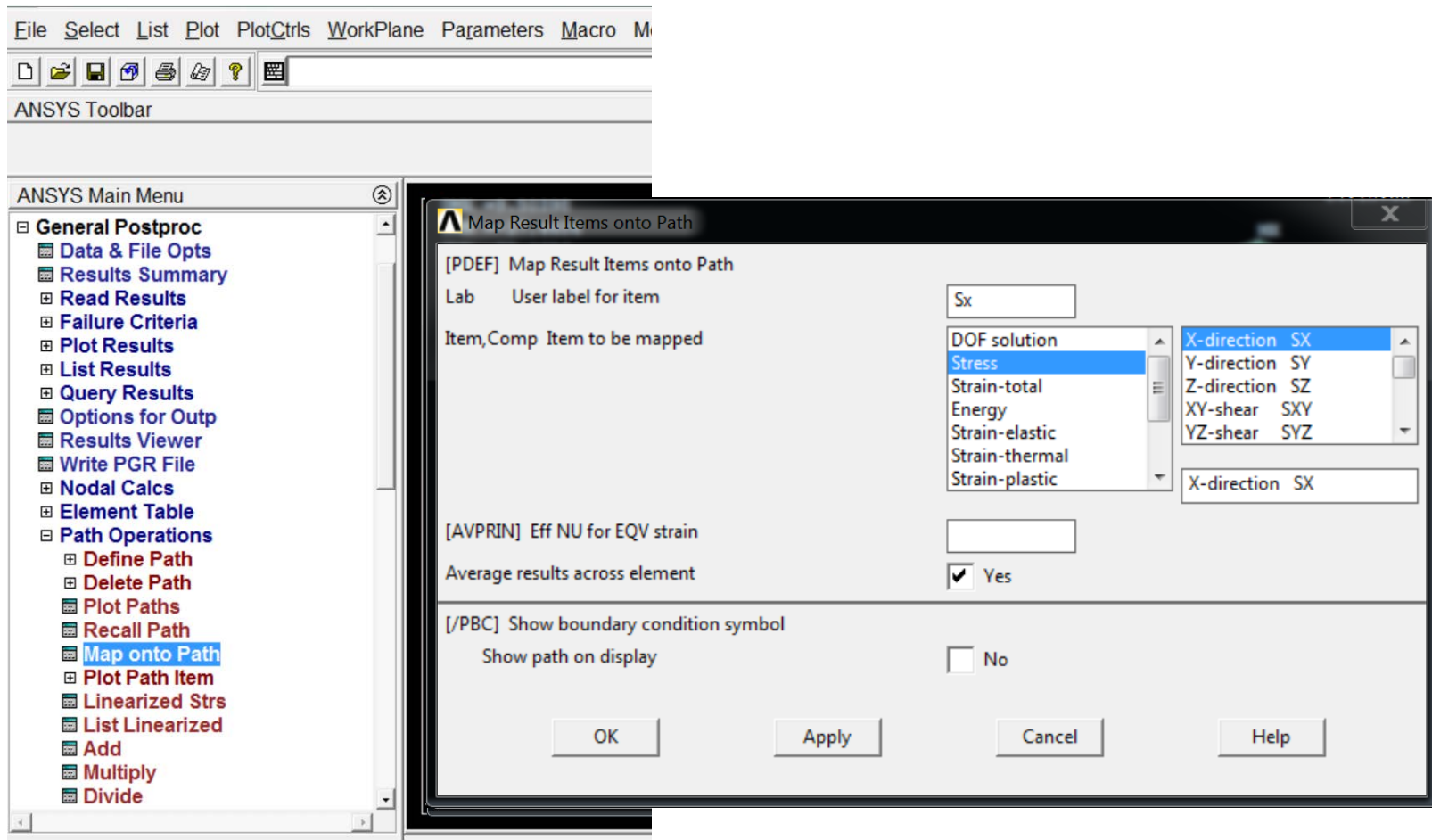
Post processor

1) Extract Results (path operations)



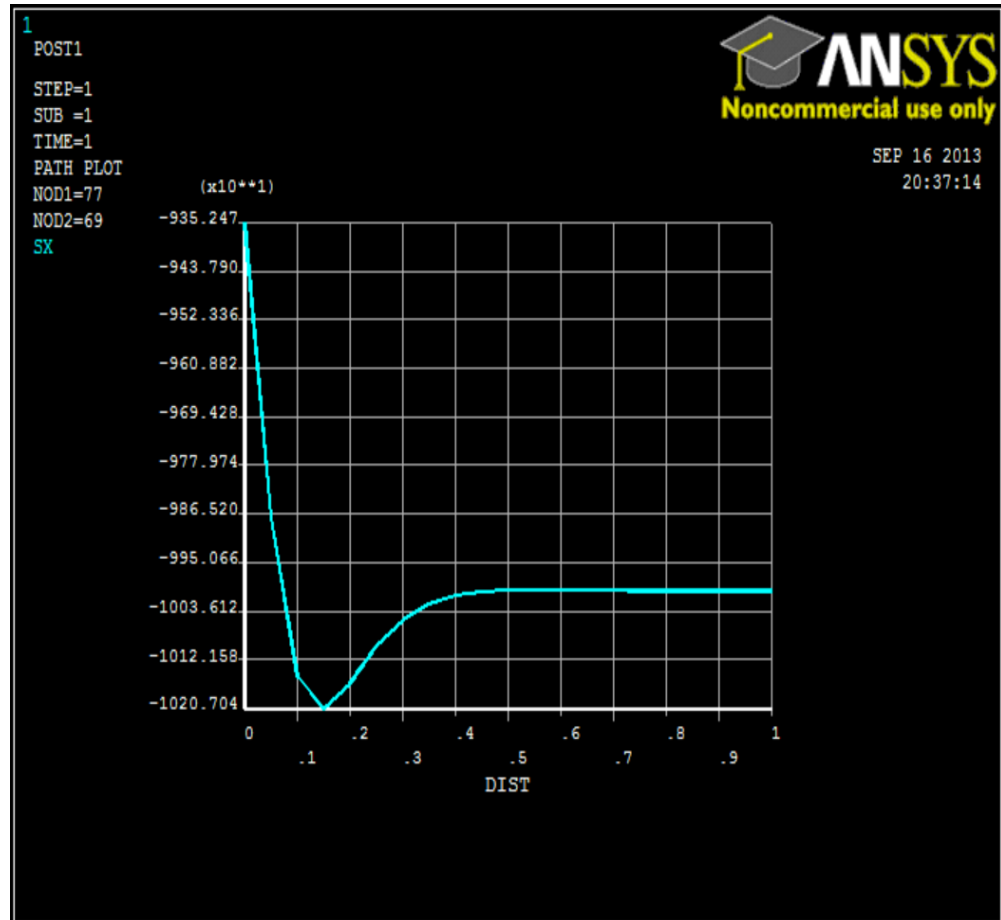
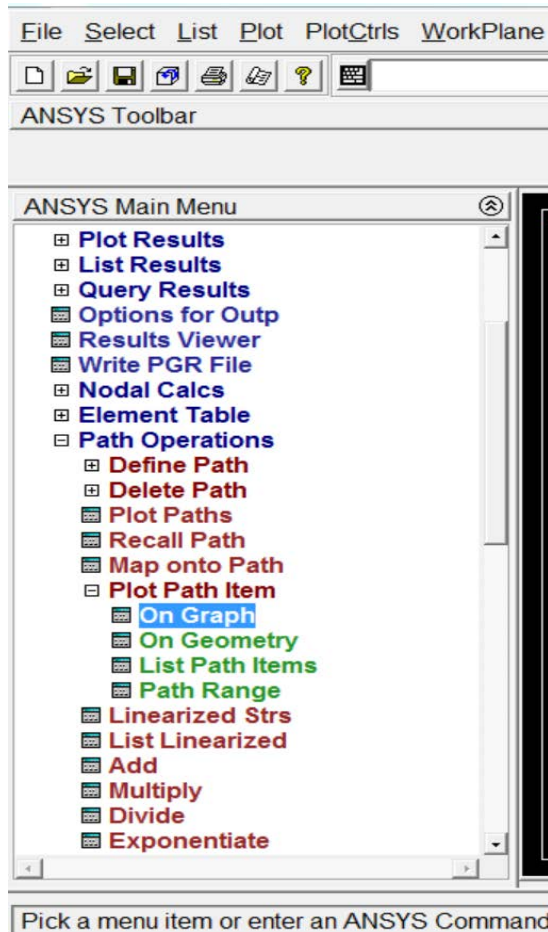
Post processor

1) Extract Results (path operations)



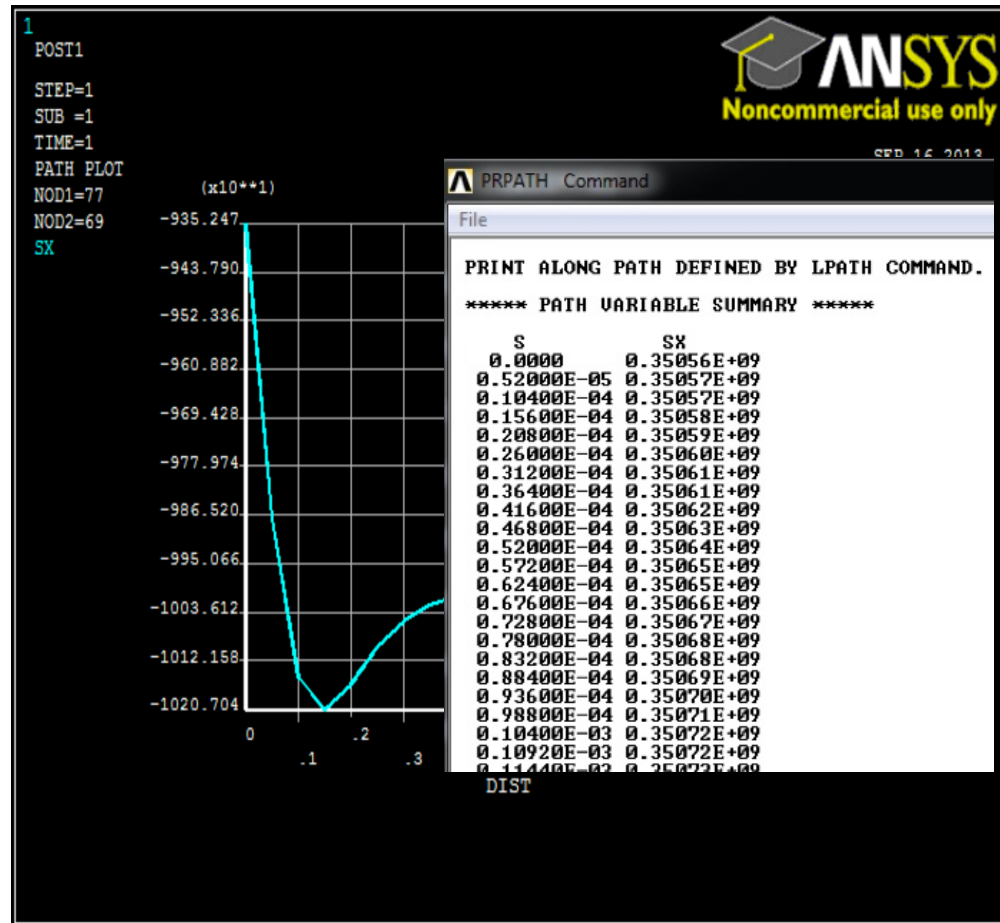
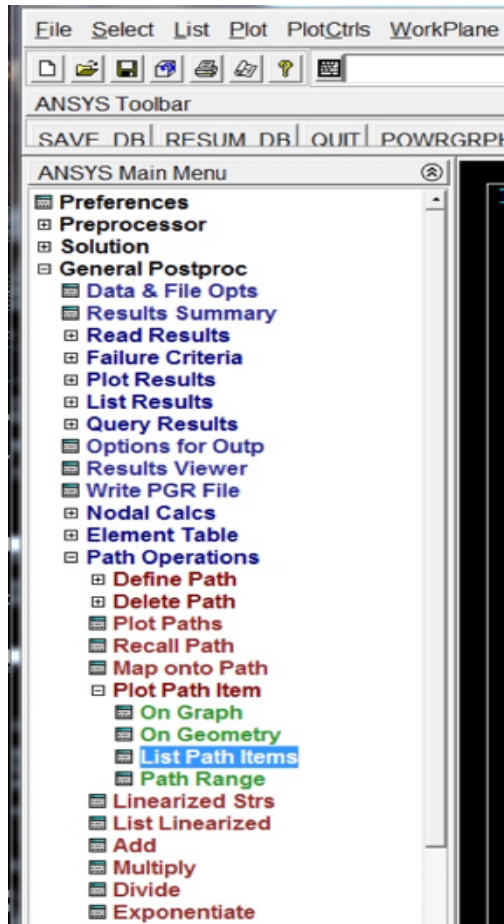
Post processor

1) Extract Results (path operations)



Post processor

1) Extract Results (list path items)





Post processor

2) Check the validity of the solution

You should always verify your results