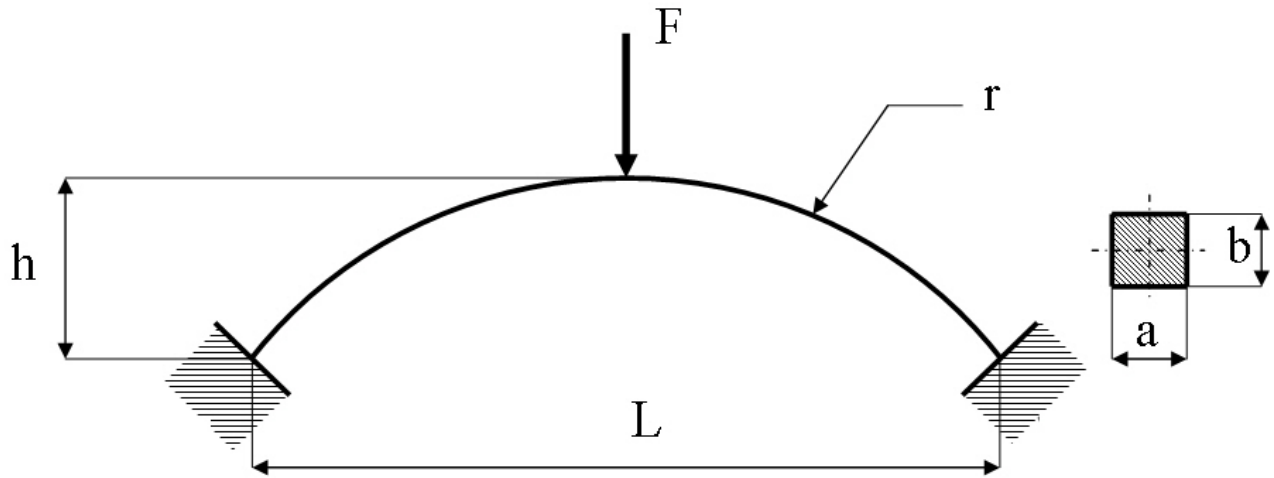
Course in ANSYS

Example0530

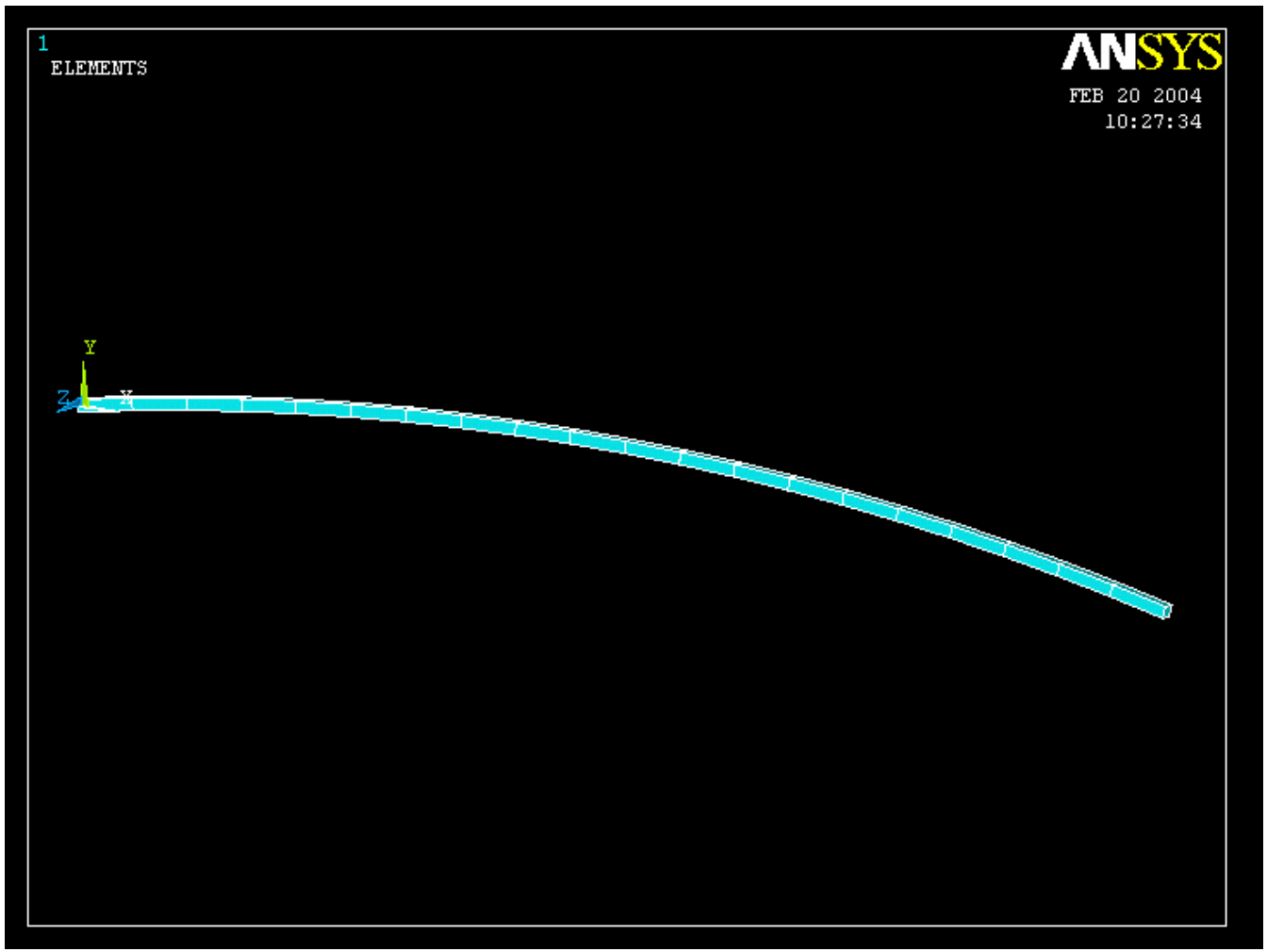
Example – Arch



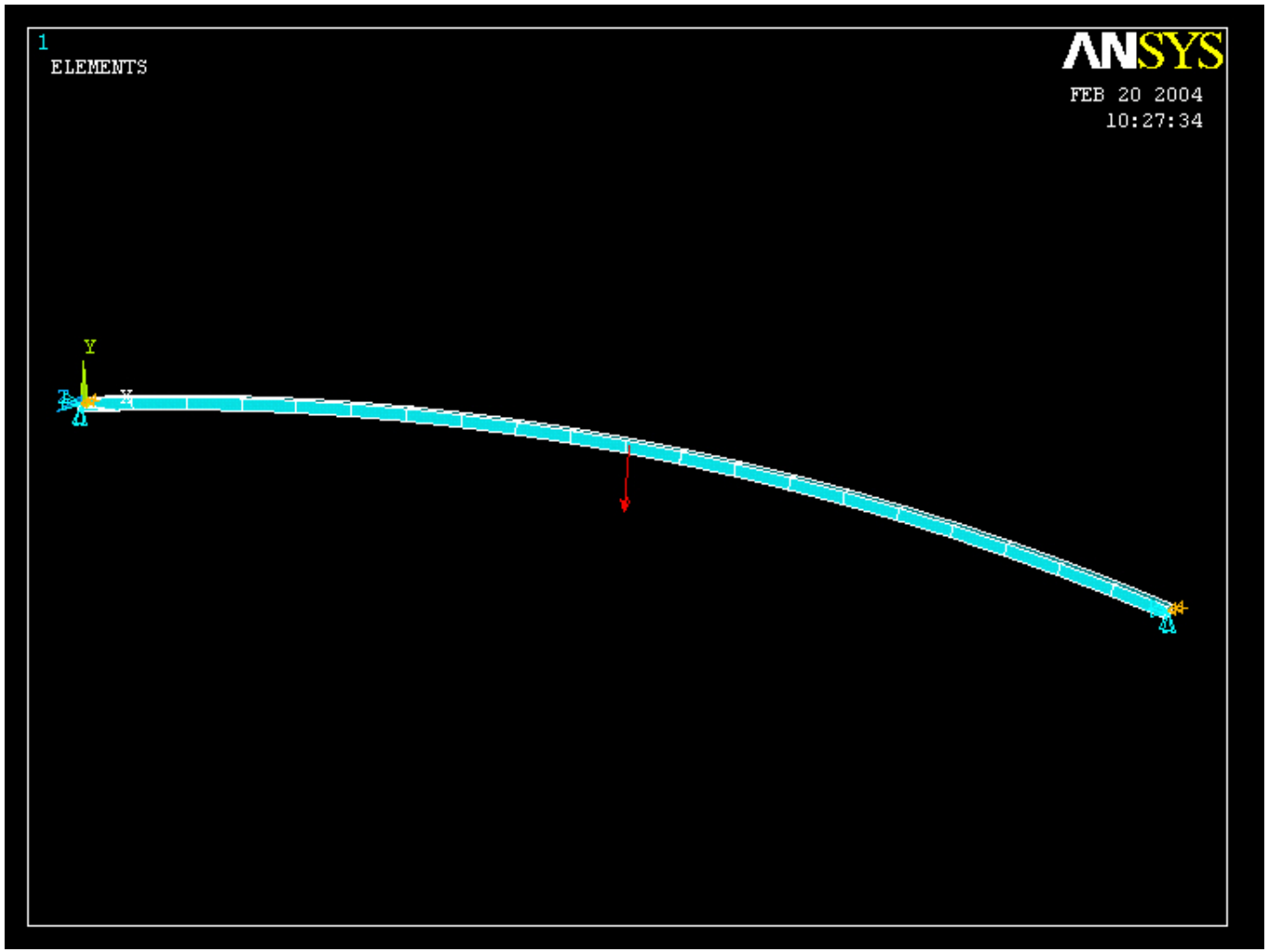
Objective:
Plot the P-U curve for the nonlinear behaviour
Tasks:
Model the geometry
Run a static linear analysis
Run the nonlinear analysis

$E = 210000 N/mm^2$
$\nu = 0.3$
$L = 2000mm$
$a = 20mm$
$b = 20mm$
$h = 100mm$ in $L/2$
$I = 13333.33mm^4$
$F = 10000N$

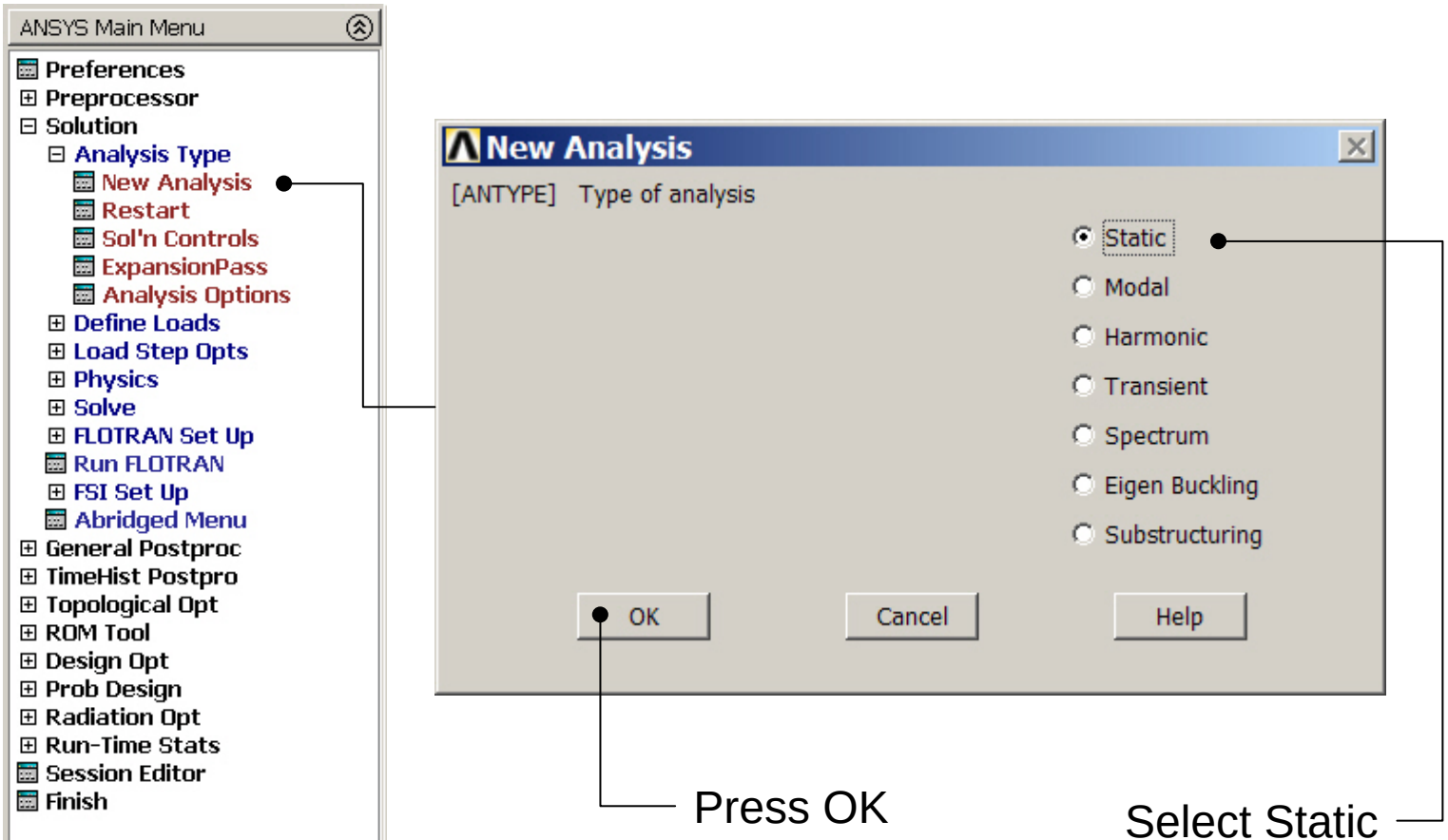
Example - Arch



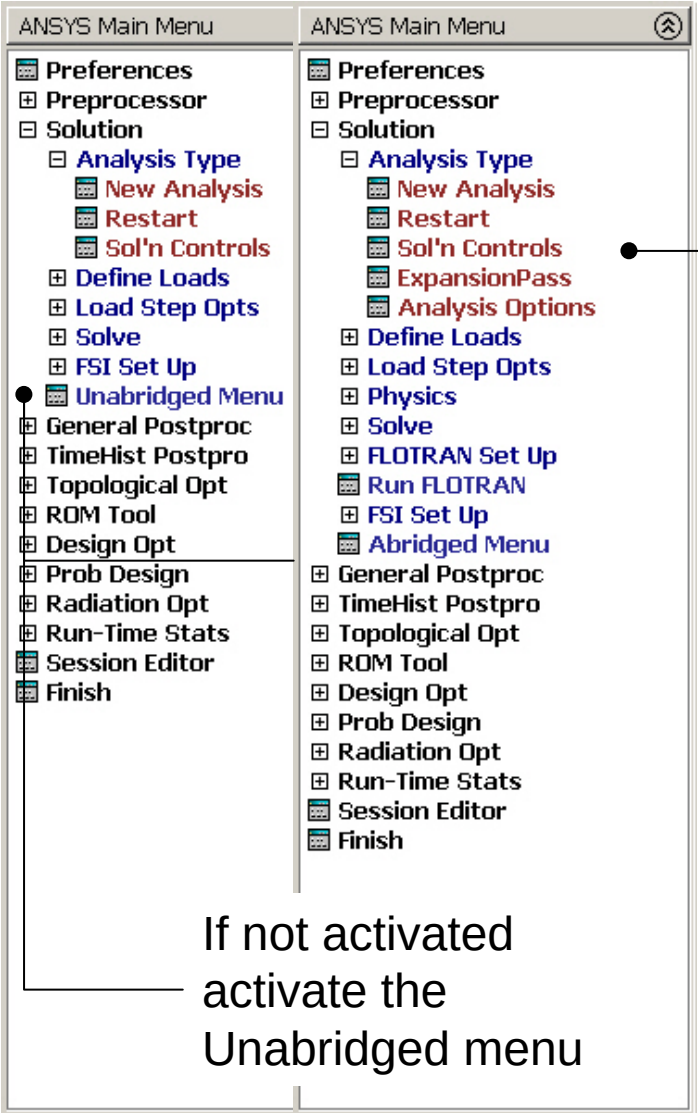
Example - Arch



Example – Analysis Type



Static solution – Analysis Options

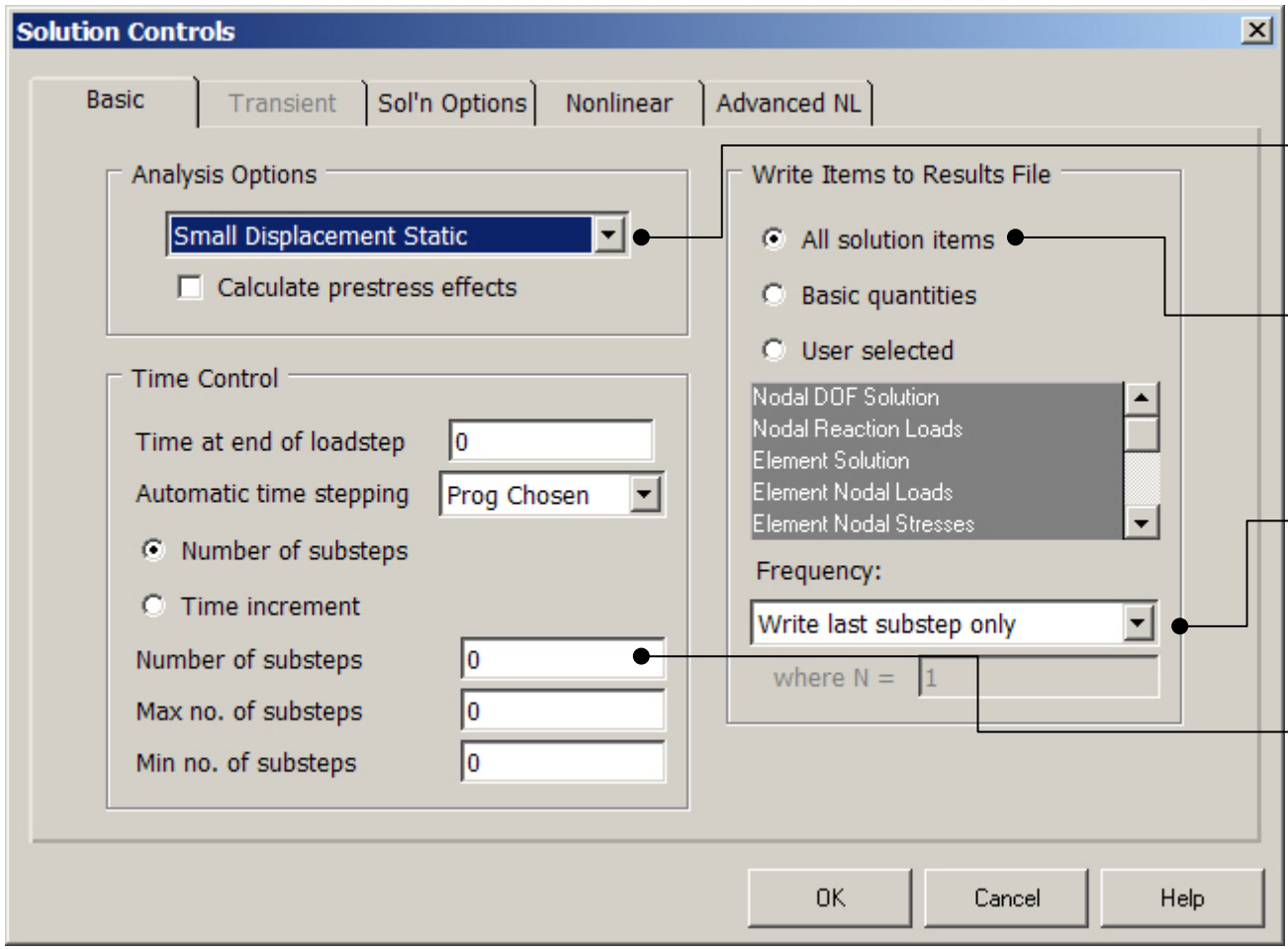


Select Sol'n Controls

If not activated activate the Unabridged menu

Example0530

Example – Solution Controls



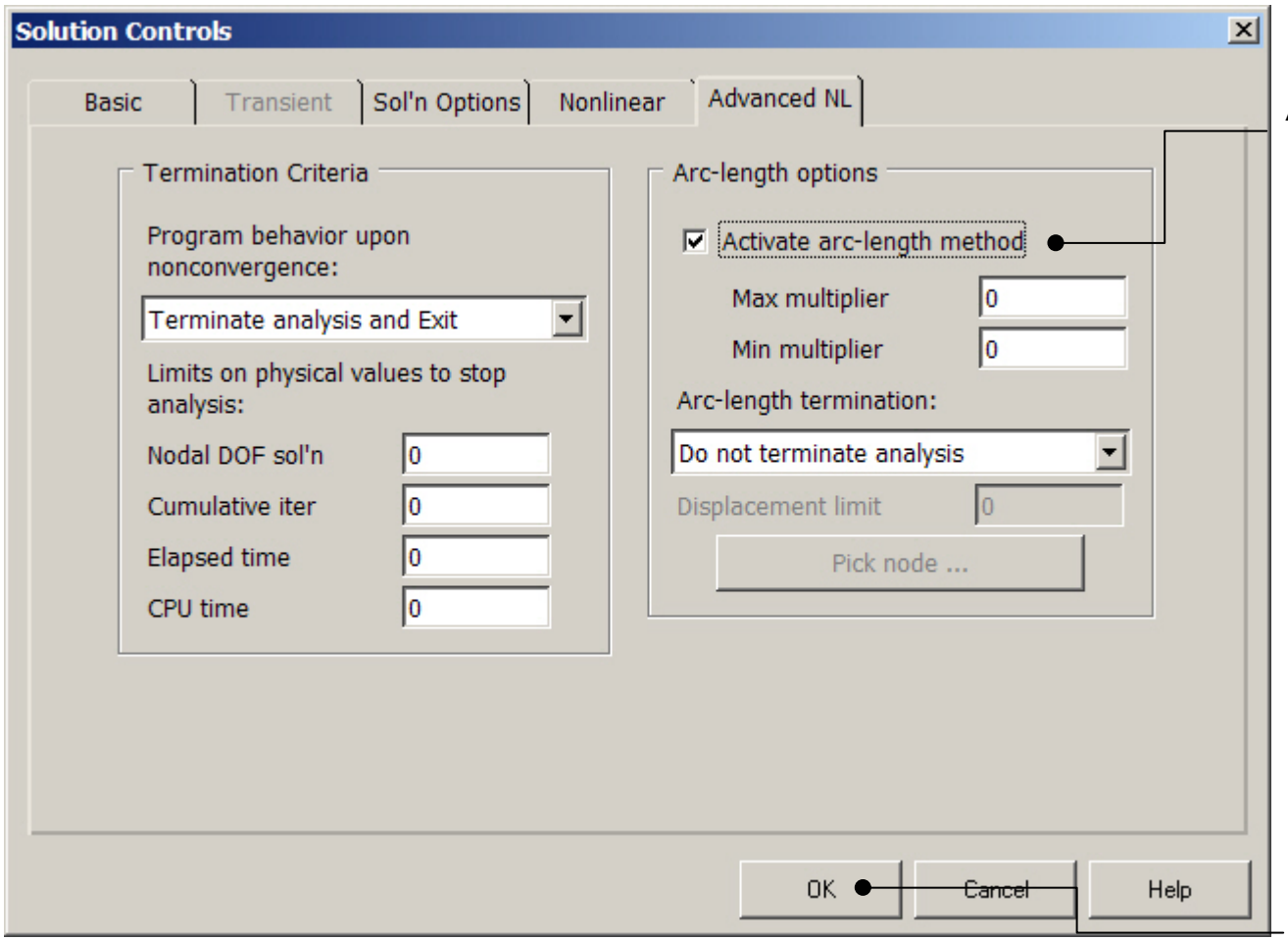
Change to Large Displacement Static

Select All solution items

Select Write every Nth substeps

Enter 30

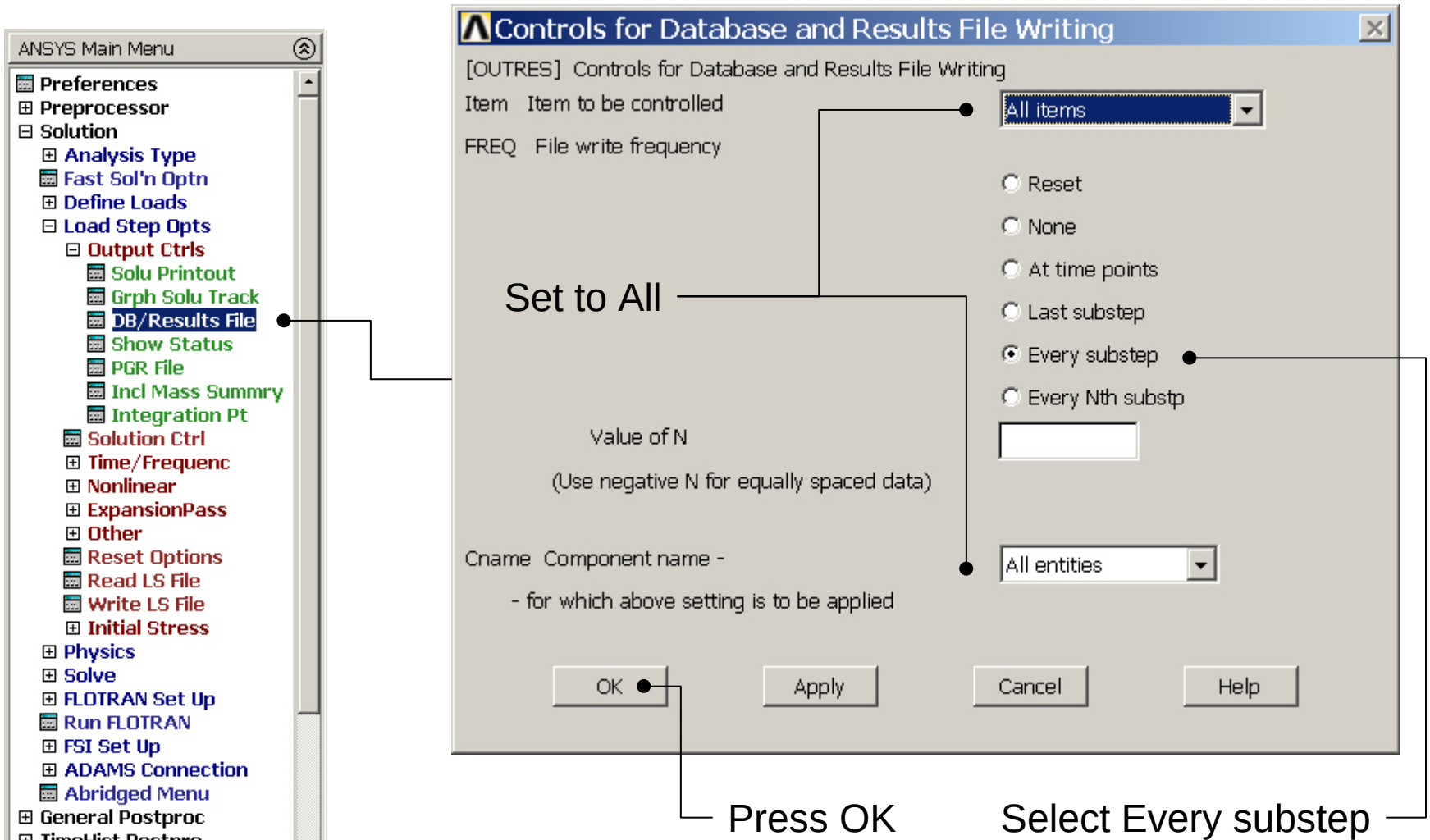
Example – Solution Controls



Activate the arc-length method

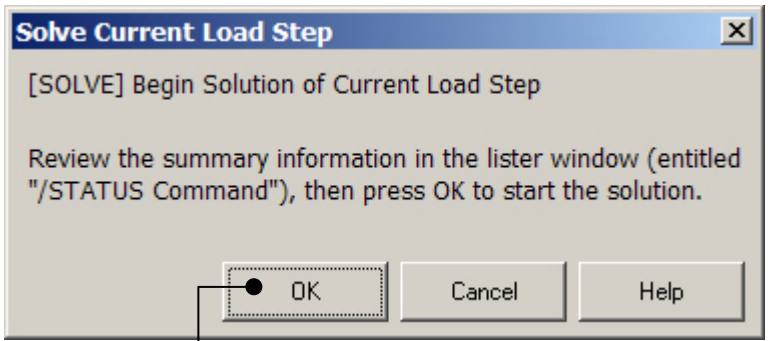
Press OK

Example – Output Ctrls



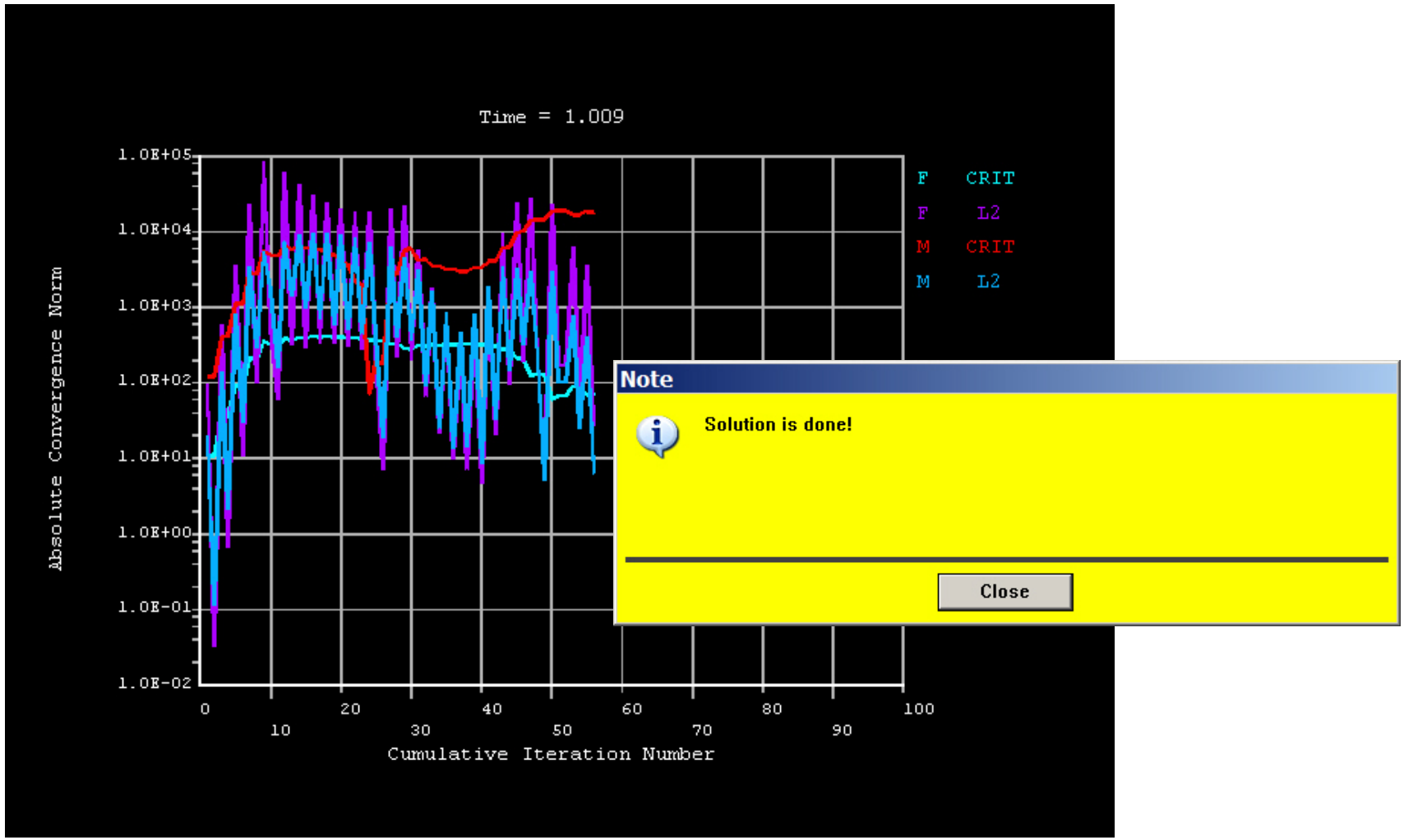
Example - Solve

Solution > Solve > Current LS

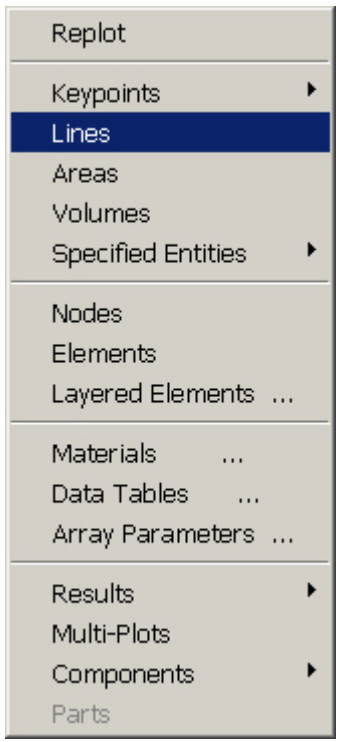


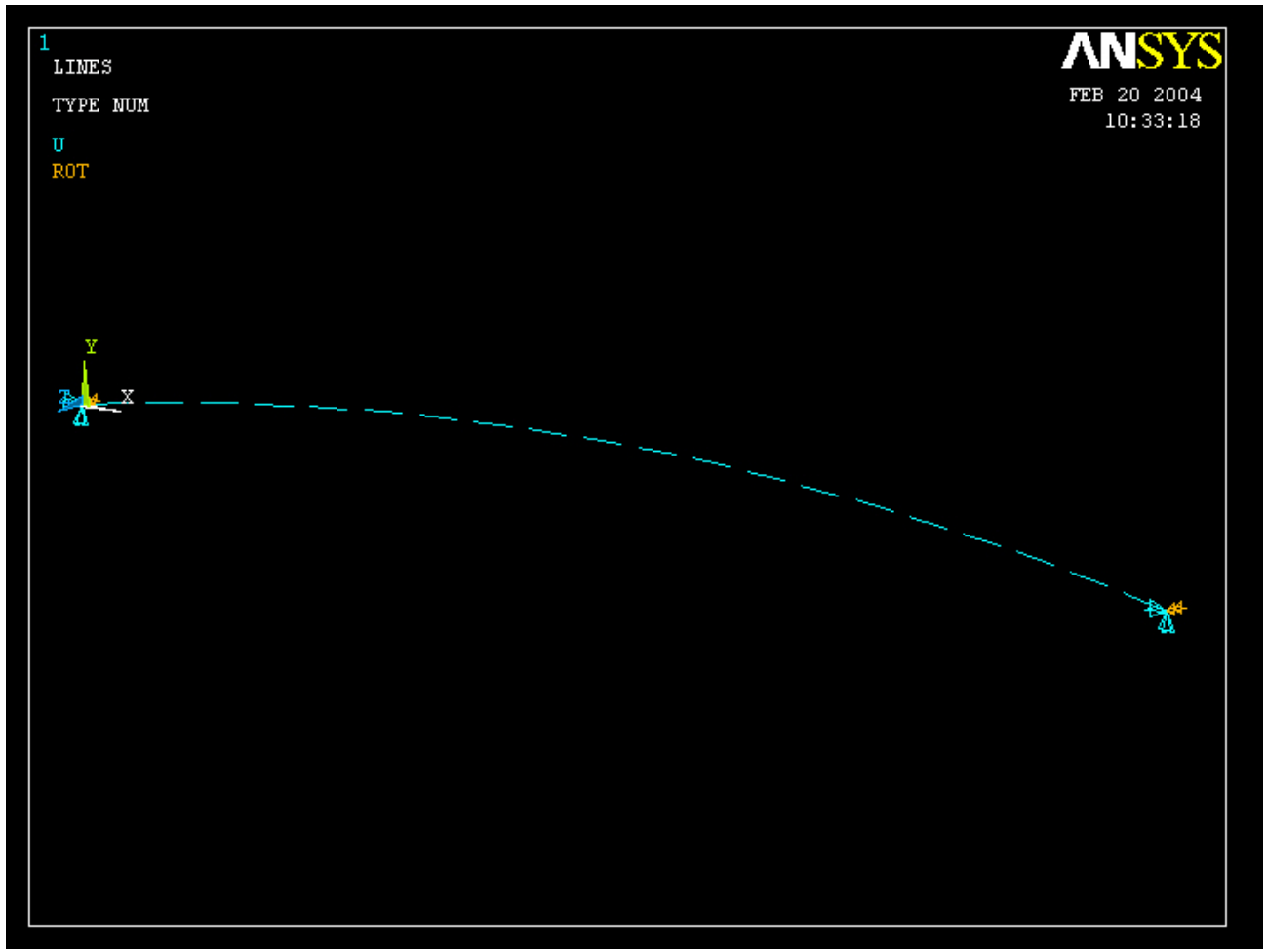
Press OK

Example - Convergence

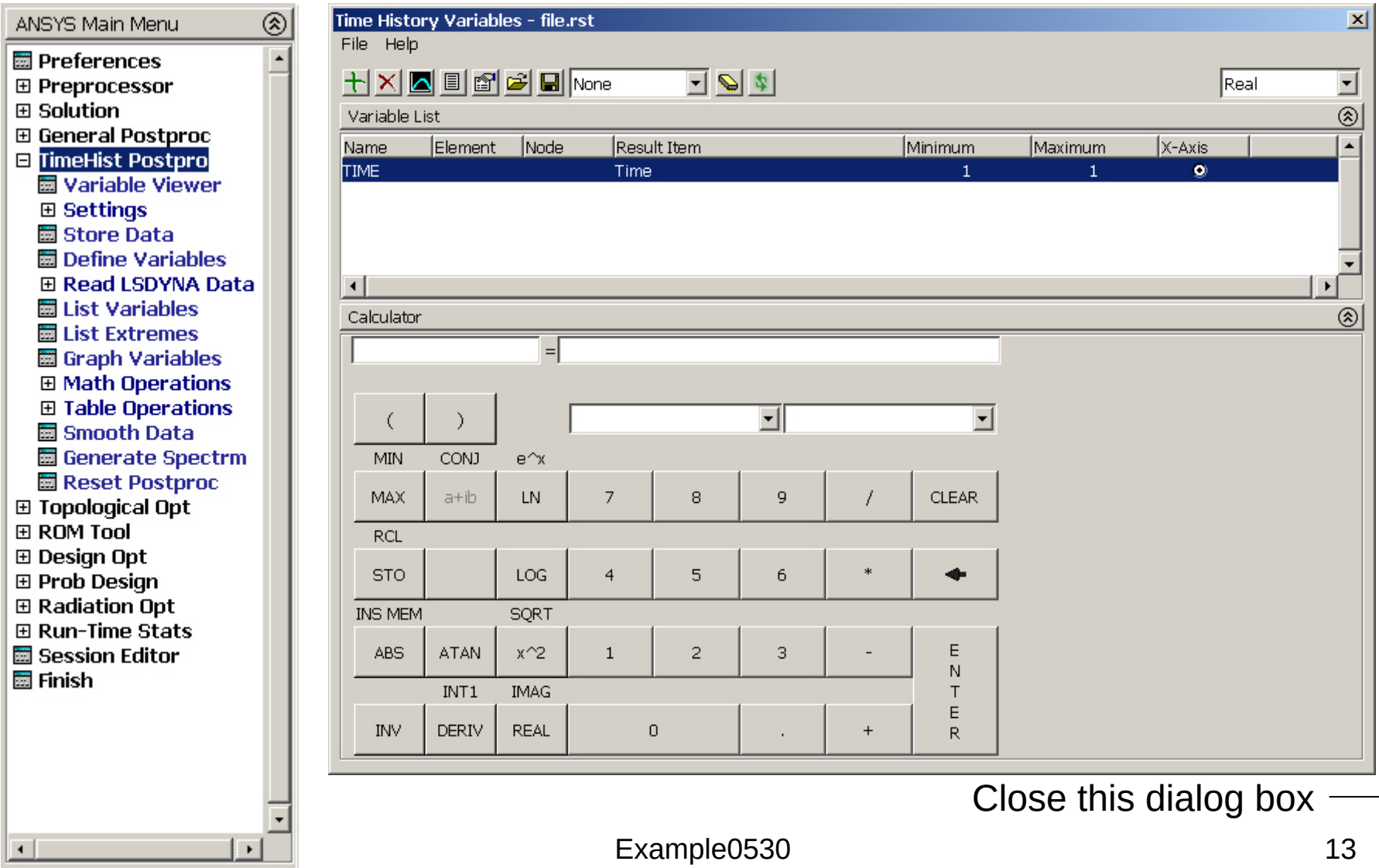


Example – Plot - Lines



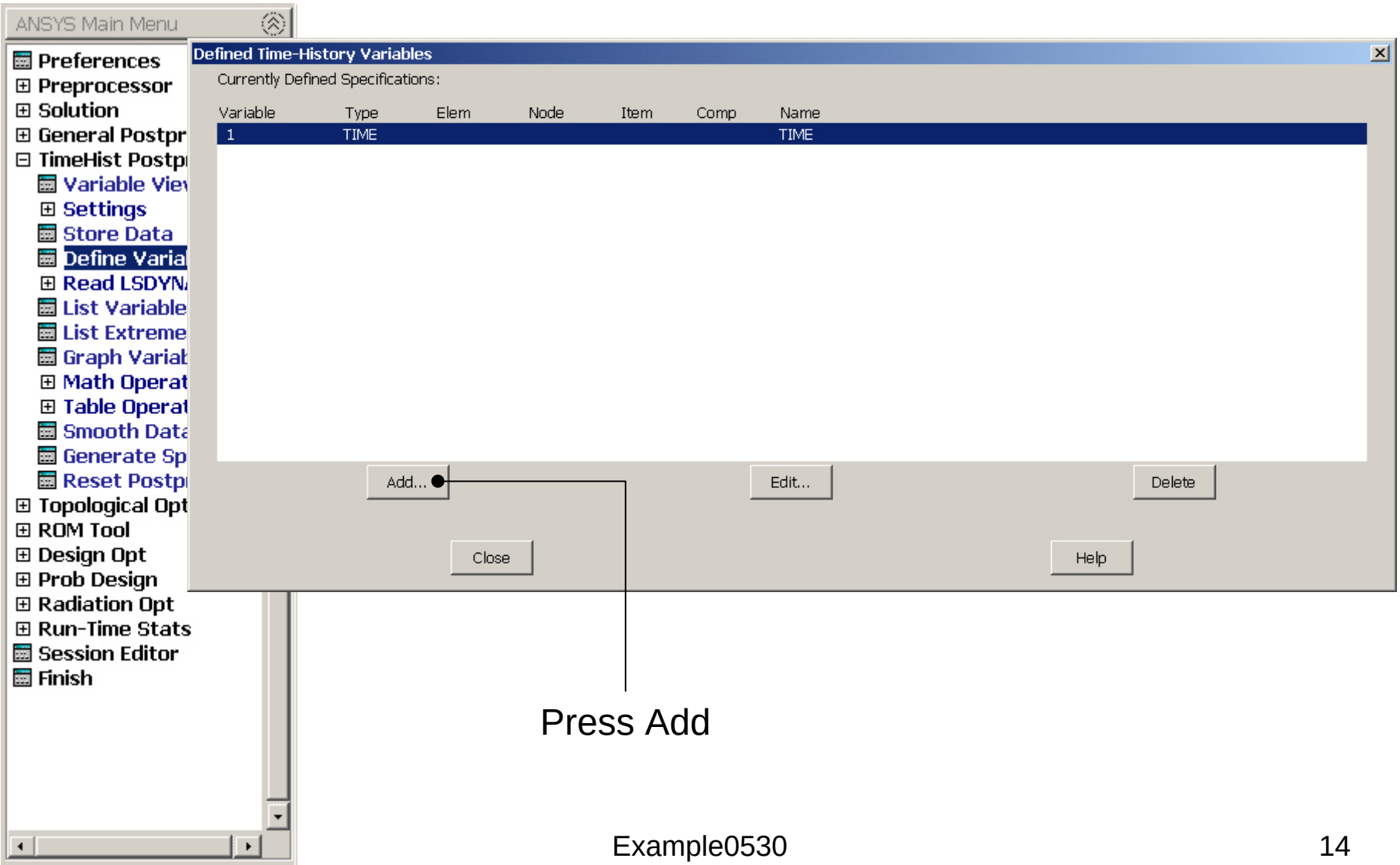


Example – TimeHistory Postpro



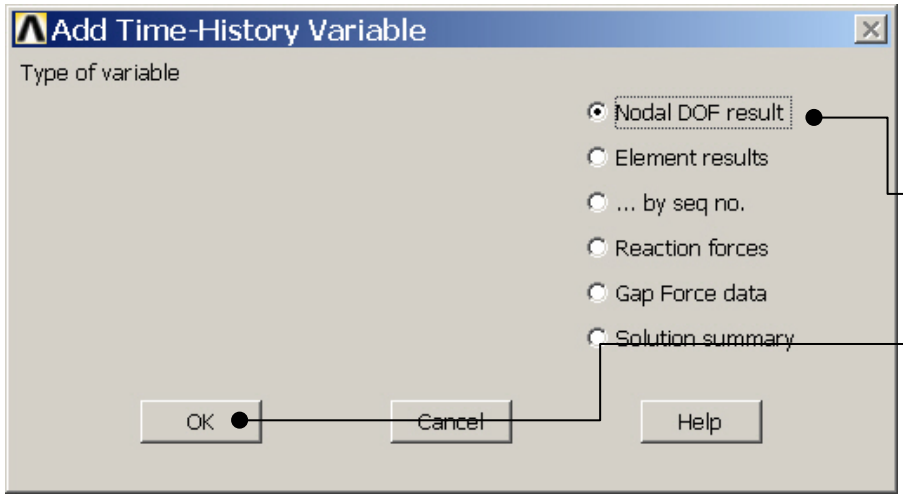
Close this dialog box

Example – Define Variables

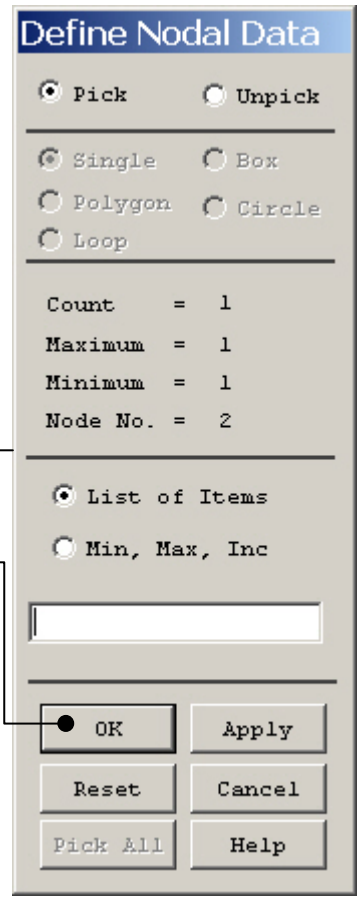


Press Add

Example – Add Time-History Var.

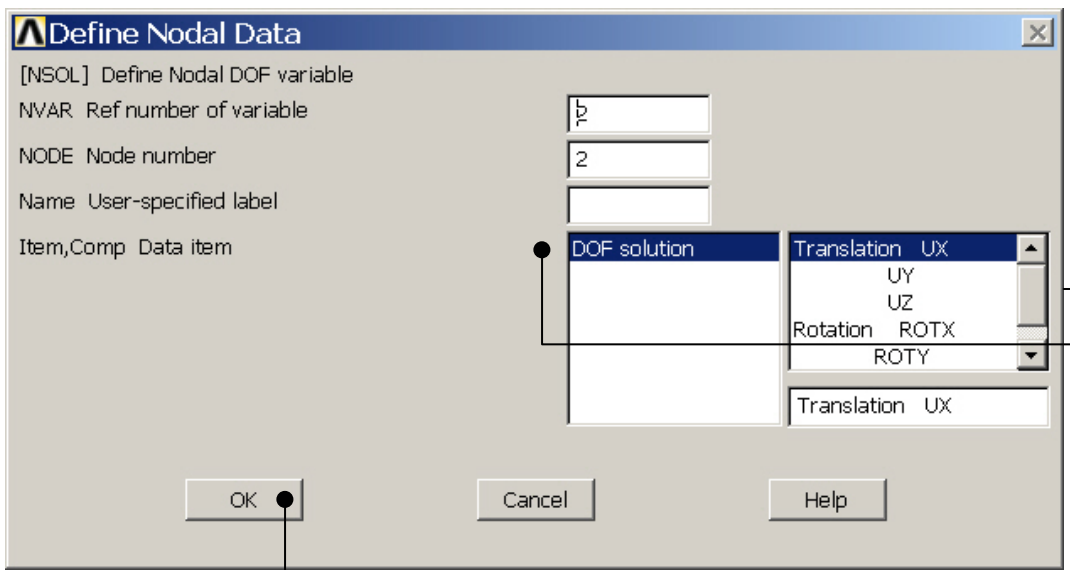


Pick the middle node



Select Nodal DOF result

Press OK

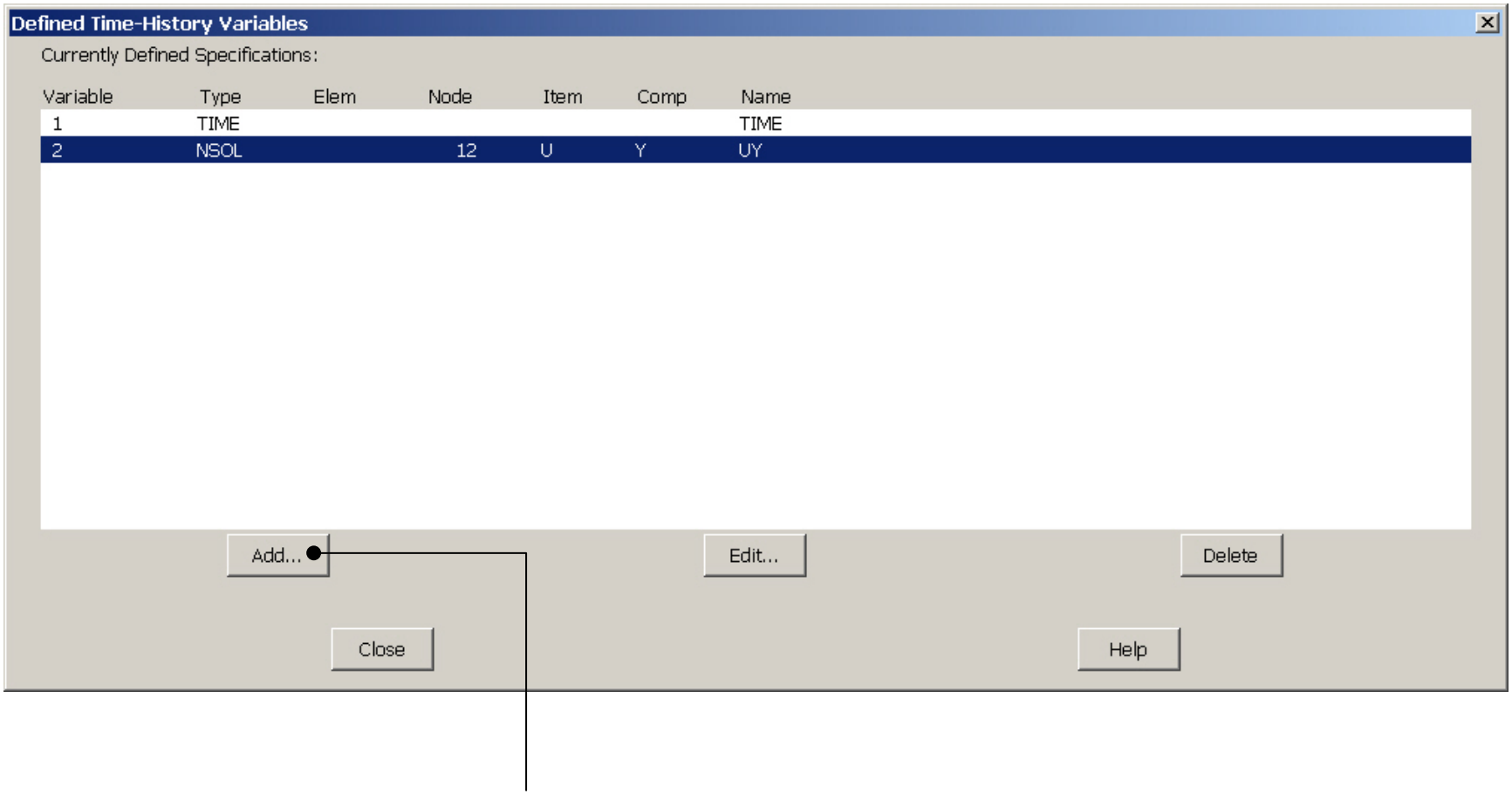


Press OK

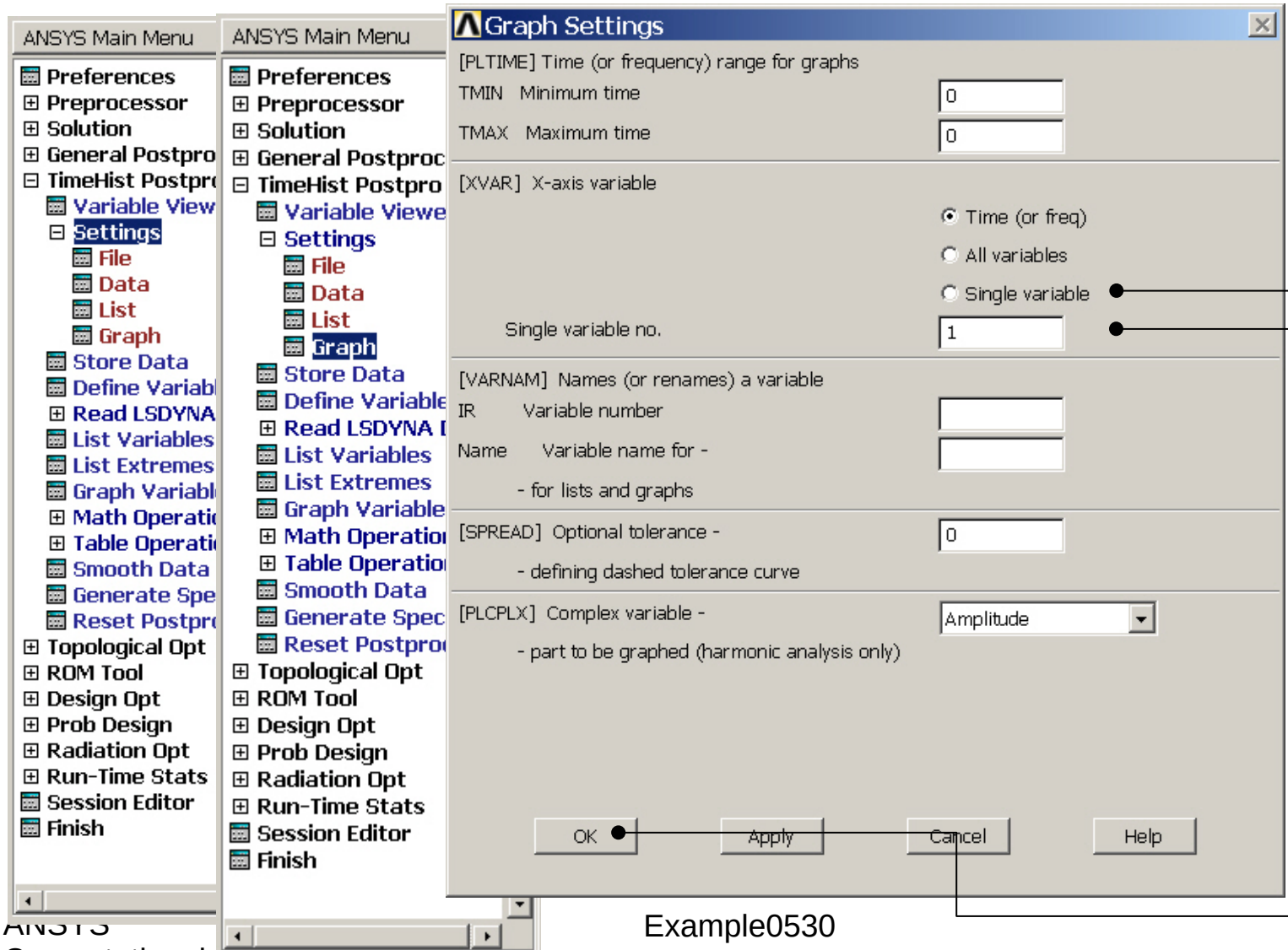
Select DOF solution and Translation UY

Press OK

Example – Add Time-History Var.



Example - Settings

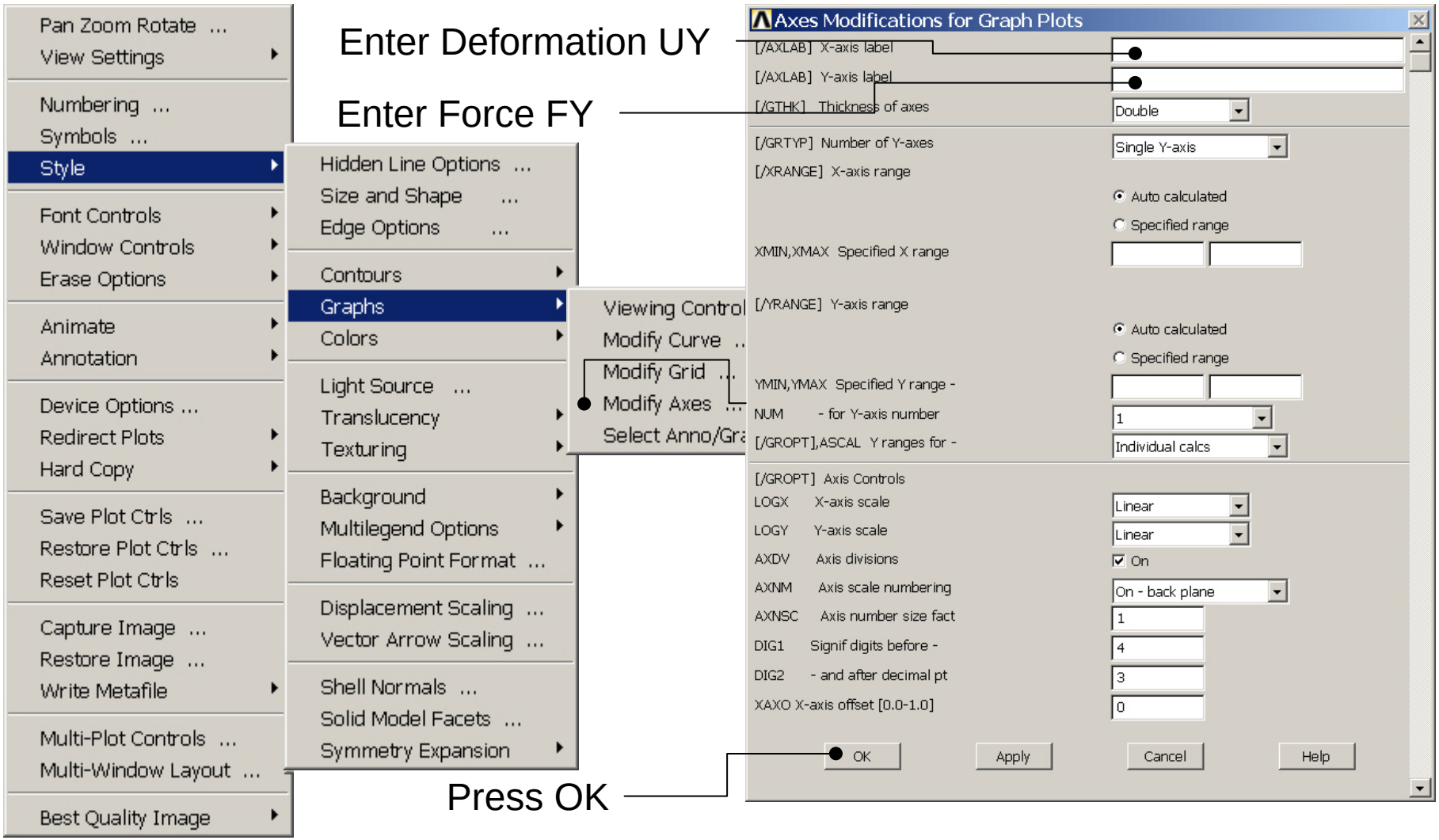


Select Single variable to plot on X-axis

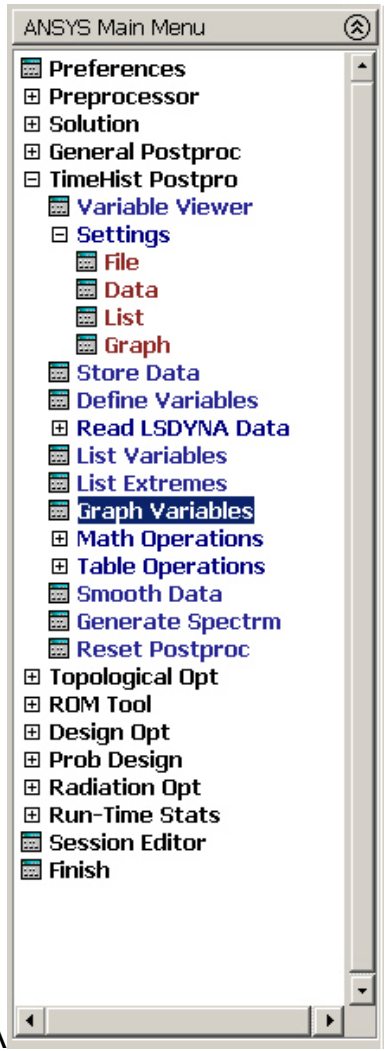
Enter 2 to plot UY for the top node on the X-axis

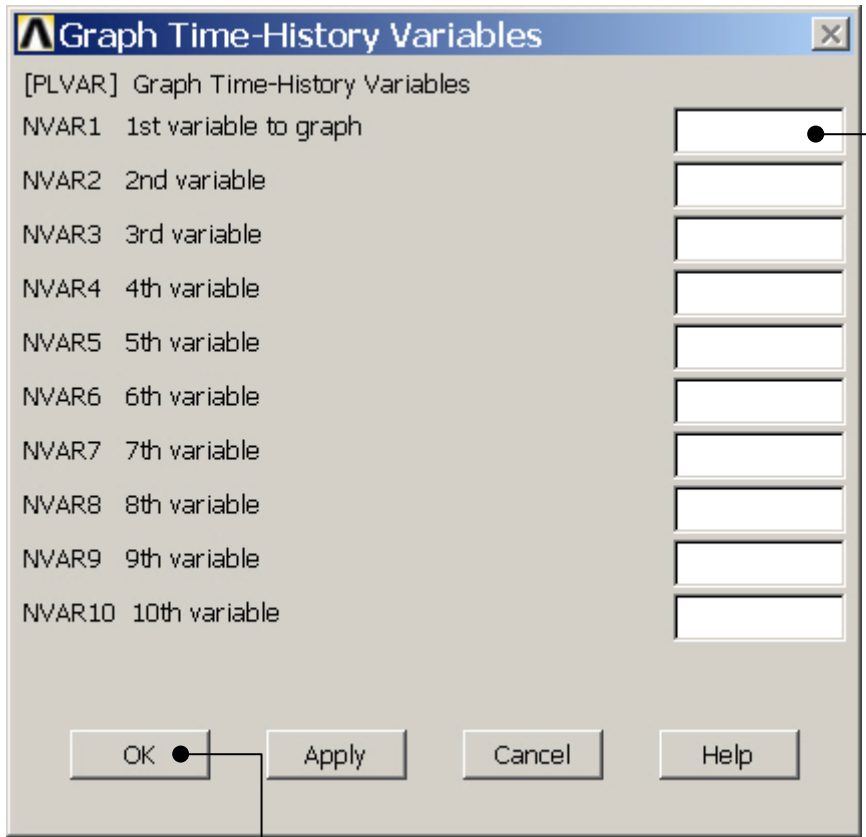
Press OK

Example – Style - Graph



Example – Graph Variables





Enter 1 to plot the reaction force FY on the Y-axis

Press OK

Example - Graph