

ANSYS - Vibration Analysis of a Frame - Step 8

Problem Specification
1. Start-up and preliminary set-up
2. Specify element type and constants
3. Specify material properties
4. Specify geometry
5. Mesh geometry
6. Specify boundary conditions
7. Solve!
8. Postprocess the results
9. Validate the results

Step 8: Postprocess the results

Enter Postprocessing module to analyze solution

Main Menu > General Postproc

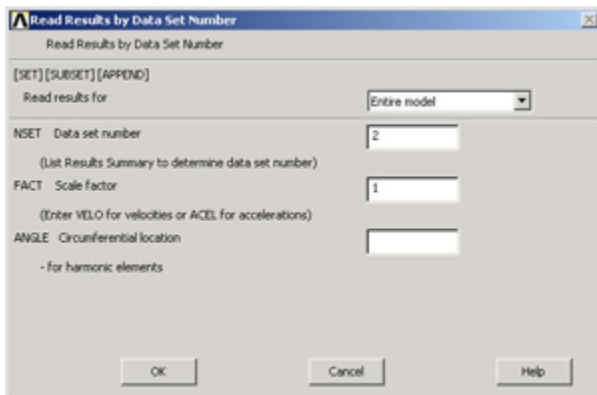
Select **Results Summary**.

This shows you the cyclic frequencies of the ten modes. Compare with the values in the book.

View Mode Shape for Mode 2

Read Results > By Set Numbers

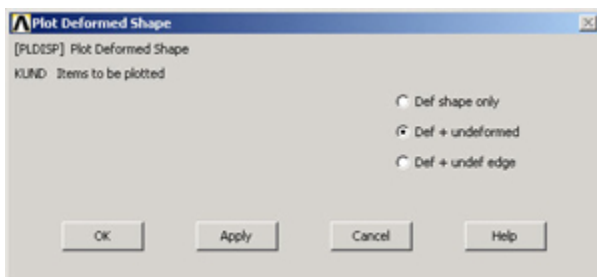
Enter 2 for **NSET**.



Click **OK**.

Plot Results > Deformed Shape

Select **Def+undeformed**.



Click **OK**.

This plots the mode shape for mode 2. Similarly, look at the other mode shape and compare them with figure 11.17-2 in the book.

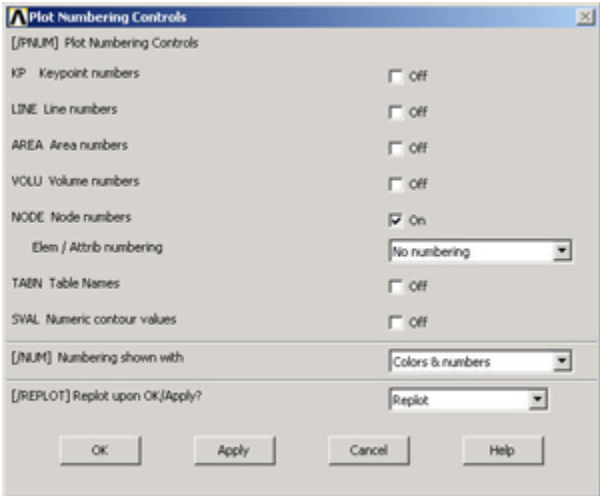
Find Mode Numbers

Table 11.17-1 gives amplitude values for selected d.o.f. for three nodes.

To find the node numbers corresponding to the ones in the book, turn on node numbering.

Utility Menu > PlotCtrls > Numbering

Turn on **Node Numbers**.



Click **OK**.

If you need to refresh the screen: **Utility Menu > Plot > Multi-plots**

By comparing the node numbers, we find:

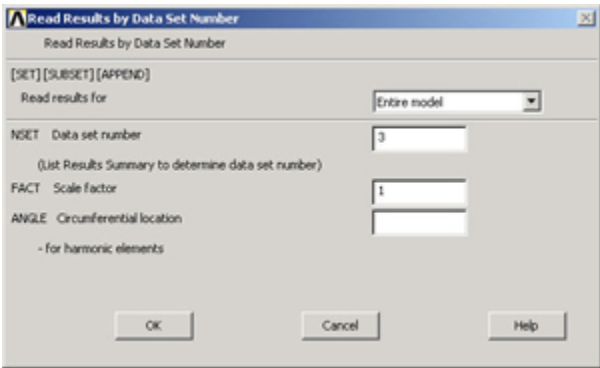
Node Numbers	Cook et al.	ANSYS
16	17	
41	42	
51	32	

Determine the Displacement Amplitude

To determine the displacement amplitude at node 17 for mode 3,

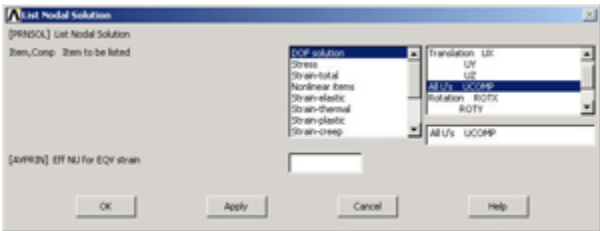
General **Post Proc > Read Results > By Set Number**

Enter 3 for **NSET**.



General Post **Proc > List Results > Nodal Solution**

Select **UCOMP**.



From the list, the displacement amplitude, denoted as **USUM**, is 23.9e-3. The corresponding value in table 11.17-1 is 23.8e-3. Similarly, you can determine the other entries in the table. Note that the rotational d.o.f. to use for the second row in the table is **ROTZ**__.

Save your work

Click on **SAVE_DB** in the *ANSYS Toolbar* to save the database.

Go to [Step 9: Validate the results](#)

Go to [all ANSYS Learning Modules](#)