EN1740 Computer Aided Visualization and Design

Spring 2012

2/14/2012

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Last time:

- Parent – Child

Tonight:

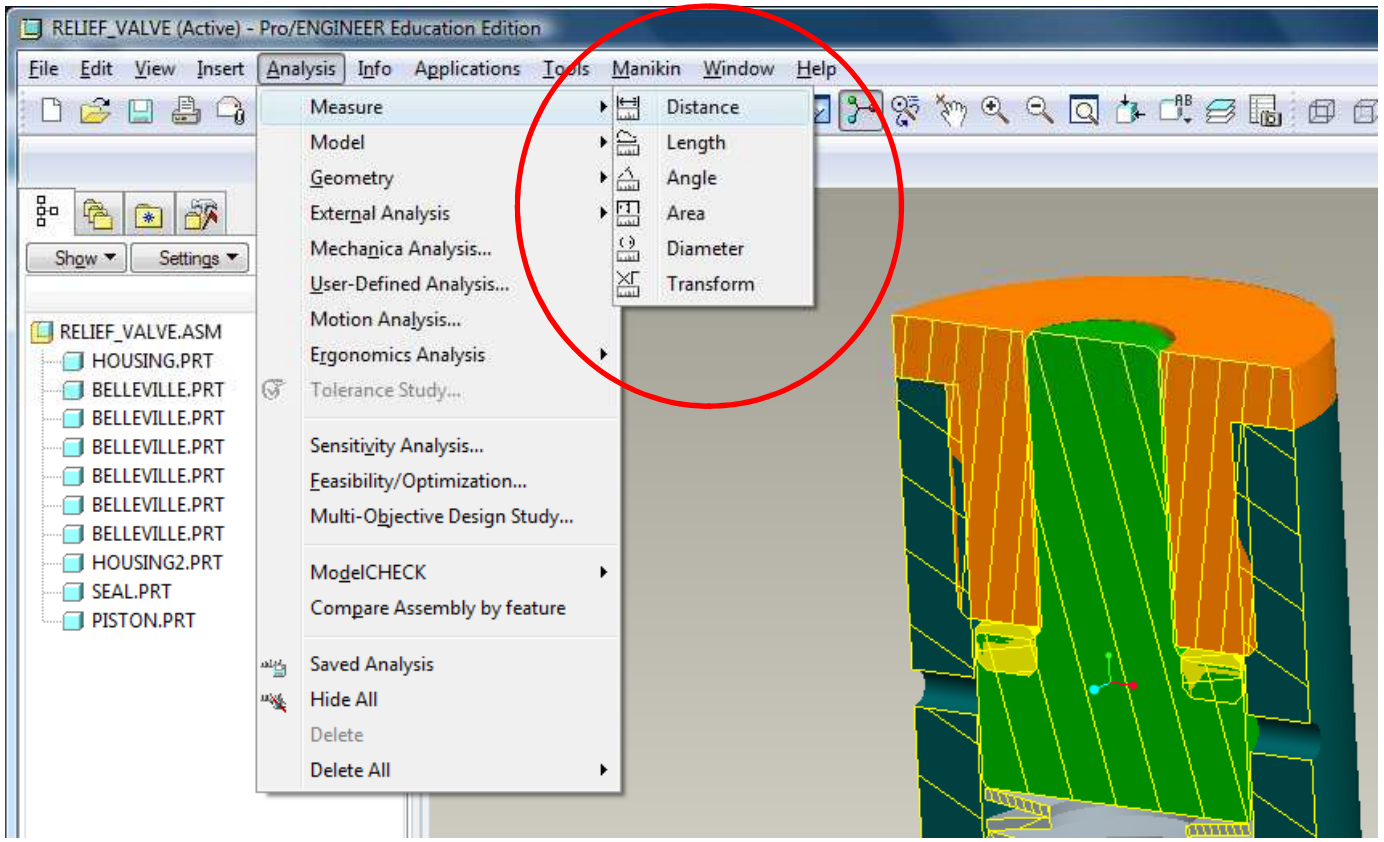
- Measuring within Pro/E
- 2D representation
  - Orthographic projection
  - 3rd Angle vs. 1st Angle
- Creating engineering drawings

READING ASSIGNMENT:

Please read Chapt. 3 in Wilson

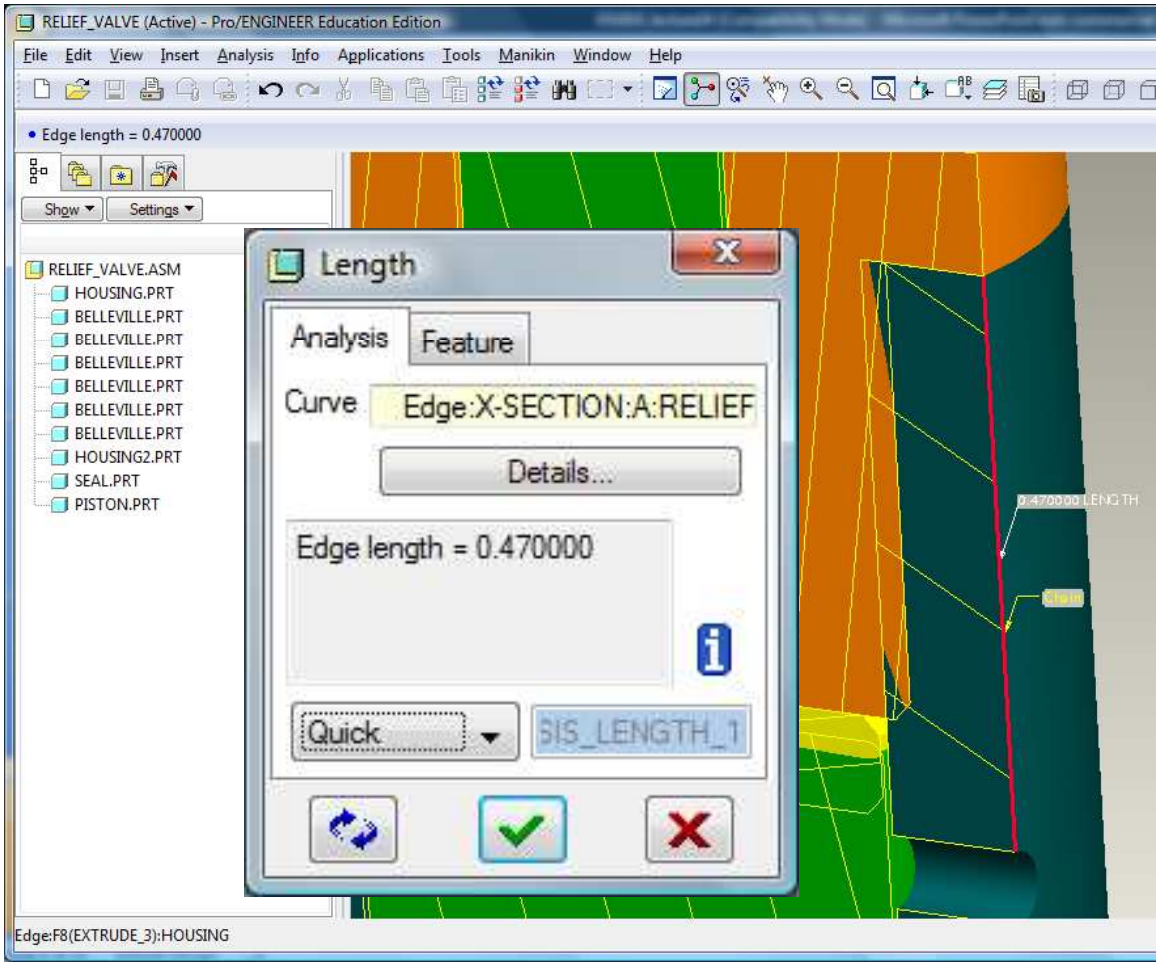
Measure

- Analysis > Measure
- There are a number of measure options available



Measure - Length

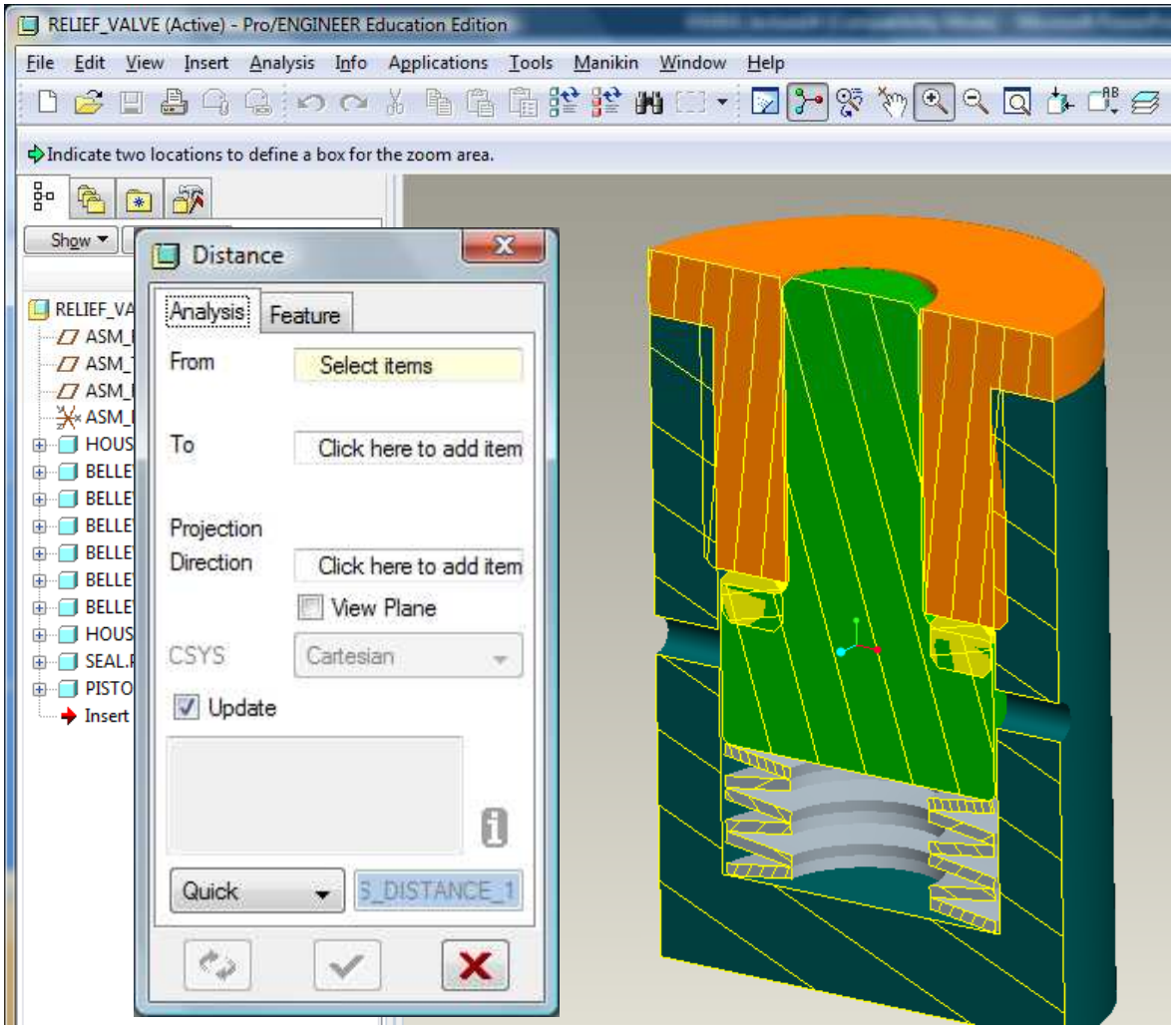
- Analysis > Measure > Length
- Select a line entity



Measure – Distance

This options gives the most options

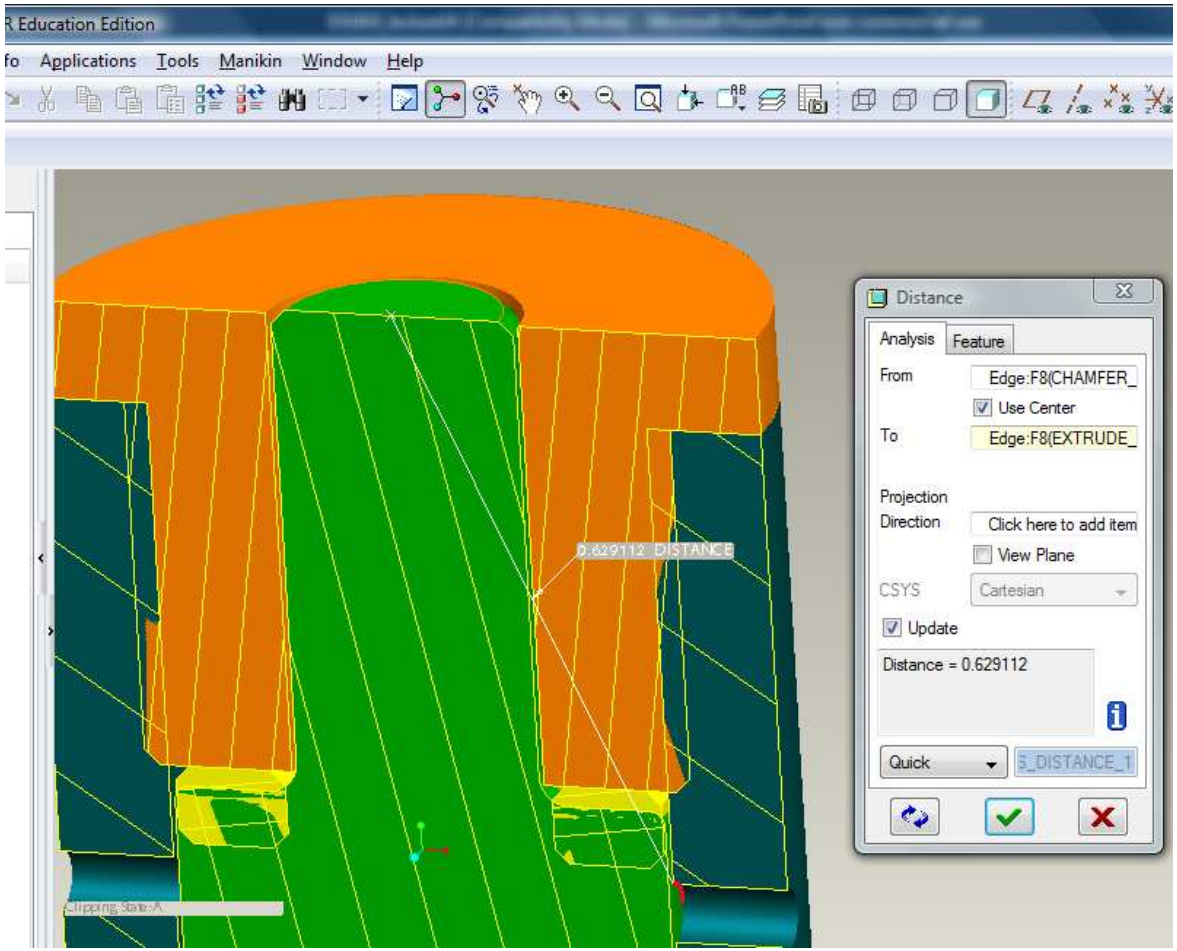
- Analysis > Measure > Distance
- Any entity can be selected => Curve, Plane, Axis, Edge, Surface
- *NOTE: UNLESS GOING PLANE TO PLANE, SHORTEST DISTANCE IS REPORTED*



Measure – Distance

This options gives the most options

- At times, a projection reference is required

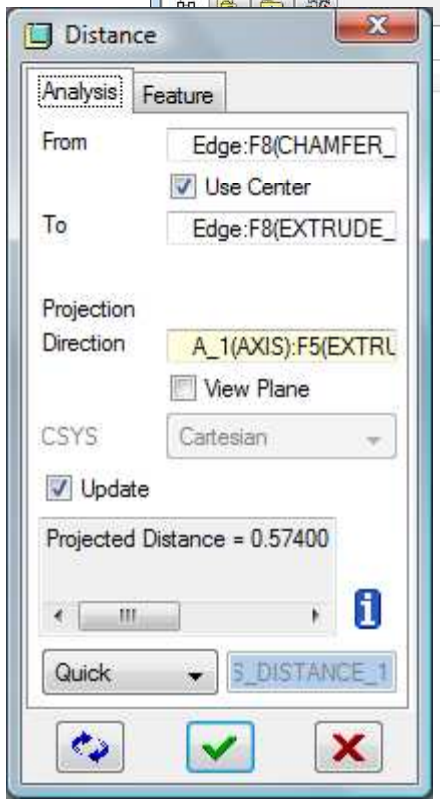


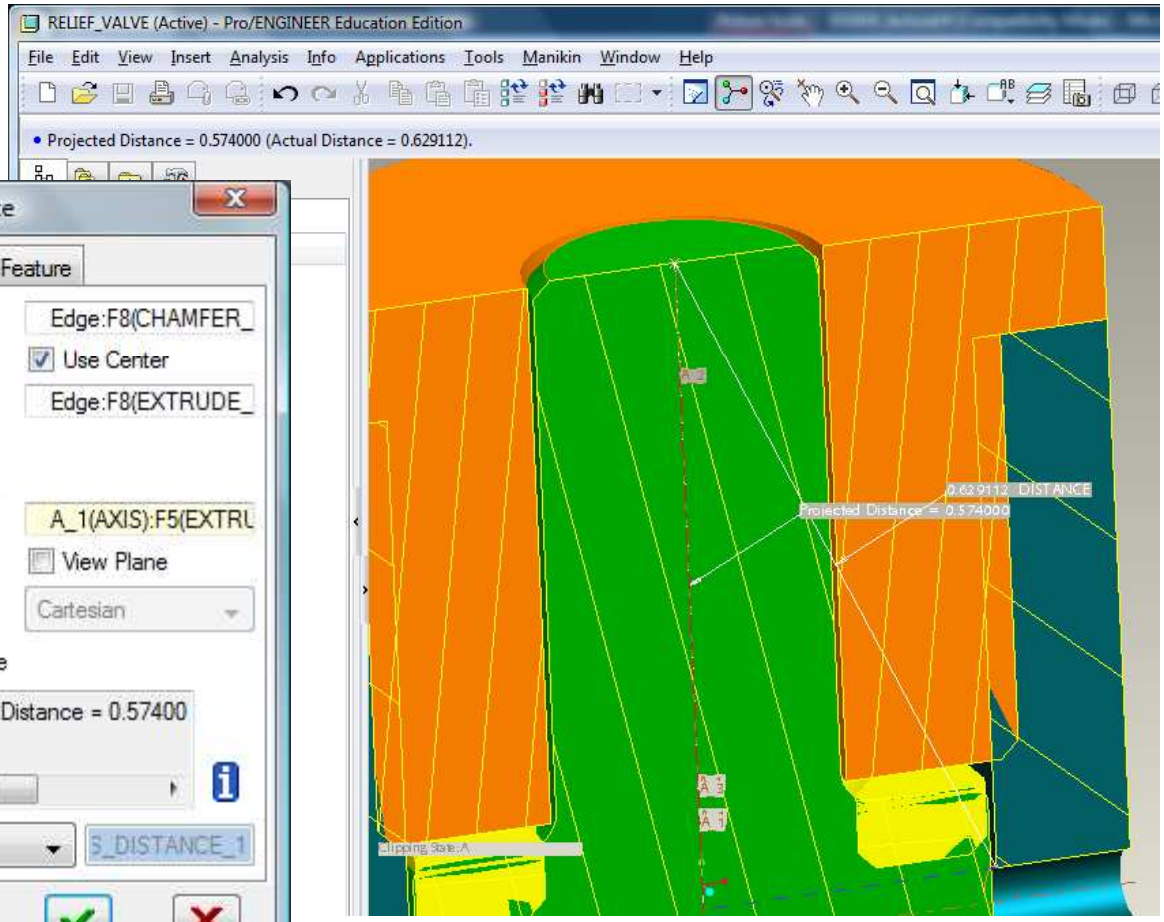
Measuring from top to edge of through hole without projection reference

Measure – Distance

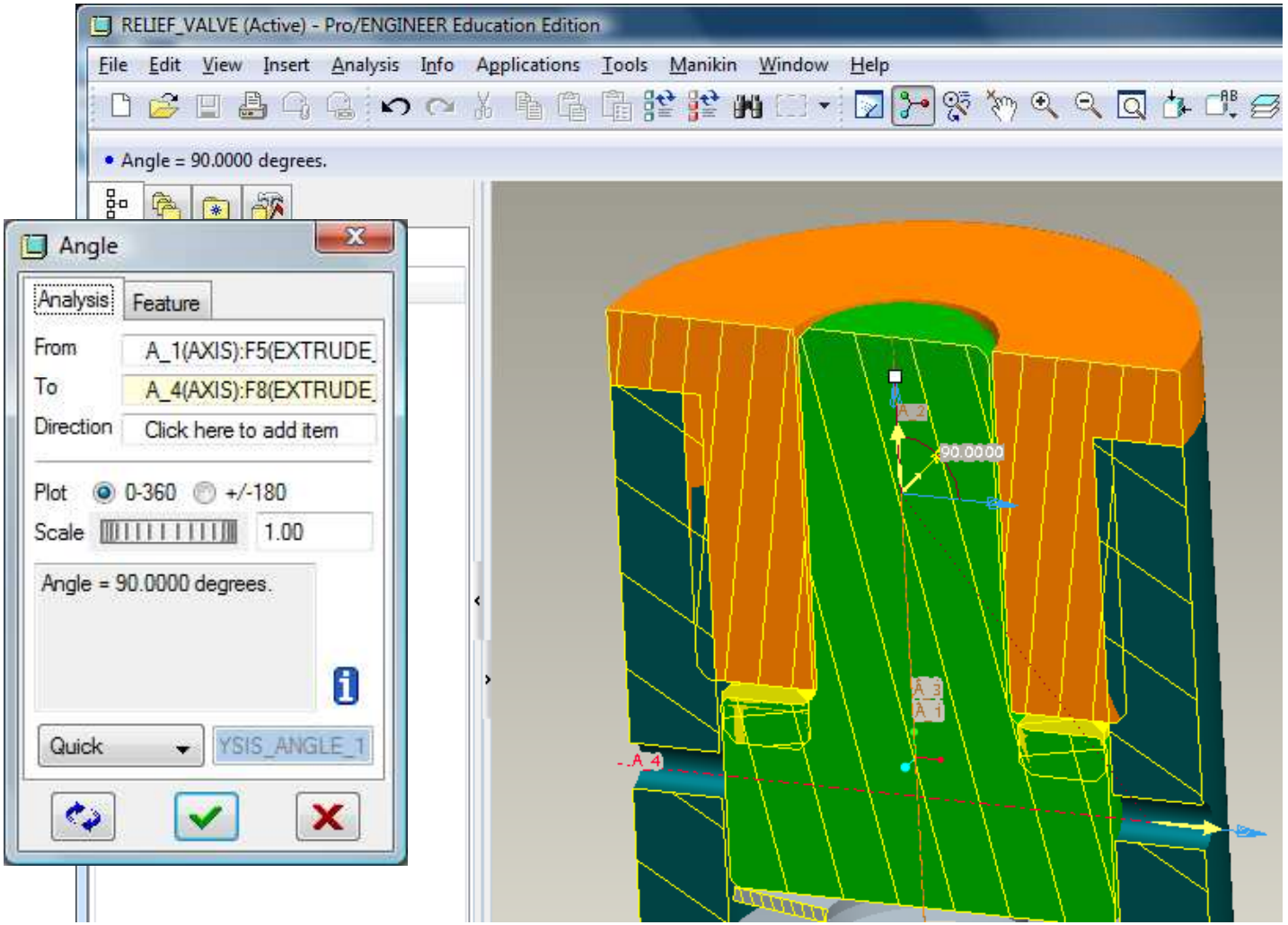
This options gives the most options

- Adding the center axis as a projection reference gives the vertical distance



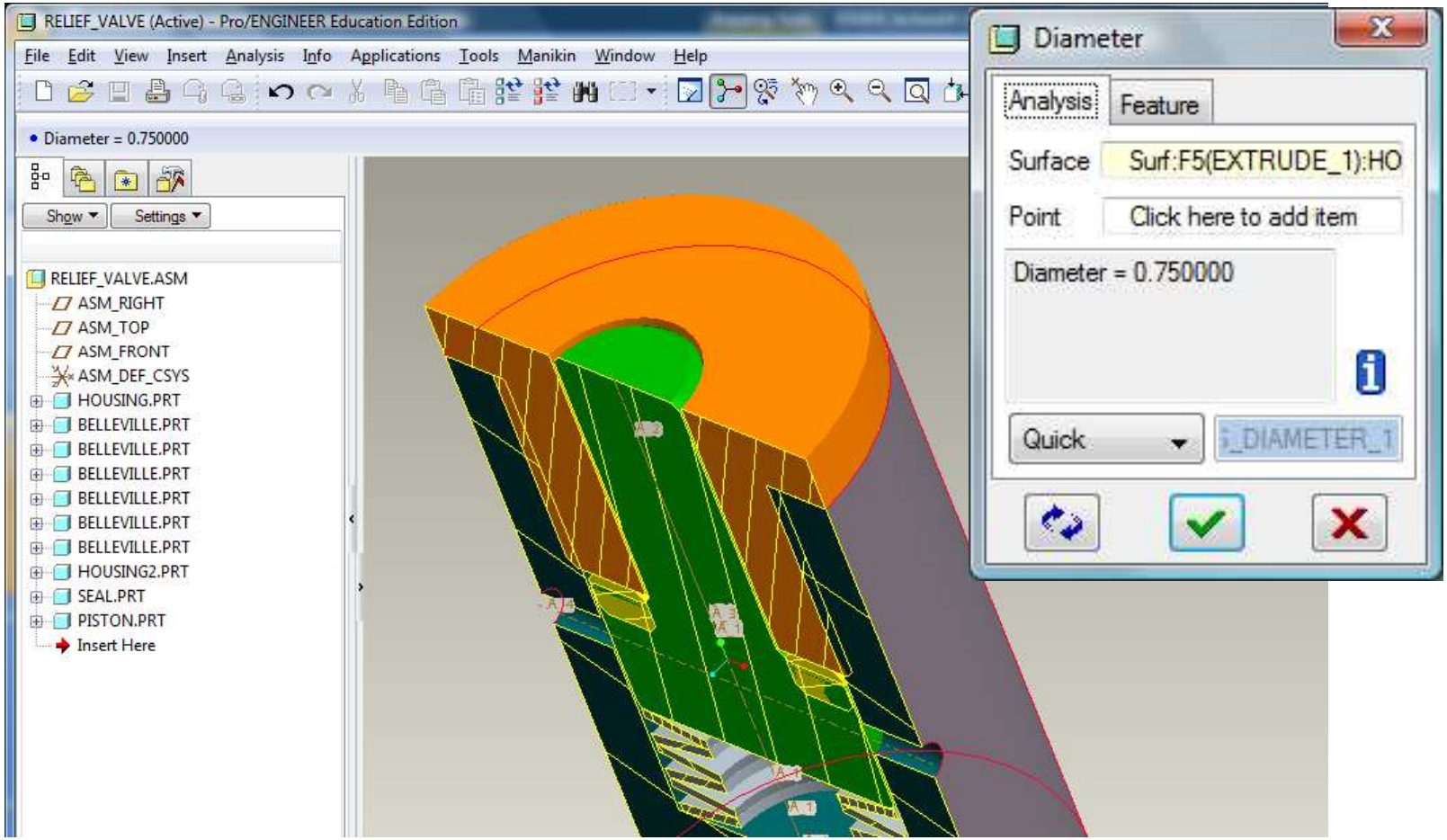


Measure – Angle



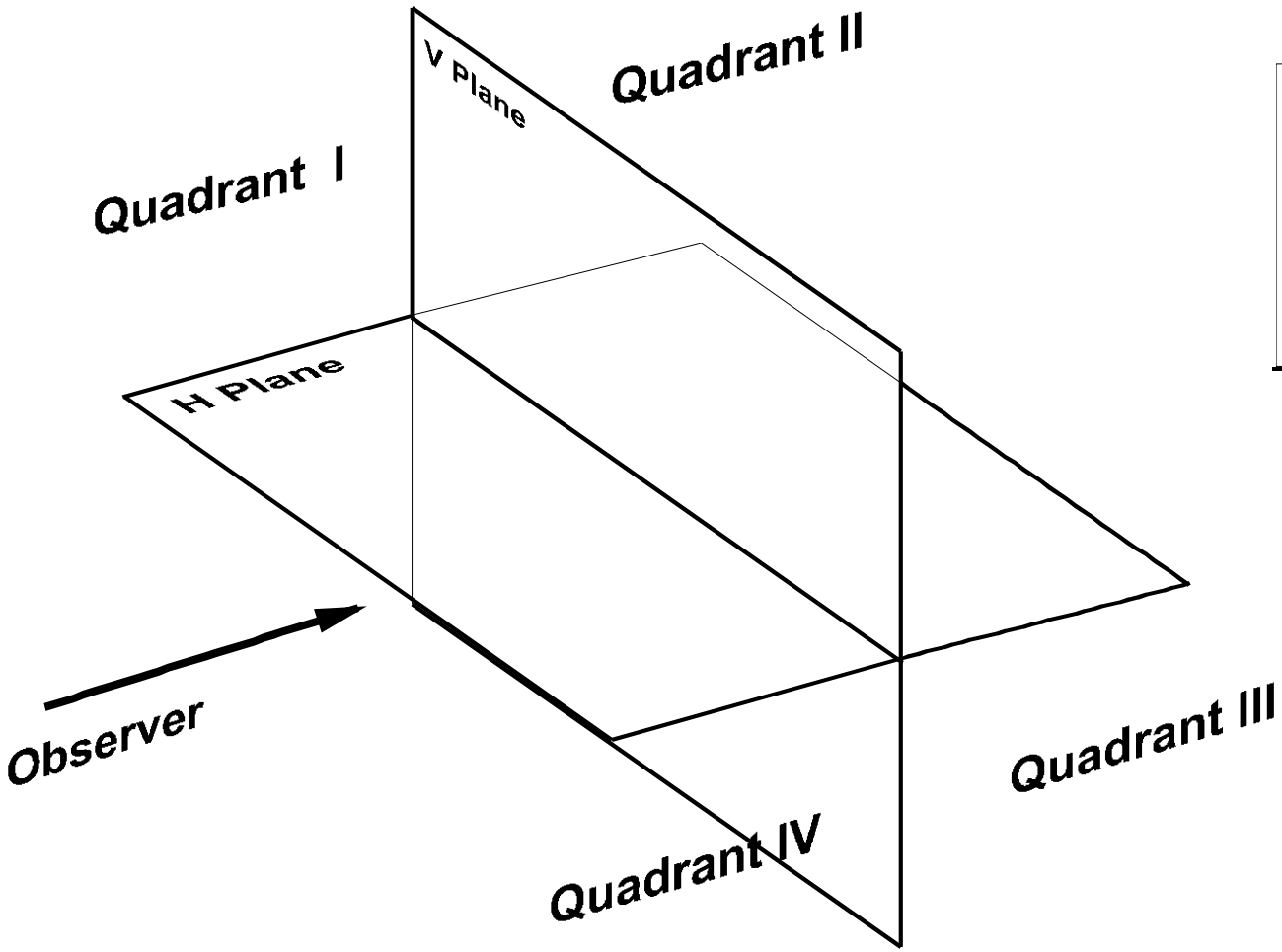
Measure – Diameter

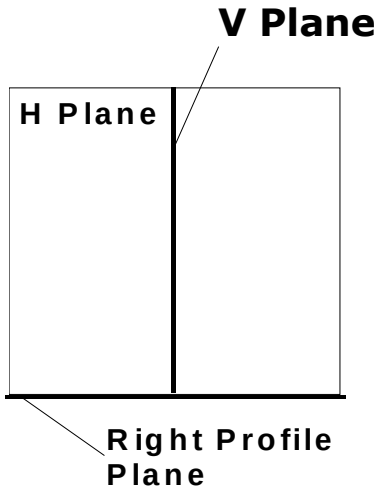
Very useful



Orthographic Views

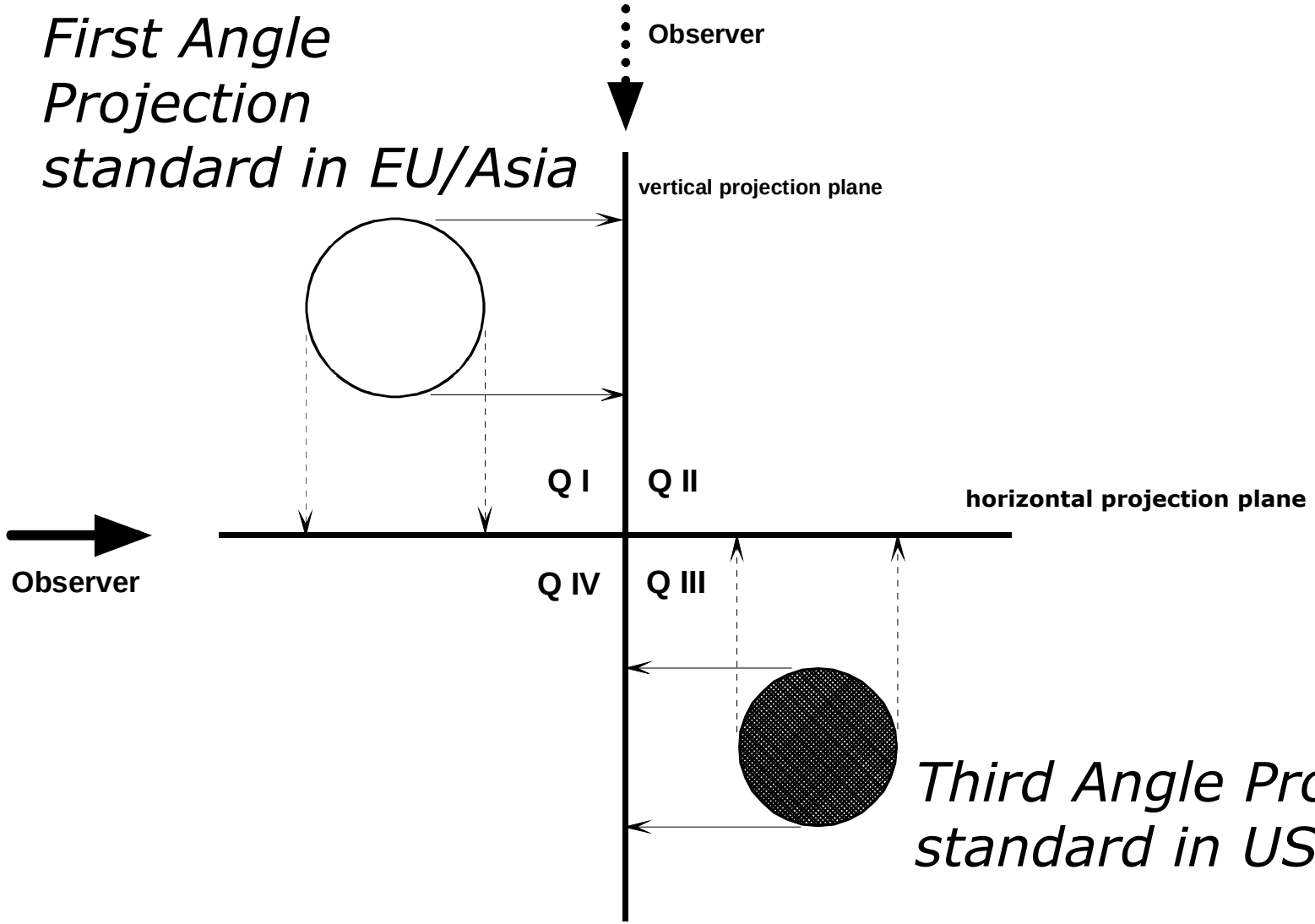
Projection Planes and Quadrants





Orthographic Views

First Angle Projection standard in EU/Asia

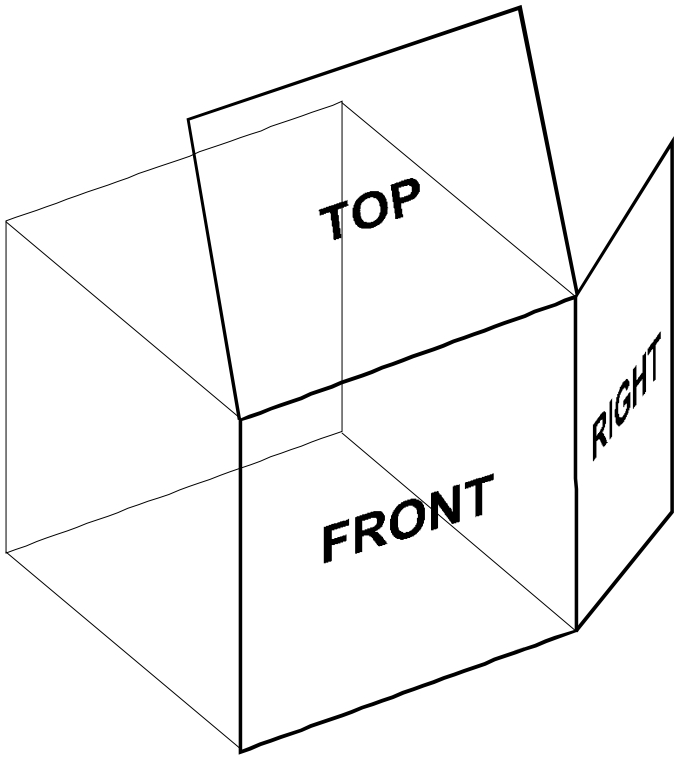


Third Angle Projection standard in US

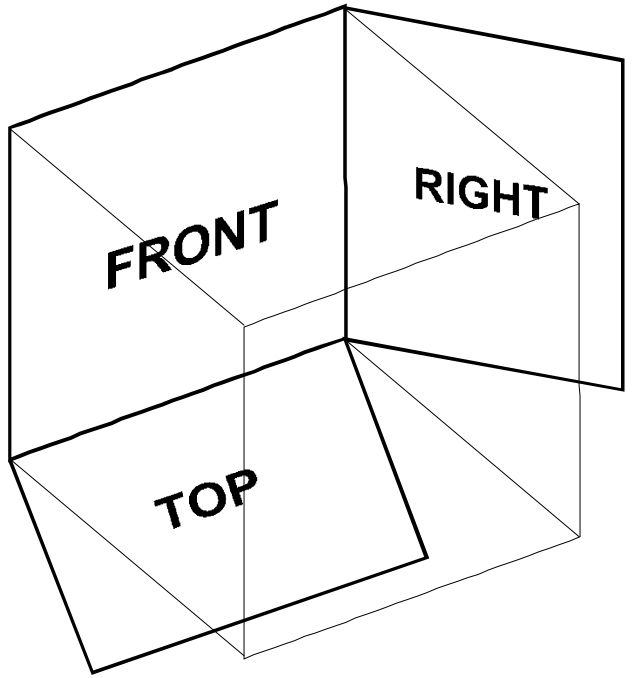
Orthographic Views

Flipping of planes into Front View (Vertical) Plane for drawing onto a sheet of paper

THIRD ANGLE



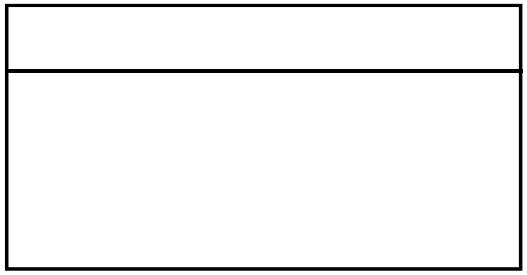
FIRST ANGLE

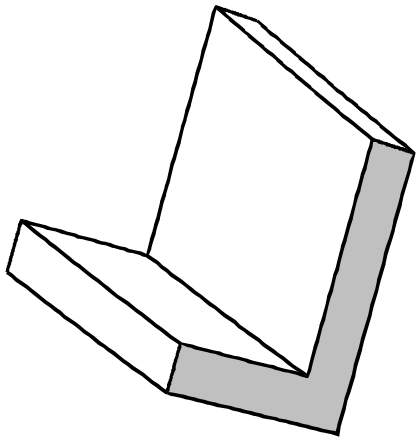


Orthographic Views

Third Angle Views of an Object

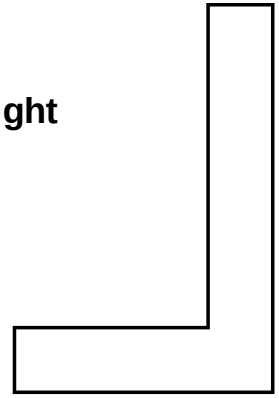
Top





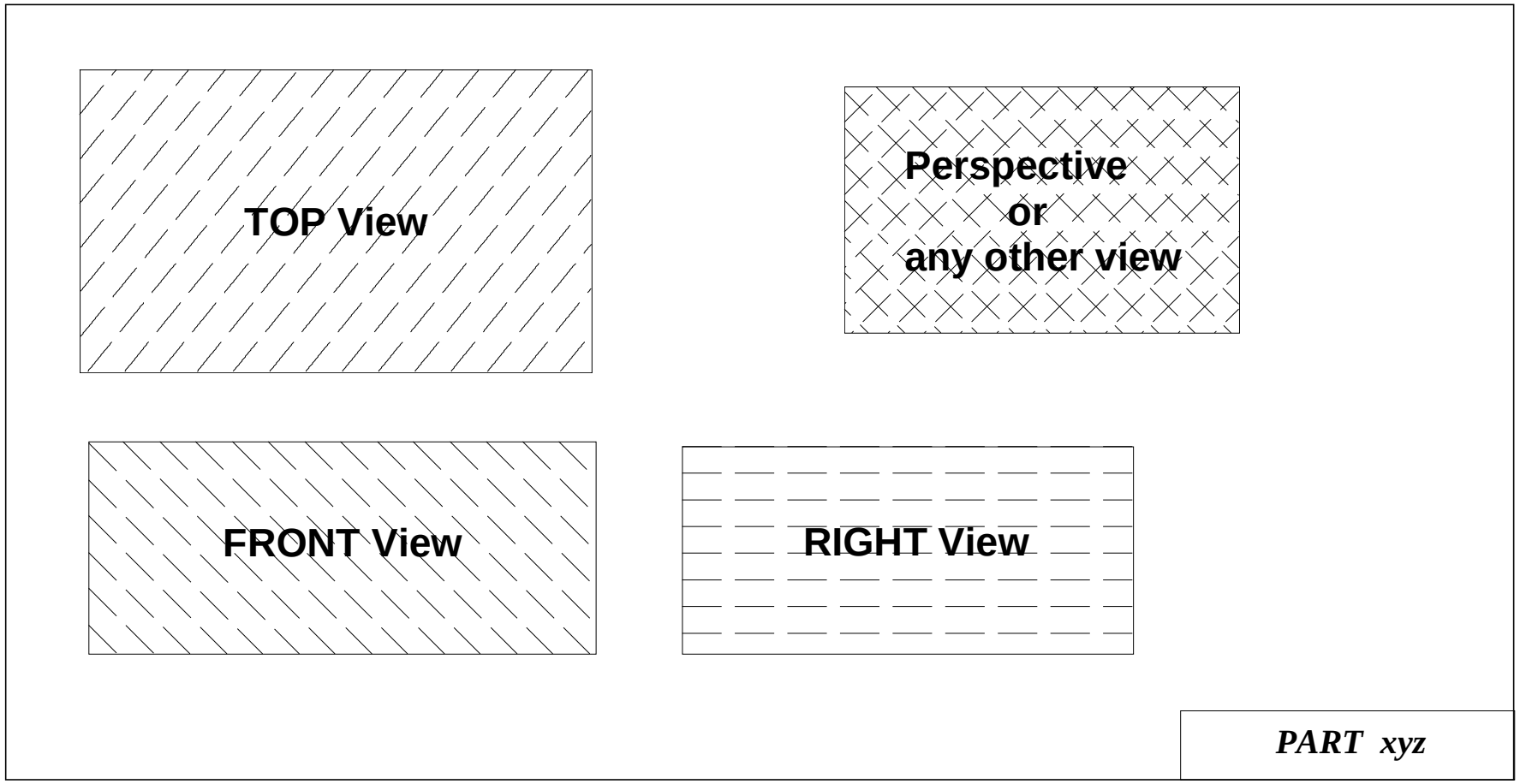
Front

Right



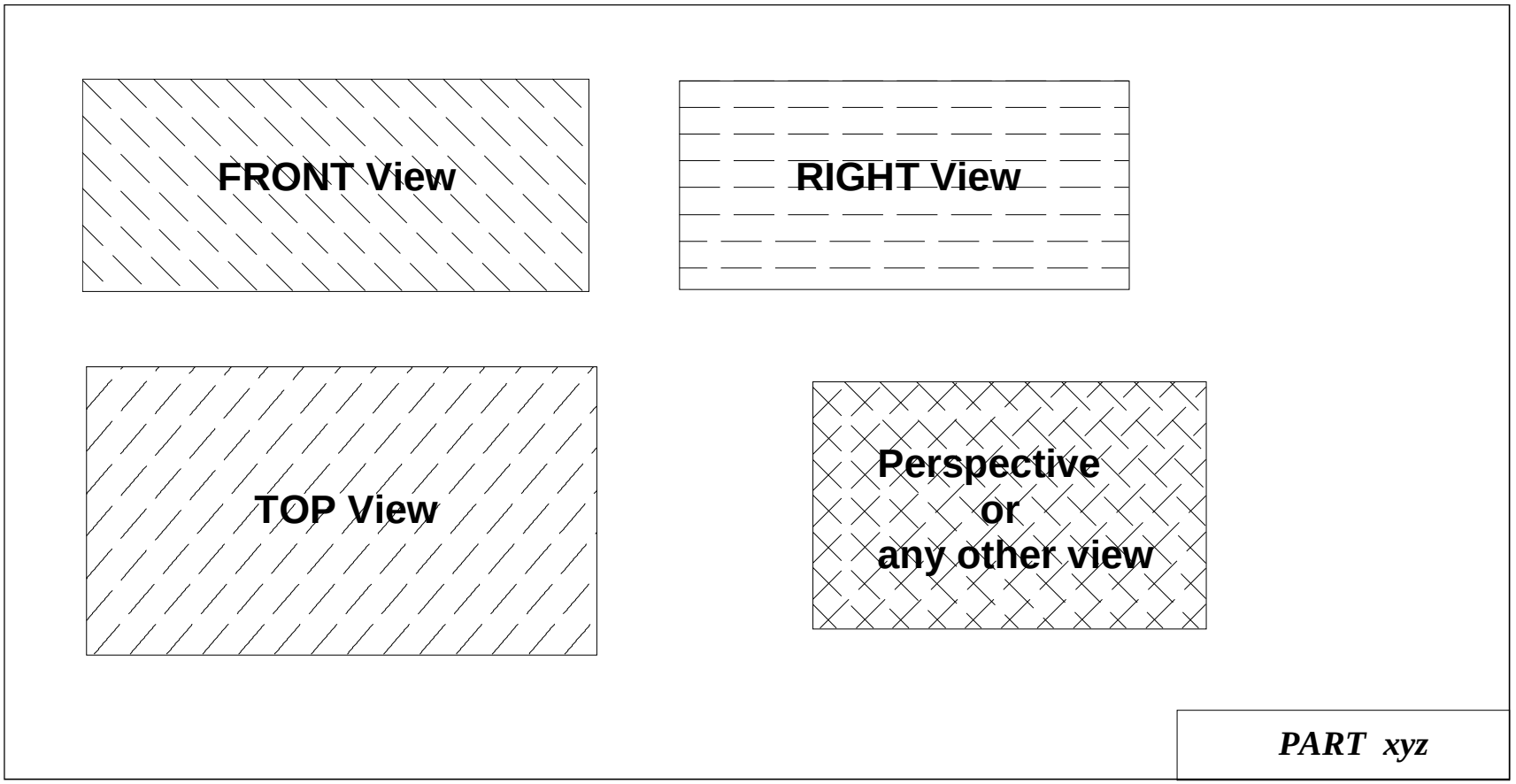
Orthographic Views

Engineering Drawing in third angle projection



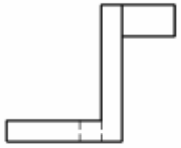
Orthographic Views

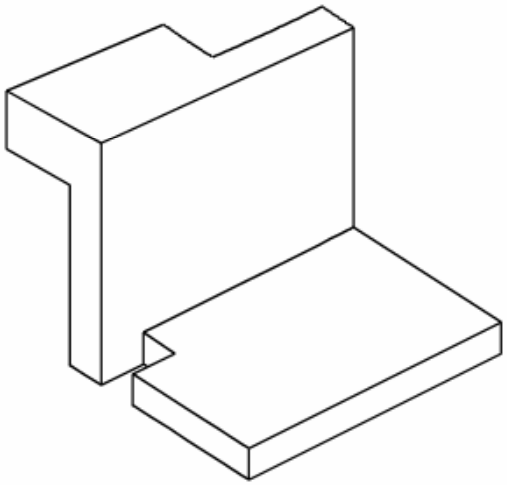
Engineering Drawing in first angle projection

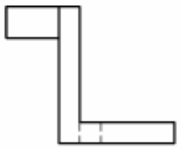


Orthographic Views

Third Angle Views



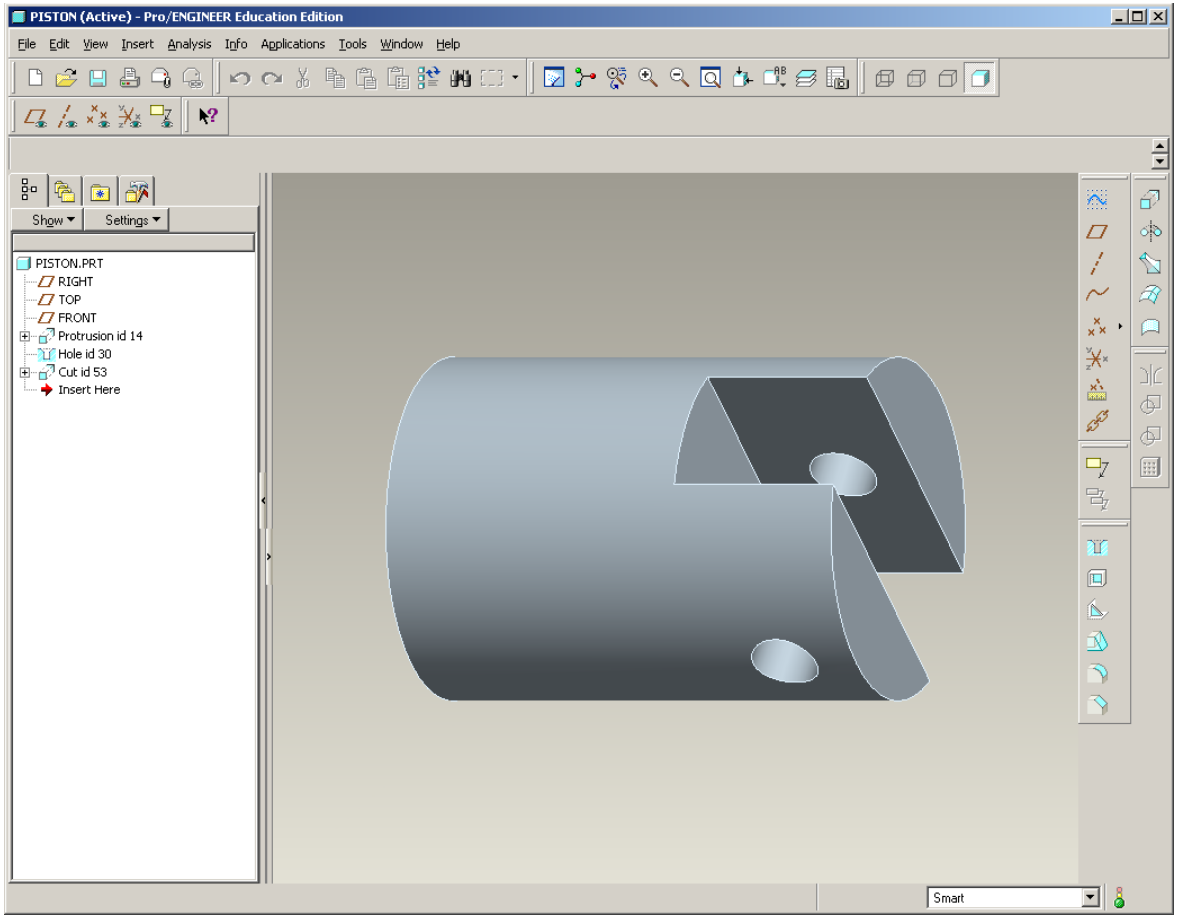




First Angle Views

EXERCISE – Create a drawing

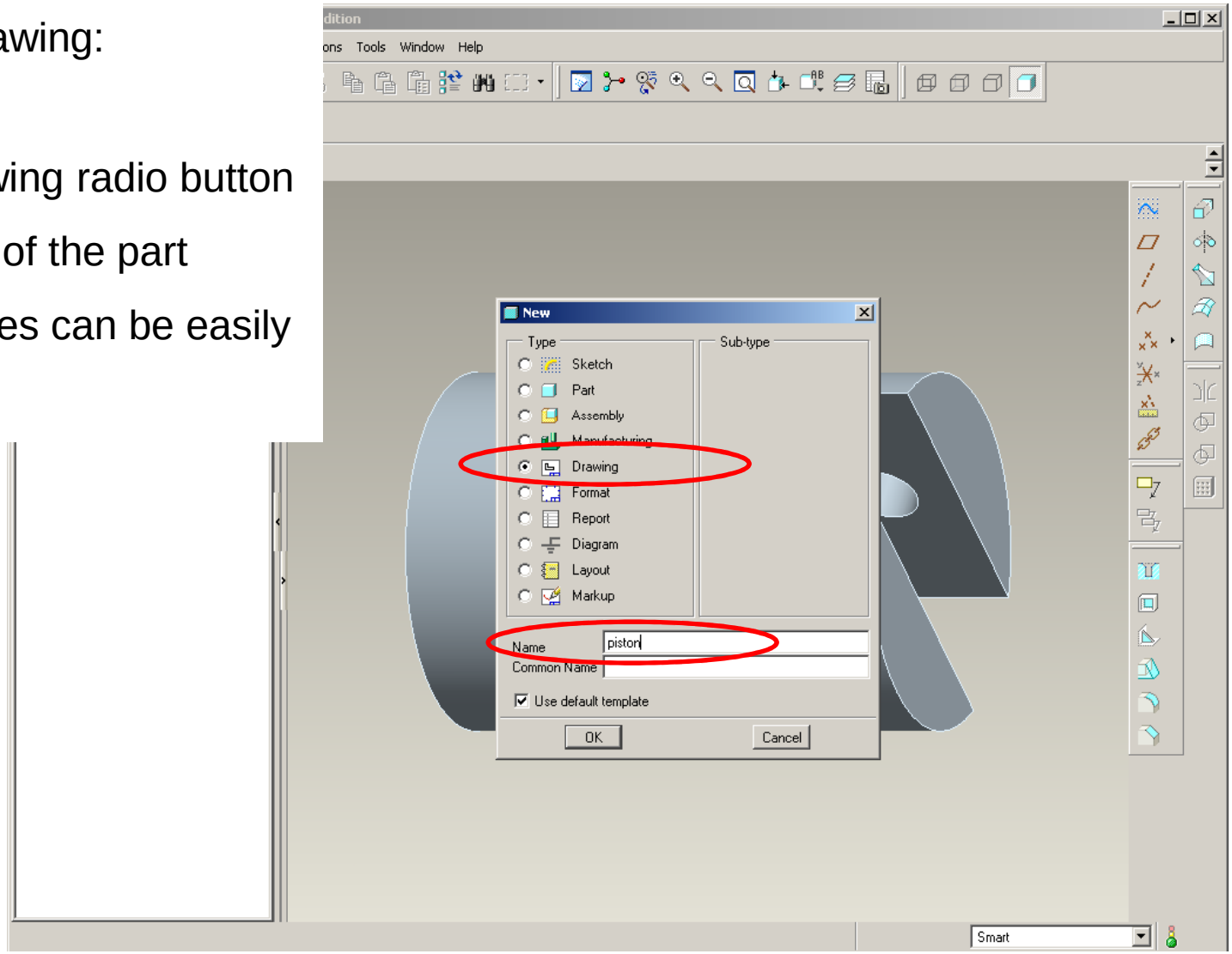
Open piston.prt



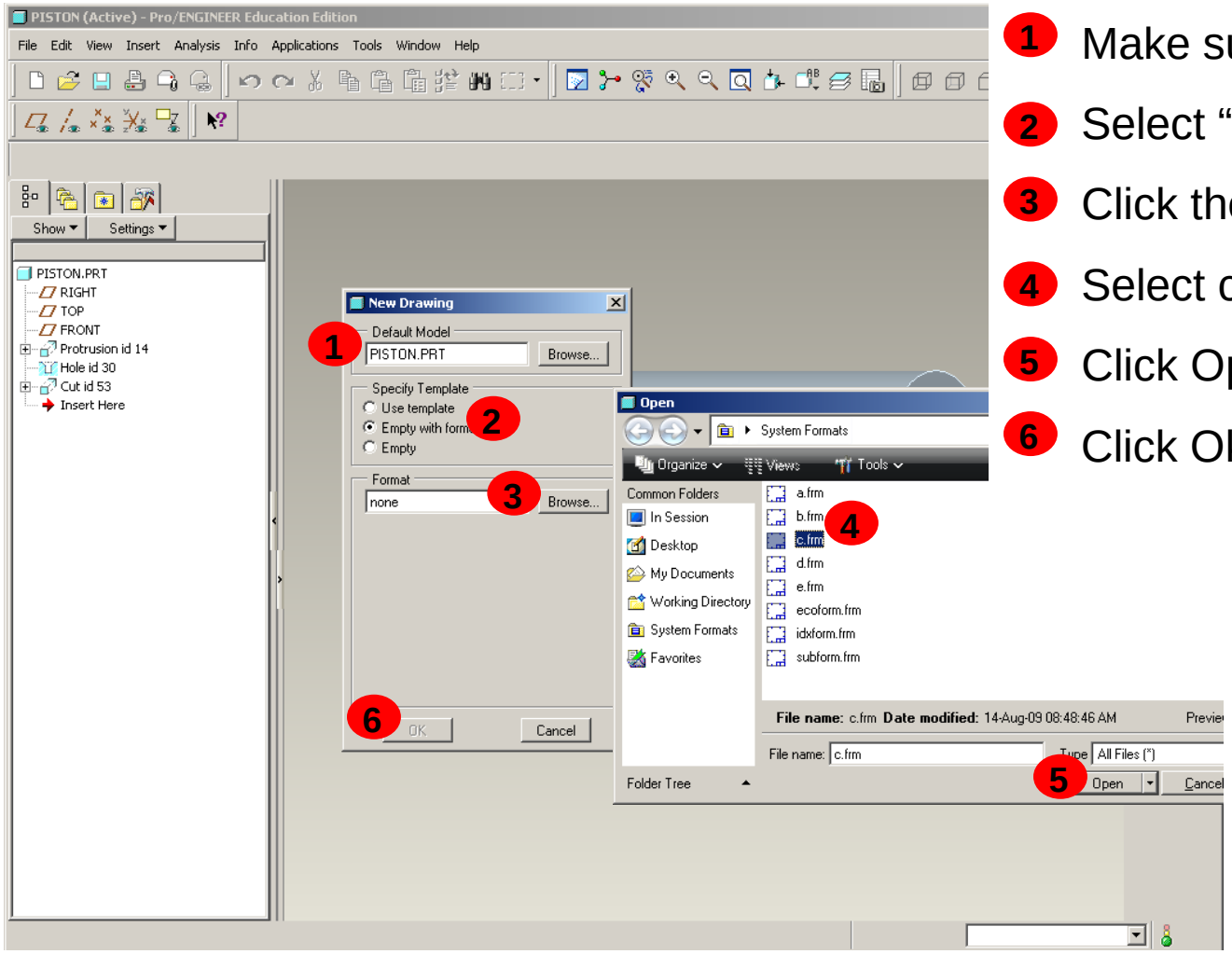
EXERCISE – Create a drawing

Create a new drawing:

- File > New
- Select the Drawing radio button
- Type the name of the part (piston) so the files can be easily associated



EXERCISE – Create a drawing

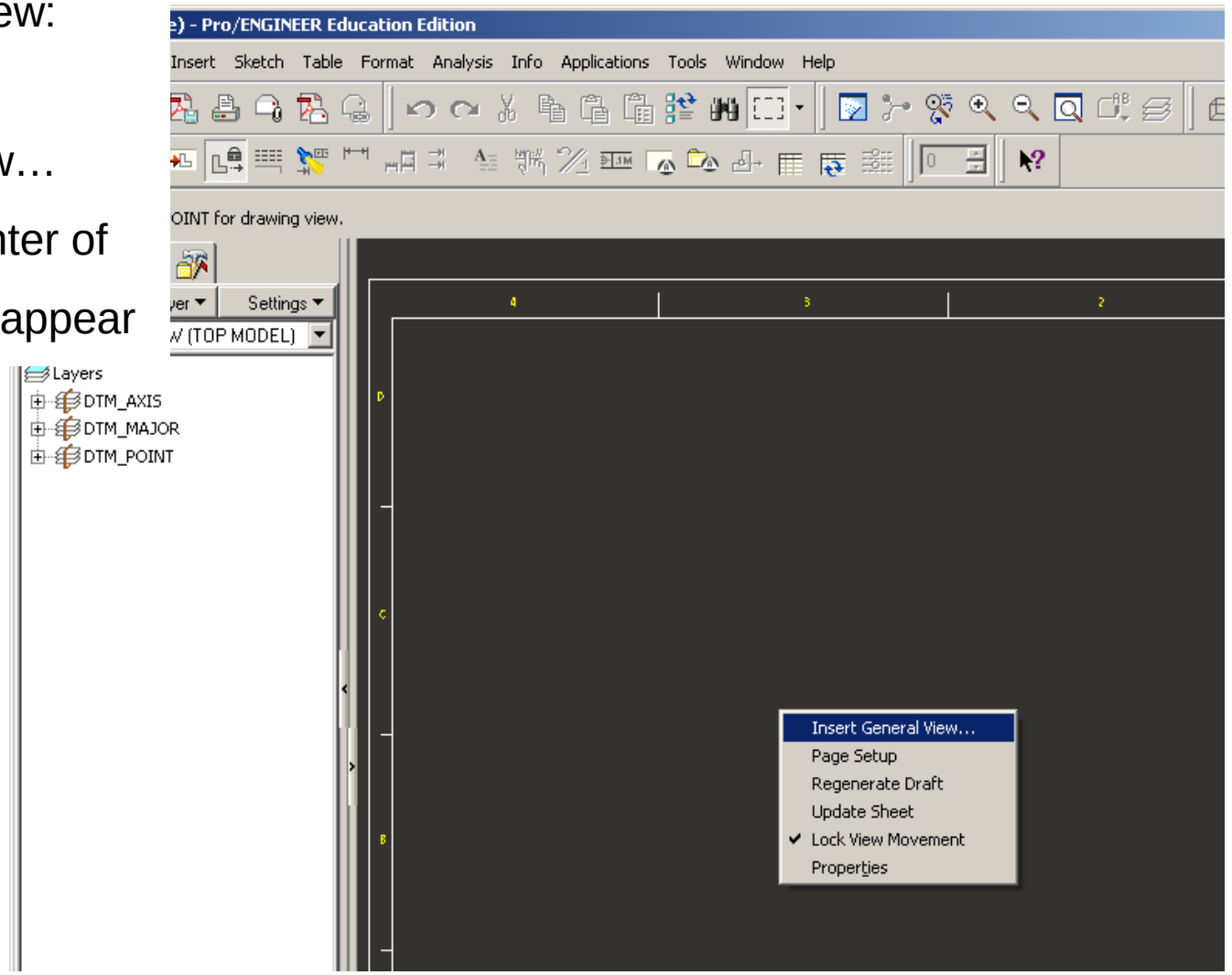


1. Make sure you've got the right part
2. Select "Empty with Format"
3. Click the Browse button
4. Select c.frm
5. Click Open
6. Click Ok

EXERCISE – Create a drawing

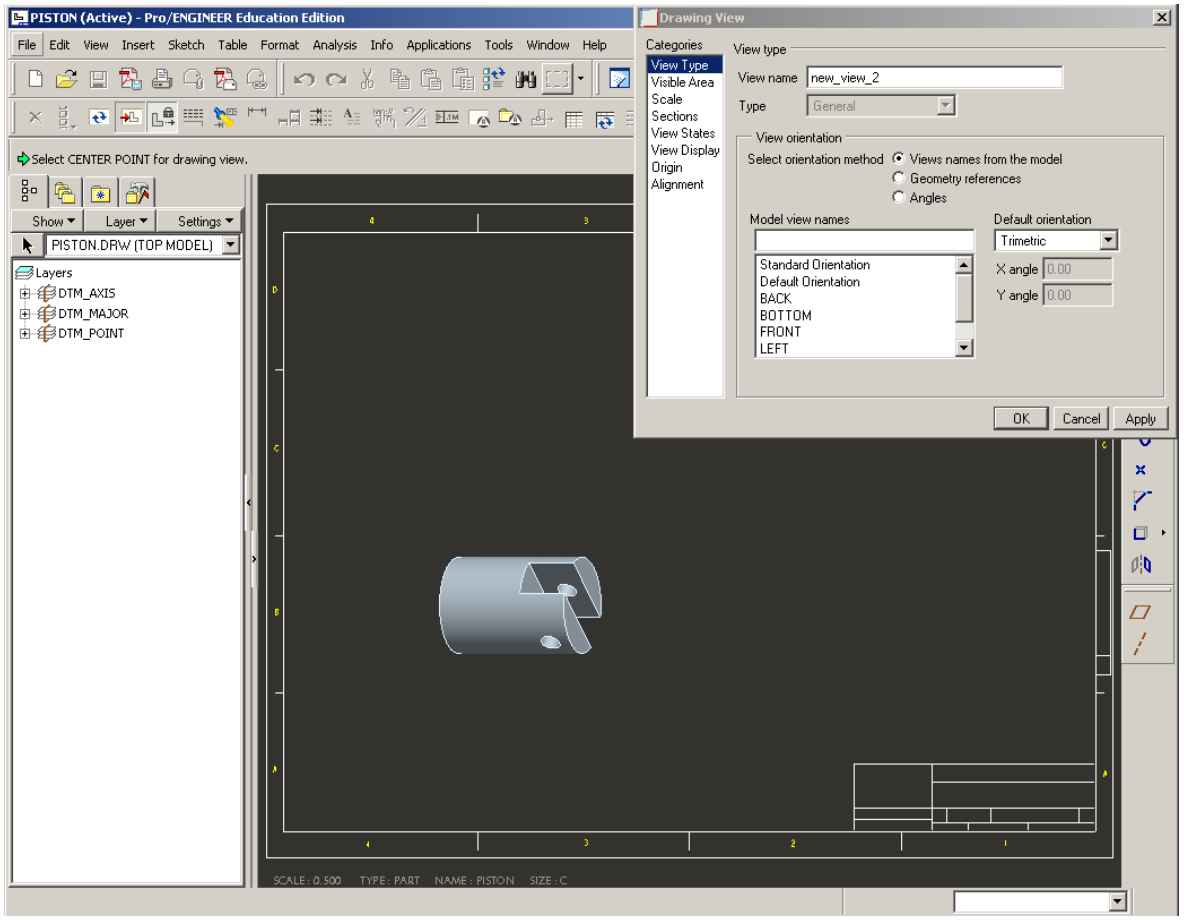
Create a General View:

- RMB
- Insert General View…
- LMB where the center of the first view should appear



EXERCISE – Create a drawing

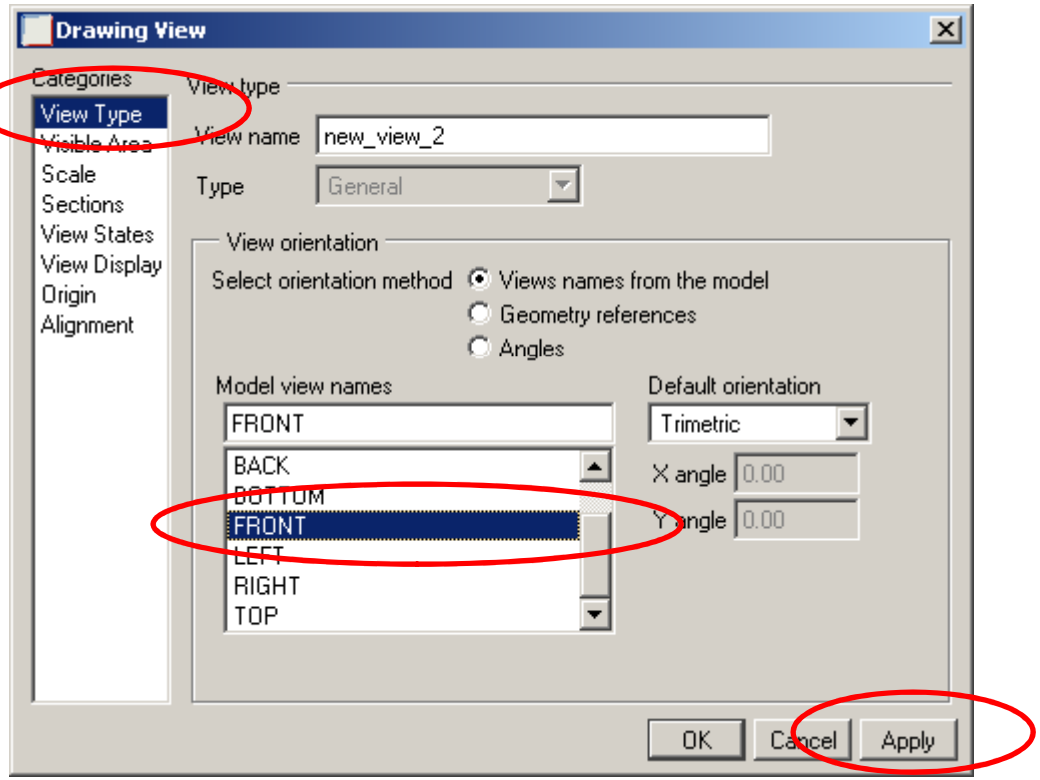
Our component appears with the
Drawing View dialog box



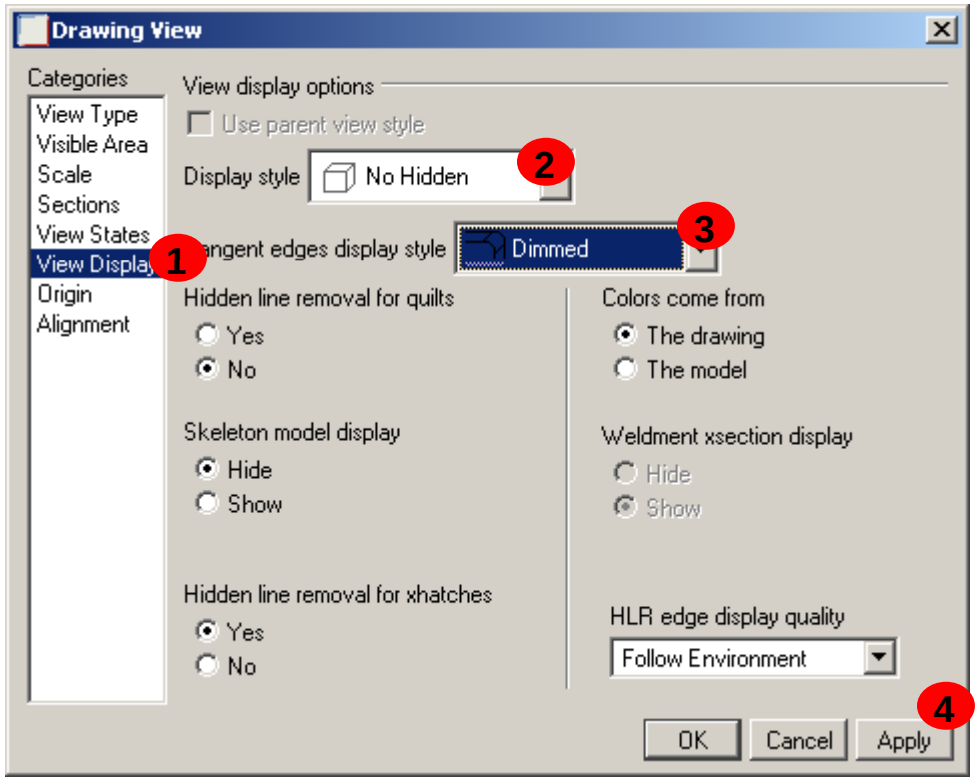
EXERCISE – Create a drawing

In Drawing View dialog:

- Select View Type
- In the View Orientation section select the FRONT model view
- Select Apply



EXERCISE – Create a drawing



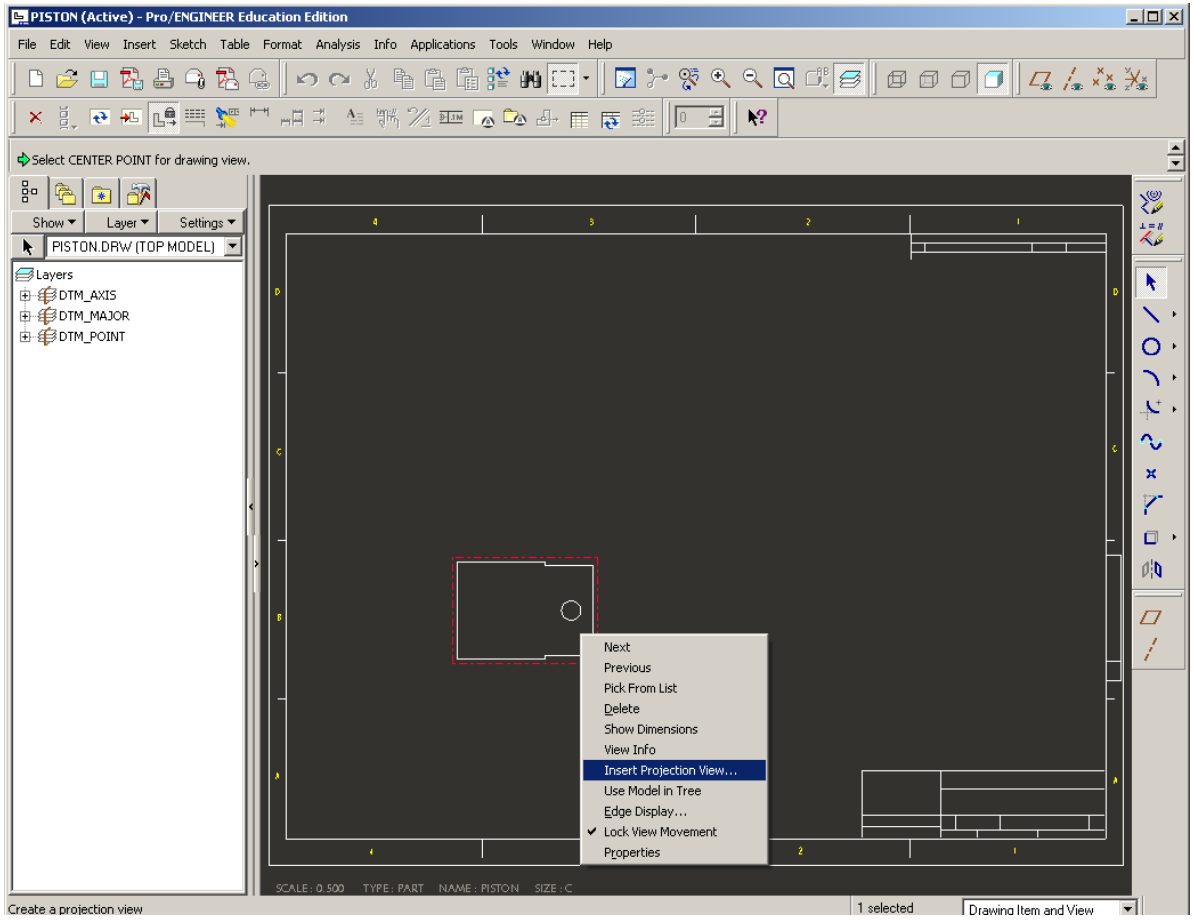
1. Click on View Display
2. Select No Hidden from Display style
3. Select Dimmed from the Tangent
4. edges display style

   Click Ok

EXERCISE – Create a drawing

Create a Projected View:

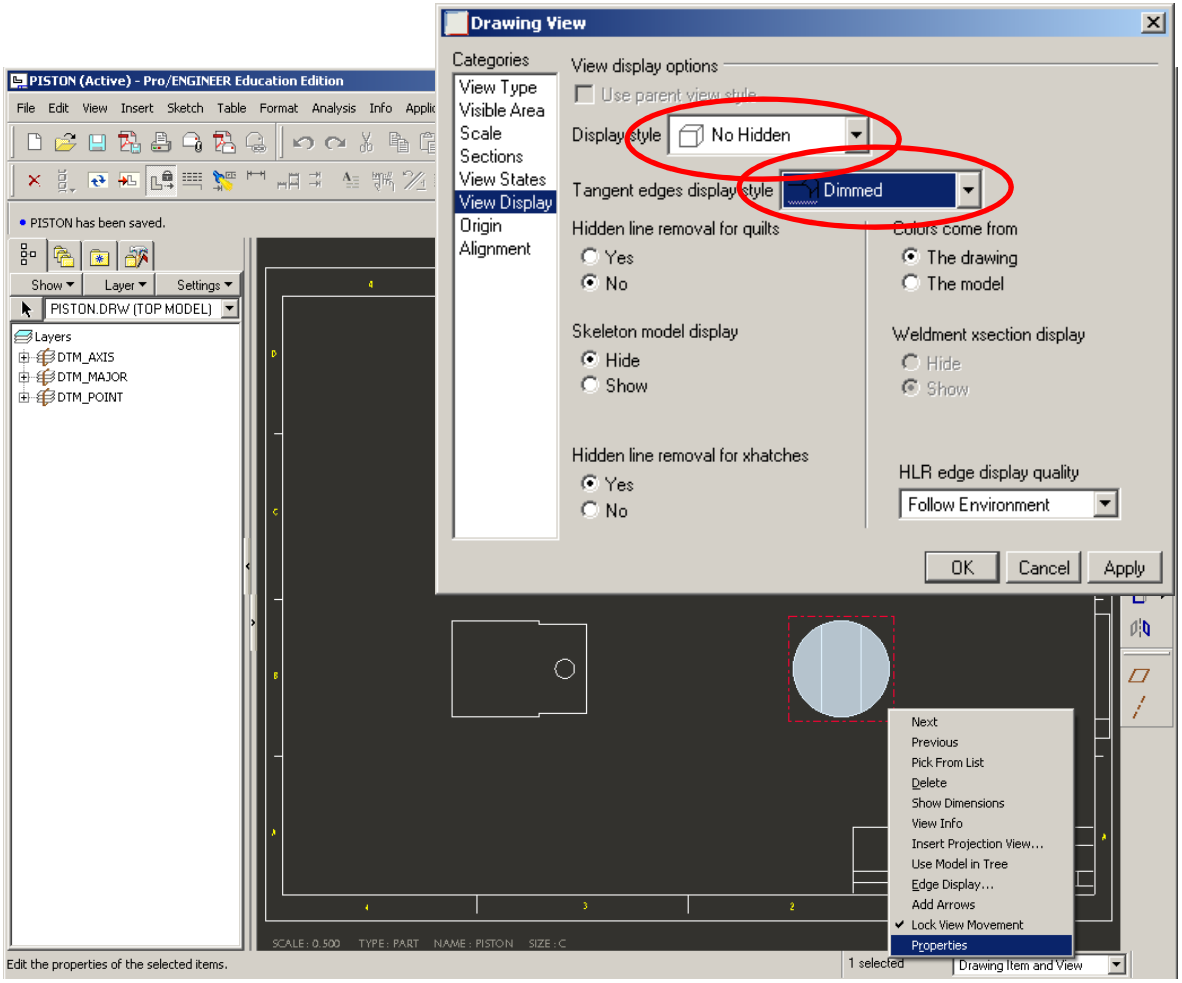
- RMB and Hold on original view
- Scroll down and LMB on Insert Projection View…
- LMB on location where center of Project View should be



EXERCISE – Create a drawing

Set view properties:

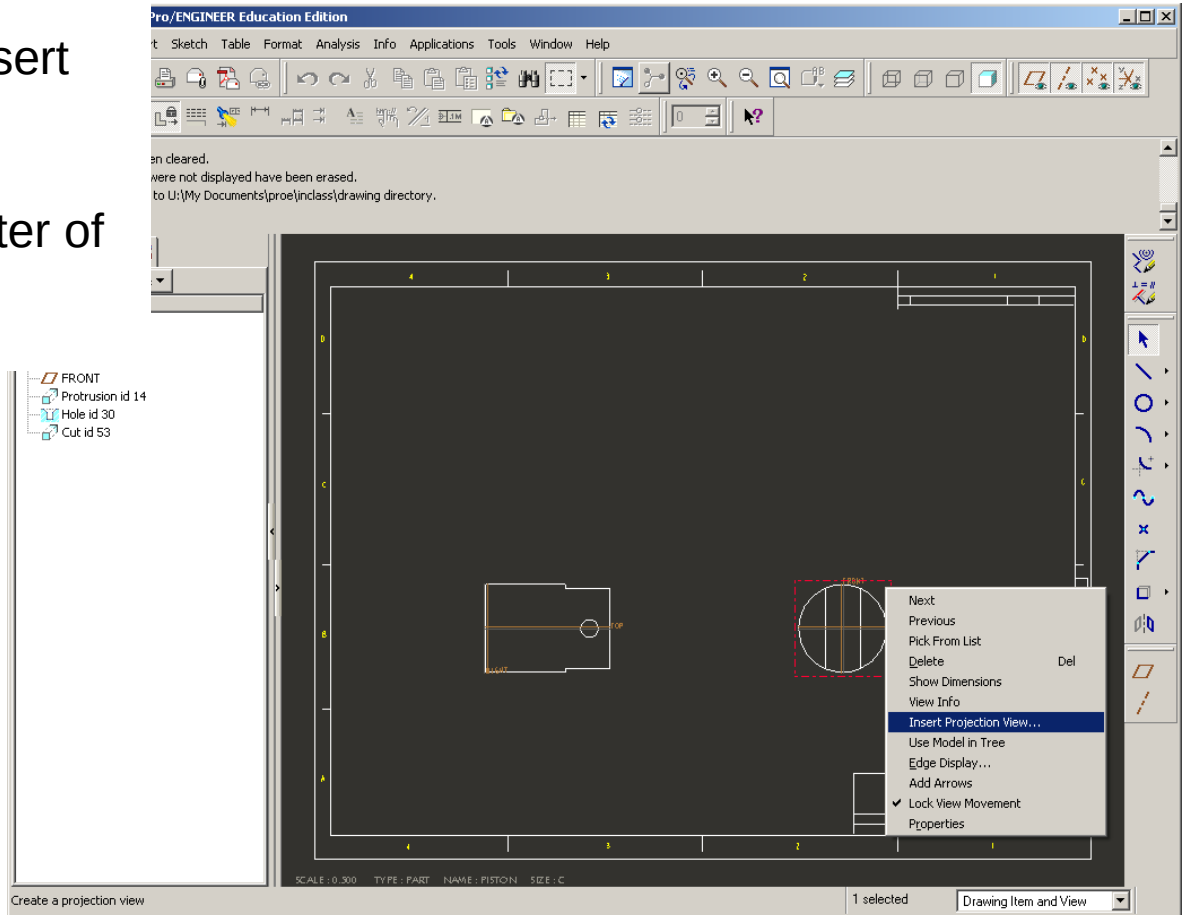
- View display
- Set Display style to No Hidden
- Set Tangent edges display style to Dimmed
- Click OK



EXERCISE – Create a drawing

Create ***ANOTHER*** Projected View:

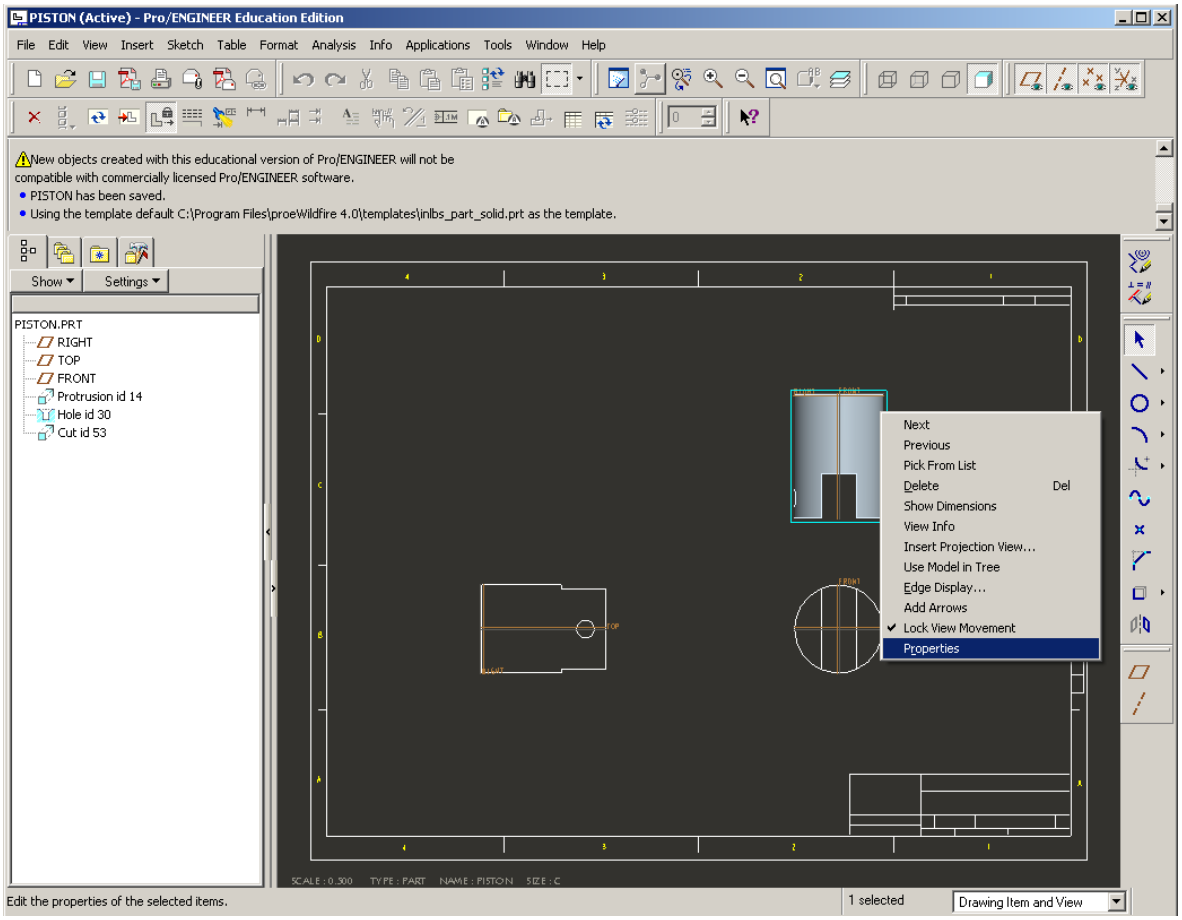
- RMB and Hold on second view
- Scroll down and LMB on Insert Projection View…
- LMB on location where center of Project View should be



EXERCISE – Create a drawing

Set view properties again:

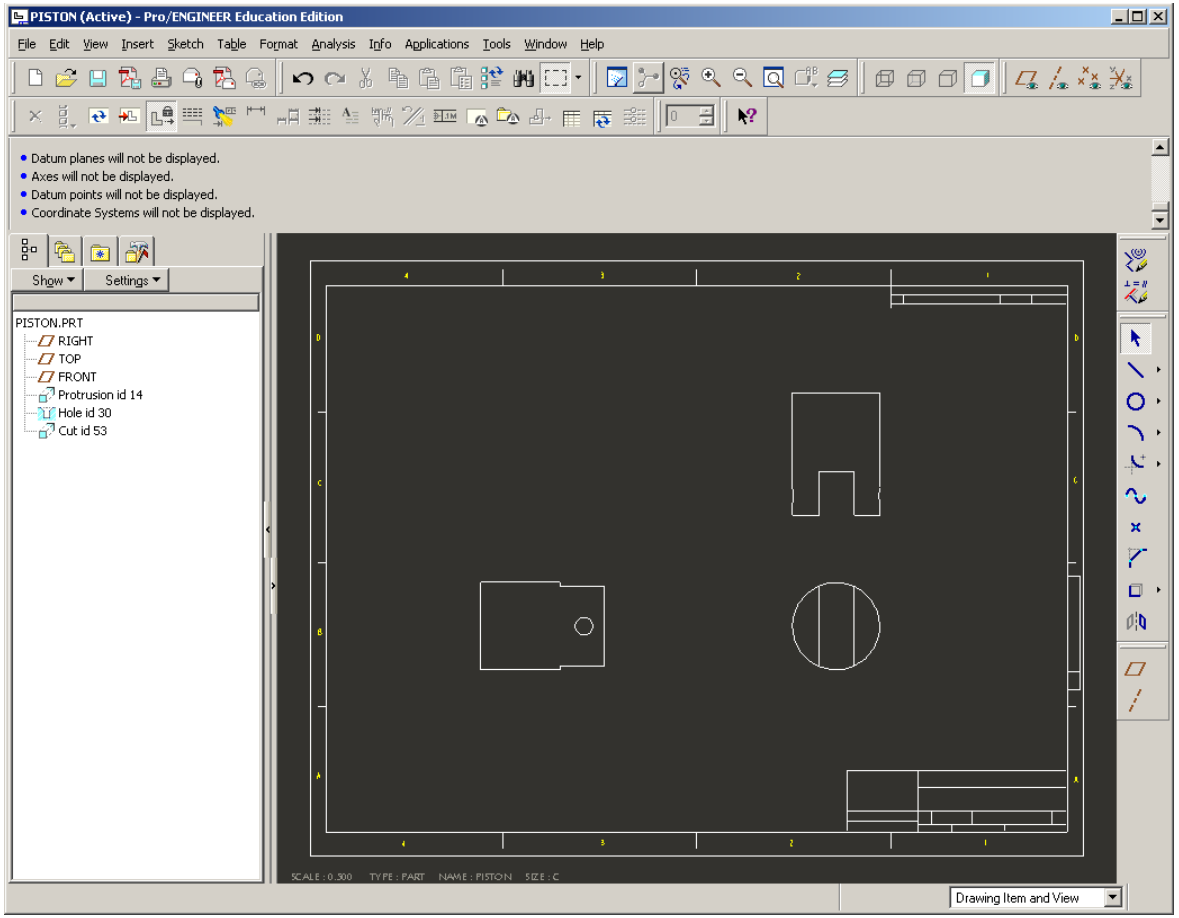
- RMB, Properties
- View display
- Set Display style to No Hidden
- Set Tangent edges display style to Dimmed
- Click OK



EXERCISE – Create a drawing

- Turn off the display of:
  - Datum Planes
  - Datum Axes
  - Datum Points
  - Coordinate Systems
- Repaint

YOUR SCREEN SHOULD LOOK LIKE THIS.

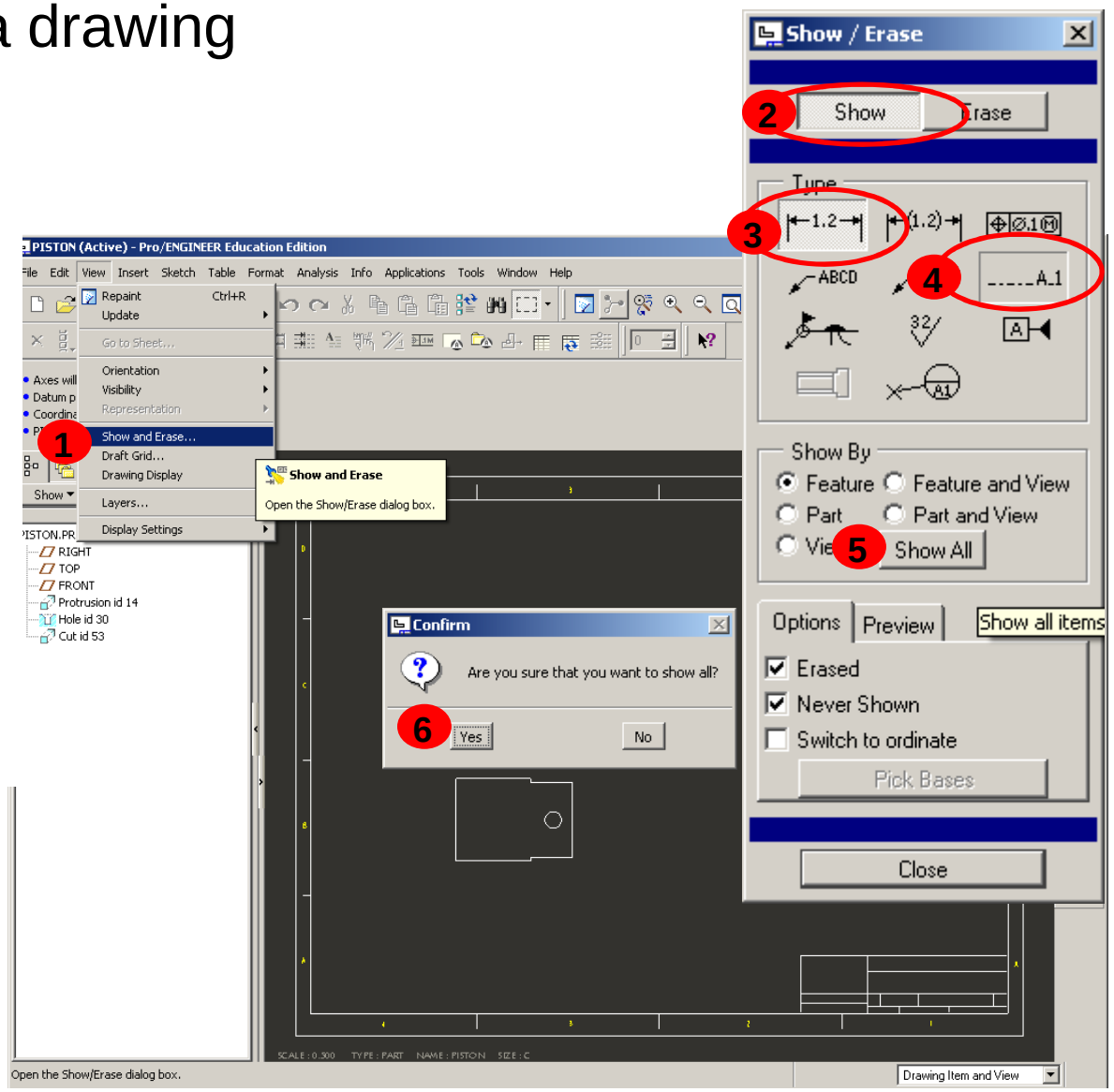


EXERCISE – Create a drawing

1. View > Show and Erase

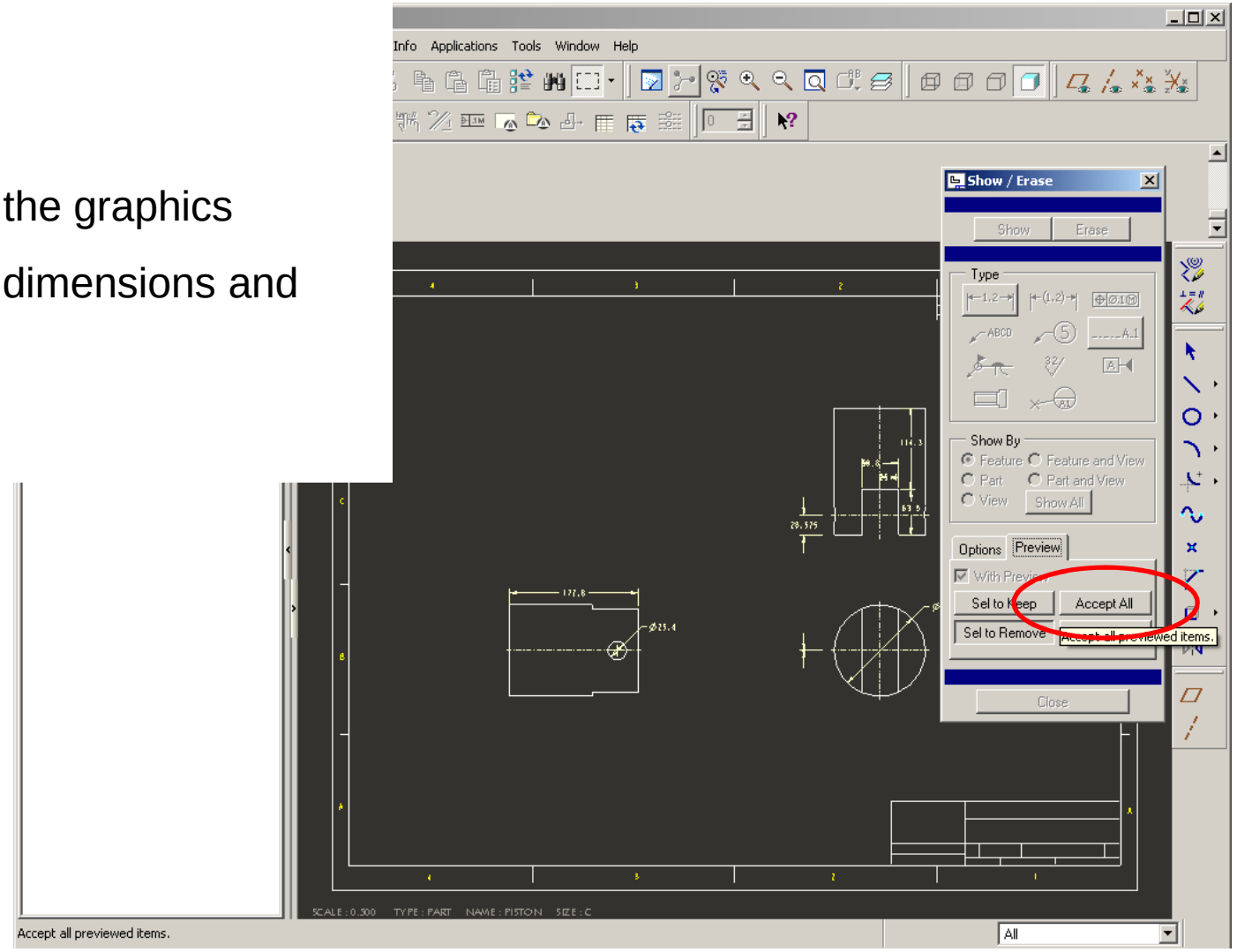
   In the Show/Erase dialog:

2. Click Show
3. Click the dimension icon
4. Click the Axis icon
5. Click Show All
6. Answer Yes….. (cont.)



EXERCISE – Create a drawing

- Click Accept All
- Click Close
- Click anywhere in the graphics window to deselect dimensions and axes



EXERCISE – Create a drawing

- Move dimension, clip witness lines

and erase unnecessary dimensions