



EN1740 Computer Aided Visualization and Design

Spring 2012

3/6/2012

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Last Time:

- Finish intro to surfaces
 - From standard features
 - From curve boundaries

Tonight:

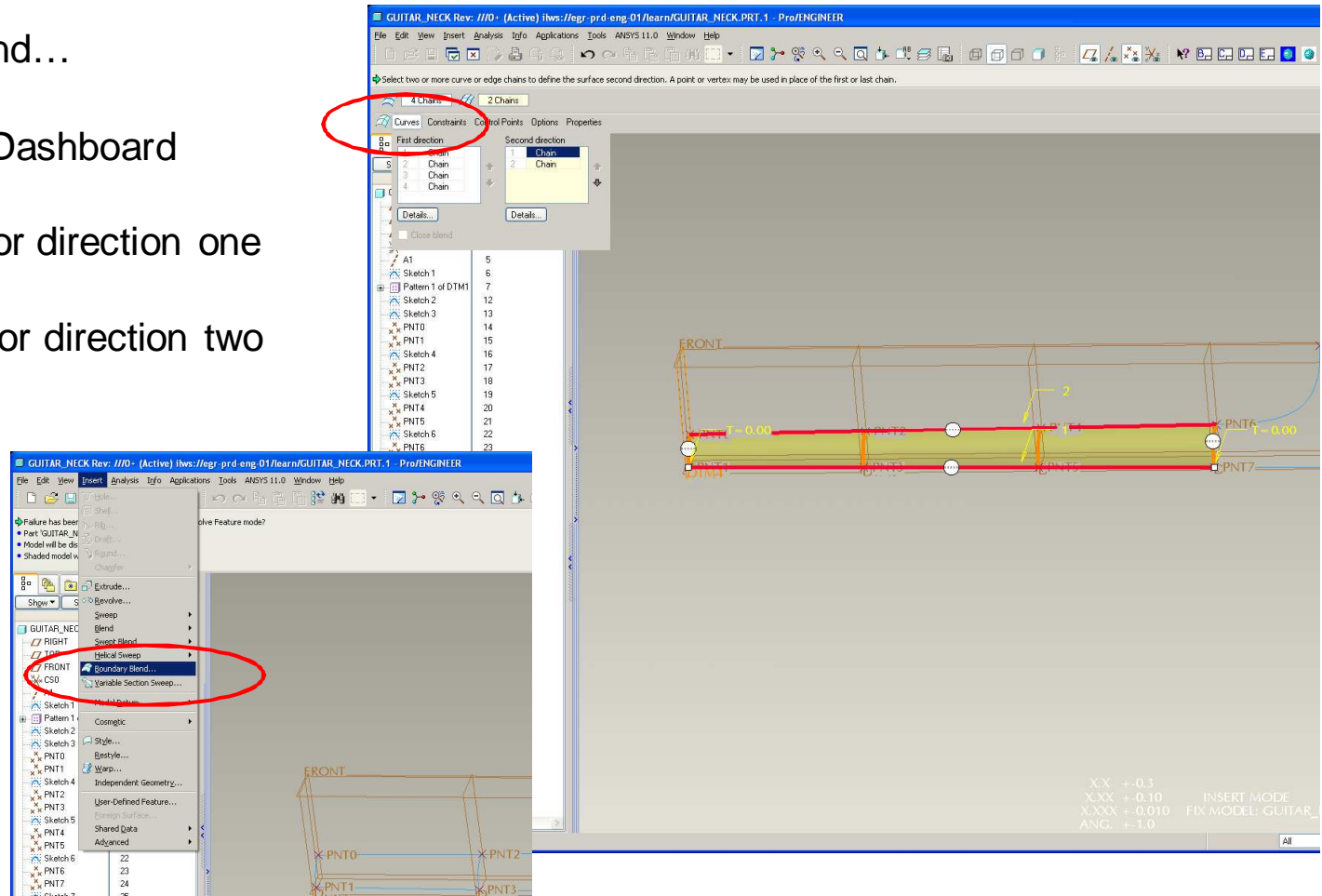
- Finish Surface from Boundary Curve
- Free-form (Style features)
- Introduction to Assemblies



EXERCISE - Surfaces from Curves

Create a surface using boundary blend

- Insert > Boundary Blend...
- Click curves from the Dashboard
- Select the four x-sec for direction one
- Select the two edges for direction two

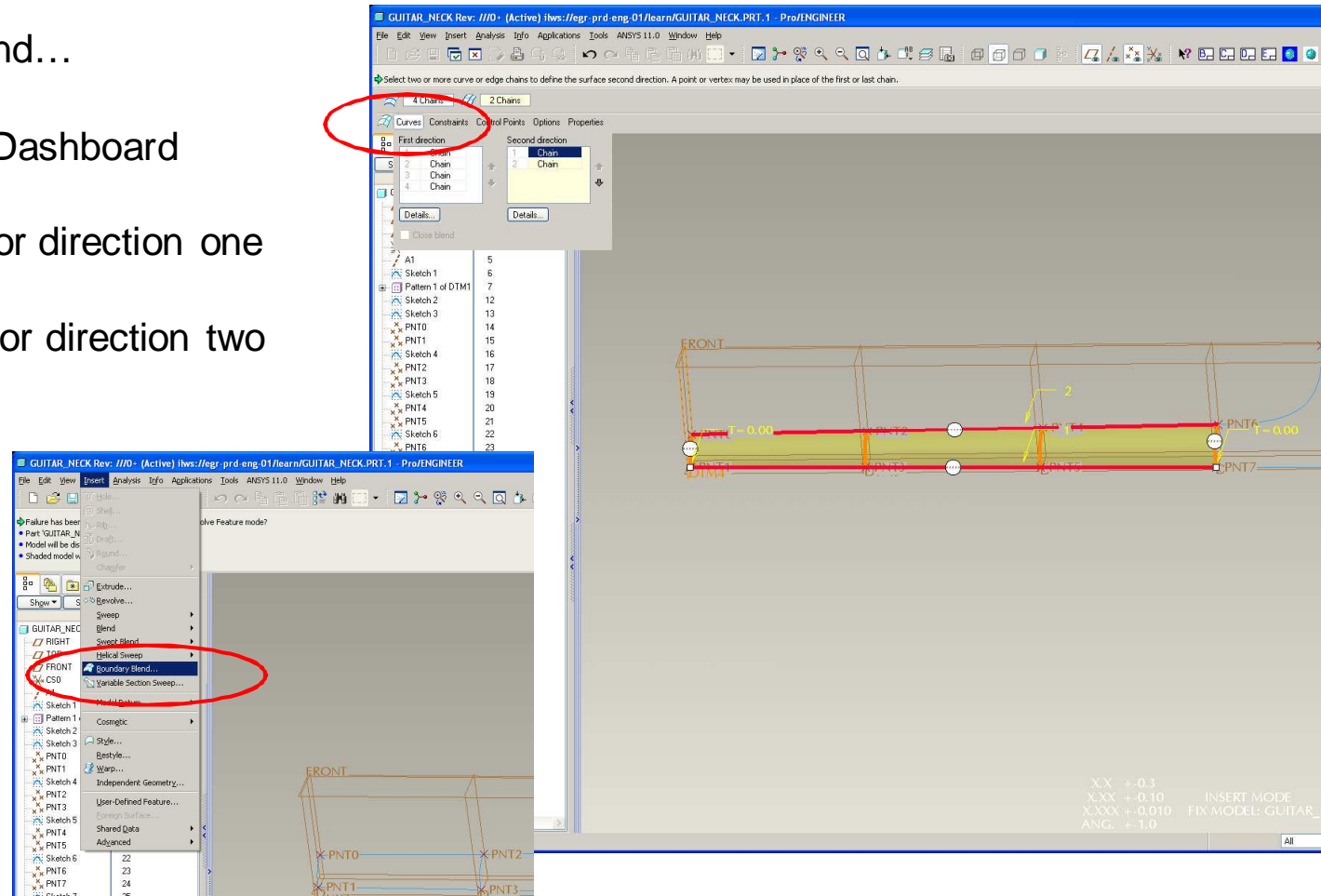




EXERCISE - Surfaces from Curves

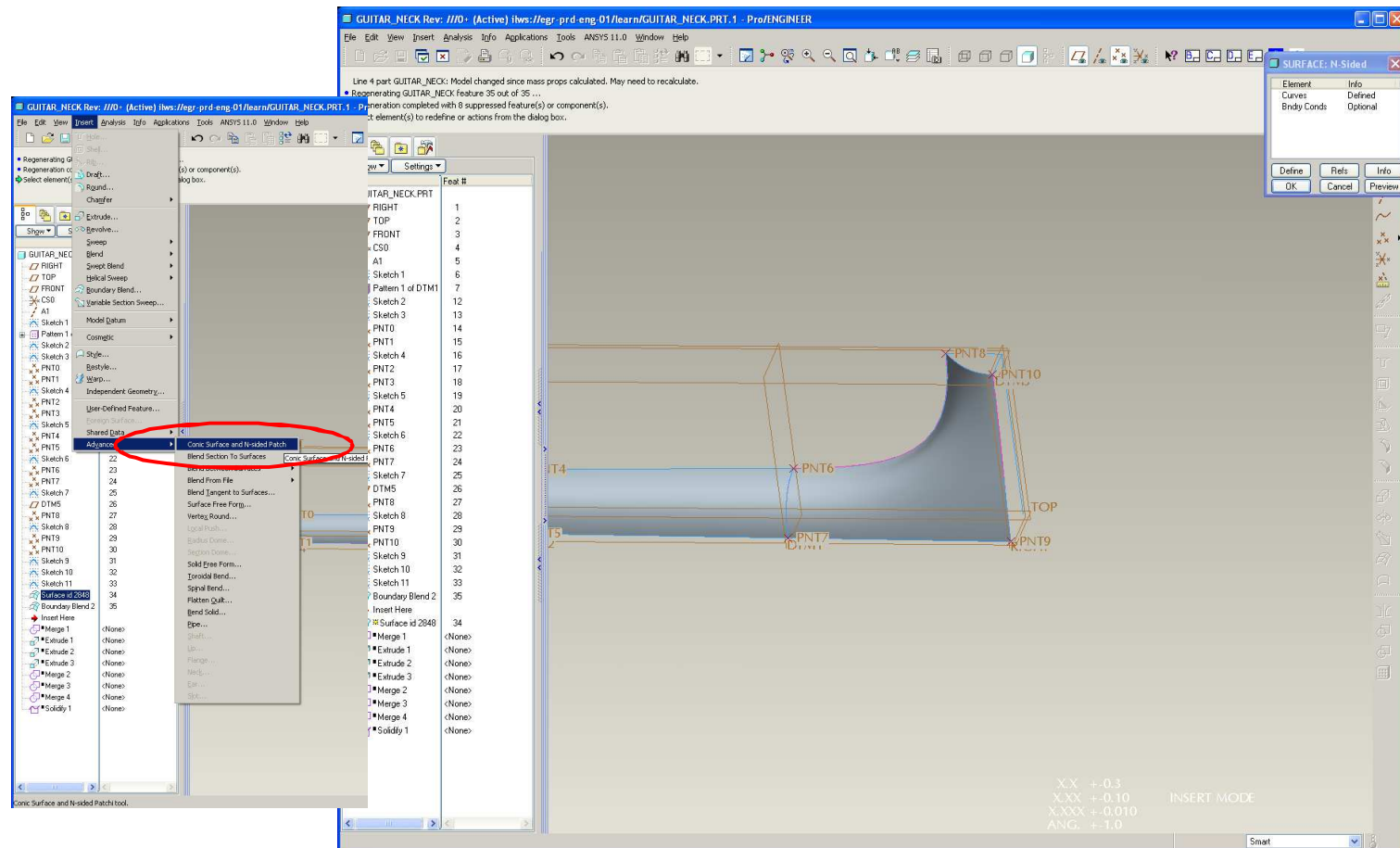
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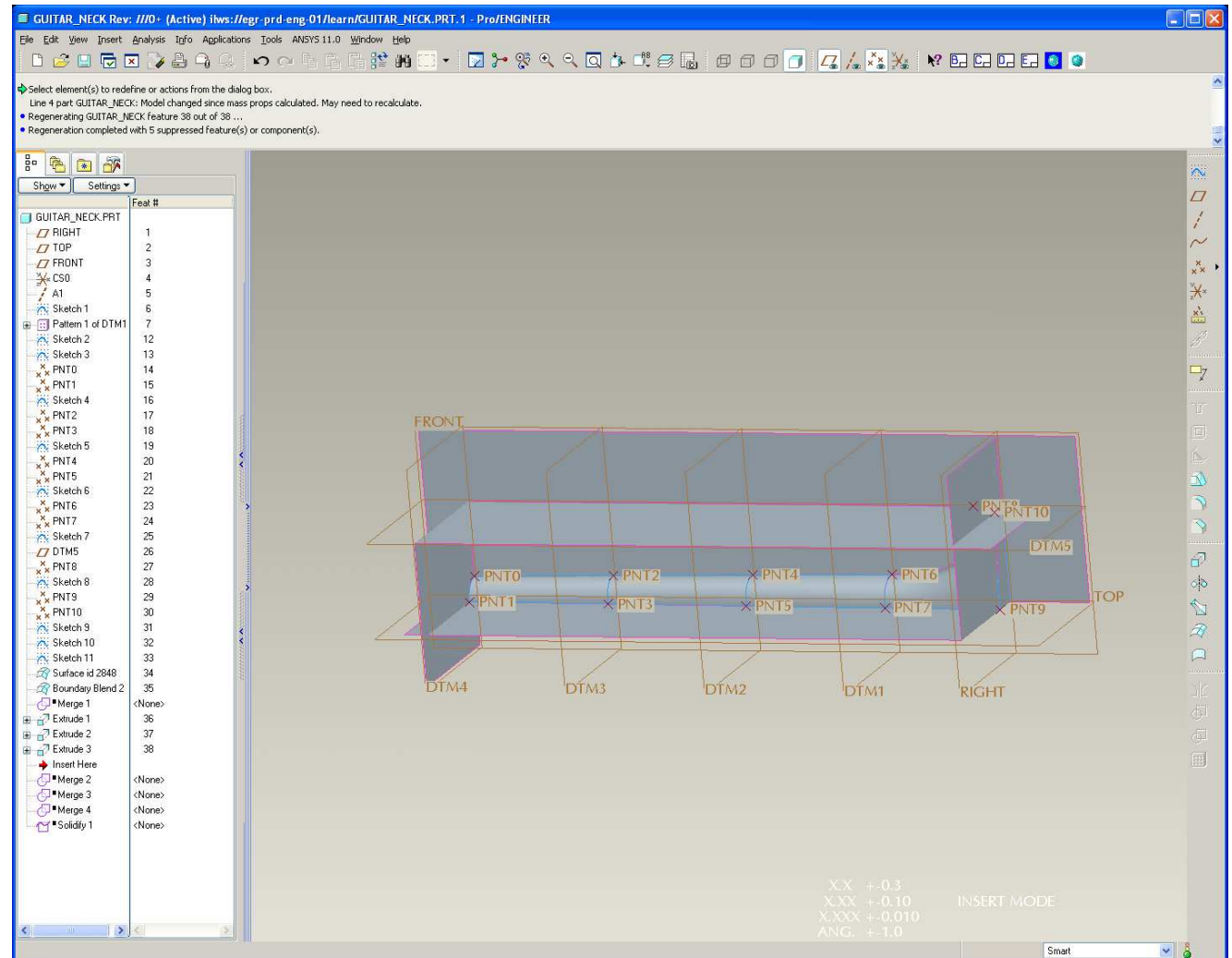
EXERCISE - Surfaces from Curves

- Create an N-sided Patch



EXERCISE - Surfaces from Curves

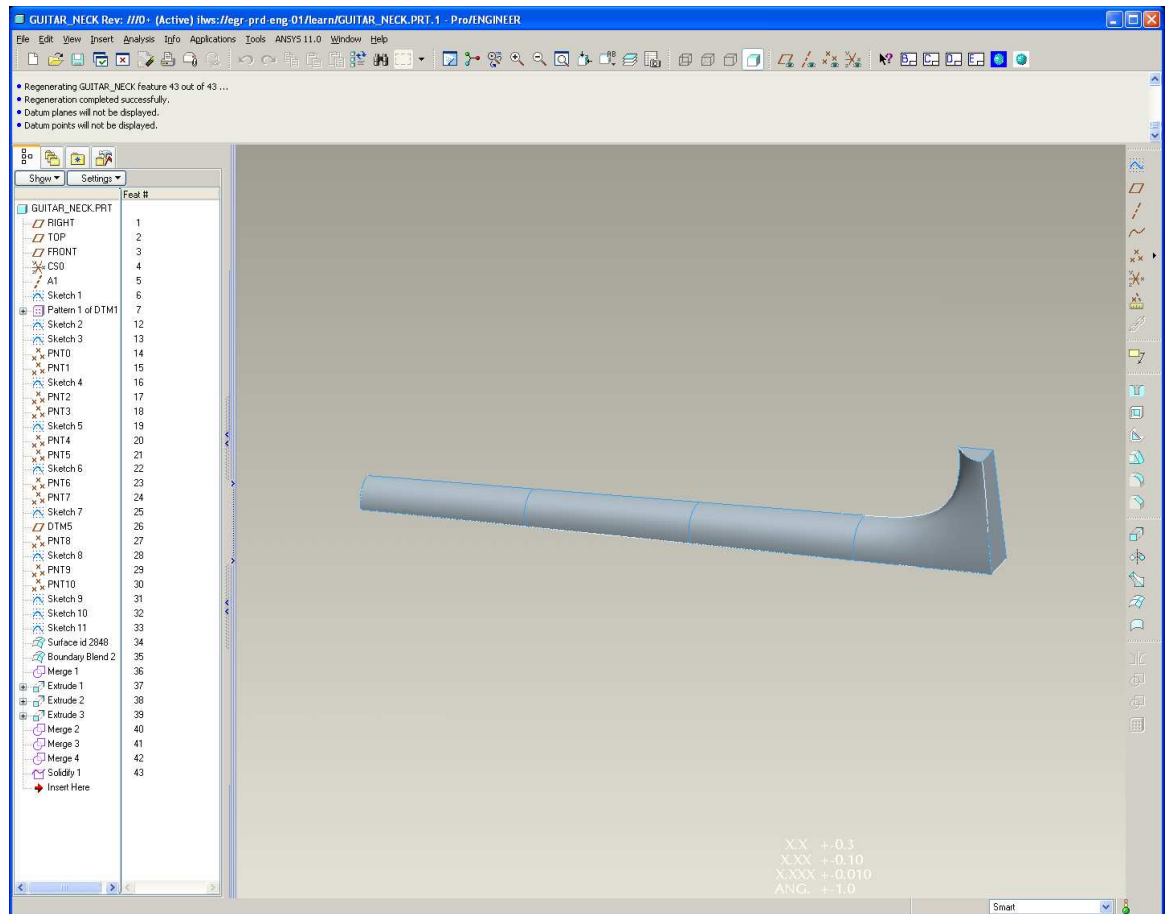
- Extrude top and sides



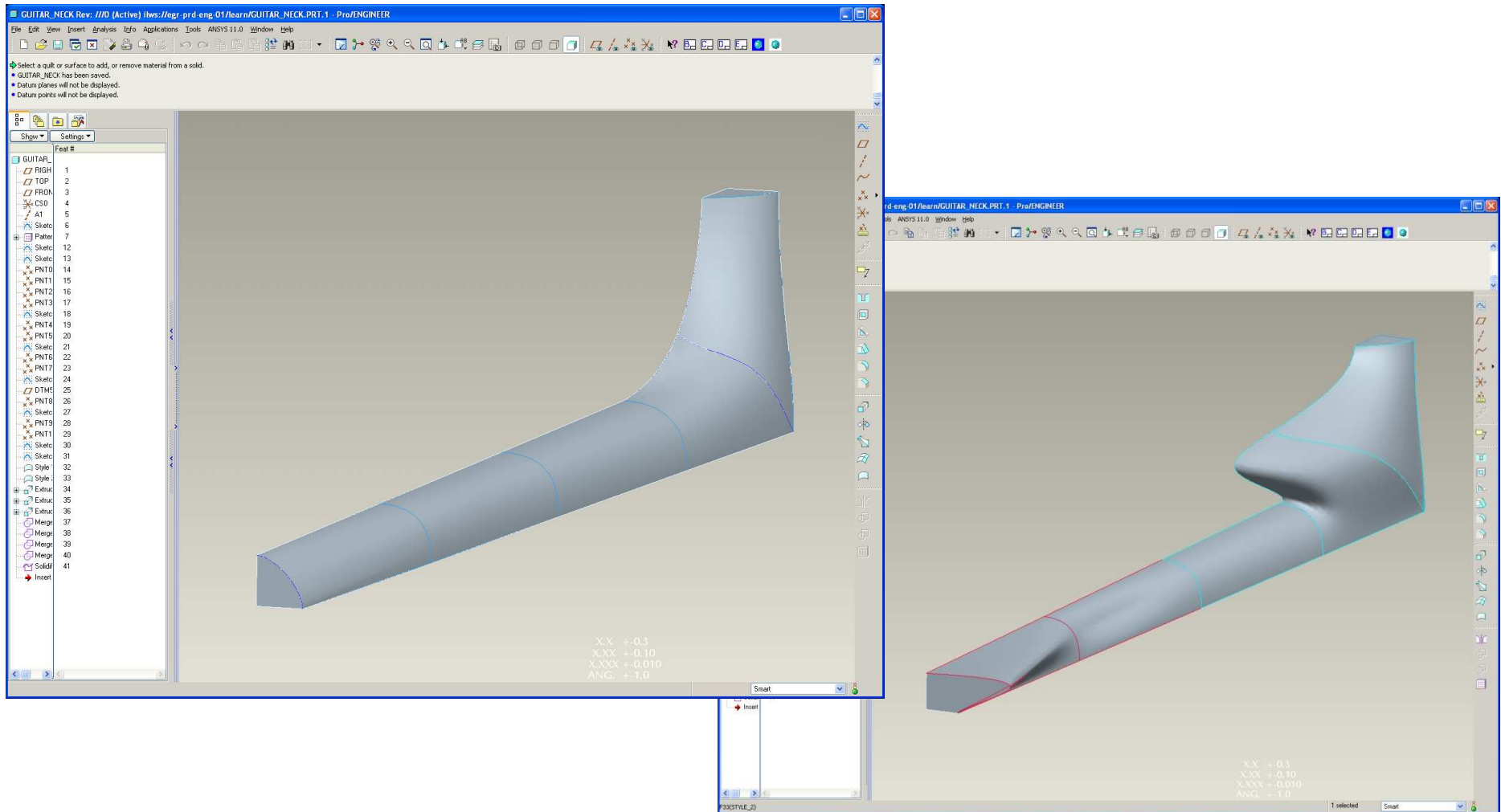


EXERCISE - Surfaces from Curves

- Merge and Solidfy



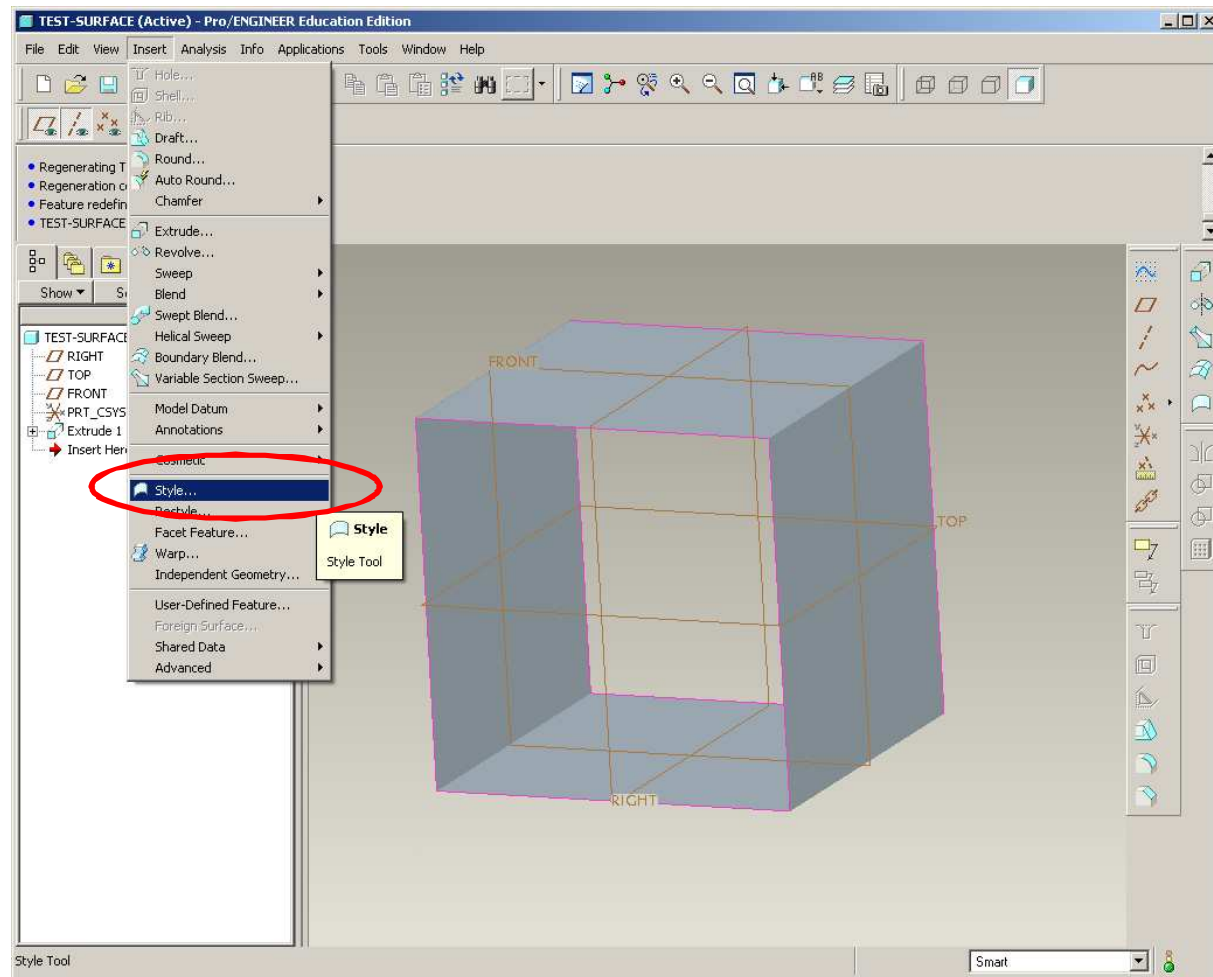
Free form features built by drag-and-drop rather than by parameter definition





Style Features

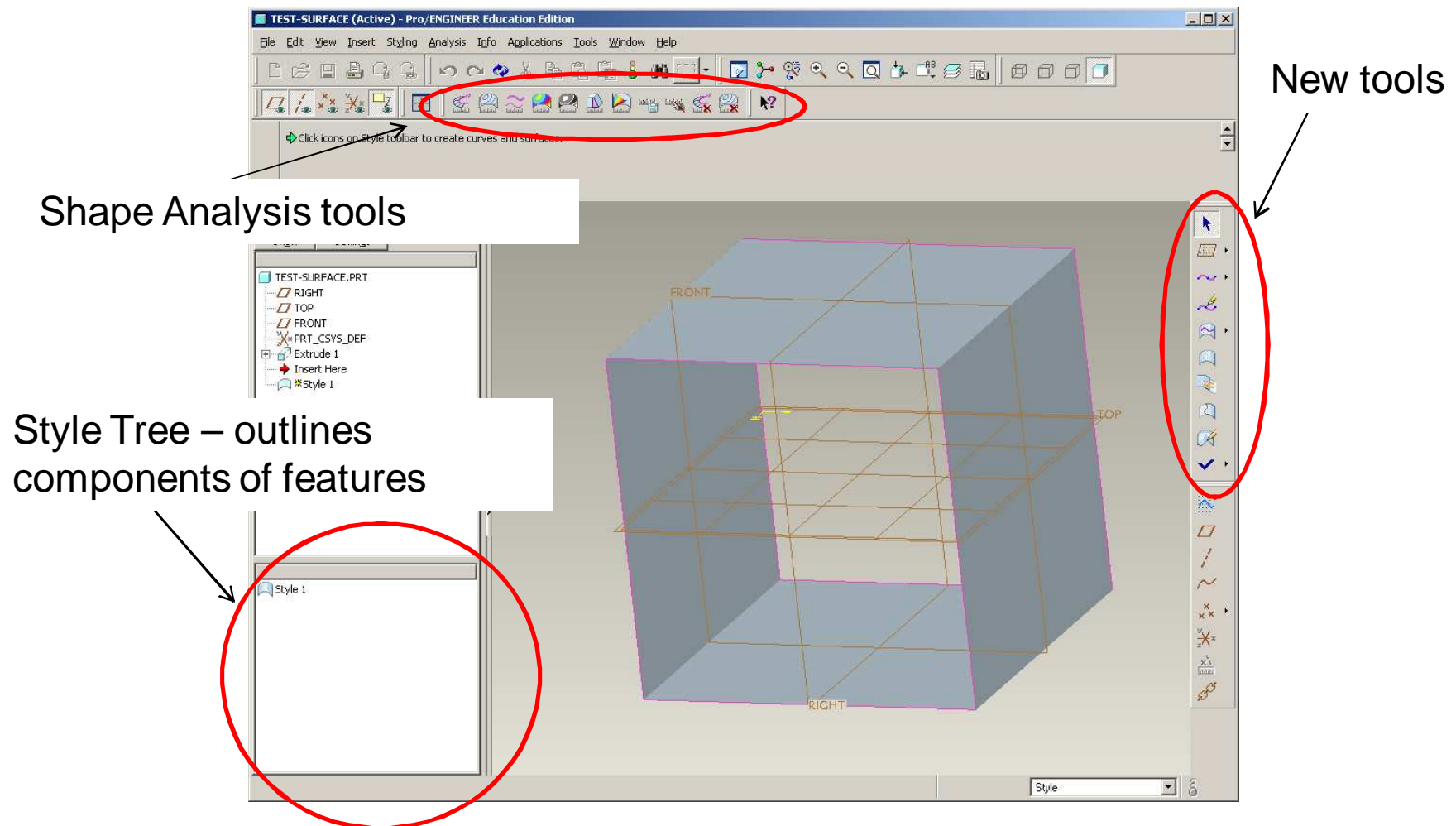
Style features are created from the Insert menu





Style Features

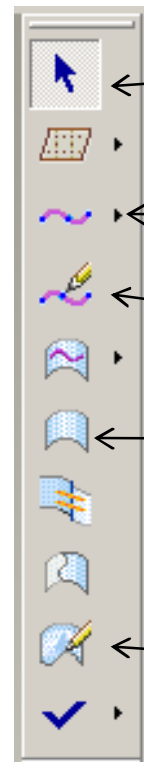
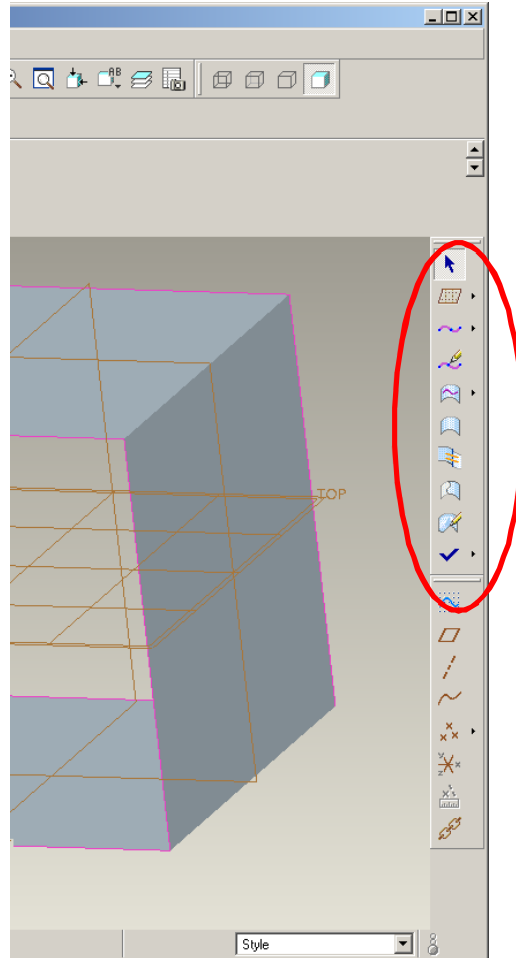
Working with Style Features changes the environment in important ways





Style Features

We can do a lot with a little in Style Features



Select Tool

Create a Curve

Edit a Curve

Create a Surface

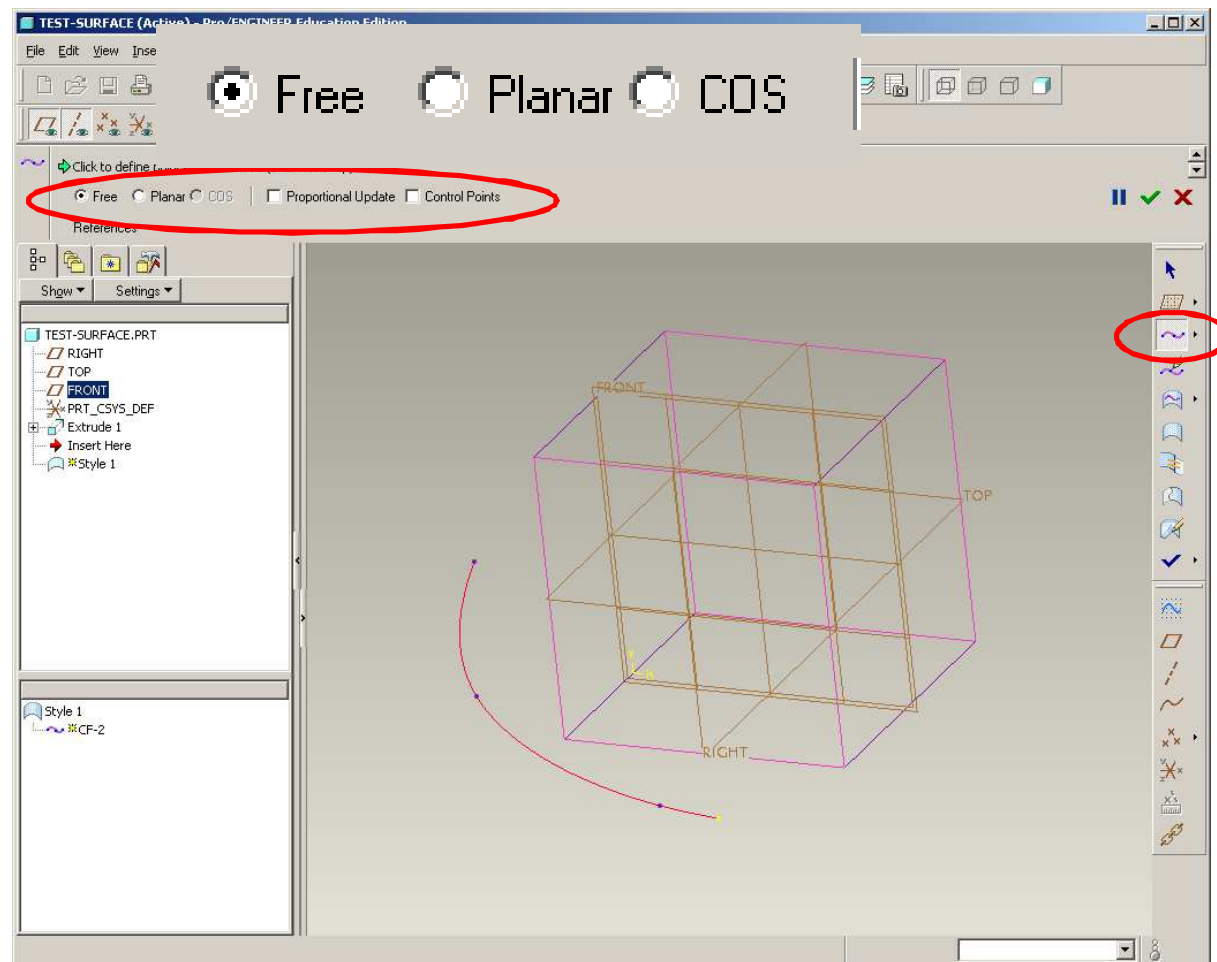
Edit a Surface



Style Features

Create a Curve

- Select Curve tool
- Note options in dashboard
 - Free can go anywhere
- Click to create points
- MMB when done
- Click Done

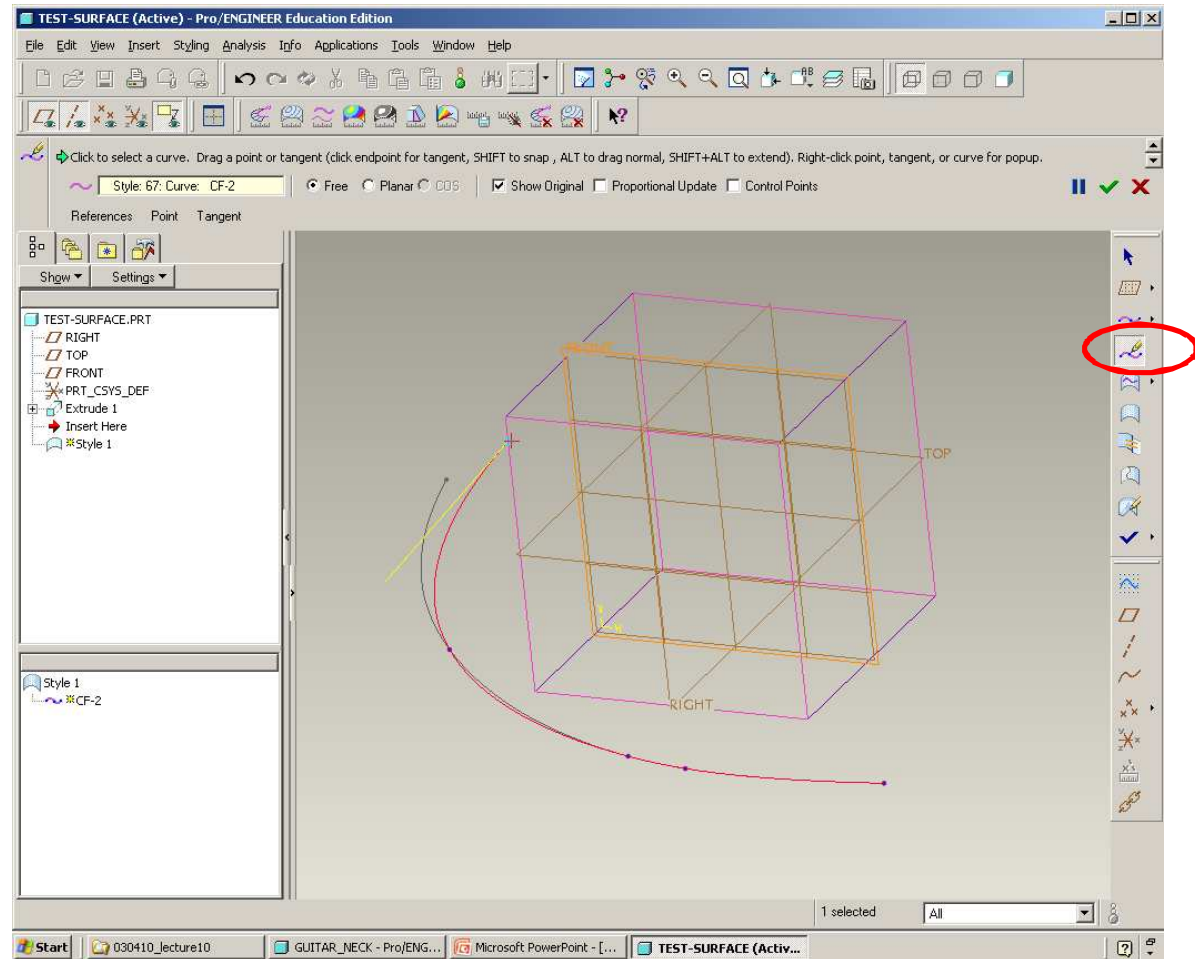




Style Features

Edit a Curve

- Grab any of the points and drag
- Hold the SHIFT key to get the points to attach to other entities
 - Make sure the curve is “Free” when trying to do this

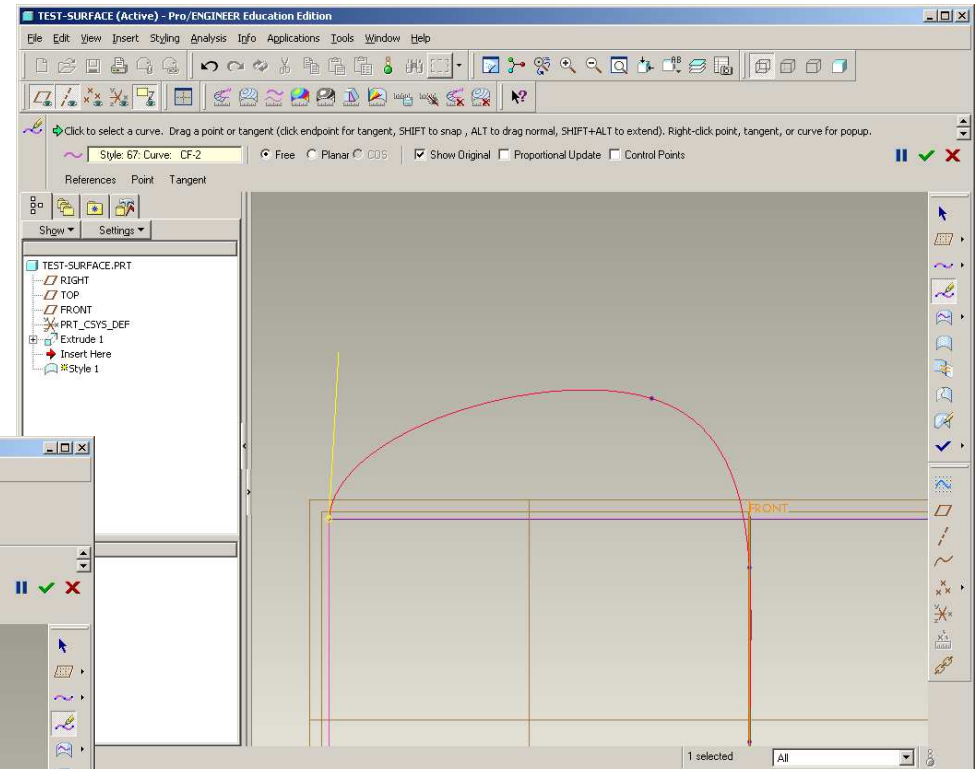
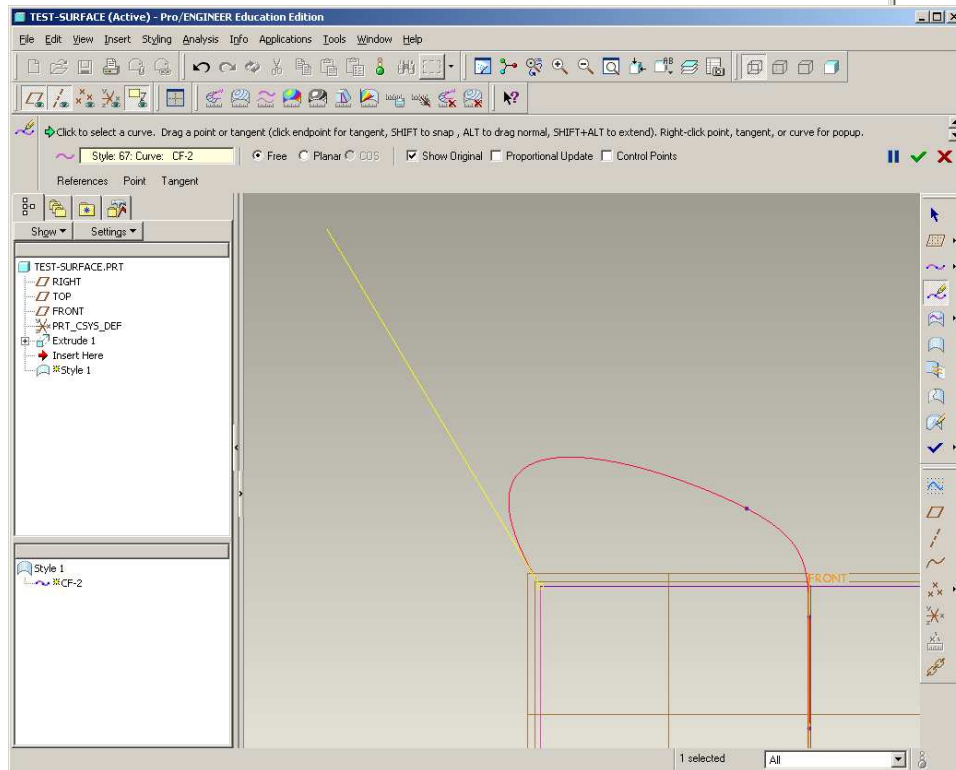




Style Features

Edit a Curve

- Tangency and direction of endpoints can be adjusted by dragging flag

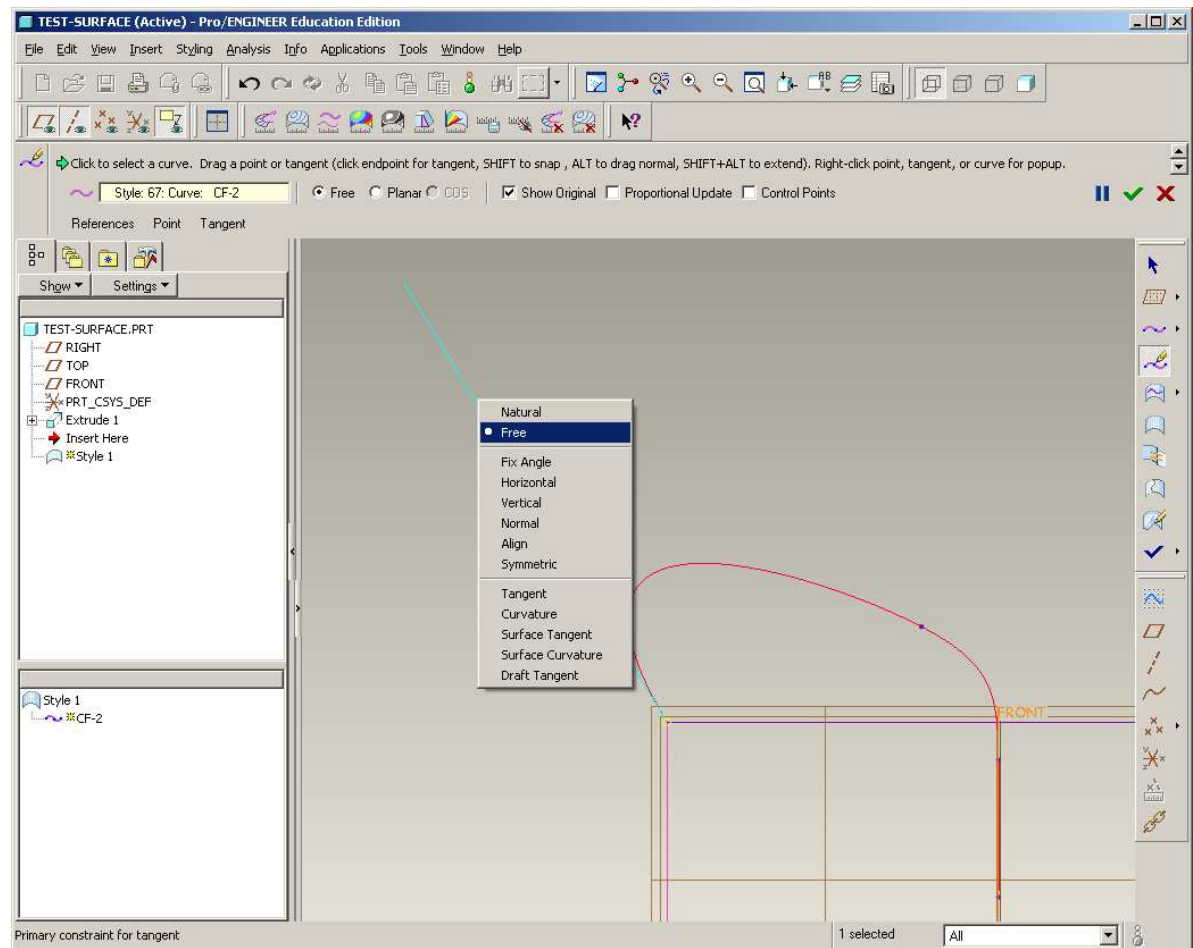




Style Features

Edit a Curve

- More options available by
RMB on flag

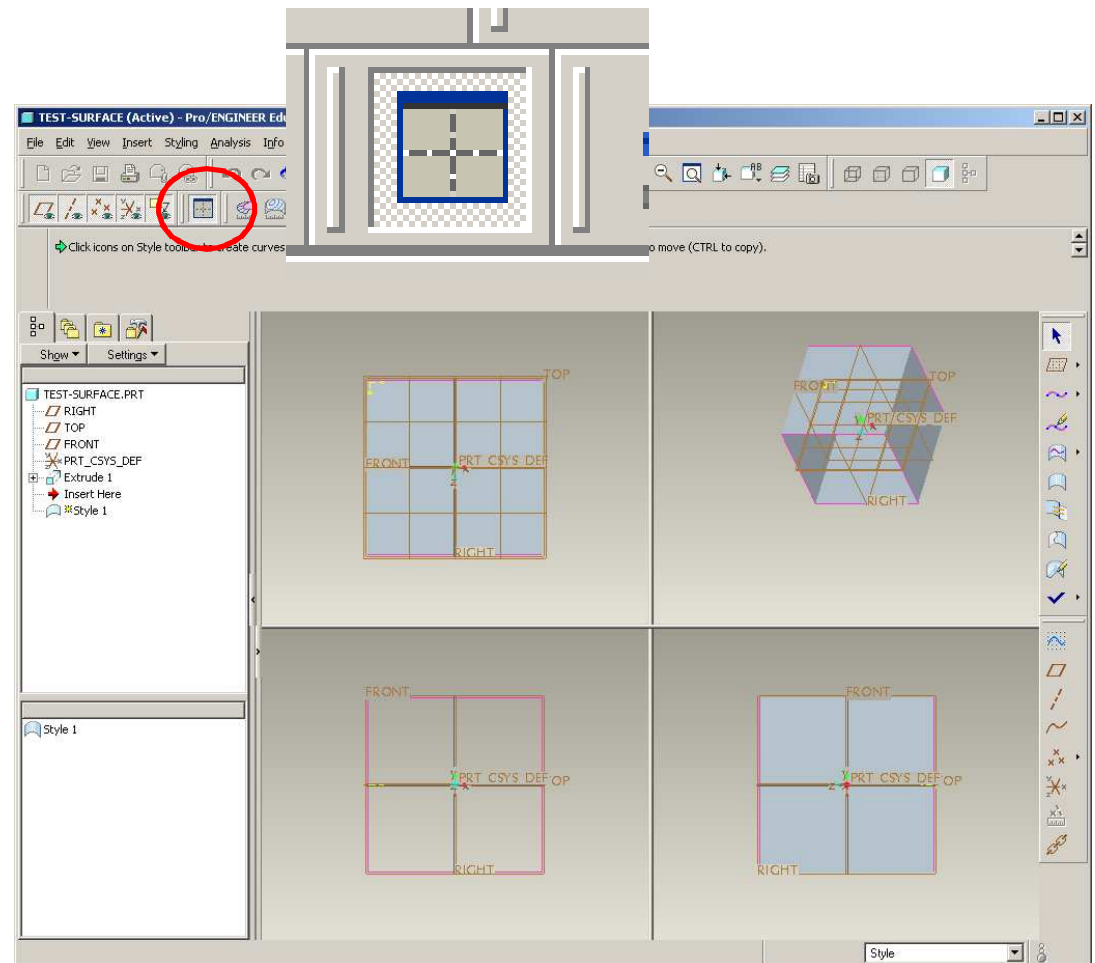




Style Features

Creating Geometry

- You can sketch in one orientation and see the result 3 other orientations

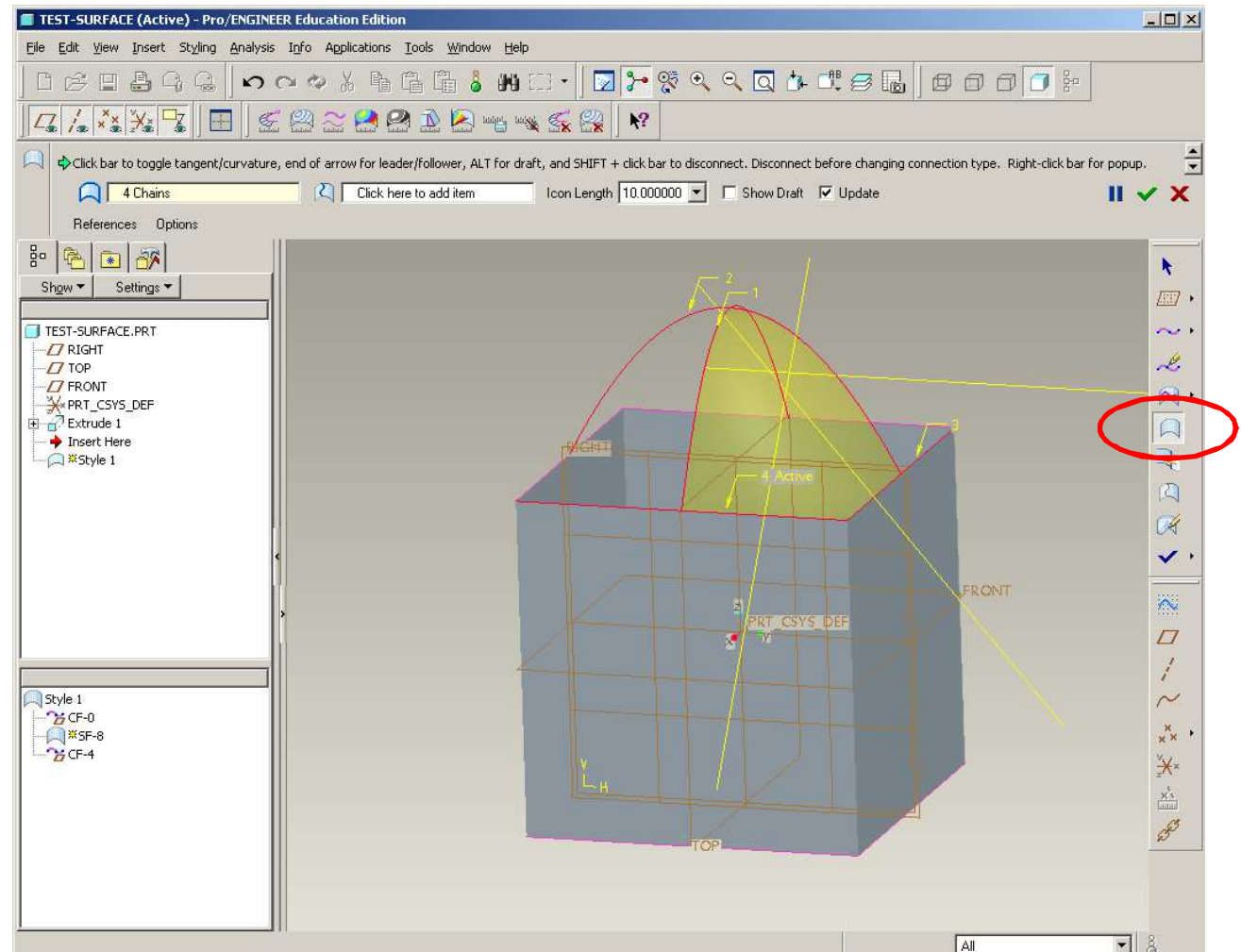




Style Features

Create a Surface

- Click create surface tool
- Click individual curves comprising boundary **HOLDING CTRL KEY**
- Click Done



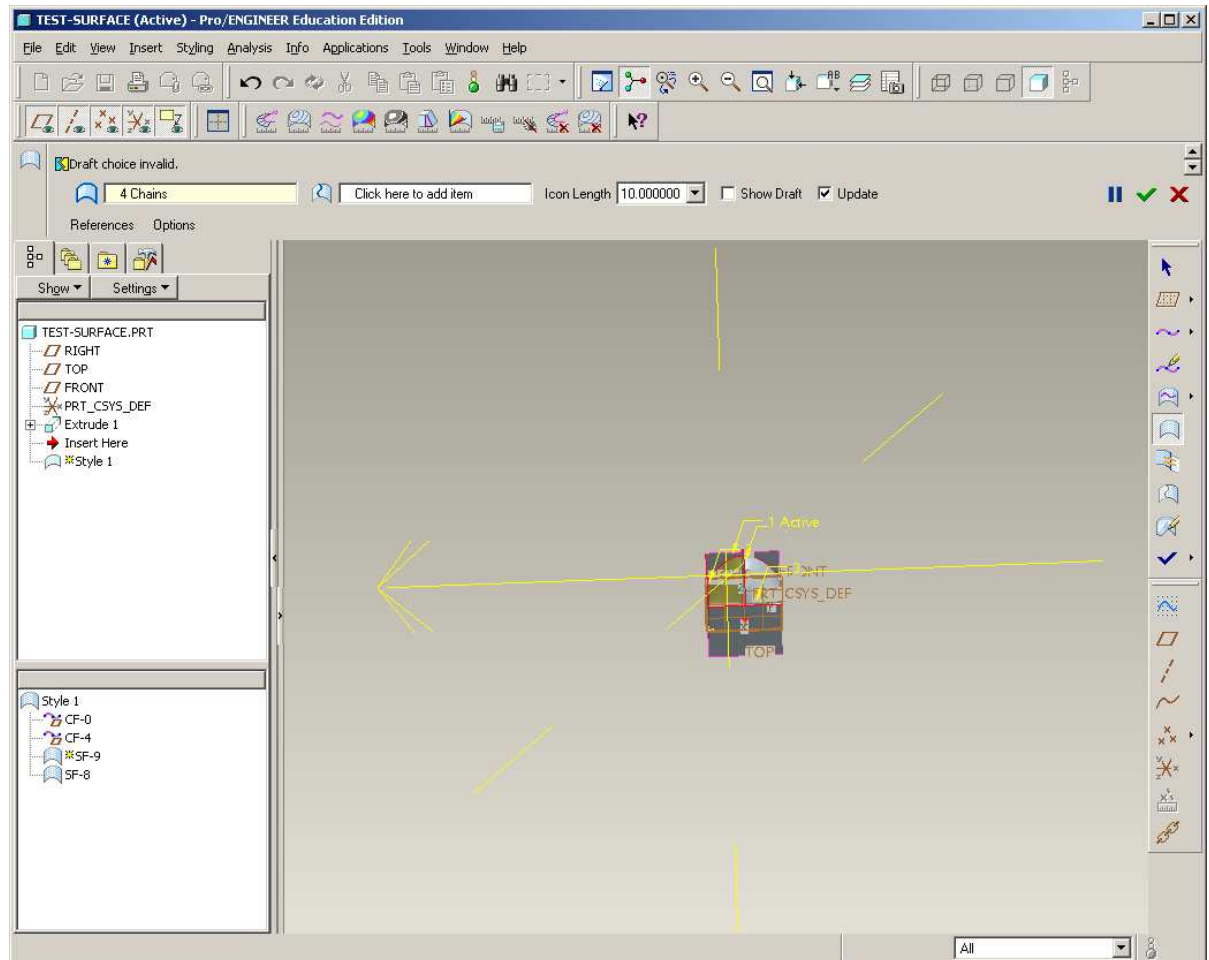


Style Features

Create a Surface

- Yellow arrows define how surfaces are joined:

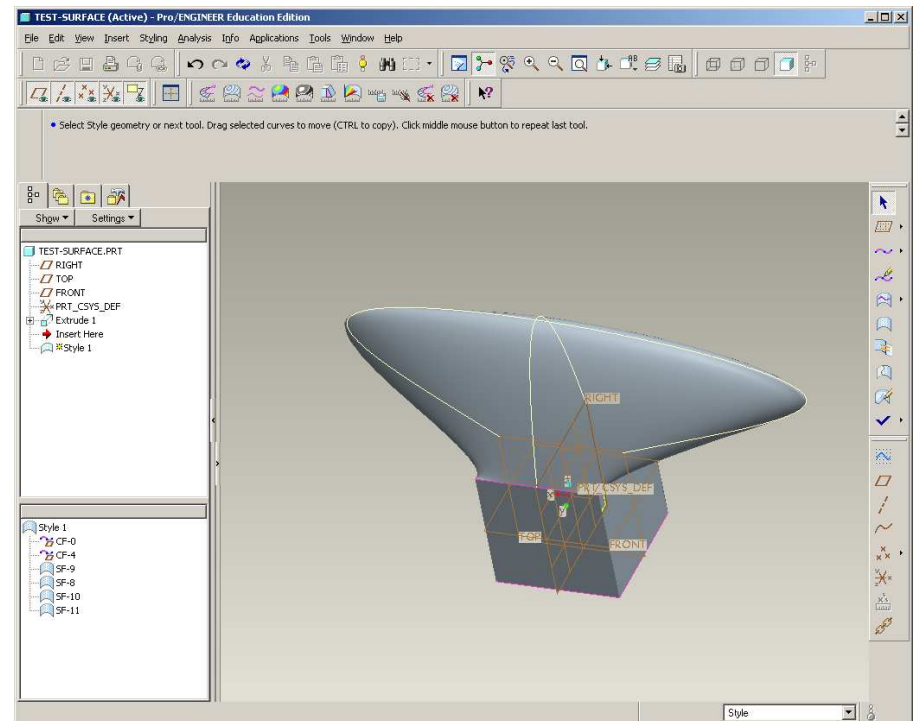
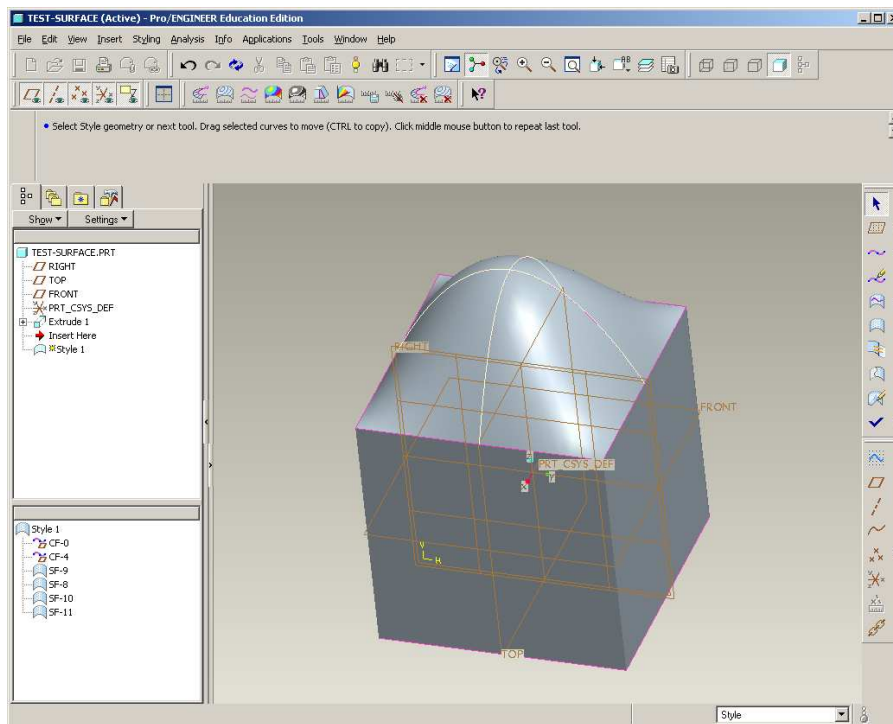
- Position
 - Tangent
 - Curvature
- RMB to select option or click on arrow to toggle through





Style Features

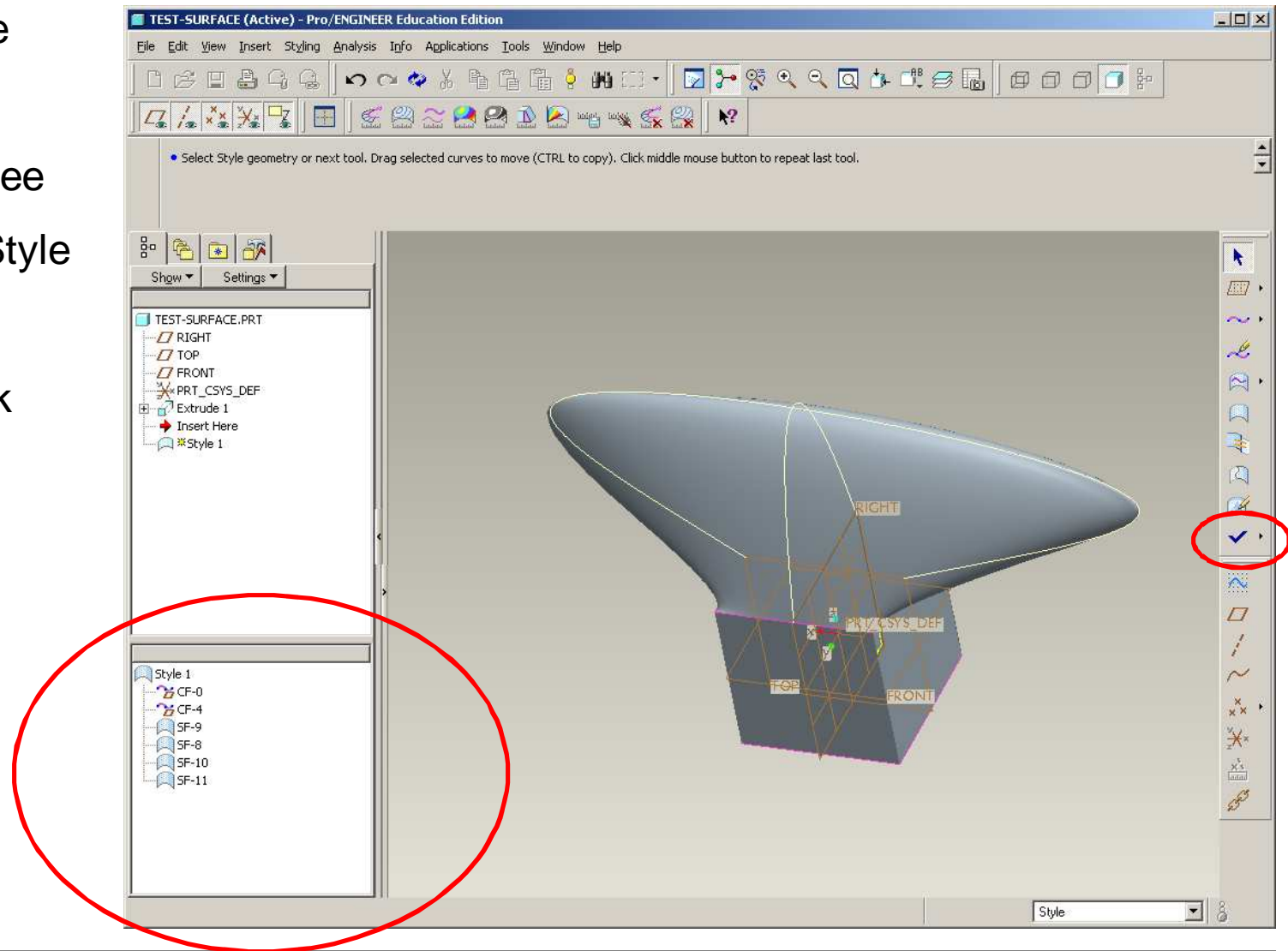
- Edit curves and the surface will follow





Style Features

- All entities in the Style feature are shown in Style Tree
- To complete a Style feature click the Done check-mark





Style Features

Build complex geometry from sketches or from pictures



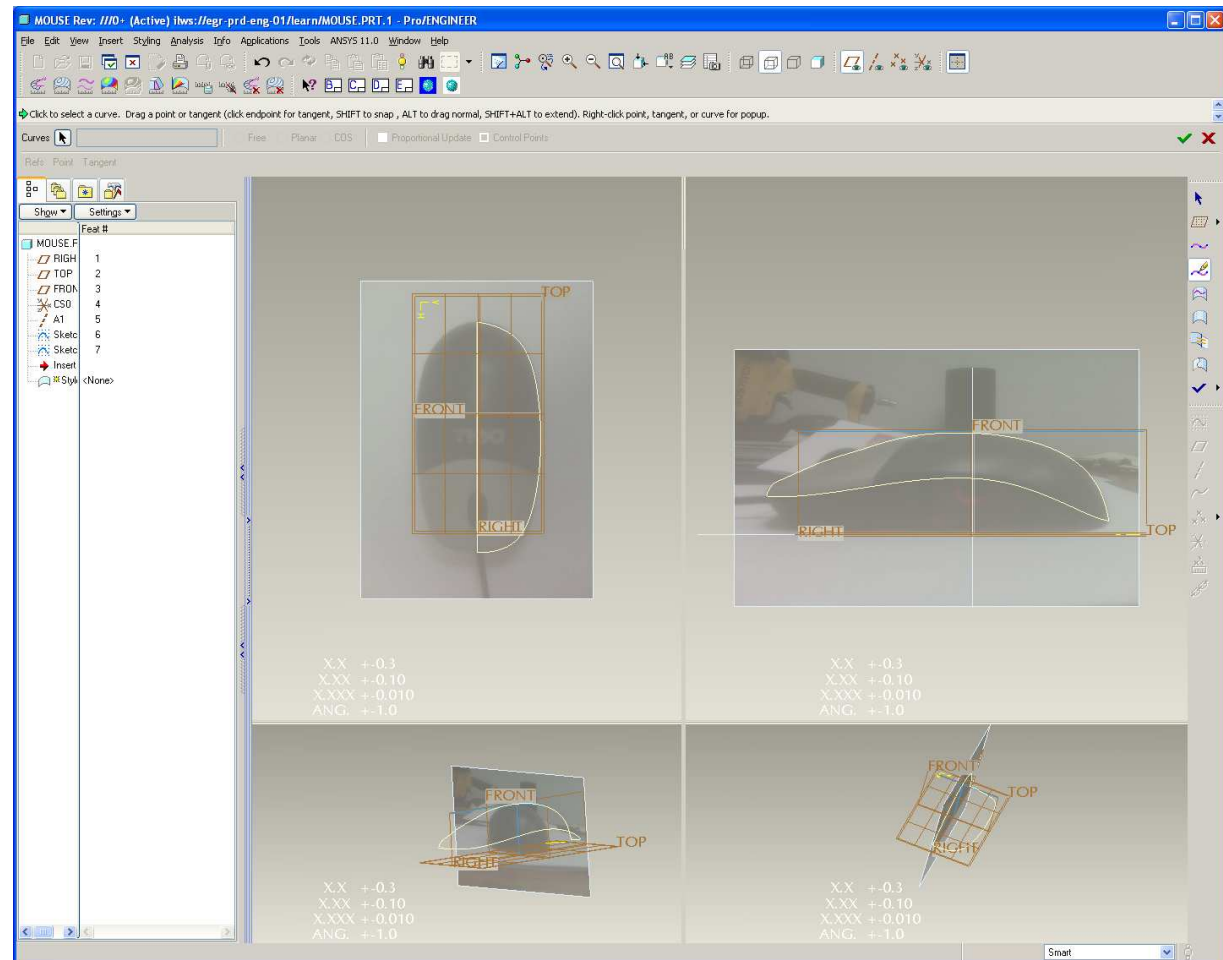
- Let's say you want to create some geometry that was very much non-parametric, but you had some pictures of TOP, RIGHT, FRONT views
- *Style Features allow for this*





Style Features

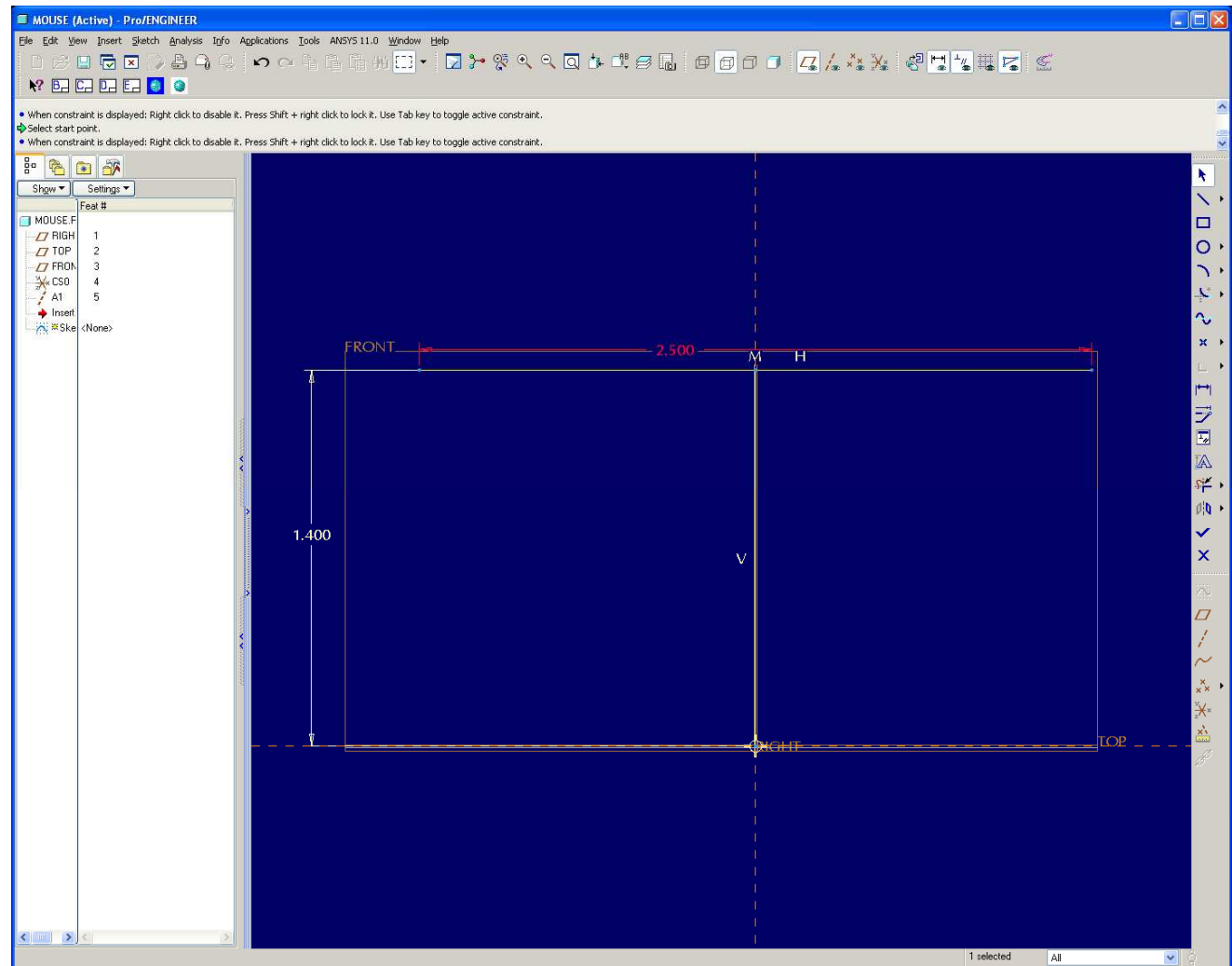
Within Style Feature, Geometry can be constructed through curves and surfaces





EXERCISE - Style Features

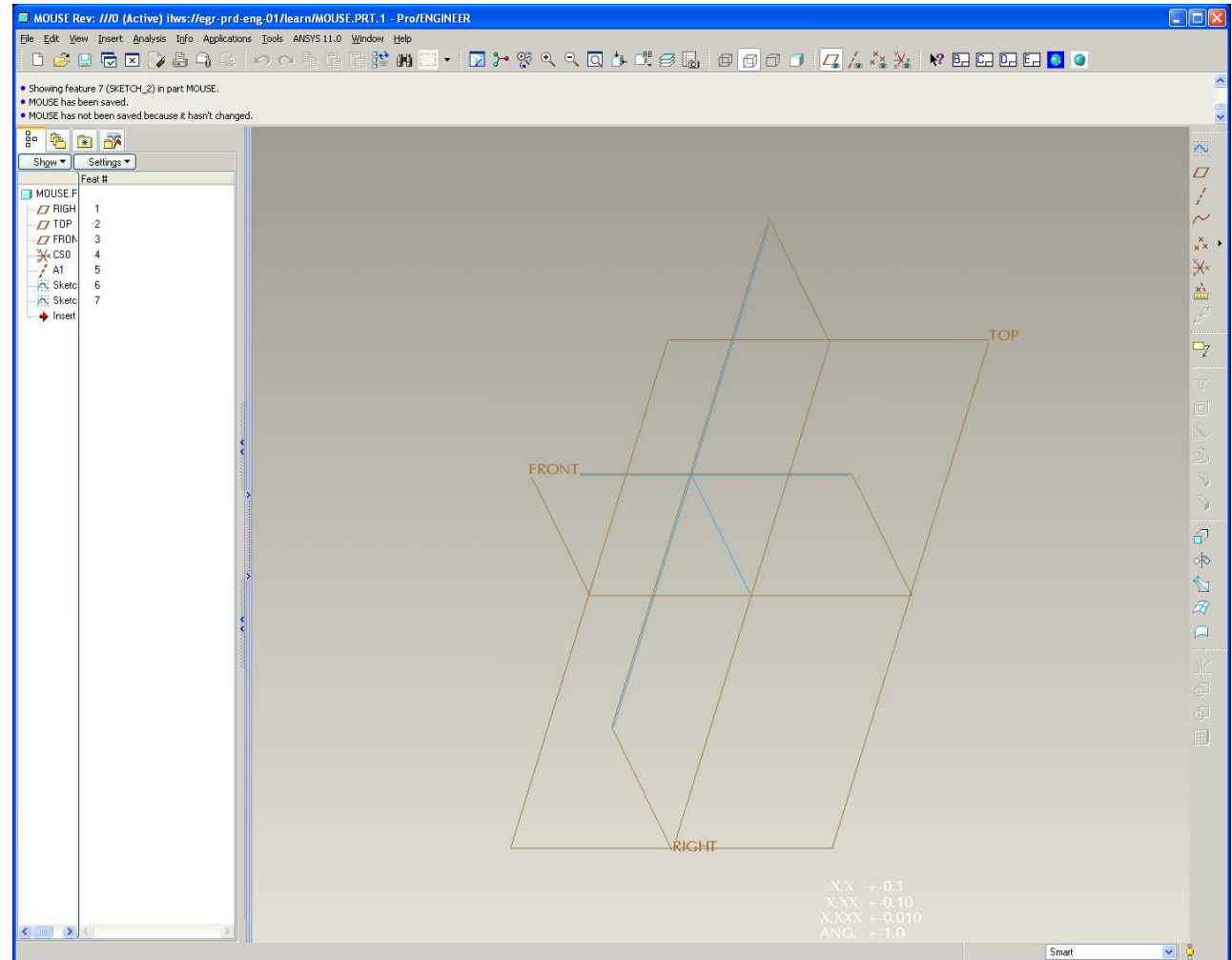
- File > New > Part
- Name it mouse.prt
- Create a Sketch on the FRONT datum of a “T” 2.5W X 1.4H
- This sketched curve will give us something to scale the pictures to





EXERCISE - Style Features

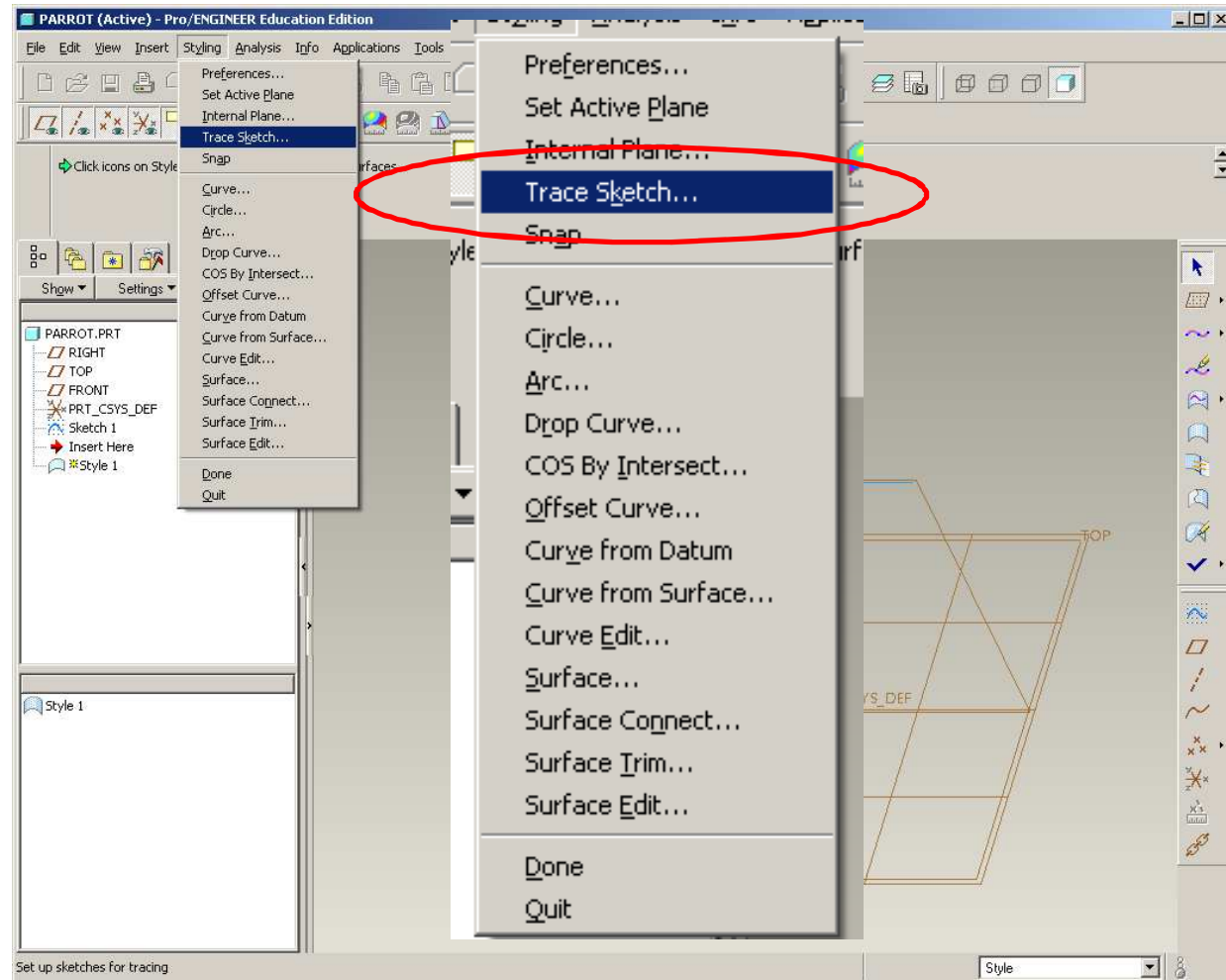
- Create a Sketch on the RIGHT datum at the top of the “T”, 4.7L





EXERCISE - Style Features

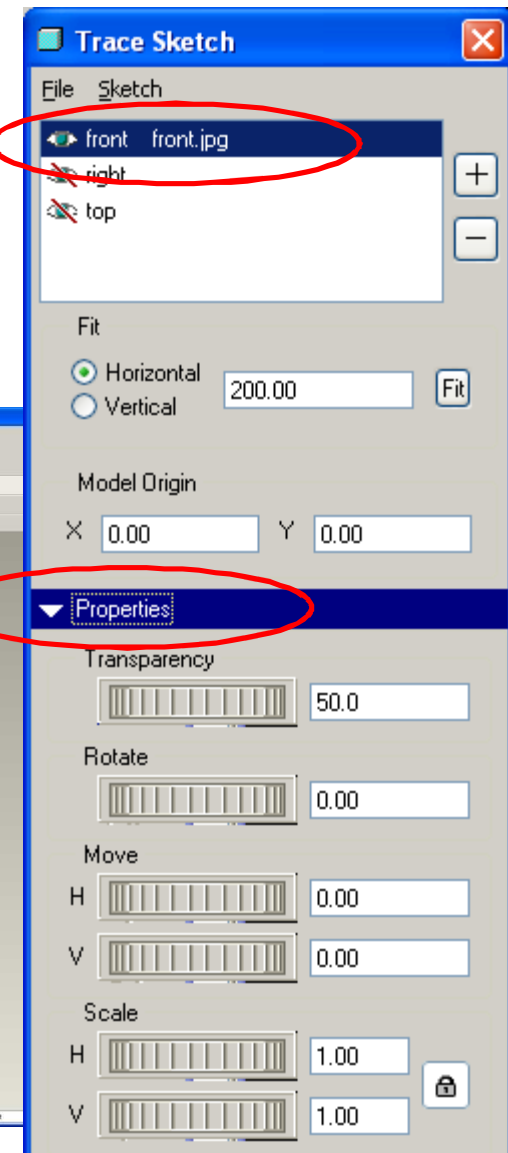
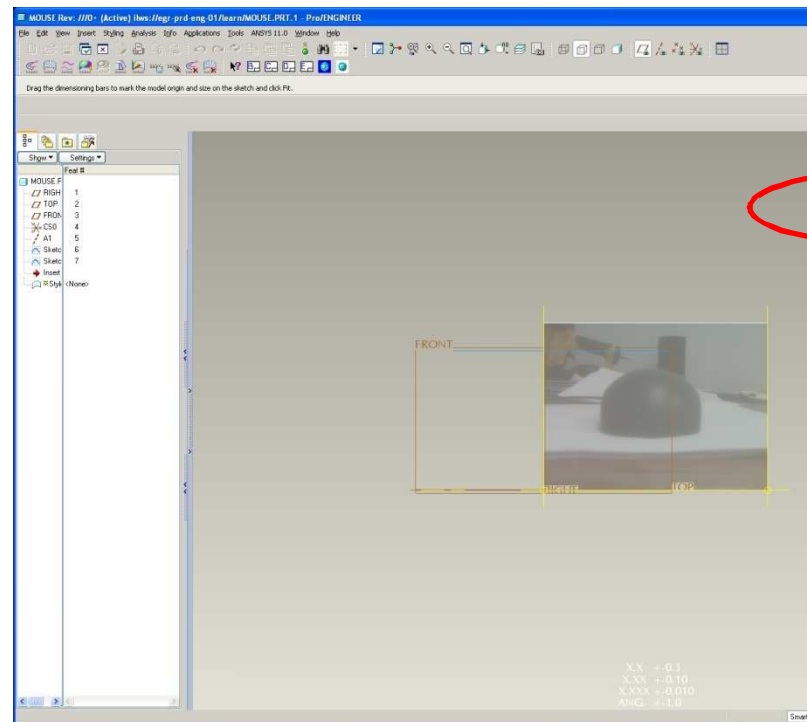
- Create a Style Feature
- Inside the Style Feature, go to the Styling Menu and Select Trace Sketch...





EXERCISE - Style Features

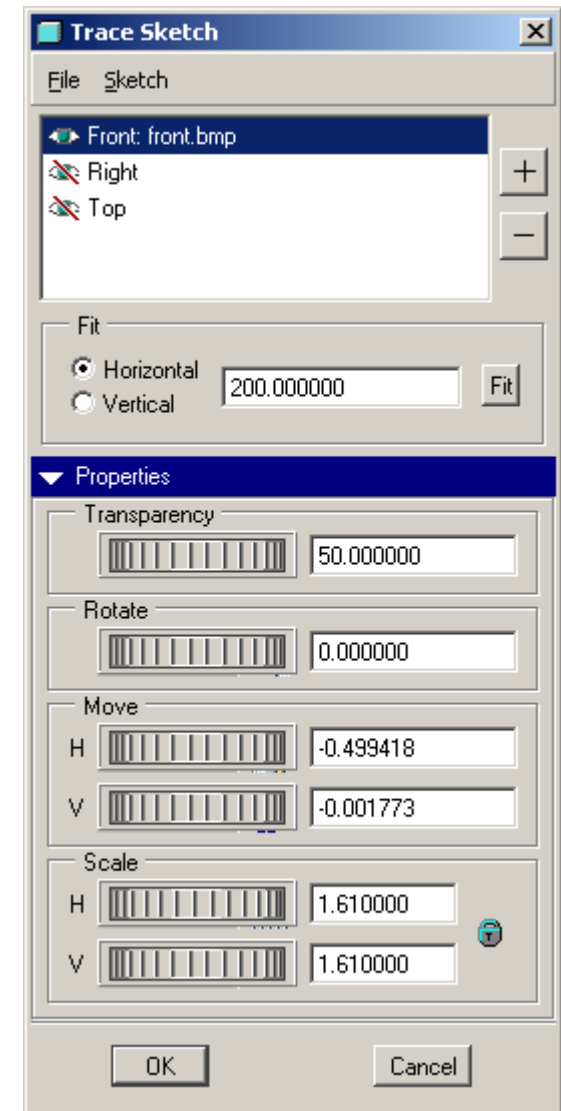
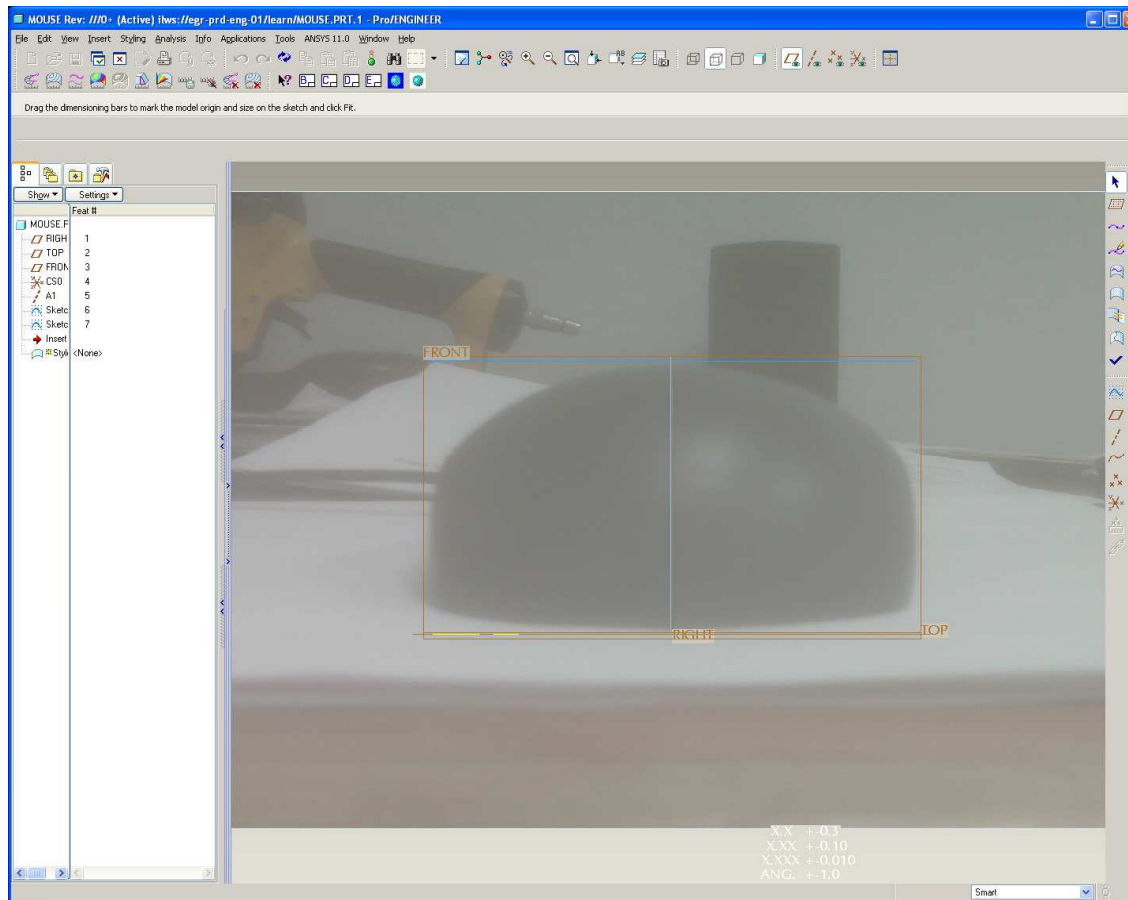
- Double Click on Front
- Browse to FRONT.jpg
downloaded from website
- Click OK
- Click Properties





EXERCISE - Style Features

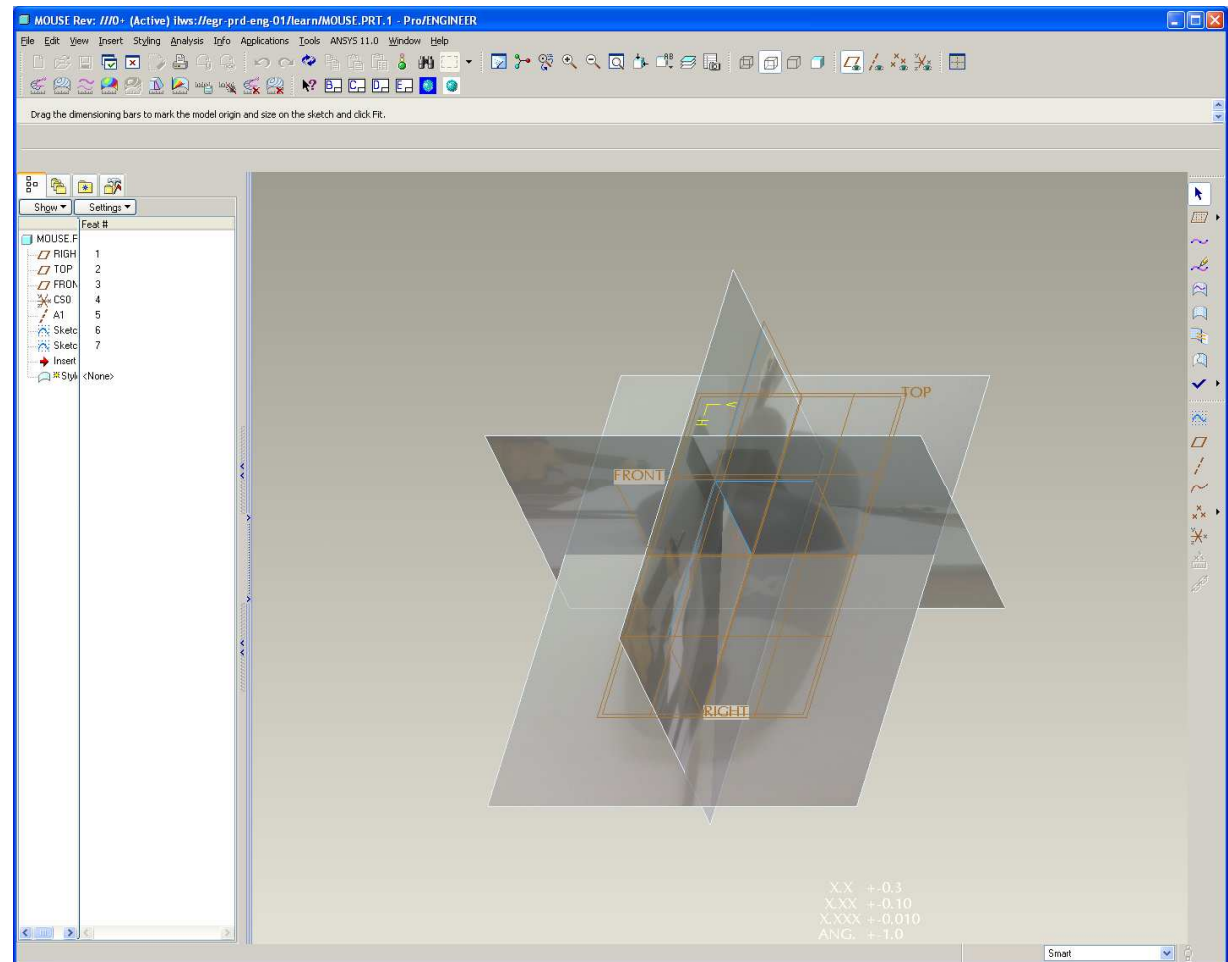
- Use Scale and Move wheels until image is scaled to curves and approximately centered





EXERCISE - Style Features

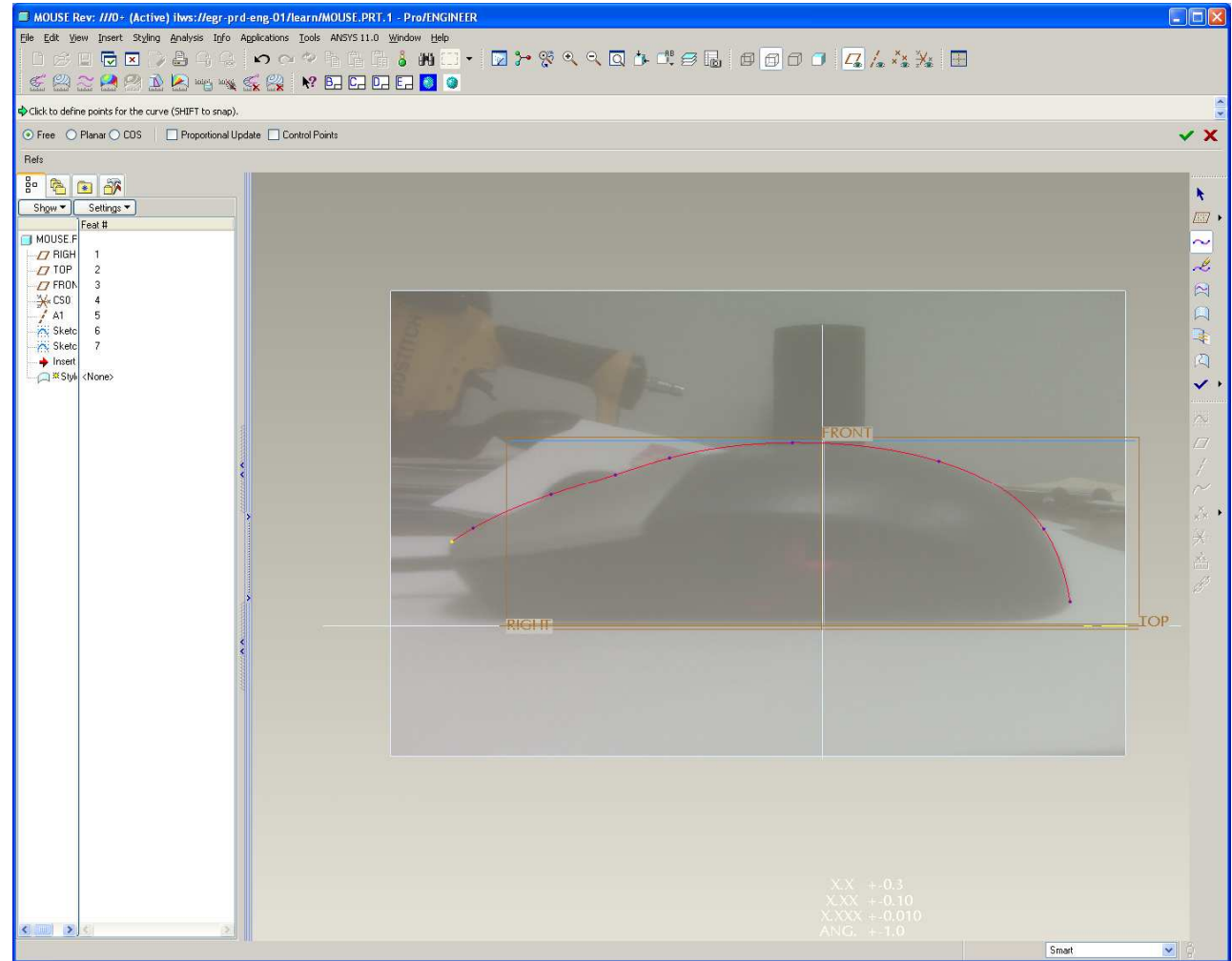
- Repeat the process for the TOP and RIGHT views





EXERCISE - Style Features

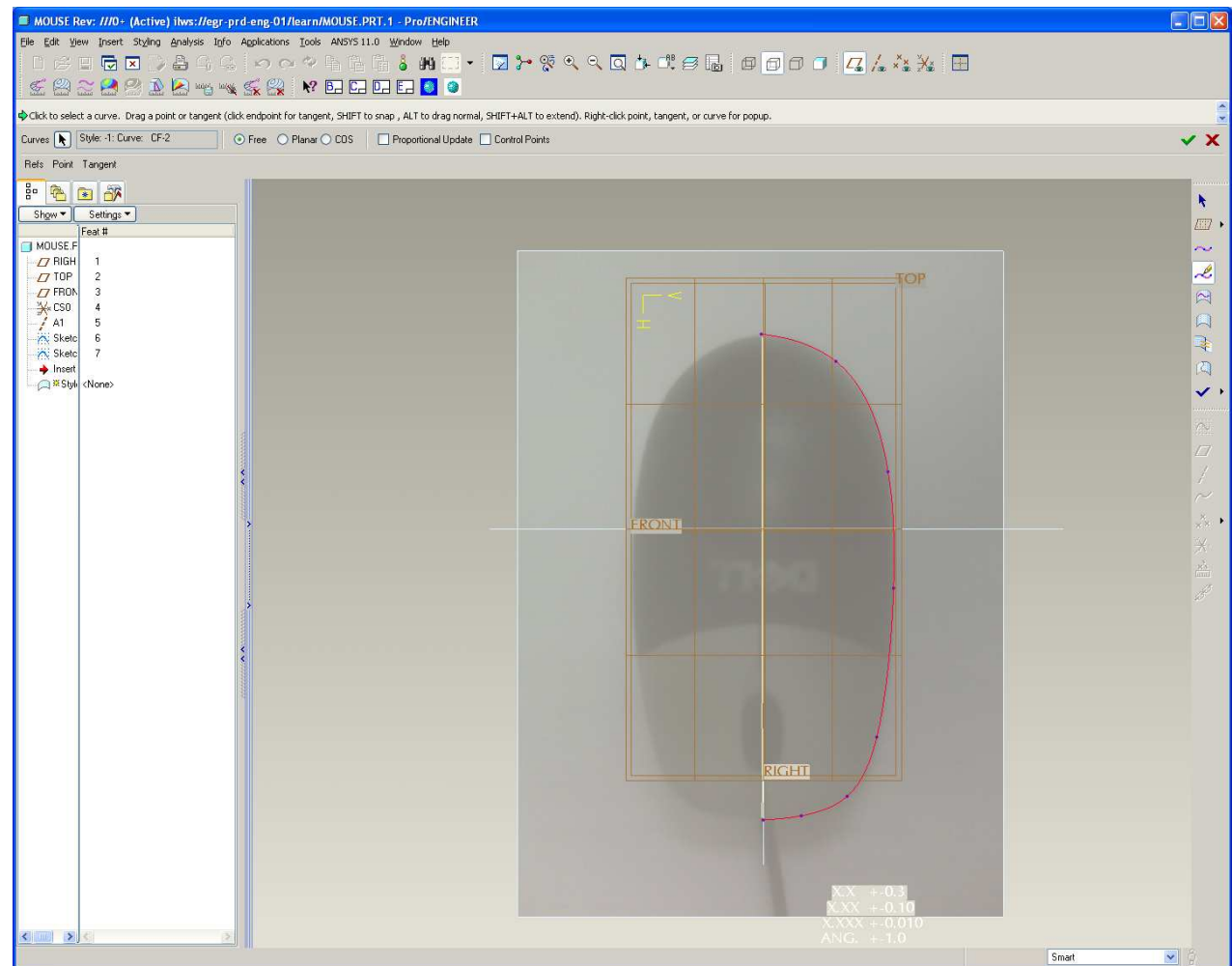
- Start in the RIGHT plane and sketch the top curve





EXERCISE - Style Features

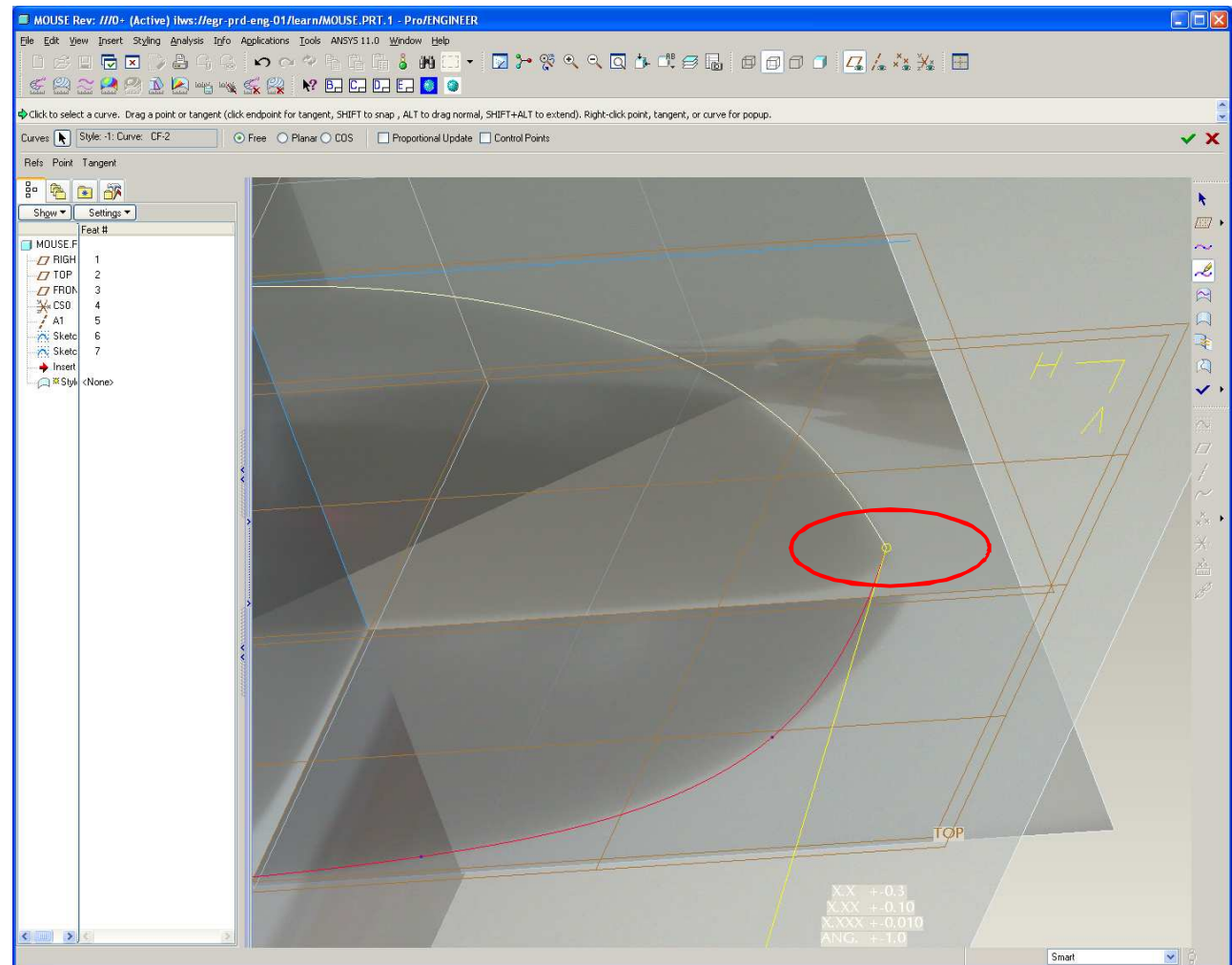
- Move to TOP plane and sketch base





EXERCISE - Style Features

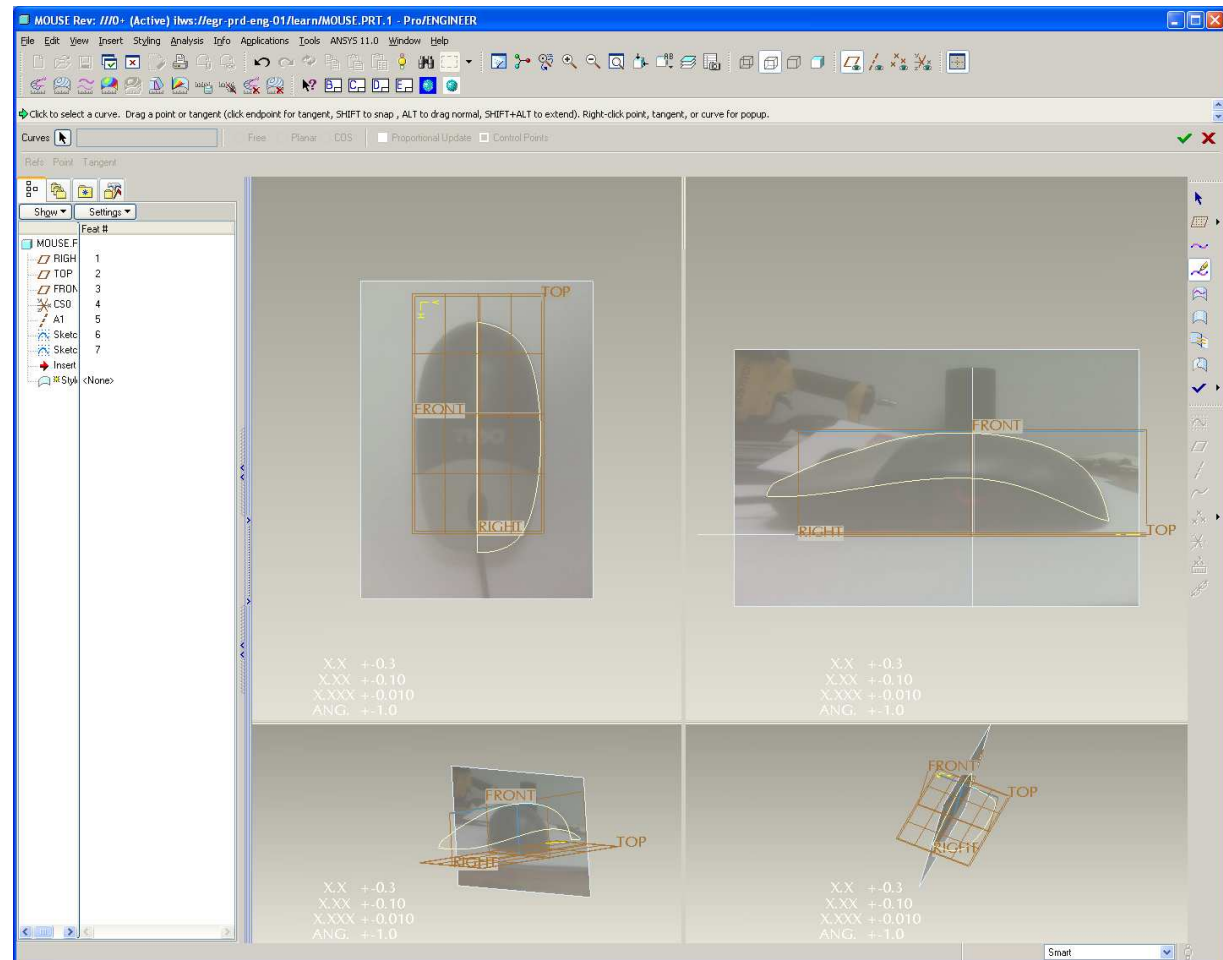
- Move to TOP plane and sketch base





EXERCISE - Style Features

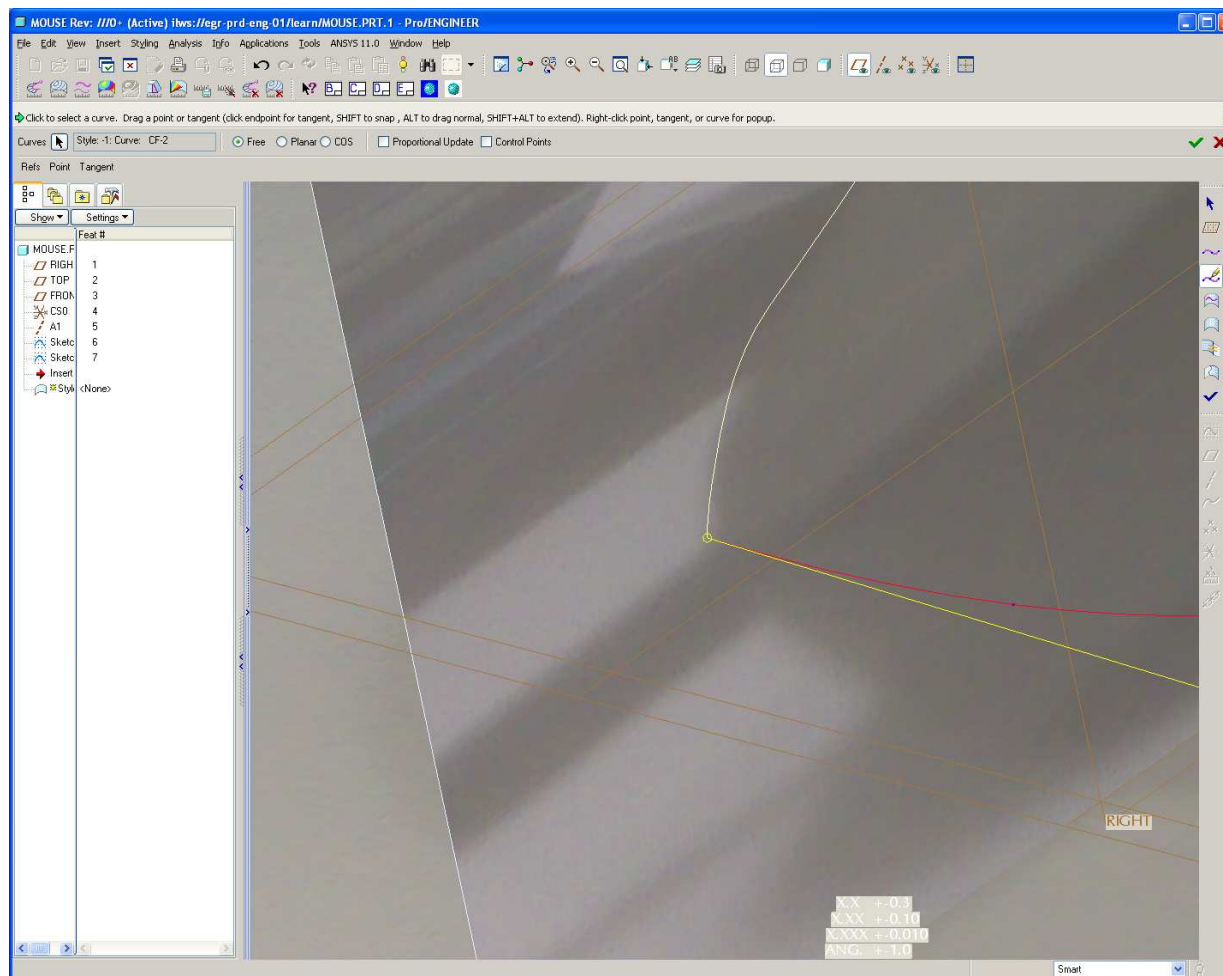
- Turn on 4-pane and align side curve with predominant features





EXERCISE - Style Features

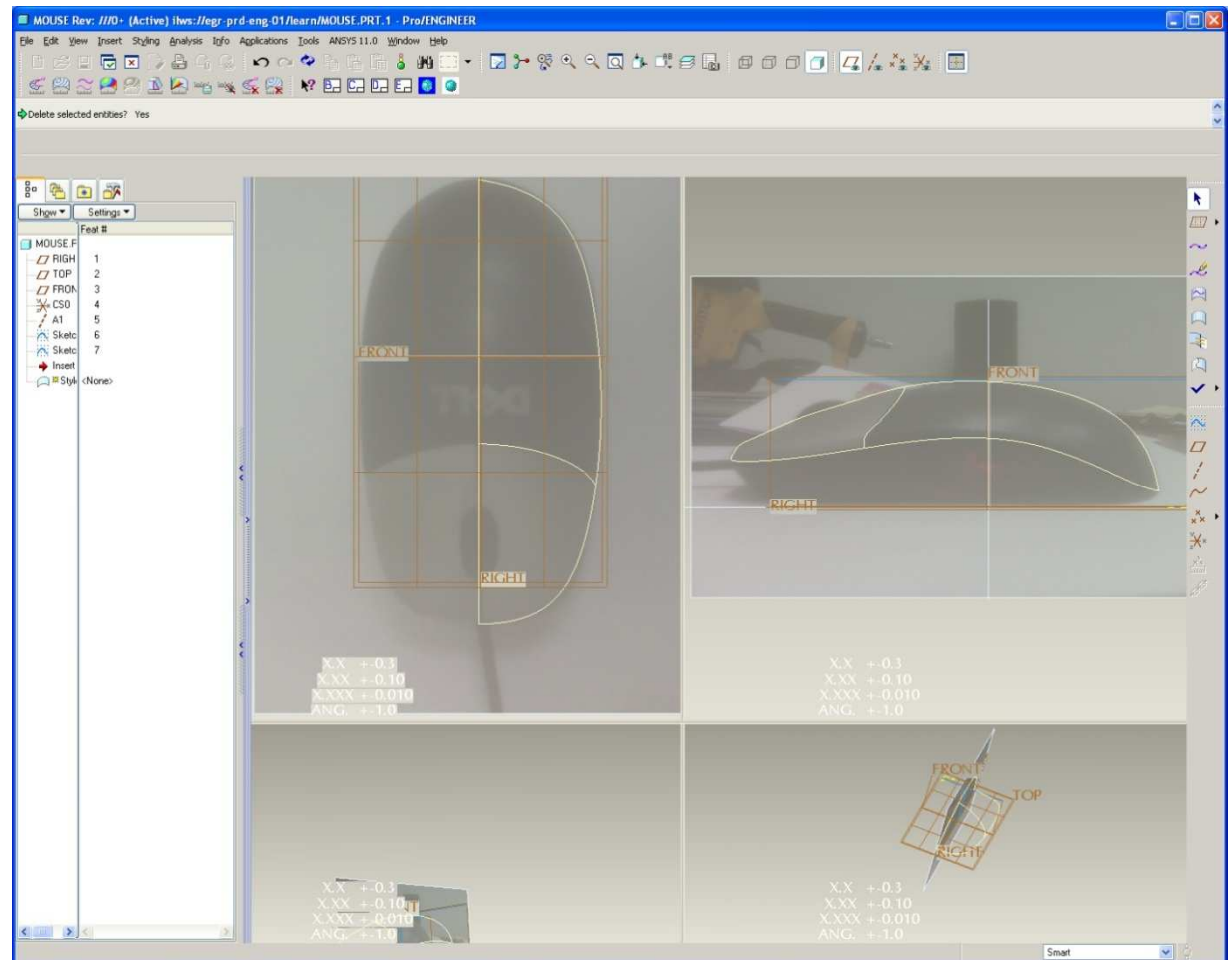
- Make sure the curves are joined





EXERCISE - Style Features

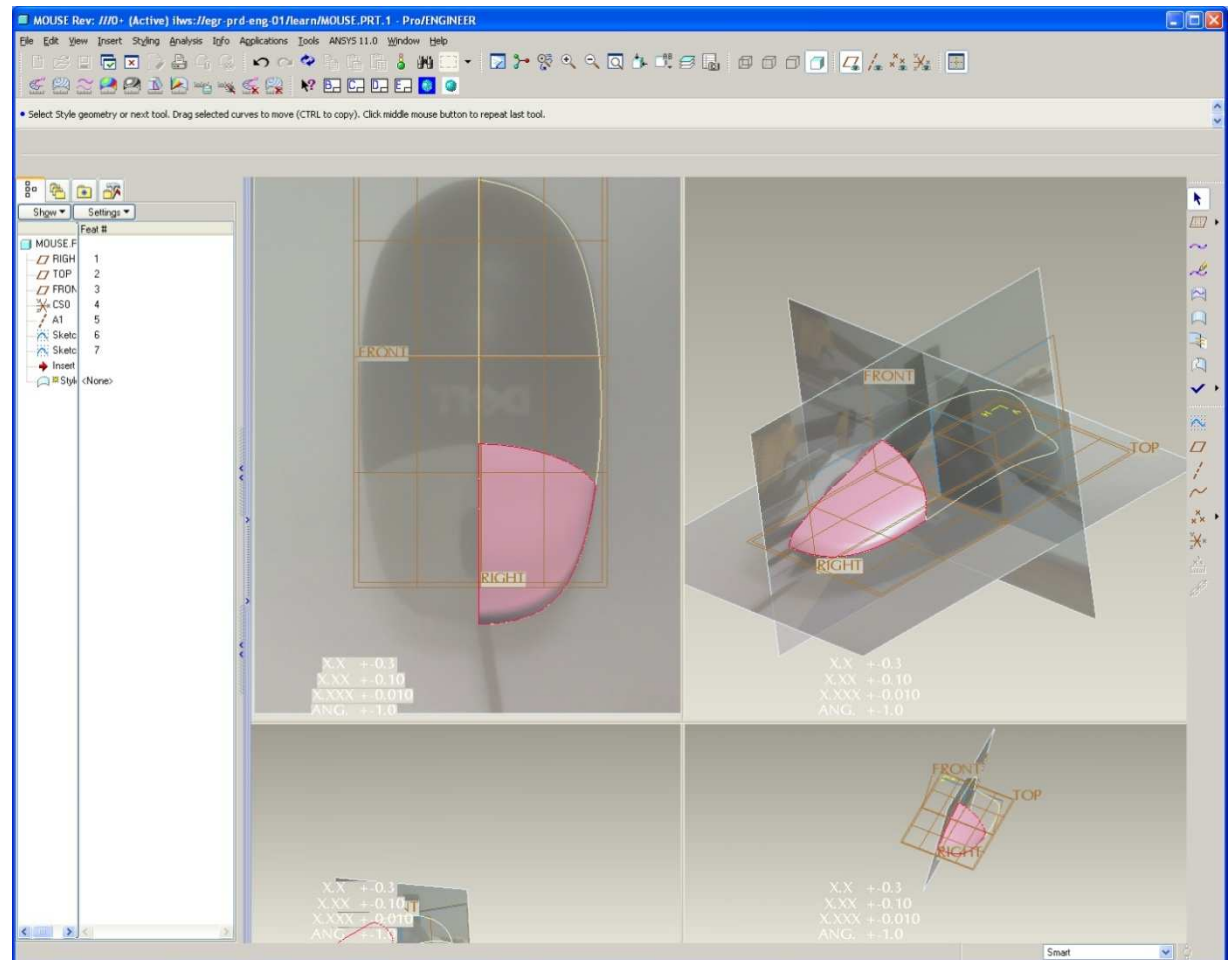
- Add one more curve





EXERCISE - Style Features

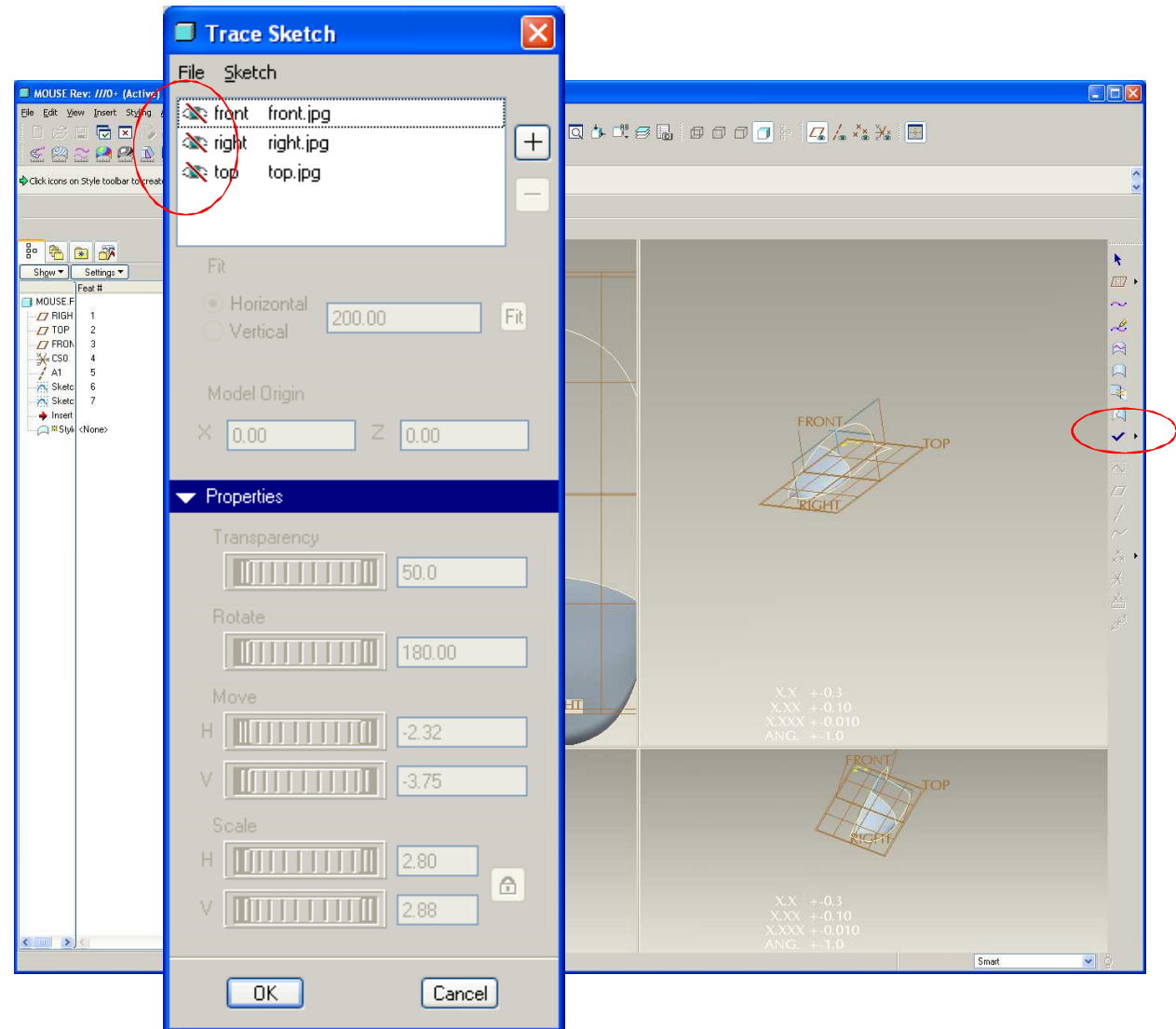
- Create a surface from the boundaries





EXERCISE - Style Features

- Blank the images
- Click Done on the Style Feature





EXERCISE - Style Features

- Keep going. See how far you can get.

