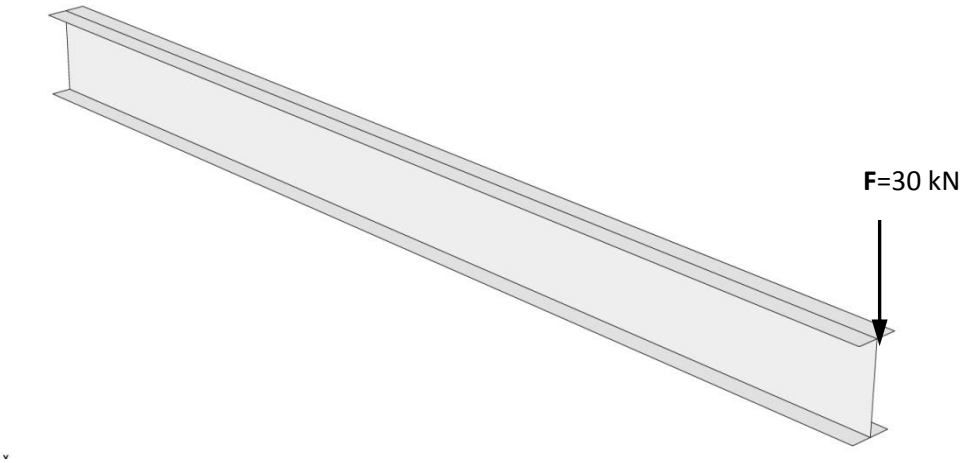
Abaqus – exercise

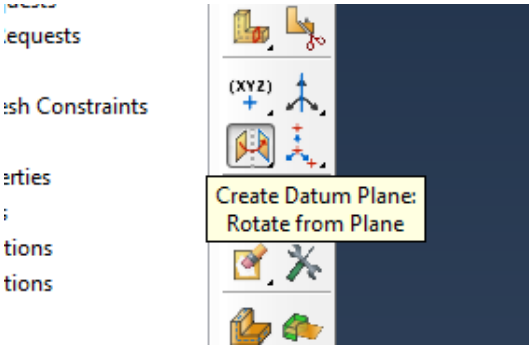
Make a model of the HEA-300 beam below (h=290mm, w=300mm, t=14mm, L=3m). The left end is fully fixed.



Create Part -> 3D, Shell, Planar -> Draw the base shape (The web of the beam), (Livet på balken)

To create the flanges: First, create a datum plane that lies where the flange is going to be placed.

Use “Rotate from Plane” as shown in the figure to the right.
Then: *Create Shell: Planar* and draw a flange of the beam on the created plane.
Do this procedure for both flanges.



Property:
Create a steel material E=201 GPa, v=0.3
Create a shell section
Assign section

Step:
Create Static, General step

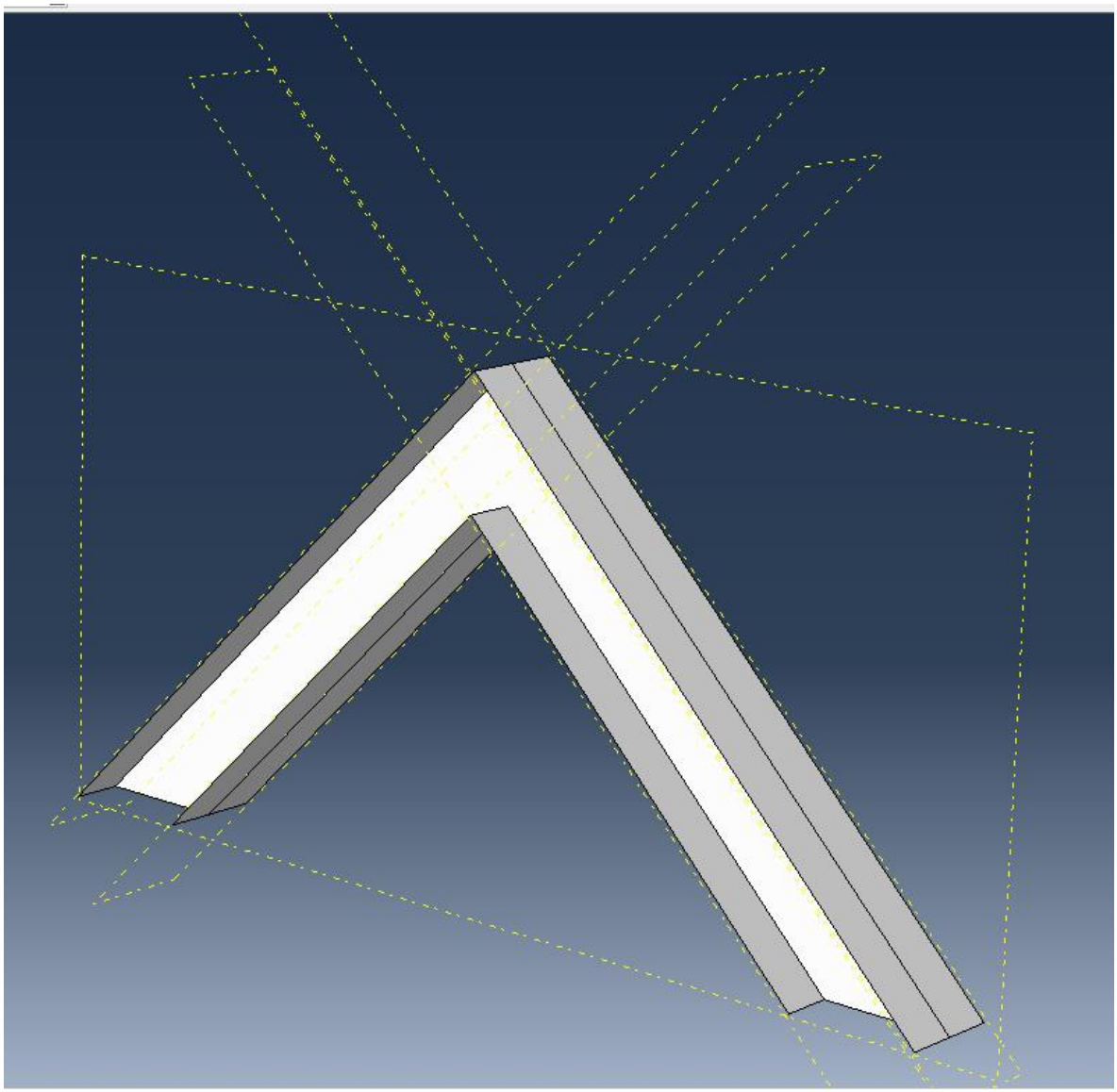
Load:
Create the point load and the fixed constraint at the end.

Mesh:

1. Assign Mesh Controls -> Element shape = Quad; Technique = Structured
2. Assign Element Type: Geometric Order=Linear; Family: Shell elements.
3. Seed Part
4. Mesh Part

Create job -> Submit job -> Results -> Visualize

Extra Assignment



Model the structure with HEA-300 beams shown in the figure above.

The web of the beam may be drawn as a 3D, Shell, Planar structure.

To add the flanges, create datum planes that lie where the flange is going to be drawn, as indicated with dotted lines in the figure above. Use *Create Datum Plane: 3 Points* and *Create Datum Plane: Rotate From Plane* to define the planes.

Add a point load on the top and fully constrain both ends of the structure.