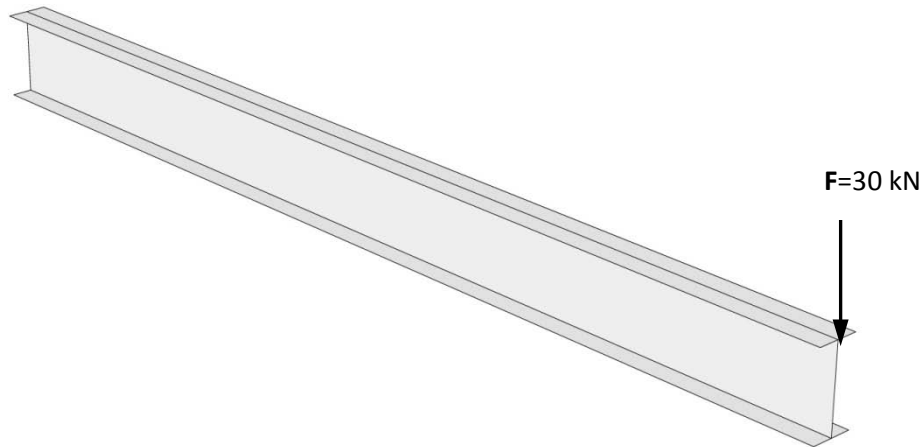


Abaqus - exercise

Make a model of the HEA-300 beam below ($h=290\text{mm}$, $w=300\text{mm}$, $t=14\text{mm}$, $L=3\text{m}$). 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 offset from principal 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 $E=201\text{ GPa}$, $\nu=0.3$

Create a shell section

Assign section

Step:

Create Static, General step

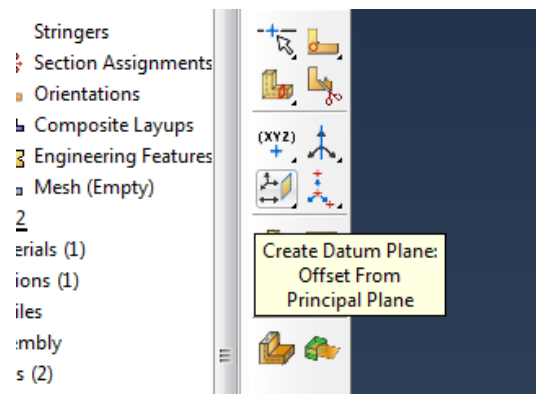
Load:

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

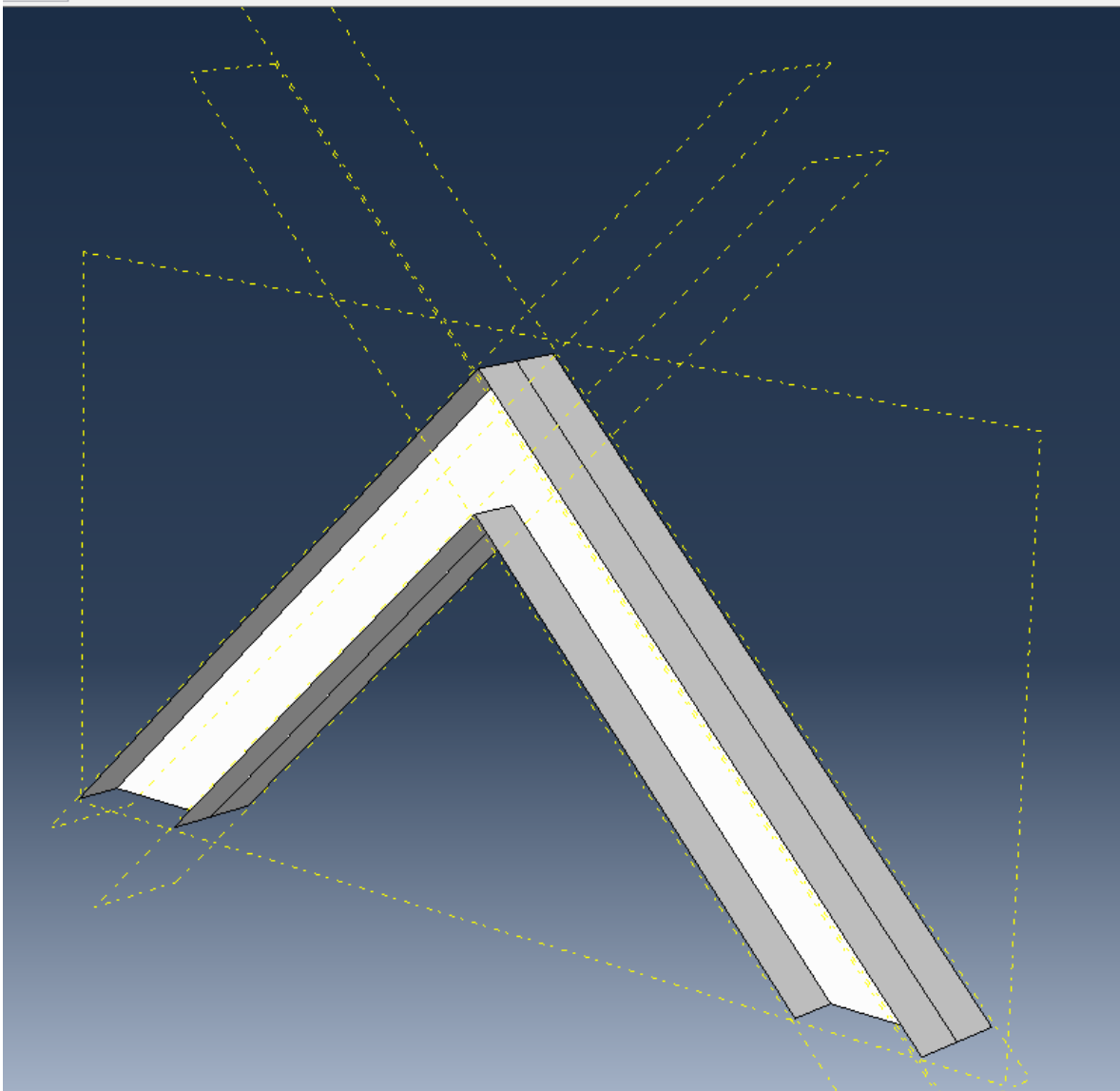
Mesh:

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.