

MATLAB - redAnTS 2

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Problem Specification

1. Start-Up & Preliminary Set-Up
 2. Generate Finite-Element Model
 3. Specify Inputs
 4. Assemble and Solve Global System
 5. Post-Process the Solution
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redAnTS TUTORIAL: CSG Tool and Point Boundary Conditions

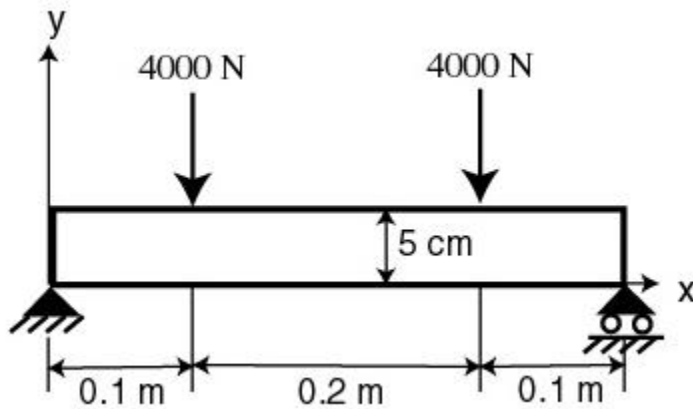
This *redAnTS* tutorial solves a beam bending problem and in the process shows you how to

1. Generate a mesh using the CSG Mesh Tool.
2. Set boundary conditions at a point.

It is assumed that you are familiar with the [introductory redAnTS tutorial](#).

Problem Specification

Consider the beam in the figure below. There are two point forces acting on the beam in the negative y direction as shown. Note the dimensions of the beam. The Young's modulus of the material is 73 GPa and the Poisson ratio is 0.3. We'll assume that plane stress conditions apply.



We'll put *redAnTS* to work on solving this problem using FEA. We'll plot displacements and stresses for the beam and make comparisons with theory.

Solution Steps

We can use the same steps as in the introductory tutorial to obtain the *FEA* solution:

- Step 1: Start-up and preliminary set-up
- Step 2: Generate finite-element model
- Step 3: Specify inputs
- Step 4: Assemble and solve global system
- Step 5: Post-process the solution

Let's dive into [step 1](#) without further ado.

[Go to Step 1: Start-Up and Preliminary Set-Up](#)

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