**Instructions:** You will need to use the ABAQUS software package to do this project. The project report (Times 11pt, single spacing) should be no more than 5 pages (with figures) and must include:

a. The problem statement
b. Analysis (with appropriate figures)
c. Results and discussion

**Problem:** Consider the plane structure in the figure below.

a) (5 points) Assume the structure to be a pin-jointed plane truss, and analyze its response. Find the maximum nodal displacement (absolute value of the displacement vector), reactions at nodes 1 and 2 and the element stresses. For this part of the problem, you may use the following values: Young’s modulus (E) = 200 GPa and cross sectional area of each member (A) = 2 × 10^{-4} m^2.

b) (5 points) Design the structure such that the maximum nodal displacement does not exceed 10mm. Clearly explain your approach providing alternative solutions.