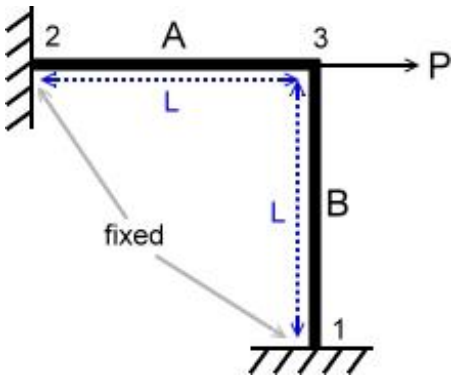
# FEM-HW1

Due: 2010/3/23




1. Suppose the cross section area of the bars A and B is 1 and the Young's modulus E=3e+07 and length L=30. Considering (1) A and B are truss elements (i.e. Bar element in 2D), (2) A and B are frame elements (i.e. bar + beam element in 2D) (3) A is a truss element and B is a frame element,

(i) Find $\begin{bmatrix} d_x^{③} \\ d_y^{③} \end{bmatrix}$, $(\sigma_{xx})_{①}$ and $(\sigma_{xx})_{②}$ for each case,

(ii) plot the deformed configuration for each case,

when the external forces are P=1e+04*(1,0) and P=1e+04*(1,1).

2. Solve problem 1 again with (i) the young's modulus E=3e+07 in bar A and E=3e+04 in bar B for P=-1e+04*(-1,-1).