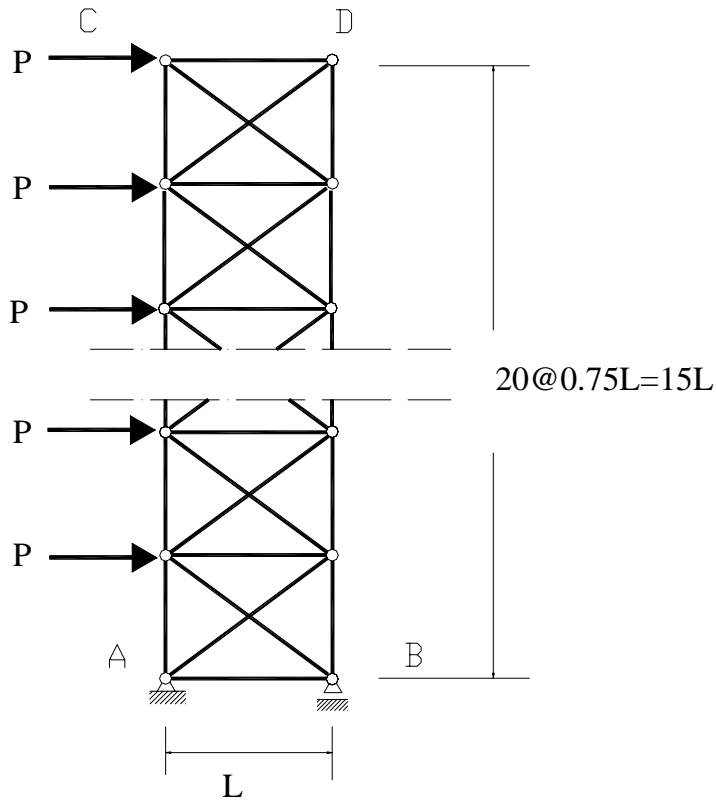## Benchmark problem 2 – A truss cantilever

One-bay 20-floor truss cantilever
Dimensions: the bay is L; every floor is 0.75L
The dimension of the structure: $L \times 15L$ (42 nodes, 101 elements)
Load: 20 horizontal loads at left nodes, P.
Cross sectional area: A
Boundary condition: support A is a pin; B is roller.

Interval parameter:
Uncertainty: 1% uncertainty in modulus of elasticity means $\mathbf{E}$ = [0.995, 1.005]E

Looking for the normalized displacement at corner **D:** (that is, $\dfrac{U_D EA}{PL}$)

Deterministic (midpoint) solution:

U_X = 18208.5
U_Y = -806.663