



Rigid bar supported by 3 equally spaced, identical rods

Temperature effects on a rigid bar supported by rods

The rigid bar shown above is supported by 3 equally spaced, identical rods. The bar has a uniformly distributed weight and when temperature is uniform, the bar is level. Determine the slope of the bar and induced rod forces when there are changes to the temperature of any one (and only one at a time) of the rods.

User Input

- Length of bar L
- Change in temperature of rod A, B. **or** C = ΔT
- Bar weight W
- Rod length h , Young's modulus E , area A , coefficient of thermal expansion α

Results

- Determine the forces induced in the rods
- Determine the slope of the bar
- Plot the rod displacements/bar tilt