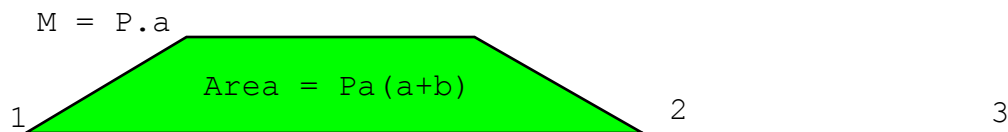


Units : Tonne T.
Millimetre mm.

First, remove R_3 and calculate rotation at point 2 from symmetrical loading.



Bending Moment Diagram with R_3 removed

$$\text{Theta}(1) = \text{Area}/2EI = Pa(a+b)/2EI \quad \text{Theta}(2) = -\text{Theta}(1)$$

$$\Delta(3) = \text{theta}(2) \cdot c = -Pa(a+b)c/2EI$$

Now, replace R_3 $\Delta(3) = R_3 \cdot c \cdot c(2a+b+c)/3EI = -Pa(a+b)c/2EI$

Solving for R_3 ... $R_3 = -3Pa(a+b)/2c(2a+b+c)$

For $a = 1.05$, $b = 1.9$ and $c = 2.5$, $R_3 = -10.9 T$ (downward)