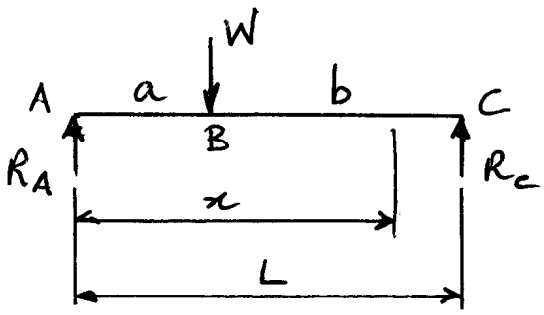
1/



From statics :

Taking moments about C

$$R_A . L = Wb \qquad \therefore R_A = \frac{Wb}{L} \qquad \text{——— (1)}$$

Bending moment at distance x from A :

$$M_x = R_A . x - W[x-a] \qquad \text{——— (2)}$$

where $[x-a] = (x-a)$ when $x > a$

and zero when $x < a$

Moment-curvature relationship

$$EI \frac{d^2y}{dx^2} = M_x$$

Substituting from (1) and (2)

$$EI \frac{d^2y}{dx^2} = \frac{Wb}{L} . x - W[x-a]$$

Integrating for slope $\left(\frac{dy}{dx}\right)$

$$EI \frac{dy}{dx} = \frac{Wb}{L} . \frac{x^2}{2} - \frac{W}{2}[x-a]^2 + A$$

Integrating again for deflection (y)