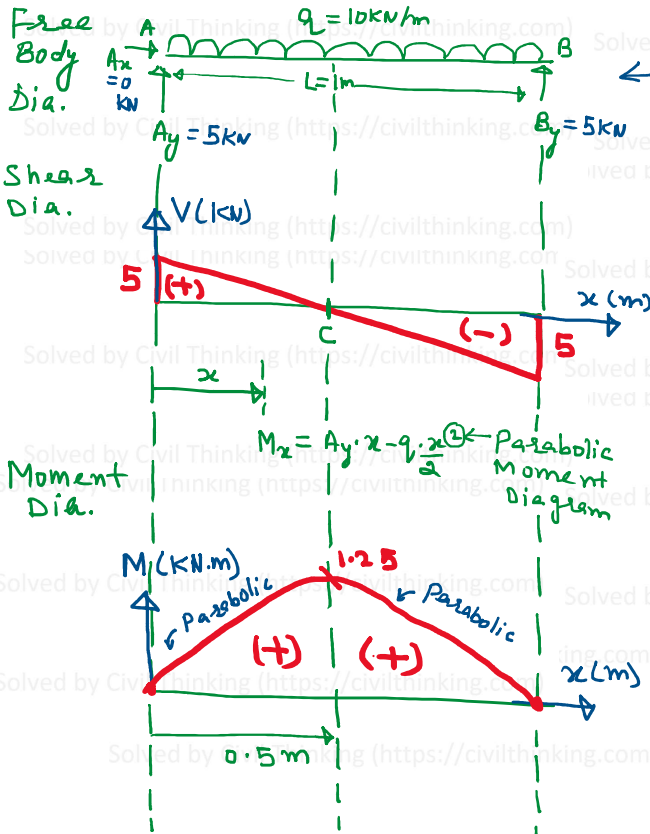
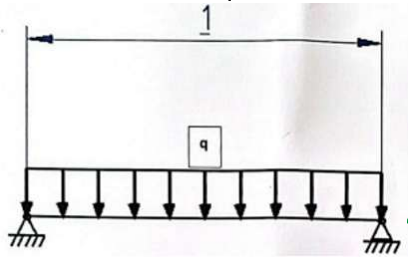


Solution of: Shear distribution and moment distribution diagram of simply supported beam carrying a uniformly distributed load

Determine the distribution of shear forces and bending moments in a flexural beam for distributed force $q=10\text{ kN/m}$. Take length of beam, $L=1\text{ m}$



← Symmetric $\Rightarrow A_y = B_y = \frac{1}{2} (q \cdot L) = \frac{1}{2} (10 \text{ kN/m} \cdot 1 \text{ m}) = 5 \text{ kN}$

$\Rightarrow A_y = B_y = 5 \text{ kN}$

$\sum F_x = 0 \Rightarrow A_x = 0$

$C \rightarrow$ Point of inflection $\Rightarrow M_{\max} = M_c = A_y \cdot 0.5 \text{ m} - q \cdot \frac{0.5^2}{2}$

$\Rightarrow M_{\max} = M_c = 1.25 \text{ kN}\cdot\text{m}$

$M_A = M_B = 0$ [Pin & Roller, moment = 0]

This problem was solved by Civil Thinking

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