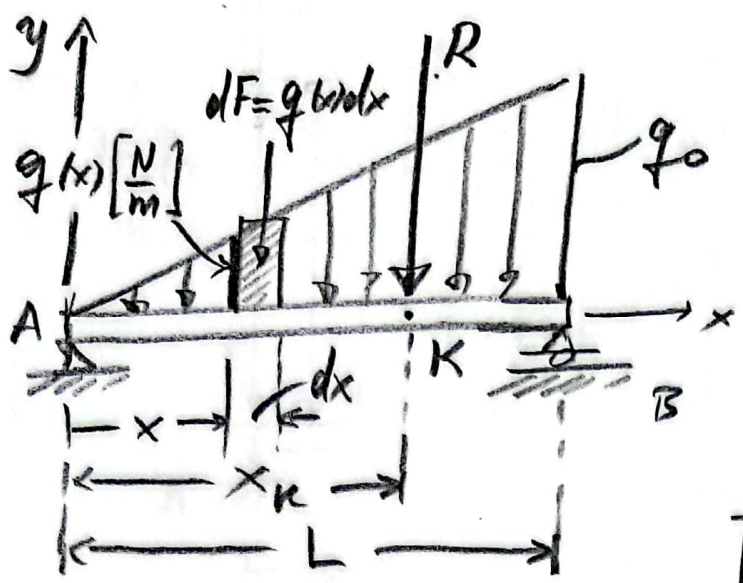
ΑΣΚΗΣΗ 4-1



Συνιστώσα τριγωνικού φορτίου

Όμοια τρίγωνα:

$$\frac{q(x)}{x} = \frac{q_0}{L} \Rightarrow$$

$$\boxed{q(x) = \frac{q_0}{L} x}$$

Θεωρία

$$\boxed{R = \int_0^L q(x)\,dx} = \int_0^L \frac{q_0}{L} x\,dx = \frac{q_0}{L}\left[\frac{x^2}{2}\right]_0^L = \underline{\boxed{\frac{q_0}{2} L}}$$

Θεωρία

$$\boxed{x_K = \frac{\int_0^L x\,q(x)\,dx}{\int_0^L q(x)\,dx}} \quad \left(\int_0^L q(x)\,dx = R = \frac{q_0}{2} L\right)$$

$$\int_0^L x\,q(x)\,dx = \int_0^L \frac{q_0}{L} x^2\,dx = \frac{q_0}{L}\left[\frac{x^3}{3}\right]_0^L = \frac{q_0}{3} L^2$$

$$\boxed{x_K = \frac{q_0}{3} L^2 \frac{2}{q_0 L} = \frac{2}{3} L}$$

Σαρώθηκε με το CamScanner