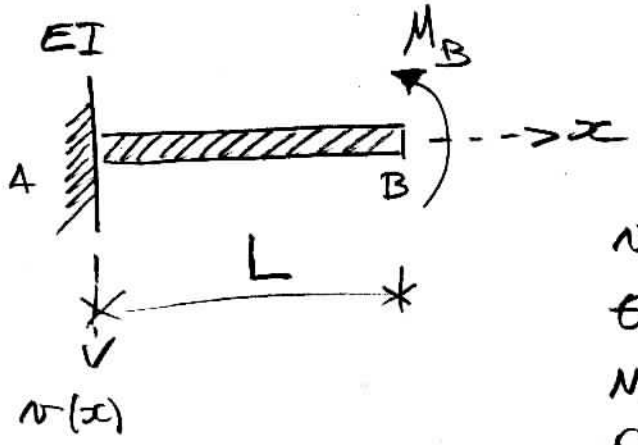
TE1-3.16



→ Obter a equação da linha elástica

$v(0) = 0$
$\theta(0) = 0$
$M(L) = M_B$
$Q(L) = 0$

} POR INSPEÇÃO

$$M(x) = EI \, d^2v(x)/dx$$

$$\theta(x) = \int M(x)\,dx = EI \, dv(x)/dx$$

$$v(x) = \int \theta(x)\,dx$$

(1) $M(x) = +M_B$

(2) $\theta(x) = (M_B x + C_1) \times 1/EI$

(3) $v(x) = \left(M_B \frac{x^2}{2} + C_2\right) \times 1/EI$

Como $\theta(0) = 0$ $\quad \theta(0) = M_B \cdot 0 + C_1 = 0 \therefore C_1 = 0$

Como $v(0) = 0$ $\quad v(0) = M_B \cdot \frac{0^2}{2} + C_2 = 0 \therefore C_2 = 0$

$$\boxed{v(x) = \frac{M_B \cdot x^2}{2EI}}$$