



$$\frac{d^4 v}{dz^4} EI = q$$

$$\frac{d^3 v}{dz^3} EI = qz + C_1 = -T(z)$$

$$\frac{d^2 v}{dz^2} EI = \frac{qz^2}{2} + C_1 z + C_2 = -M(z)$$

$$\frac{dv}{dz} EI = \frac{qz^3}{6} + \frac{C_1 z^2}{2} + C_2 z + C_3 = -\theta(z)$$

$$v(z) EI = \frac{qz^4}{24} + \frac{C_1 z^3}{6} + \frac{C_2 z^2}{2} + C_3 z + C_4$$

a)
$$v(z) = \frac{qz^4}{24 EI} + \frac{C_1 z^3}{6 EI} + \frac{C_2 z^2}{2 EI} + \frac{C_3 z}{EI} + \frac{C_4}{EI}$$

b)
$$\theta(z) = -\frac{qz^3}{6 EI} - \frac{C_1 z^2}{2 EI} - \frac{C_2 z}{EI} - \frac{C_3}{EI}$$

Per $z=0$ $\theta(z) = 0$

$v(z) = 0$

Per $z=l$ $v(z) = 0$

$\theta(z) = -\frac{ql^3}{6 EI}$