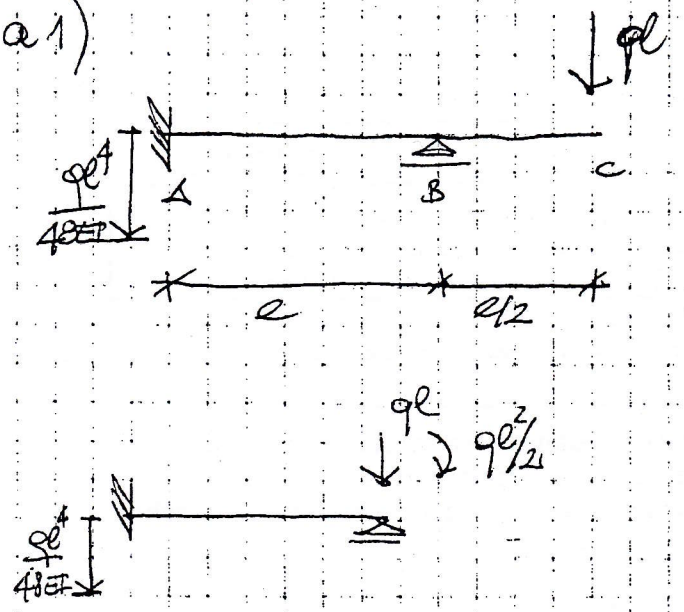
a 1)



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

$$\frac{d^4 v}{dz^4} EI = 0$$

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

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

$$\frac{dv}{dz} EI = \frac{C_1 z^2}{2} + C_2 z + C_3 = -\varphi EI$$

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

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

$$\varphi(z) = -\frac{C_1 z^2}{2EI} - \frac{C_2 z}{EI} - \frac{C_3}{EI}$$