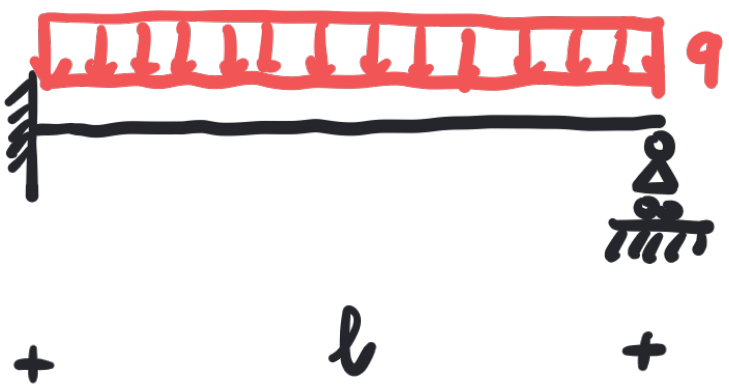


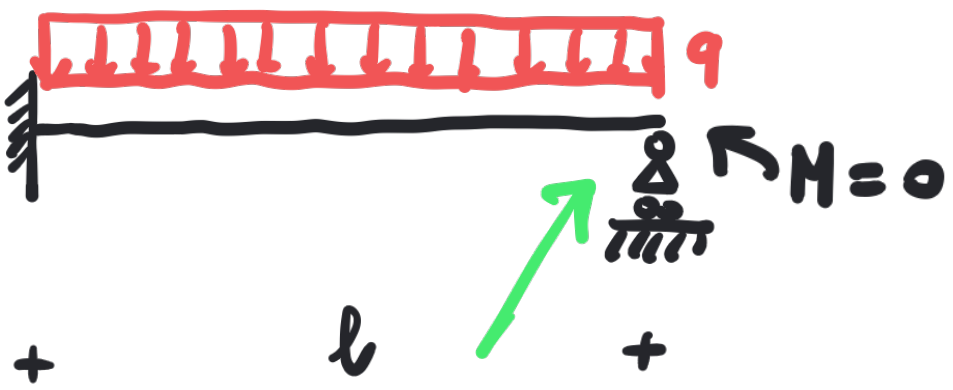

$$(EI\,v'')'' = q$$

EI costante $\Rightarrow$ $v^{IV} = \dfrac{q}{EI}$

Soluzione generale

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

↑ soluz. particolare




$$v(0) = 0$$
$$v'(0) = 0$$
$$v(l) = 0$$
$$v''(l) = 0$$

$$(EI\, v'')'' = q$$

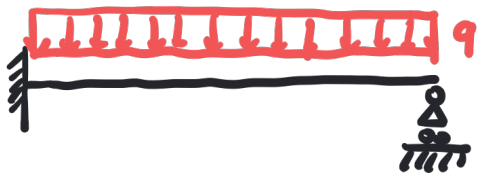
EI costante $\Rightarrow$ $v^{IV} = \dfrac{q}{EI}$

Soluzione generale

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

↑ soluz. particolare

$$\chi = \frac{M}{EI}$$
$$\| $$
$$-v''$$




$$v(0)=0$$
$$v'(0)=0$$
$$v(l)=0$$
$$v''(l)=0$$

$$v(z)=\frac{qz^4}{24EI}+C_1+C_2z+C_3z^2+C_4z^3$$

$v(0)=0 \Rightarrow \boxed{C_1=0}$

$$v'(z)=\frac{qz^3}{6EI}+C_2+2C_3z+3C_4z^2$$

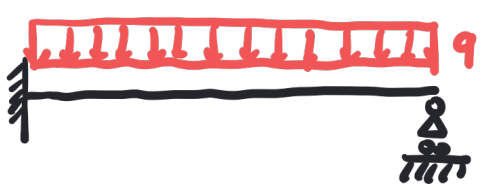
$v'(0)=0 \Rightarrow \boxed{C_2=0}$

$$\chi=\frac{M}{EI}$$
$$\parallel$$
$$-v''$$

$$v(l)=0 \Rightarrow \boxed{\frac{ql^4}{24EI}+C_1+C_2l+C_3l^2+C_4l^3=0}$$

$$v''(z)=\frac{qz^2}{2EI}+2C_3+6C_4z$$

$v''(l)=0 \Rightarrow \boxed{\frac{ql^2}{2EI}+2C_3+6C_4l=0}$




$$v(0)=0$$
$$v'(0)=0$$
$$v(l)=0$$
$$v''(l)=0$$

$$v(z)=\frac{qz^4}{24EI}+c_1+c_2z+c_3z^2+c_4z^3$$

$$[c_4]\,L^3=L \Rightarrow [c_4]=L^{-2}$$

$$c_1=0$$

$$c_2=0$$

$$\frac{ql^2}{24EI}+c_1+c_2l+c_3l^2+c_4l^3=0$$

$$\frac{ql^2}{24EI}+c_3+c_4l=0$$

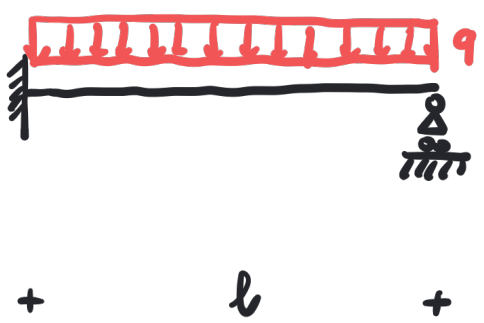
$$\chi=\frac{M}{EI}$$
$$\parallel$$
$$-v''$$

$$\frac{ql^2}{2EI}+2c_3+6c_4l=0$$

$$\frac{ql^2}{12EI}+2c_3+2c_4l=0$$

$$\left(\frac{1}{2}-\frac{1}{12}\right)\frac{ql^2}{EI}+4c_4l=0 \Rightarrow c_4=-\frac{5}{48}\frac{ql}{EI}$$ ✓

$$\left[\frac{ql}{EI}\right]=\frac{F}{FL^{-2}L^4}$$




$$v''(z) = \frac{q z^2}{2EI} + 2C_3 + 6C_4 z$$

$$= \frac{q z^2}{2EI} + \frac{3}{24}\frac{q l^2}{EI} - \frac{5}{8}\frac{ql}{EI} z$$

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

$$M(z) = -EI\, v'' =$$

$$= -\frac{q z^2}{2} - \frac{3}{24} q l^2 + \frac{5}{8} q l z$$

$$\chi = \frac{M}{EI}$$

$$= -v''$$

$$M(0) = -\frac{3}{24} q l^2 = -\frac{1}{8} q l^2$$

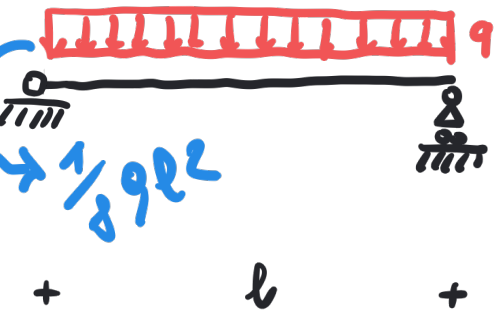
$C_1 = 0$

$C_2 = 0$

$C_3 = \frac{3}{48}\frac{q l^2}{EI}$

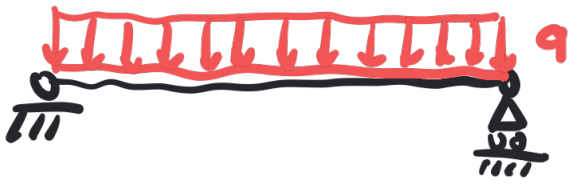
$C_4 = -\frac{5}{48}\frac{ql}{EI}$

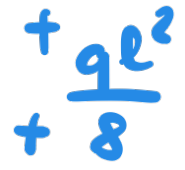
$$v(z) = \frac{3}{48}\frac{q l^2}{EI} z^2 - \frac{5}{48}\frac{ql}{EI} z^3 + \frac{1}{24}\frac{q z^4}{EI}$$




$$v''(z) = \frac{q z^2}{2EI} + 2C_3 + 6C_4 z$$

$$= \frac{q z^2}{2EI} + \frac{3}{24}\frac{q l^2}{EI} - \frac{5}{8}\frac{q l}{EI} z$$





$$\chi = \frac{M}{EI}$$
$$= -v''$$

$$v(z) = \frac{3}{48}\frac{q l^2}{EI} z^2 - \frac{3}{48}\frac{q l}{EI} z^3 + \frac{1}{24}\frac{q z^4}{EI}$$