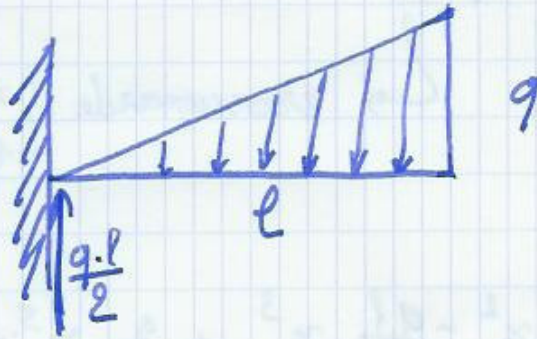
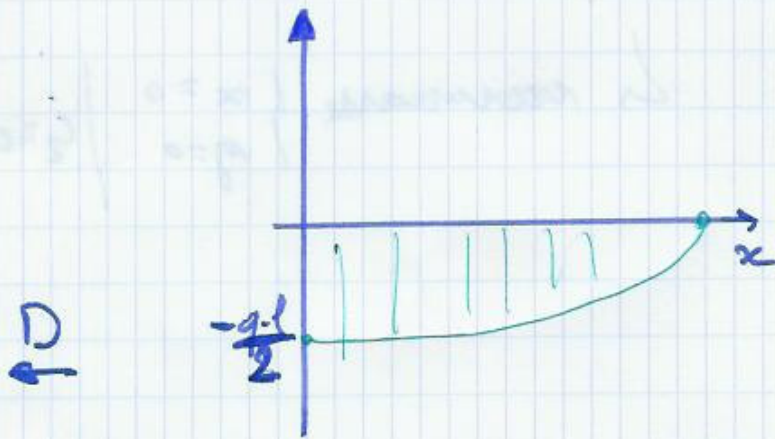


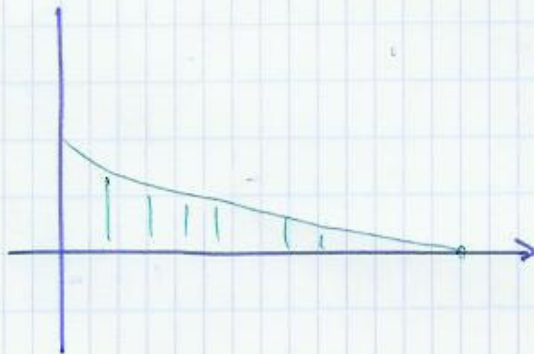
⑥ Blz 14



$$D = \frac{q \cdot l}{2} + \frac{q \cdot x^2}{2l} \dots$$



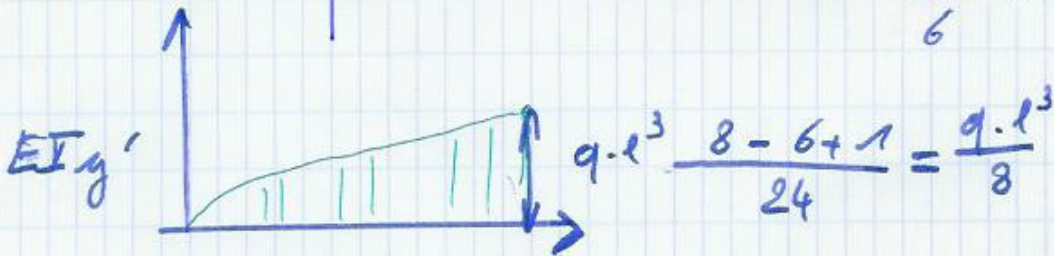
$EI y''''$



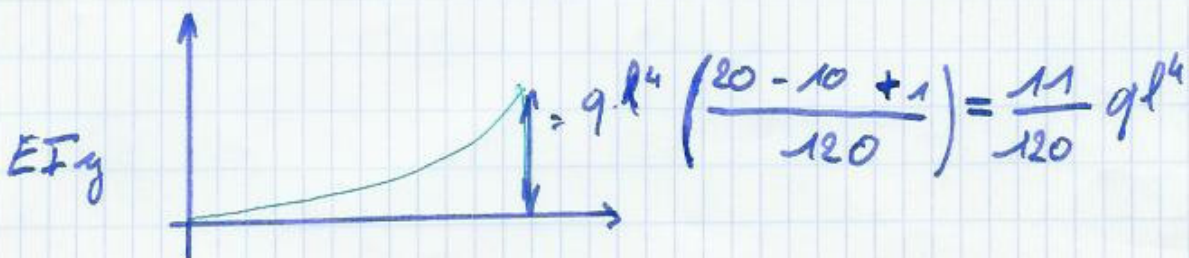
$$M = -\frac{q \cdot l}{2} x + \frac{q}{6l} x^3 \dots$$

$$[M]_{x=l} = \frac{q \cdot l^2}{3} - \frac{q \cdot l^2}{2}$$

$$+ \frac{q \cdot l^2}{6} = \frac{q \cdot l^2 (2 - 3 + 1)}{6} = 0$$



$$q \cdot l^3 \frac{8 - 6 + 1}{24} = \frac{q \cdot l^3}{8}$$



$$= q \cdot l^4 \left( \frac{20 - 10 + 1}{120} \right) = \frac{11}{120} q \cdot l^4$$

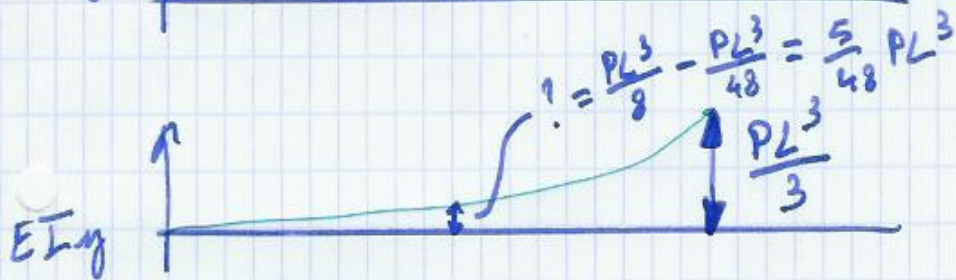
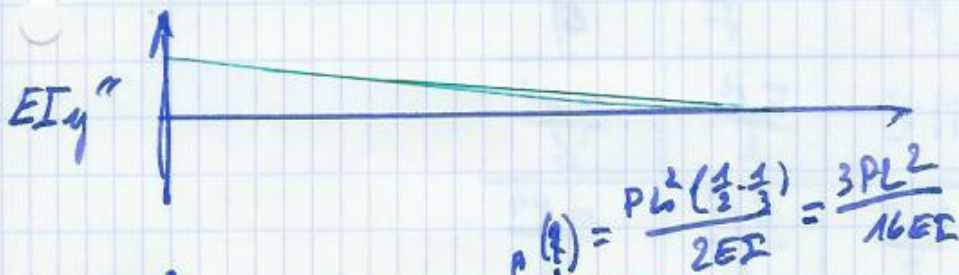
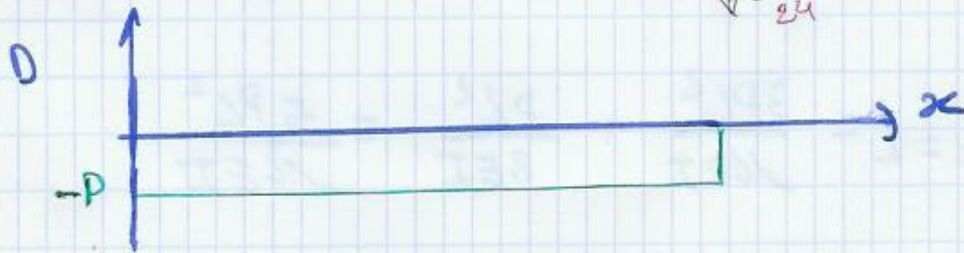
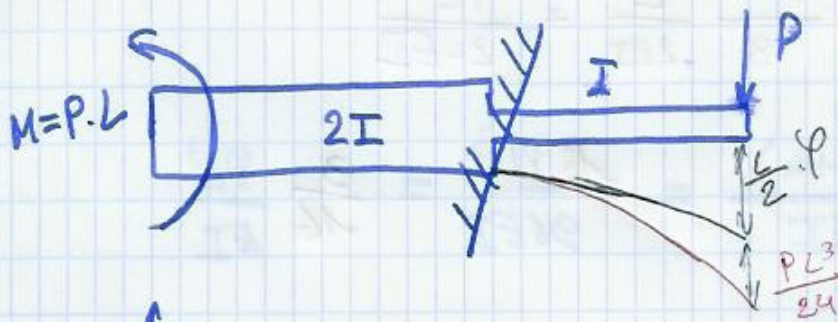
$$EI y' = C_1 + \frac{q \cdot l^2}{3} - \frac{q \cdot l}{4} x^2 + \frac{q}{24l} x^4 \dots$$

$$\hookrightarrow \text{voorwaarde } \begin{cases} x=0 \\ y=0 \end{cases} \mid C_1=0$$

$$EI y = C_2 + \frac{q l^2}{6} x^2 - \frac{q l}{12} x^3 + \frac{q}{120l} x^5 \dots$$

$$\hookrightarrow \text{voorwaarde } \begin{cases} x=0 \\ y=0 \end{cases} \mid C_2=0$$

10. blz 15



$$[y']_{x=L/2} = \frac{3PL^2}{16EI}$$

$$D = -P \dots \rightarrow [E(2I)y']_{x=L/2} = \frac{PL^2}{2} - \frac{PL^2}{8} = \frac{3}{8} PL^2$$

$$EI y' = C_1 + PLx - \frac{P}{2} x^2 \dots \text{ met } \begin{cases} y' = 0 \\ x = 0 \end{cases} \rightarrow C_1 = 0$$

$$[EI y']_{x=L} = PL^2 - \frac{PL^2}{2} = \frac{PL^2}{2}$$

$$EI y = C_2 + \frac{PL}{2} x^2 - \frac{P}{6} x^3 \dots \text{ met } \begin{cases} x=0 \\ y=0 \end{cases} \rightarrow C_2 = 0$$

$$[EI y]_{x=L} = \frac{PL^3}{2} - \frac{PL^3}{6} = \frac{PL^3}{3}$$

$$[y]_{x=\frac{L}{2}} = \frac{5PL^3}{96EI} + \frac{PL^2}{8} \frac{L}{2EI} + \frac{PL^3}{24EI}$$

$$= \frac{PL^3(5+9+4)}{96EI} = \frac{18PL^3}{96EI} = \frac{3}{16} \frac{PL^3}{EI}$$

$$P_{max} = [y']_{x=L} = \frac{3PL^2}{16EI} + \frac{PL^2}{8EI} = \frac{5PL^2}{16EI}$$

	M	F	q
$EIy''$	$ML$	$\frac{FL^2}{2}$	$\frac{qL^3}{6}$
$EIy$	$\frac{ML^2}{2}$	$\frac{FL^3}{3}$	$\frac{qL^4}{8}$