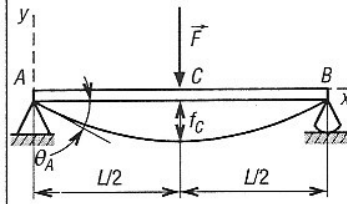


TABLEAU DES DEFORMATIONS

	Poutre	Pente maxi	Flèche	Équation
Cas n°1		$\theta_B = -\frac{FL^2}{2EI}$	$f_B = -\frac{FL^3}{3EI}$	$y' = -\frac{F \cdot x}{2EI}(2L - x)$ $y = -\frac{F \cdot x^2}{6EI}(3L - x)$
Cas n°2		$\theta_B = -\frac{Fa^2}{2EI}$	$f_B = -\frac{Fa^2(3L - a)}{6EI}$	$x \leq a : y' = -\frac{Fx}{2EI}(2a - x)$ $y = -\frac{Fx^2}{6EI}(3a - x)$ $x > a : y' = -\frac{Fa^2}{2EI}$ $y = -\frac{Fa^2}{6EI}(3x - a)$
Cas n°3		$\theta_B = -\frac{qL^3}{6EI}$	$f_B = -\frac{qL^4}{8EI}$	$y' = -\frac{qx}{6EI}(3L^2 - 3Lx + x^2)$ $y = -\frac{qx^2}{24EI}(x^2 - 4Lx + 6L^2)$
Cas n°4		$\theta_B = -\frac{qa^3}{6EI}$	$f_B = -\frac{qa^3(4L - a)}{24EI}$	$x \leq a : y' = -\frac{qx}{6EI}(x^2 - 3ax + 3a^2)$ $y = -\frac{qx^2}{24EI}(x^2 - 4ax + 6a^2)$ $x > a : y' = -\frac{qa^2}{6EI}; y = -\frac{qa^3}{24EI}(4x - a)$
Cas n°5		$\theta_B = -\frac{Ma}{EI}$	$f_B = -\frac{Ma(2L - a)}{2EI}$	$x \leq a : y' = -\frac{Mx}{EI}; y = -\frac{Mx^2}{2EI}$ $x > a : y' = -\frac{Ma}{EI}; y = -\frac{Ma}{2EI}(2x - a)$
Cas n°6		$\theta_B = -\frac{q_0L^3}{24EI}$	$f_B = -\frac{q_0L^4}{30EI}$	$y' = -\frac{q_0x}{24LEI}(4L^3 - 6L^2x + 4Lx^2 - x^3)$ $y = -\frac{q_0x^2}{120LEI}(10L^3 - 10L^2x + 5Lx^2 - x^3)$

Cas n°7



$$\theta_A = -\frac{FL^3}{16EI}$$

$$\theta_B = \theta_A$$

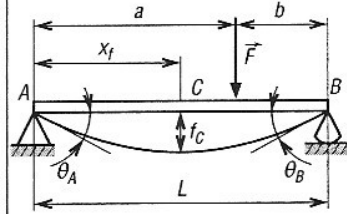
$$f_c = -\frac{FL^3}{48EI}$$

$$0 \leq x < L/2$$

$$y' = -\frac{F}{16EI} (L^2 - 4x^2)$$

$$y = -\frac{F \cdot x}{48EI} (3L^2 - 4x^2)$$

Cas n°8



$$\theta_A = \frac{-F \cdot a \cdot b(L+b)}{6EIL}$$

$$\theta_B = \frac{F \cdot a \cdot b(L+a)}{6EIL}$$

si $a > b$

$$x_f = \sqrt{\frac{L^2 - b^2}{3}}$$

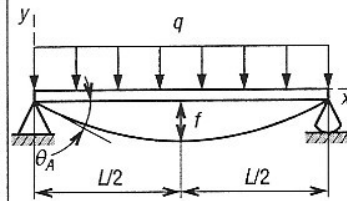
$$f = \frac{F \cdot b(L^2 - b^2)^{3/2}}{9\sqrt{3} EIL}$$

$$0 \leq x < a$$

$$y' = -\frac{F \cdot b}{6EIL} (L^2 - b^2 - 3x^2)$$

$$y = -\frac{F \cdot b \cdot x}{6EIL} (L^2 - b^2 - x^2)$$

Cas n°9



$$\theta_A = -\frac{qL^3}{24EI}$$

$$\theta_B = \theta_A$$

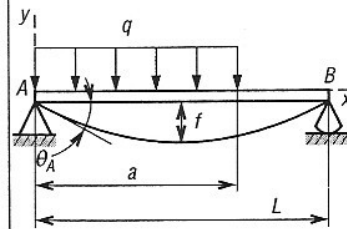
$$f = -\frac{5qL^4}{384EI}$$

pour $x = \frac{L}{2}$

$$y' = -\frac{q}{24EI} (4x^3 - 6Lx^2 + L^3)$$

$$y = -\frac{q \cdot x}{24EI} (x^3 - 2Lx^2 + L^3)$$

Cas n°10



$$\theta_A = \frac{-qa^2(2L-a)^2}{24EIL}$$

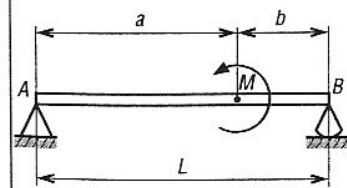
$$\theta_B = \frac{-qa^2(2L-b)^2}{24EIL}$$

$x \leq a$:

$$y' = \frac{-q}{24EIL} (4Lx^3 - 12aLx^2 + 6a^2x^2 + 4a^2L^2 - 4a^3L + a^4)$$

$$y' = \frac{-q \cdot x}{24EIL} (Lx^3 - 4aLx^2 + 2a^2x^2 + 4a^2L^2 - 4a^3L + a^4)$$

Cas n°11



$$\theta_A = \frac{-M(6aL - 3a^2 - 2L^2)}{6EIL}$$

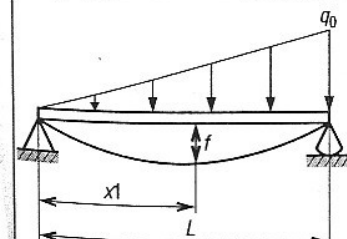
$$\theta_B = \frac{M(3a^2 - L^2)}{6EIL}$$

$x \leq a$:

$$y' = \frac{-M}{6EIL} (6aL - 3x^2 - 3a^2 - 2L^2)$$

$$y' = \frac{-M \cdot x}{6EIL} (6aL - x^2 - 3a^2 - 2L^2)$$

Cas n°12



$$\theta_A = -\frac{7q_0L^3}{360EI}$$

$$\theta_B = \frac{q_0L^3}{45EI}$$

pour $x_1 = 0,5193L$

$$f = \frac{0,00652 q_0L^4}{EI}$$

$$y' = \frac{-q_0}{360EIL} (15x^4 - 30L^2x^2 + 7L^4)$$

$$y' = \frac{-q_0x}{360EIL} (3x^4 - 10L^2x^2 + 7L^4)$$