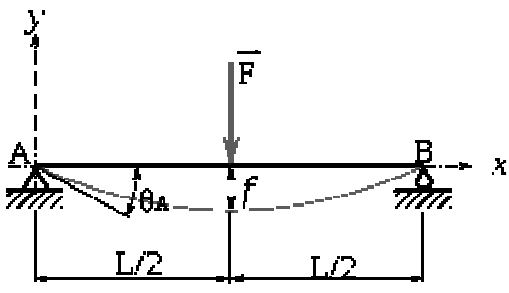
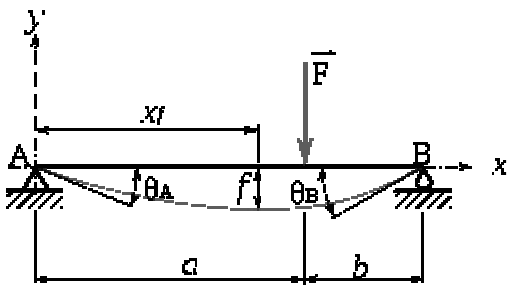
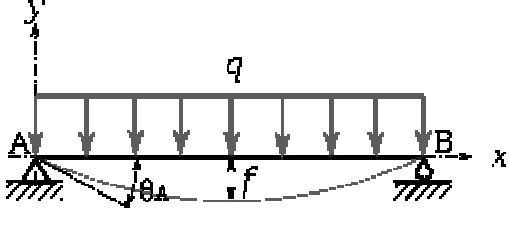
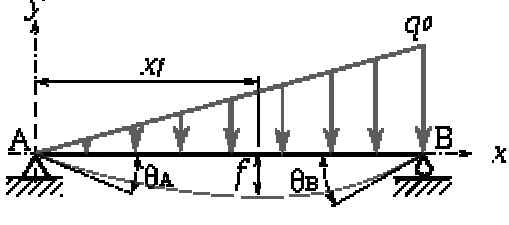
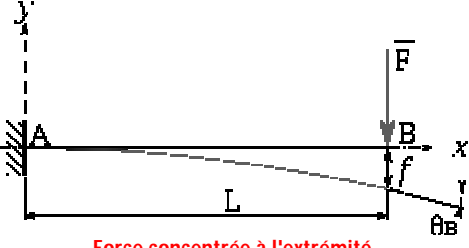
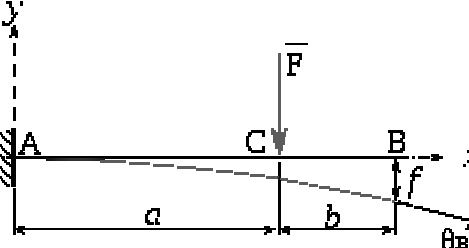
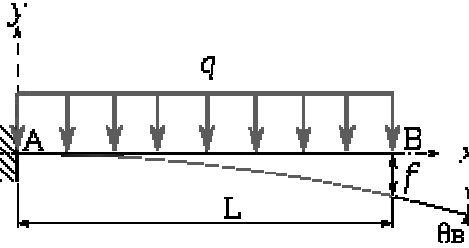
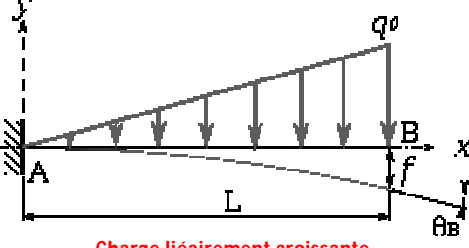
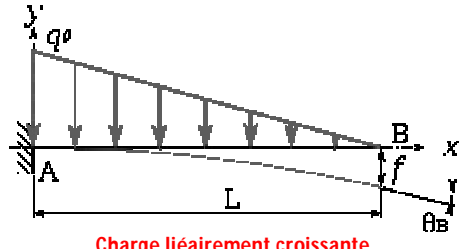




### 1 - POUTRE ISOSTATIQUE SUR APPUIS SIMPLES

Sollicitation	Flèche	Pente
 <p style="color: red; text-align: center;">Force concentrée en son centre</p>	$f = \frac{FL^3}{48EI} \quad x_f = \frac{L}{2}$	$-\theta_A = \theta_B = \frac{FL^2}{16EI}$
	$y = \frac{-Fx}{48EI}(3L^2 - 4x^2)$	
 <p style="color: red; text-align: center;">Force concentrée</p>	$f = -\frac{Fb(L^2 - b^2)^{3/2}}{9\sqrt{3}EIL}$ $x_f = \sqrt{\frac{L^2 - b^2}{3}}$	$\theta_A = \frac{Fab(L + b)}{EIL}$ $\theta_B = \frac{Fab(L + a)}{EIL}$
	$x \leq a : y = \frac{Fbx}{6EIL}(x^2 + b^2 - L^2)$ $x \geq a : y = \frac{Fa}{6EIL}(x^3 - 3L^2x^2 + (a^2 + 2L^2)x - a^2L)$	
 <p style="color: red; text-align: center;">Charge linéique uniforme <math>q(x) = q_0</math></p>	$f = -\frac{5qL^4}{384EI} \quad x_f = \frac{L}{2}$	$\theta_A = \theta_B = \frac{qL^3}{24EI}$
	$x \leq \frac{L}{2} : y = \frac{qx}{24EI}(x^3 - 2Lx^2 + L^3)$	
 <p style="color: red; text-align: center;">Charge liéairement croissante <math>q(x) = q_0 \cdot (x/L)</math></p>	$f \simeq -\frac{0,00652q_0L^4}{384EI}$ $x_f \simeq 0,5193L$	$\theta_A = \frac{7q_0L^3}{360EI}$ $\theta_B = \frac{q_0L^3}{45EI}$
	$y = \frac{q_0x}{360EI}(-3x^4 + 10L^2x^2 - 7L^4)$	
	$y = \frac{Cx}{6EIL}(x^2 - 3Lx + 2L^2)$	

## 2 – POUTRE ISOSTATIQUE ENCASTRÉE

Sollicitation	Flèche	Pente
 <p>Force concentrée à l'extrémité</p>	$f = -\frac{FL^3}{3EI}$	$\theta_B = \frac{FL^2}{2EI}$
	$y = \frac{F}{6EI}(x^3 - 3Lx^2)$	
 <p>Charge concentrée</p>	$f = \frac{Fa^2}{6EI}(a - 3L)$	$\theta_B = \theta_C = \frac{Fa^2}{2EI}$
	$x \leq a : y = \frac{F}{6EI}(x^3 - 3ax^2)$ $x \geq a : y = \frac{F}{6EI}(-3a^2x + a^3)$	
 <p>Charge linéique uniforme <math>q(x) = q_0</math></p>	$f = -\frac{qL^4}{8EI}$	$\theta_B = \frac{qL^3}{6EI}$
	$y = \frac{-qx^2}{24EI}(x^2 - 4Lx + 6L^2)$	
 <p>Charge linéairement croissante <math>q(x) = q_0 \cdot (x / L)</math></p>	$f = -\frac{11q_0L^4}{120EI}$	$\theta_B = \frac{q_0L^3}{8EI}$
	$y = \frac{-q_0x^2}{120EIL}(x^3 - 10L^2x + 20L^3)$	
 <p>Charge linéairement croissante <math>q(x) = q_0 \cdot (-x / L)</math></p>	$f = -\frac{q_0L^4}{30EI}$	$\theta_B = \frac{q_0L^3}{24EI}$
	$y = \frac{q_0x^2}{120EIL}(x^3 - 5Lx^2 + 10L^2x - 10L^3)$	

Source : <http://fr.wikibooks.org/>