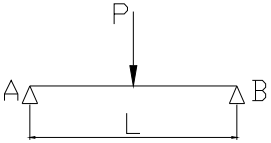
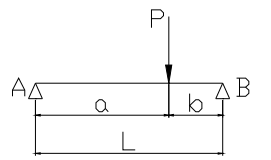
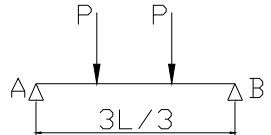
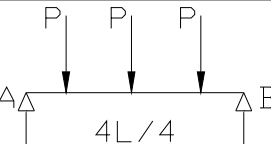
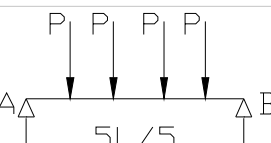
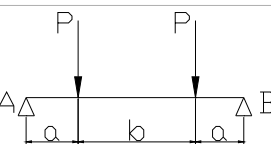
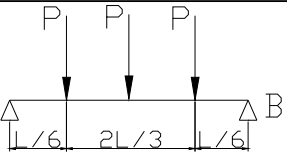
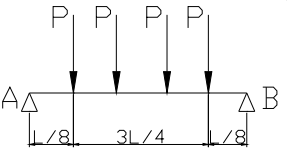
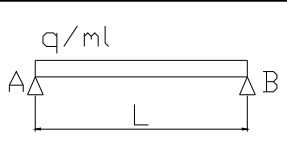
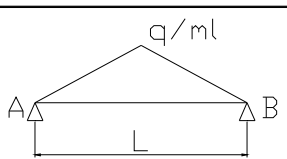
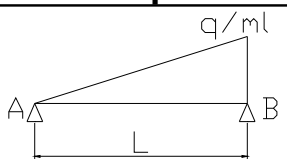
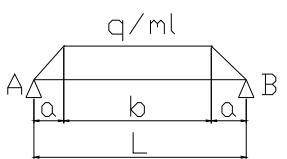
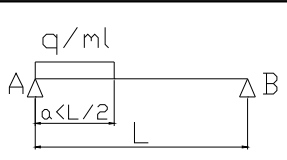
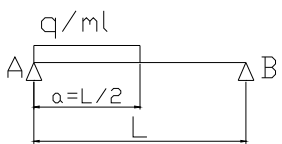
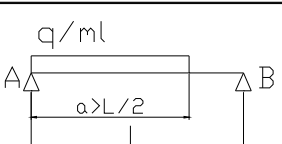
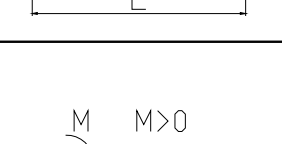
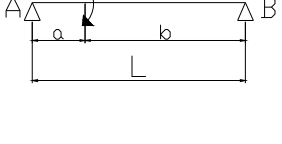
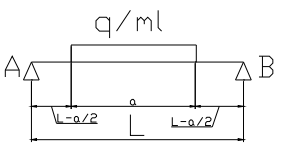
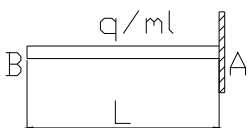
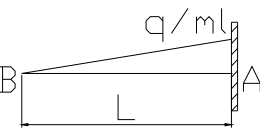


FORMULAIRE DES POUTRES

Cas de charges	Réactions aux appuis	Moment maximum	flèche L en m H en mm σ en DaN/mm ²	Flèche à l/2	Rotation aux appuis
	$\frac{P}{2}$	$M_{L/2} = \frac{PL}{4}$	$0.79 \frac{\sigma L^2}{h}$	$\frac{PL^3}{48EI}$	$\theta_A = -\frac{PL^2}{16EI}$ $\theta_B = +\frac{PL^2}{16EI}$
	$R_A = \frac{Pb}{L}$ $R_B = \frac{Pa}{L}$	$M_0 = M_a = \frac{Pab}{L}$ $M_{L/2} = \frac{Pb}{2}$ (a>b)		$f_{l/2} = \frac{-Pb}{48EI} (3L^2 - 4b^2)$ $f_a = \frac{-Pa^2b^2}{3EIL}$ $f_{\max} = \frac{-Pb}{27EIL} \sqrt{3(L^2 - b^2)^3}$	$\theta_A = \frac{Pb}{6EIL} (b^2 - L^2)$ $\theta_B = \frac{Pa}{6EIL} (L^2 - a^2)$
	P	$M_{L/2} = \frac{PL}{3}$	$1.01 \frac{\sigma L^2}{h}$	$\frac{23PL^3}{648EI}$	
	$\frac{3P}{2}$	$M_{L/2} = \frac{PL}{2}$	$0.84 \frac{\sigma L^2}{h}$	$\frac{19PL^3}{384EI}$	
	$2P$	$M_{L/2} = \frac{3PL}{5}$	$1.0 \frac{\sigma L^2}{h}$	$\frac{63PL^3}{1000EI}$	
	P	$M_{L/2} = Pa$	$\frac{\sigma L^2}{h}$	$\frac{Pa(3L^2 - 4a^2)}{24EI}$	

	$\frac{3P}{2}$	$M_{L/2} = \frac{5PL}{12}$	$0.94 \frac{\sigma L^2}{h}$	$\frac{53PL^3}{1296EI}$	
	$2P$	$M_{L/2} = \frac{PL}{2}$	$0.94 \frac{\sigma L^2}{h}$	$\frac{41PL^3}{768EI}$	
	$\frac{qL}{2}$	$\frac{qL^2}{8}$	$0.99 \frac{\sigma L^2}{h}$	$\frac{5qL^4}{384EI}$	$\theta_A = -\frac{qL^3}{24EI}$ $\theta_B = +\frac{qL^3}{24EI}$
	$\frac{qL}{4}$	$\frac{qL^2}{12}$	$0.95 \frac{\sigma L^2}{h}$	$\frac{qL^4}{120EI}$	$\theta_A = -\frac{5qL^3}{192EI}$ $\theta_B = +\frac{5qL^3}{192EI}$
Cas de charges multiples			$\approx \frac{\sigma L^2}{h}$		
	$R_A = \frac{qL}{6}$ $R_B = \frac{qL}{3}$	$M_0 = \frac{qL^2\sqrt{3}}{27}$ $M_{L/2} = \frac{qL^2}{16}$		$f_{L/2} = -\frac{5qL^4}{768EI}$ $f_{\max} = -\frac{5qL^4}{765EI}$	$\theta_A = -\frac{7qL^3}{360EI}$ $\theta_B = +\frac{8qL^3}{360EI}$
	$R_A = \frac{q}{2}(a+b)$ $R_B = \frac{q}{2}(a+b)$	$M_0 = M_{L/2} = \frac{q}{24}(3L^2 - 4a^2)$		$f_{\max} = f_{L/2} = -\frac{q}{EI} \left(\frac{a^2L^2}{48} + \frac{a^4}{120} - \frac{5L^4}{384} \right)$	$\theta_A = +\frac{q}{24EI} (2a^2L - a^3 - L^3)$ $\theta_B = +\frac{q}{24EI} (L^3 + a^3 - 2a^2L)$
	$R_A = \frac{qa}{L} \left(L - \frac{a}{2} \right)$	$M_x \Big _0^{L/2} = R_A x - \frac{qx^2}{2}$		$f_{L/2} = -\frac{qa^2}{96EI} (2a^2 - 3L^2)$	

				$f_{L/2} = -\frac{5qL^4}{768EI}$	
	$R_B = \frac{qa^2}{2L}$	$M_x \big _{L/2} = R_A x - \frac{qa}{2} \left(x - \frac{a}{2} \right)$		$f_{L/2} = -\frac{q}{48EI} \left[\frac{L^4}{16} + \left(a(2L-a) - \frac{L^2}{4} \right)^2 \right]$	
	$R_A = -\frac{M}{L}$ $R_A = +\frac{M}{L}$	$M_0 = M_A = M$ $M_B = 0$		$f_{L/2} = -\frac{ML^2}{16EI}$ $f_{max} = -\frac{ML^2}{15.58EI}$	$\theta_A = -\frac{ML}{3EI}$ $\theta_B = +\frac{ML}{6EI}$
	$R_A = -\frac{M}{L}$ $R_A = +\frac{M}{L}$	$M_{aw} = -\frac{Ma}{L}$ $M_{ae} = +\frac{Mb}{L}$		$f_a = +\frac{Mab}{3EIL} (a-b)$ $f_{L/2} = +\frac{M}{16EI} (4a^2 - L^2)$	$\theta_A = +\frac{M}{EI} \left(a - \frac{L}{3} - \frac{a^2}{2L} \right)$ $\theta_B = -\frac{M}{EI} \left(\frac{L}{6} - \frac{a^2}{2L} \right)$
	$R_A = R_B = \frac{Pa}{2}$	$M_m = +\frac{Pa}{8} (2L-a)$		$f_{L/2} = \frac{Pa}{384EI} (8L^3 - 4a^2L + a^3)$	
	$R_A = P$	$M_A = -PL$		$f_B = -\frac{PL^3}{3EI}$	$\theta_B = +\frac{PL^2}{2EI}$
	$R_A = P$	$M_A = -Pb$		$f_B = -\frac{Pb^3}{3EI}$ $f_C = -\frac{Pb^2}{6EI} (2L+a)$	$\theta_B = \theta_C = +\frac{Pb^2}{2EI}$

	$R_A = qL$	$M_A = -\frac{qL^2}{2}$		$f_B = -\frac{qL^4}{8EI}$	$\theta_B = +\frac{qL^3}{6EI}$
	$R_A = \frac{qL}{2}$	$M_A = -\frac{qL^2}{6}$		$f_B = -\frac{qL^4}{30EI}$	$\theta_B = +\frac{qL^3}{34EI}$
	$R_A = 0$	$M_A = M$		$f_B = -\frac{ML^2}{2EI}$	$\theta_B = \frac{ML}{EI}$