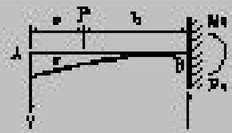
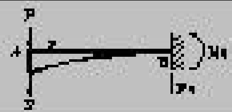
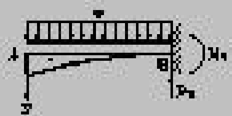
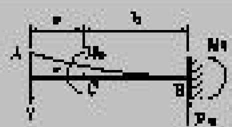
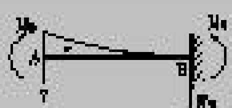
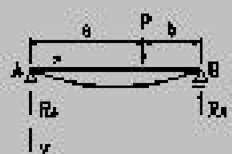
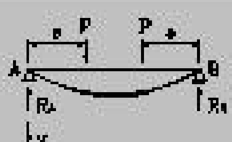
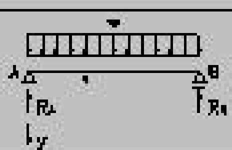
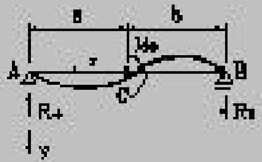
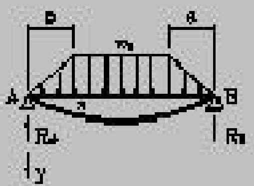
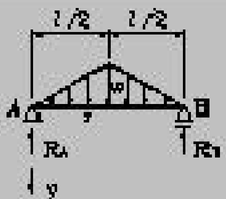
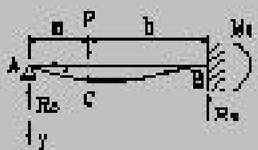
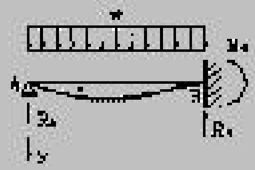
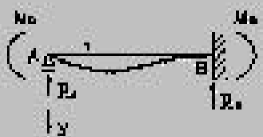
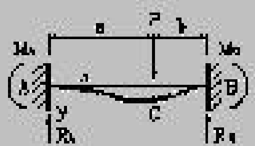
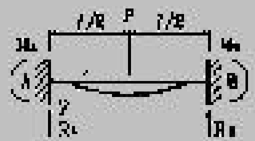
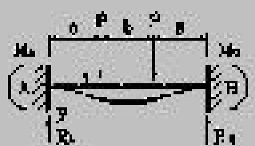
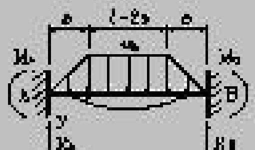
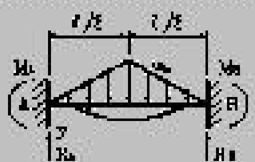
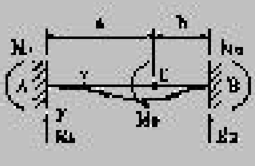
桿件長=l，$\alpha=\frac{a}{l}$，$\beta=\frac{b}{l}$，$x'=l-x$

載重形式	反力	最大彎矩	最大撓度
	$R_B=P$ $M_B=-Pb$	$M_{max}=-Pb \quad [x=l]$	$y_{max}=\frac{Pl^3}{6EI}\left(-\beta^3+3\beta^2\right)$ $[x=0]$
	$R_B=P$ $M_B=-Pl$	$M_{max}=-Pl \quad [x=l]$	$y_{max}=\frac{Pl^3}{3EI} \quad [x=0]$
	$R_B=wl$ $M_B=-\frac{wl^2}{2}$	$M_{max}=-\frac{wl^2}{2} \quad [x=l]$	$y_{max}=\frac{wl^4}{8EI} \quad [x=0]$
	$R_B=\frac{M_0}{b}$ $M_B=M_0$	$M_{max}=M_0 \quad [x>a]$	$y_{max}=-\frac{M_0l^2}{2EI}\left(1-\alpha^2\right)$ $[x=0]$
	$R_B=\frac{M_0}{l}$ $M_B=M_0$	$M_{max}=M_0$	$y_{max}=-\frac{M_0l^2}{2EI} \quad [x=0]$
	$R_A=P\cdot\beta$ $R_B=P\cdot\alpha$	$M_{max}=Pb\alpha \quad [x=a]$	$y_{max}=\frac{Pl^3\beta\left(1-\beta^2\right)}{27EI}$ $\times\sqrt{3\left(1-\beta^2\right)}$ $a>b \quad \left[x=l\sqrt{\frac{\left(1-\alpha^2\right)}{3}}\right]$
	$R_A=R_B=\frac{P}{2}$	$M_{max}=\frac{Pl}{4} \quad \left[x=\frac{l}{2}\right]$	$y_{max}=\frac{Pl^3}{48EI} \quad \left[x=\frac{l}{2}\right]$
	$R_A=R_B=P$	$M_{max}=Pa \quad [x=a,\ x'=a]$	$y_{max}=\frac{Pl^3}{24EI}\alpha\left(3-4\alpha^2\right)$ $\left[x=\frac{l}{2}\right]$
	$R_A=R_B=\frac{wl}{2}$	$M_{max}=\frac{wl^2}{8} \quad \left[x=\frac{l}{2}\right]$	$y_{max}=\frac{5wl^4}{384EI} \quad \left[x=\frac{l}{2}\right]$

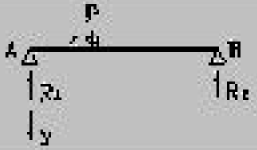
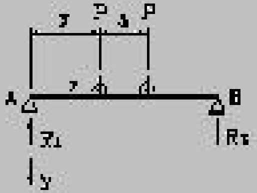
桿件長=l，$\alpha=\frac{a}{l}$，$\beta=\frac{b}{l}$，$x'=l-x$

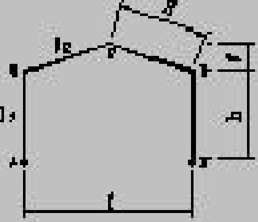
載重形式	反力	最大彎矩	最大撓度
	$R_A=R_B=\frac{M_0}{l}$	$a>b$：$M_{max}=M_0\alpha$ $a<b$：$M_{max}=-M_0\beta$	$a>b$： $y_{max}=\frac{M_0l^2}{6EI}\sqrt{\frac{1}{3}-\beta^2}\left(\frac{2}{3}-2\beta^2\right)$ $\left[x=l\sqrt{\frac{1}{3}-\beta^2}\right]$ $a<b$： $y_{max}=-\frac{M_0l^2}{6EI}\sqrt{\frac{1}{3}-\alpha^2}\left(\frac{2}{3}-2\alpha^2\right)$ $\left[x'=l\sqrt{\frac{1}{3}-\alpha^2}\right]$
	$R_A=\frac{w_0l}{2}(1-\alpha)$ $R_B=\frac{w_0l}{2}(1-\alpha)$	$M_{max}=\frac{w_0l^2}{24}\left(3-4\alpha^2\right)$ $\left[x=\frac{l}{2}\right]$	$y_{max}=\frac{w_0l^4}{1920EI}\left(25-40\alpha^2+16\alpha^4\right)$ $\left[x=\frac{l}{2}\right]$
	$R_A=R_B=\frac{w_0l}{4}$	$M_{max}=\frac{w_0l^2}{12}$ $\left[x=\frac{l}{2}\right]$	$y_{max}=\frac{w_0l^4}{120EI}$，$\left[x=\frac{l}{2}\right]$
	$R_A=\frac{Pb^2}{2l^3}(2l+a)$ $R_B=P-R_A$ $M_B=-\frac{Pab}{2l^2}(l+a)$	$M_{max}=\frac{Pab^2}{2l^3}(2l+a)$ $[x=a]$	$y_1=\frac{1}{6EI}\{R_A(3l^2x-x^3)-3Pb^2x\}$ $y_2=-\frac{1}{6EI}\{R_A(x^3-3l^2x+2l^3)-P(x-a)^3+Pb^2(3x-3l+b)\}$ $b=\sqrt{2}a$時， y_{max}在 $x=a$發生 y_1為AC間之撓度 y_2為CB間之撓度

桿件長 $=l$，$\alpha=\frac{a}{l}$，$\beta=\frac{b}{l}$，$x'=l-x$

載重形式	反力	最大彎矩	最大撓度
	$R_A=\frac{3wl}{8}$ $R_B=\frac{5wl}{8}$ $M_B=-\frac{w}{8}l^2$	$M_{max}=\frac{9wl^2}{128}$ $\left[x=\frac{3}{8}l\right]$	$y_{max}=\frac{wl^4}{185EI}$ $\left[x=\frac{l}{16}\left(1+\sqrt{33}\right)=0.4215l\right]$
	$R_A=\frac{3M_0}{2l}$ $R_B=-R_A$ $M_B=\frac{M_0}{2}$	$M_{max}=-M_0$	$y_{max}=-\frac{M_0l^2}{27EI}$ $\left[x=\frac{l}{3}\right]$
	$R_A=P\beta^2(3\alpha+\beta)$ $R_B=P\alpha^2(\alpha+3\beta)$ $M_A=-Pl\alpha\beta^2$ $M_B=-Pl\alpha^2\beta$	$M_C=2Pl\alpha^2\beta^2$ $a\gtrless b$ $M_A\gtrless M_C\gtrless M_B$	$a>b$： $y_{max}=\frac{2Pa^3b^2}{3EI(3a+b)^2}$ $\left[x=\frac{2al}{3a+b}\right]$
	$R_A=R_B=\frac{P}{2}$ $M_A=M_B=\frac{Pl}{8}$	$M_{max}=\frac{Pl}{8}$ $\left[x=\frac{l}{2}\right]$	$y_{max}=\frac{Pl^3}{192EI}$ $\left[x=\frac{l}{2}\right]$
	$R_A=R_B=P$ $M_A=M_B=-\frac{Pa(l-b)}{l}$	$M_{max}=Pa(1-\beta)$ $[x=a]$	$y_{max}=\frac{Pal^2}{24EI}(3\alpha-4\alpha^2)$ $\left[x=\frac{l}{2}\right]$
	$R_A=R_B=\frac{w_0l}{2}(1-\alpha)$ $M_A=M_B=-\frac{w_0l^2}{12}$ $(1-2\alpha^2+\alpha^3)$	$M_{max}=\frac{w_0l^2}{24}(1-2\alpha^3)$ $\left[x=\frac{l}{2}\right]$	$y_{max}=\frac{w_0l^4}{1920EI}(5-20\alpha^3$ $+16\alpha^4)$ $\left[x=\frac{l}{2}\right]$
	$R_A=R_B=\frac{w_0l}{4}$ $M_A=M_B=-\frac{5}{96}w_0l^2$	$M_{max}=\frac{w_0l^2}{32}$ $\left[x=\frac{l}{2}\right]$	$y_{max}=\frac{7w_0l^4}{3840EI}$ $\left[x=\frac{l}{2}\right]$
	$R_A=R_B=6\alpha\beta\frac{M_0}{l}$ $M_A=M_0(2\alpha\beta-\beta^2)$ $M_B=M_0(\alpha^2-2\alpha\beta)$	$M_{max}=M_0$	$l<3a$： $y_{max}=\frac{2}{3EI}\frac{M_A^3}{R_A^2}$ $\left[x=\frac{2\alpha-\beta}{3}l\right]$

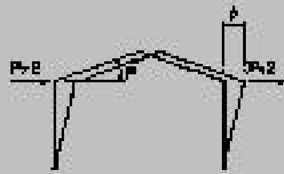
桿件長$=l$，$\alpha=\frac{a}{l}$，$\beta=\frac{b}{l}$，$x'=l-x$

載重形式	反力	最大彎矩	最大撓度
	移動荷重 1 個 $R_{A\max}=P$	$M_{\max}=\frac{Pl}{4}$，$\left[x=\frac{l}{2}\right]$	$y_{\max}=\frac{Pl^3}{48EI}$ $\left[x=\frac{l}{2}\right]$
	移動荷重 2 個 (大小相等) $R_{A\max}=P\left(2-\frac{a}{l}\right)$	$a<0.586l$ $M_{\max}=\frac{P}{2l}\left(l-\frac{a}{2}\right)^2$ $\left[x=\frac{1}{2}\left(l-\frac{a}{2}\right)\right]$ $a\geqq 0.586l$ $M_{\max}=\frac{Pl}{4}$ $\left[x=\frac{l}{2}\right]$	梁中央點之撓度 $a\leqq 0.65l$ $y=\frac{P(l-a)\{3l^2-(l-a)^2\}}{48EI}$ $a>0.65l$ $y=\frac{Pl^3}{48EI}$

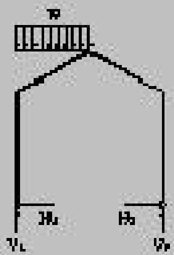
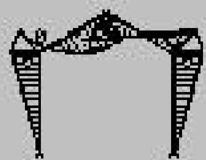
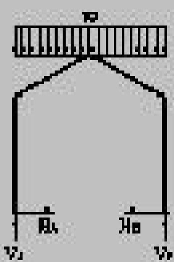
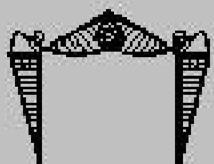
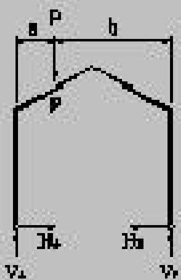
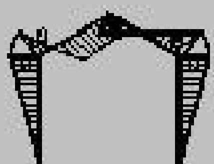


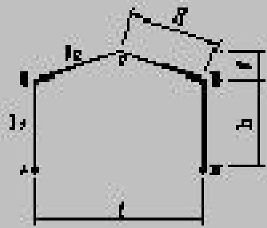
l ：跨度
h ：檐高
I_1 ：柱断面惯性矩
I_2 ：梁断面惯性距

$$k = \frac{I_2 h}{I_1 s}$$



$$\delta = P_2\left\{\frac{h^3}{6EI_1} + \frac{h^2 \cdot l}{12EI_2\cos\theta}\right\}$$

载重形式	弯矩图	反力及各部应力
		$V_A = \frac{3}{8}wl \qquad V_E = \frac{1}{8}wl$ $H_A = H_E = \frac{8h+5f}{64\{h^2(k+3)+f(3h+f)\}}wl^2$ $M_B = M_D = -H_A h$ $M_C = \frac{1}{16}wl^2 - H_A(h+f)$
		$V_A = V_E = \frac{wl}{2}$ $H_A = H_E = H = \frac{8h+5f}{32\{h^2(k+3)+f(3h+f)\}}wl^2$ $M_B = M_D = -H_A h$ $M_C = \frac{wl^2}{8} - H_A(h+f)$
		$V_A = \frac{Pb}{l} \qquad V_E = \frac{Pa}{l}$ $H_A = H_E = \frac{a\{6hbl+f(3l^2-4a^2)\}}{4l^3\{h^2(k+3)+f(3h+f)\}}P$ $M_B = M_D = -H_A h$ $M_C = \frac{Pa}{2} - H_A(h+f)$ $M_F = \frac{Pab}{l} - H_A\left(h+\frac{2fa}{l}\right)$



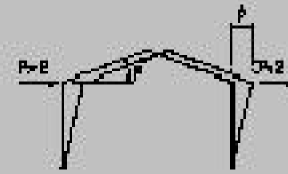
l ：跨度

h ：簷高

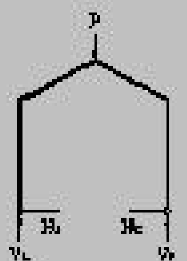
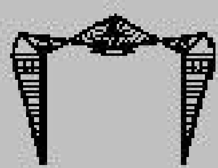
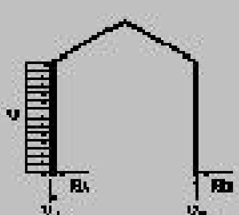
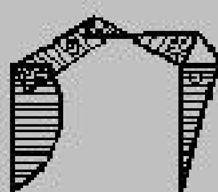
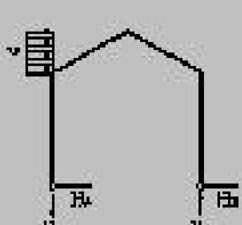
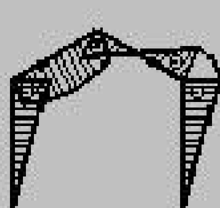
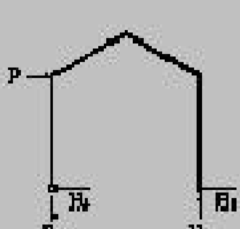
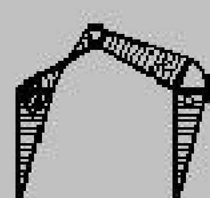
I_1 ：柱斷面慣性矩

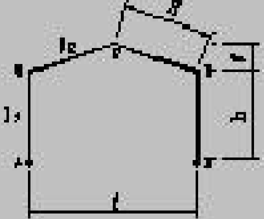
I_2 ：梁斷面慣性距

$k = \dfrac{I_2 h}{I_1 s}$



$$\delta = P_2\left\{\frac{h^3}{6EI_1} + \frac{h^2 \cdot l}{12EI_1\cos\theta}\right\}$$

載重形式	彎矩圖	反力及各部應力
		$V_A = V_B = \dfrac{P}{2}$ $H_A = H_B = \dfrac{3h+2f}{8\{h^2(k+3)+f(3h+f)\}}Pl$ $M_B = M_D = -H_A h$ $M_C = \dfrac{Pl}{4} - H_A(h+f)$
		$V_A = V_B = \dfrac{h^2}{2l}w$ $H_B = \dfrac{5hk+6(2h+f)}{16\{h^2(k+3)+f(3h+f)\}}wh^2$ $H_A = wh - H_B$ $M_B = \dfrac{wh^2}{2} - H_B h$ $M_C = \dfrac{wh^2}{4} - H_B(h+f)$ $M_D = -H_B h$
		$V_A = V_B = \dfrac{wf(2h+f)}{2l}$ $H_B = \dfrac{8h^2(k+3)+5f(4h+f)}{16\{h^2(k+3)+f(3h+f)\}}wf$ $H_A = wf - H_B$ $M_B = (wf - H_B)h$ $M_C = \dfrac{wf(2h+f)}{4} - H_B(h+f)$ $M_D = -H_B h$
		$V_A = V_B = \dfrac{Ph}{l}$ $H_A = P - H_B$ $M_B = (P - H_B)h$ $M_C = \dfrac{Ph}{2} - H_B(h+f)$ $M_D = -H_B h$



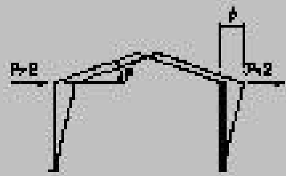
l ：跨度

h ：簷高

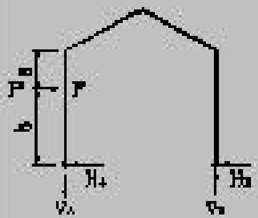
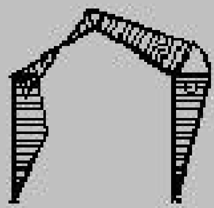
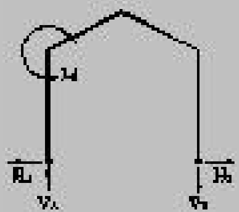
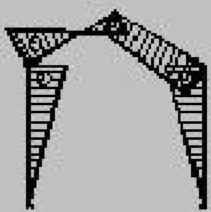
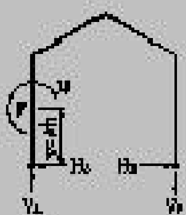
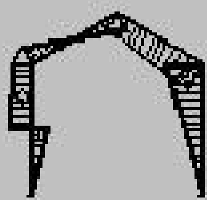
I_1 ：柱斷面慣性矩

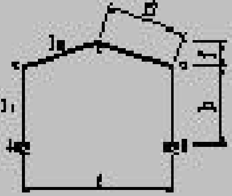
I_2 ：梁斷面慣性距

k : $\dfrac{I_1 h}{I_1 s}$

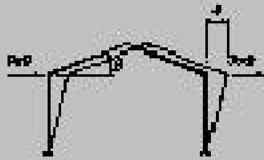


$$\delta = P_x\left\{\frac{h^3}{6EI_1}+\frac{h^2\cdot l}{12EI_1\cos\theta}\right\}$$

載重形式	彎矩圖	反力及各部應力
		$V_A = V_E = \dfrac{Pb}{l}$ $H_E = \dfrac{Pb\left\{k\left(3h-\dfrac{b^2}{h}\right)+3(2h+f)\right\}}{4\left\{h^2(k+3)+f(3h+f)\right\}}$ $H_A = P - H_E$ $\quad M_F = H_A b$ $M_B = Pb - H_E h$ $\quad M_C = \dfrac{Pb}{2} - H_E(h+f)$ $M_D = -H_E h$
		$n = \dfrac{f}{h}$ $\quad h_1 = (1+n)h$ $N = 3 + k + n(3+n)$ $H_A = H_E = H = \dfrac{3(2+n)M}{4Nh}$ $\quad V_A = V_E = V = \dfrac{M}{l}$ $M_{BA} = +Hh$ $\quad M_{BC} = Hh - M$ $M_C = Hh_1 - \dfrac{M}{2}$ $\quad M_D = +Hh$
		$H_A = H_E = \dfrac{3}{4}M\,\dfrac{2h + f + kh(1-\mu^2)}{h^2(k+3)+f(3h+f)}$ $V_E = \dfrac{M}{l}$ $\quad M_B = Hh - M$ $M_C = H(h+f) - \dfrac{M}{2}$ $\quad M_D = Hh$

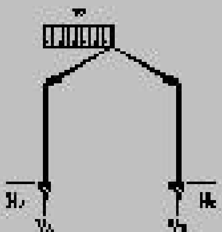
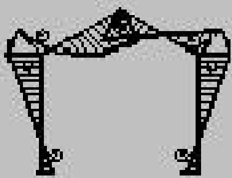
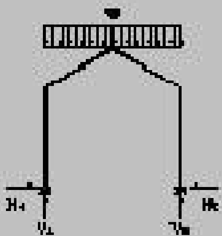
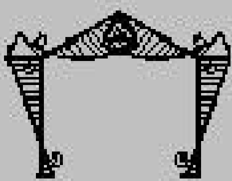


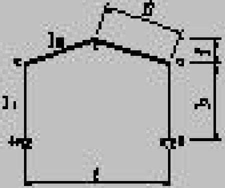
l ：跨度
h ：簷高
I_1 ：柱斷面慣性矩
I_2 ：梁斷面慣性距



$$k=\frac{I_2 h}{I_1 s}\qquad n=\frac{f}{h}\qquad m=\frac{h_1}{h}=1+n$$

$$\delta=P_2\left\{\frac{h^3}{12EI_1}+\frac{h^2\cdot l}{12EI_2\cos\theta}\right\}$$

載重形式	彎矩圖	反力及各部應力
		$V_A=\frac{36k+13}{32(3k+1)}wl$ $\quad V_E=\frac{12k+3}{32(3k+1)}wl$ $H_A=H_E=\frac{\{k(4h+5f)+f\}wl^2}{16\{(hk+f)^2+4k(h^2+hf+f^2)\}}$ $M_A=\left\{\frac{hk(8h+15f)+(6h-f)f}{(hk+f)^2+4k(h^2+hf+f^2)}-\frac{3}{2(3k+1)}\right\}\frac{wl^2}{96}$ $M_B=-H_A h+M_A$ $M_D=-H_A h+M_E$ $M_E=\left\{\frac{hk(8h+15f)+(6h-f)f}{(hk+f)^2+4k(h^2+hf+f^2)}+\frac{3}{2(3k+1)}\right\}\frac{wl^2}{96}$ $M_C=-H_A(h+f)+M_E+V_E\frac{l}{2}$
		$V_A=V_E=\frac{wl}{2}$ $H_A=H_E=\frac{\{k(4h+5f)+f\}wl^2}{8\{(hk+f)^2+4k(h^2+hf+f^2)\}}$ $M_A=M_E=\frac{\{hk(8h+15f)+f(6h-f)\}wl^2}{48\{(hk+f)^2+4k(h^2+hf+f^2)\}}$ $M_B=M_D=-H_A h+M_A$ $M_C=-H(h+f)+M_A+\frac{wl^2}{8}$

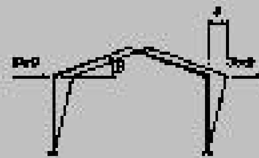


l ：跨度

h ：簷高

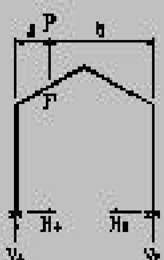
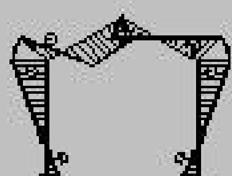
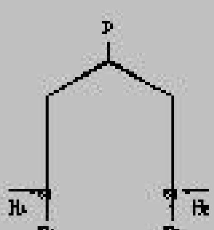
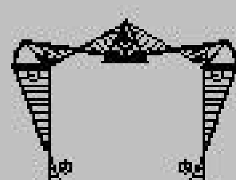
I_1 ：柱斷面慣性矩

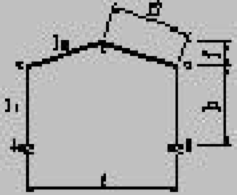
I_2 ：梁斷面慣性距



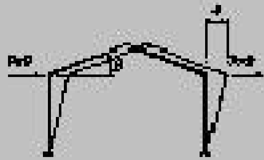
$k = \dfrac{I_2 h}{I_1 s} \qquad n = \dfrac{f}{h} \qquad m = \dfrac{h_1}{h} = 1 + n$

$$\delta = P_x \left\{ \frac{h^3}{12EI_1} + \frac{h^2 \cdot l}{12EI_2 \cos\theta} \right\}$$

載重形式	彎矩圖	反力及各部應力
		$V_A = \dfrac{Pb\{3kl^2 + b(l+2a)\}}{(3k+1)l^3}$ $V_B = \dfrac{Pa\{3kl^2 + a(l+2b)\}}{(3k+1)l^3}$ $H_A = H_B = \dfrac{Pa\{3kl^2(h+f) - 4a^2 f(k+1) - 3al(hk-f)\}}{\{(hk+f)^2 + 4k(h^2+hf+f^2)\}l^2}$ $\left.\begin{matrix} M_A \\ M_B \end{matrix}\right\} = \left\{ \dfrac{2klbh^2 + 3hfl(2a+kl)}{(hk+f)^2} \right.$ $\dfrac{-f^2 l(l-4a) - 4a^2 kf(k+2) - 4a^2 f^2}{+4k(h^2+hf+f^2)}$ $\left. \mu \dfrac{b(b-a)}{(3k+1)} \right\} \dfrac{Pa}{2l^2}$ $M_B = -H_A h + M_A$ $M_C = -H_A(h+f) + M_B + V_B \dfrac{l}{2}$ $M_D = -H_B h + M_B$ $M_F = -H_A\left(h + \dfrac{2af}{l}\right) + M_A + V_A a$
		$V_A = V_E = \dfrac{P}{2}$ $H_A = H_E = \dfrac{k(3h+4f)+f}{4\{(hk+f)^2 + 4k(h^2+hf+f^2)\}} Pl$ $M_A = M_E = \dfrac{\{h^2 k + hf(2k+1)\}Pl}{4\{(hk+f)^2 + 4k(h^2+hf+f^2)\}}$ $M_B = M_D = -H_A h + M_A$ $M_C = -H_A(h+f) + M_A + \dfrac{Pl}{4}$

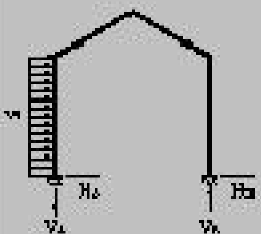
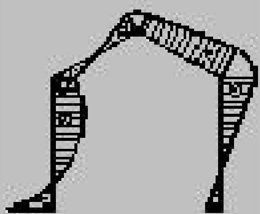


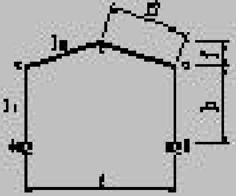
l：跨度
h：簷高
I_1：柱斷面慣性矩
I_2：梁斷面慣性距



$$k=\frac{I_2 h}{I_1 s}\qquad n=\frac{f}{h}\qquad m=\frac{h_1}{h}=1+n$$

$$\delta=P_2\left\{\frac{h^3}{12EI_1}+\frac{h^2\cdot l}{12EI_2\cos\theta}\right\}$$

載重形式	彎矩圖	反力及各部應力
		$V_A=V_E=\frac{kwh^2}{2(3k+1)l}$ $H_A=wh-H_E$ $H_E=\frac{wh^2k\left\{h(k+3)+2f\right\}}{4\left\{(hk+f)^2+4k(h^2+hf+f^2)\right\}}$ $M_A=-\frac{wh^2}{24}\left\{\frac{12k+6}{3k+1}+\frac{h^2k(k+6)+kf(15h+16f)+6f^2}{(hk+f)^2+4k(h^2+hf+f^2)}\right\}$ $M_E=\frac{wh^2}{24}\left\{\frac{12k+6}{3k+1}-\frac{h^2k(k+6)+kf(15h+16f)+6f^2}{(hk+f)^2+4k(h^2+hf+f^2)}\right\}$ $M_B=M_A-\frac{wh^2}{2}+H_Ah=M_E+V_El-H_Eh$ $M_C=M_E+V_E\frac{l}{2}-H_E(h+f)$ $M_D=M_E-H_Eh$

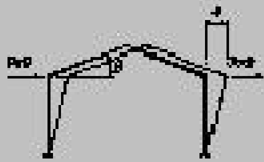


l ：跨度

h ：簷高

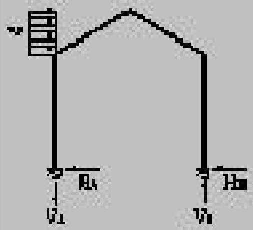
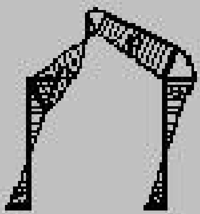
I_1 ：柱斷面慣性矩

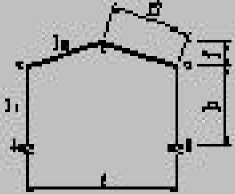
I_2 ：梁斷面慣性距



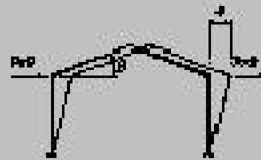
$k = \frac{I_2 h}{I_1 s}$ $n = \frac{f}{h}$ $m = \frac{h_1}{h} = 1 + n$

$$\delta = P_x\left\{\frac{h^3}{12EI_1} + \frac{h^2 \cdot l}{12EI_2\cos\theta}\right\}$$

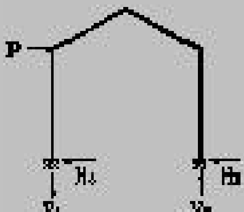
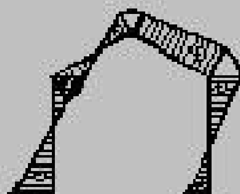
載重形式	彎矩圖	反力及各部應力
		$V_A = V_E = \frac{\{3f + 12k(h+f)\}}{8(3k+1)l} wf$ $H_A = wf - H_E$ $H_E = \frac{\{5kf(2h+f) + 2kh^2(k+4) + f^2\}}{4\{(hk+f)^2 + 4k(h^2+hf+f^2)\}} wf$ $M_A = -\frac{wf}{24}\left[\frac{12h(3k+2)+3f}{(6k+2)} + \frac{f\{hk(4h+9f)+f(6h+f)\}}{(hk+f)^2+4k(h^2+hf+f^2)}\right]$ $M_E = \frac{wf}{24}\left[\frac{12h(3k+2)+3f}{(6k+2)} - \frac{f\{hk(4h+9f)+f(6h+f)\}}{(hk+f)^2+4k(h^2+hf+f^2)}\right]$ $M_B = M_A + H_A h$ $M_C = M_E - H_E(h+f) + V_E \frac{l}{2}$ $M_D = M_E - H_E h$

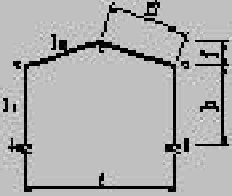


l ：跨度
h ：檐高
I_1 ：柱斷面慣性矩
I_2 ：梁斷面慣性距

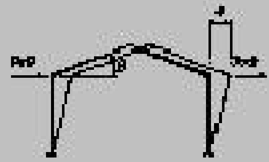


$k=\dfrac{I_2 h}{I_1 s}$ $\quad n=\dfrac{f}{h}$ $\quad m=\dfrac{h_1}{h}=1+n$ $\qquad \delta=P_\delta\left\{\dfrac{h^3}{12EI_1}+\dfrac{h^2\cdot l}{12EI_2\cos\theta}\right\}$

載重形式	彎矩圖	反力及各部應力
		$V_A=V_E=\dfrac{3kPh}{2(3k+1)l}$ $H_A=P-H_E$ $H_E=\dfrac{kh\left\{h\left(k+4\right)+3f\right\}}{2\left\{\left(kh+f\right)^2+4k\left(h^2+hf+f^2\right)\right\}}P$ $M_A=-\dfrac{Ph}{2}\left\{\dfrac{f\left(kh+f+2hf\right)}{(hk+f)^2+4k(h^2+hf+f^2)}+\dfrac{3k+2}{6k+2}\right\}$ $M_E=\dfrac{Ph}{2}\left\{-\dfrac{f\left(kh+f+2hf\right)}{(hk+f)^2+4k(h^2+hf+f^2)}+\dfrac{3k+2}{6k+2}\right\}$ $M_B=M_A+H_A h$ $M_C=M_E-H_E\left(h+f\right)+V_E\dfrac{l}{2}$ $M_D=M_E-H_E h$

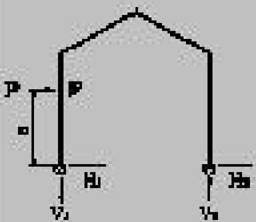
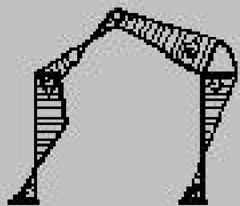


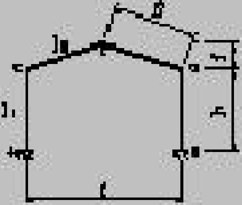
l：跨度
h：簷高
I_1：柱斷面慣性矩
I_2：梁斷面慣性距



$$k=\frac{I_2 h}{I_1 s}\qquad n=\frac{f}{h}\qquad m=\frac{h_1}{h}=1+n$$

$$\delta=P_\delta\left\{\frac{h^3}{12EI_1}+\frac{h^2\cdot l}{12EI_2\cos\theta}\right\}$$

載重形式	彎矩圖	反力及各部應力
		$V_A=V_E=\frac{3Pa^2}{2hl}\frac{k}{3k+1}\qquad H_A=P-H_E$ $H_E=\frac{Pa^2k\{3h(k+2)+3f-2a(k+1)\}}{2h\{(hk+f)^2+4k(h^2+hf+f^2)\}}$ $M_A=-\frac{Pa}{2h}\left\{\frac{h^2k(4h+hk-2ak-6a+6f)+a^2k(hk+2h+f)+2fh(2hf-af-3ah)+hf^2}{(hk+f)^2+4k(h^2+hf+f^2)}+\frac{2h+3k(2h-a)}{6k+2}\right\}$ $M_E=-\frac{Pa}{2h}\left\{\frac{h^2k(4h+hk-2ak-6a+6f)+a^2k(hk+2h+f)+2fh(2hf-af-3ah)+hf^2}{(hk+f)^2+4k(h^2+hf+f^2)}-\frac{2h+3k(2h-a)}{6k+2}\right\}$ $M_B=-H_Eh+M_E$ $M_C=-H_E(h+f)+M_E+V_E\frac{l}{2}$ $M_D=-H_Eh+M_E+V_El$

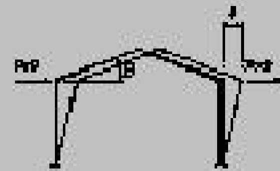


l ：跨度

h ：簷高

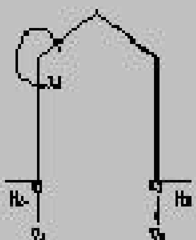
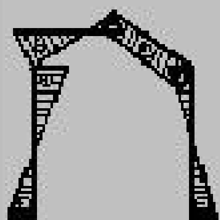
I_1 ：柱斷面慣性矩

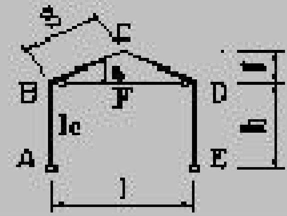
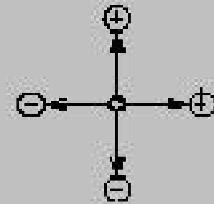
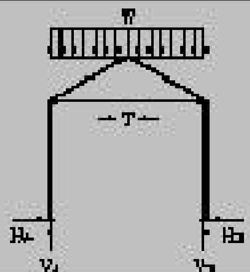
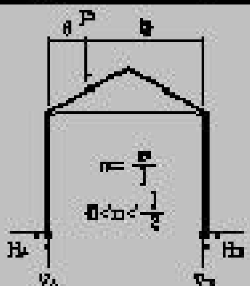
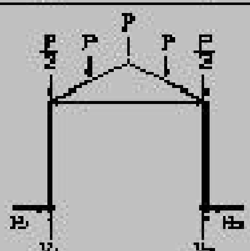
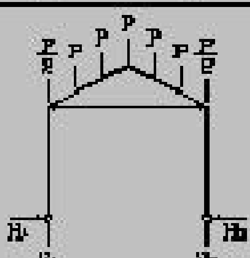
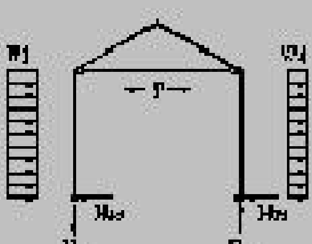
I_2 ：梁斷面慣性距

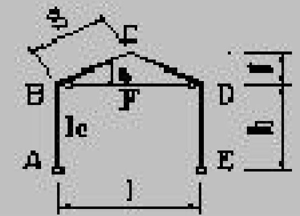
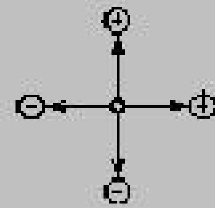
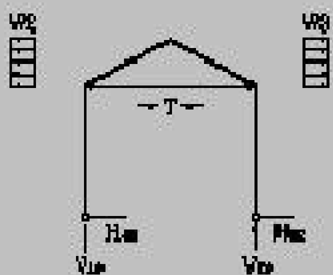
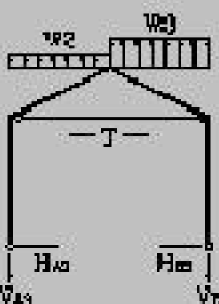
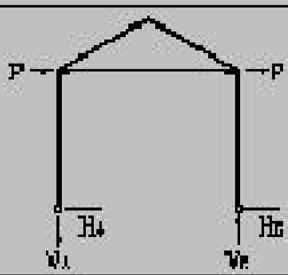


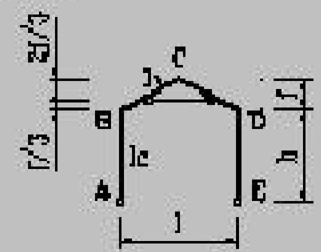
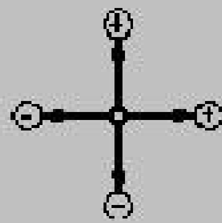
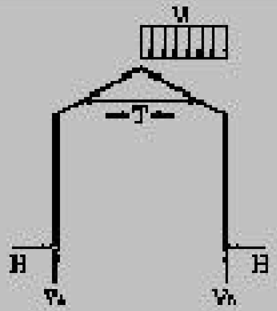
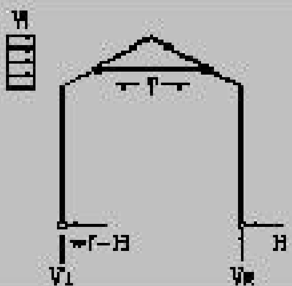
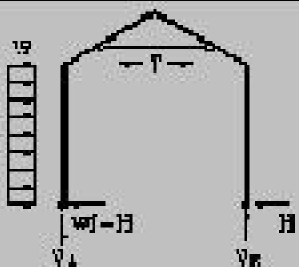
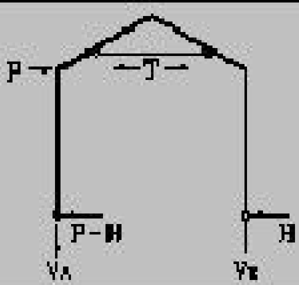
$k = \dfrac{I_2 h}{I_1 s}$　　$\varphi = \dfrac{f}{h}$　　$m = \dfrac{h_1}{h} = 1+\varphi$

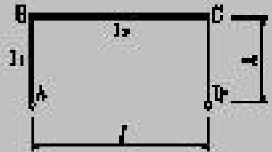
$\delta = P_2\left\{\dfrac{h^3}{12EI_1} + \dfrac{h^2 \cdot l}{12EI_2\cos\theta}\right\}$

載重形式	彎矩圖	反力及各部應力
		$V_A = V_E = \dfrac{3Mk}{l(3k+1)}$ $H_A = H_E = \dfrac{3Mk\{h(h+f)\}}{h\{(kh+f)^2+4k(h^2+hf+f^2)\}}$ $M_A = -\dfrac{M}{2}\left\{\dfrac{hk(2h+3f)-f^2}{(hk+f)^2+4k(h^2+hf+f^2)} - \dfrac{1}{3k+1}\right\}$ $M_E = -\dfrac{M}{2}\left\{\dfrac{hk(2h+3f)-f^2}{(hk+f)^2+4k(h^2+hf+f^2)} + \dfrac{1}{3k+1}\right\}$ $M_{BA} = M_A + H_A h$　　$M_{BC} = M_{BA} - M$ $M_C = H_E(h+f) - V_E\dfrac{l}{2} + M_E$ $M_D = M_E + H_E h$

架構形式 	F：拉桿斷面積 $k = \frac{I_b}{I_c} \cdot \frac{h}{s}$, $m = \frac{3 I_b l}{F \cdot s \cdot f^1}$ $r = (3+4k)(2+m) + m\left(3 + \frac{2f}{h}\right)^1$	反力符號 
	$V_A = V_E = \frac{wl}{2}$ $H_A = -H_E = \frac{wl^1}{8hr}\left\{1 + m\left(8 + \frac{5f}{h}\right)\right\}$ $T = \frac{wl^1}{8f\ h}\left(6 + 10k - \frac{f}{h}\right)$	
	$V_A = \frac{P \cdot b}{l}$, $V_E = \frac{P \cdot a}{l}$ $H_A = -H_E = \frac{Pl \cdot n}{2hr}\left\{3(2+m)(1-2n)^1 + m\left(3 + \frac{2f}{h}\right)(3-4n^1)\right\}$ $T = \frac{Pl \cdot n}{2f\ r}\left\{(3+4k)(3-4n^1) - 3\left(3 + \frac{2f}{h}\right)(1-2n)^1\right\}$	
	$V_A = V_E = 2P$ $H_A = -H_E = \frac{Pl}{4hr}\left\{\frac{3}{4}(2+m) + \frac{11}{4}\left(3 + \frac{2f}{h}\right)\right\}$ $T = \frac{Pl}{4f\ r}\left\{\frac{11}{4}(3+4k) - \frac{3}{4}\left(3 + \frac{2f}{h}\right)\right\} + \frac{Pl}{4f}$	
	$V_A = V_E = 3P$ $H_A = -H_E = \frac{Pl}{6f\ r}\left\{2(2+m) + 8m\left(3 + \frac{2f}{h}\right)\right\}$ $T = \frac{Pl}{6f\ r}\left\{8(3+4k) - 2\left(3 + \frac{2f}{h}\right)\right\} + \frac{Pl}{4f}$	
	$V_{A1} = -V_{E1} = -\frac{h^1}{2l}(w_1 + w_2)$ $H_{A1} = -w_1 h - \frac{(w_1 - w_2)h}{4g}\left\{(2+m)(9+11k) + m\left(3 + \frac{2f}{h}\right)\left(9 + \frac{8f}{h}\right)\right\}$ $H_{E1} = -w_1 h + \frac{(w_1 - w_2)h}{4r}\left\{(2+m)(9+11k) + m\left(3 + \frac{2f}{h}\right)\left(9 + \frac{8f}{h}\right)\right\}$ $T = -\frac{(w_1 + w_2)h^1}{4f\ r}\left\{3k + (10k+6)\frac{f}{h}\right\}$	

架構形式	F：拉桿斷面積	反力符號
	$k=\frac{I_b}{I_c}\cdot\frac{h}{s}$ ， $m=\frac{3I_b l}{F\cdot s\cdot f^2}$ $\gamma=(3+4k)(2+m)+m\left(3+\frac{2f}{h}\right)^2$	
	$V_{A1}=-V_{E1}=-\frac{f}{2l}(2h+f)(w_1-w_2)$ $H_{A1}=-w_1 f+\frac{(w_1+w_2)f}{8\gamma}\left\{(2+m)(12+16k)\right.$ $\left.-\frac{f}{h}+m\left(3+\frac{2f}{h}\right)\left(13+\frac{10f}{h}\right)\right\}$ $H_{E1}=w_2 f-\frac{(w_1+w_2)f}{8\gamma}\left\{(2+m)(12+16k)\right.$ $\left.-\frac{f}{h}+m\left(3+\frac{2f}{h}\right)\left(13+\frac{10f}{h}\right)\right\}$ $T=\frac{(w_1+w_2)f}{4\gamma}\left(6+6k+\frac{f}{h}\right)$	
	$V_{A1}=-\left(\frac{3w_1 l}{8}+\frac{w_2 l}{8}\right)$ $V_{E1}=-\left(\frac{w_1 l}{8}+\frac{3w_2 l}{8}\right)$ $H_{A1}=-H_{E1}=-\frac{(w_1+w_2)l^2}{16h\gamma}\left\{1+m\left(8+\frac{5f}{h}\right)\right\}$ $T=-\frac{(w_1+w_2)l^2}{16\gamma}\left\{6+10k-\frac{f}{h}\right\}$	
	$V_A=-V_E=-\frac{Ph^2}{l}$ $H_A=H_E=-P$ $T=0$	

架構形式		反力符號
	$\beta = \dfrac{f}{h}$ $Z = 27(2k+3) + \beta(36+5\beta)$	
	$V_A = \dfrac{wl}{8}$, $V_E = \dfrac{3}{8}wl$ $H = \dfrac{wl^2}{h} \cdot \dfrac{11}{96} \cdot \dfrac{18+5\beta}{Z}$ $T = \dfrac{wl^2}{h} \cdot \dfrac{9}{128} \cdot \dfrac{(100k+84) - \beta(3+5\beta)}{\beta Z}$	
	$V_A = -V_E = -\dfrac{wf(2h+f)}{2l}$ $H = wf\,\dfrac{1}{24} \cdot \dfrac{648k+972+414\beta+55\beta^2}{Z} - 0.5wf$ $T = -wf\,\dfrac{9\beta}{8} \cdot \dfrac{(68k+96)+\beta(30+6\beta)}{Z}$	
	$V_A = -V_E = -\dfrac{wh^2}{2l}$ $H = wh\dfrac{1}{16} \cdot \dfrac{15k+18+4\beta}{Z}$ $T = -wh\dfrac{27\beta}{8} \cdot \dfrac{k(9+35\beta)+6\beta(5+\beta)}{Z}$	
	$V_A = -V_E = -\dfrac{Ph}{l}$ $H = P\dfrac{9}{2} \cdot \dfrac{6k+9+2\beta}{Z}$ $T = -P\dfrac{8(14k+15+3\beta)}{Z}$	



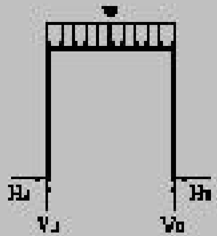
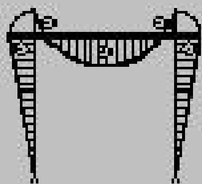
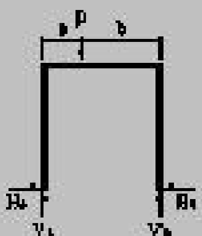
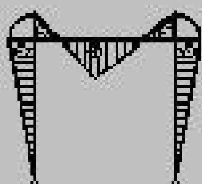
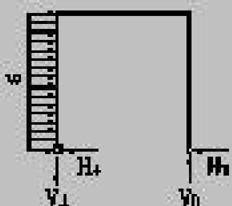
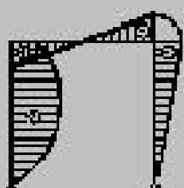
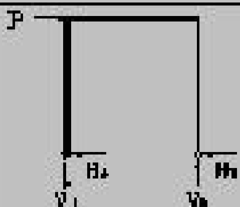
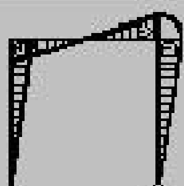
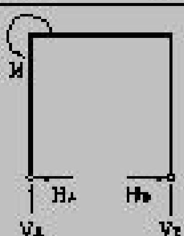
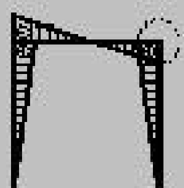
l：跨度

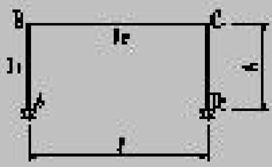
h：簷高

I_1：柱斷面慣性矩

I_2：梁斷面慣性距

$k = \frac{I_2 h}{I_1 l}$

載重形式	彎矩圖	反力及各部應力
		$H_A = H_D = \frac{wl^2}{4h(2k+3)}$ $V_A = V_D = \frac{wl}{2}$ $M_B = M_C = -\frac{wl^2}{4(2k+3)}$
		$H_A = H_D = \frac{3ab}{2hl(2k+3)}P$　　$V_A = \frac{Pb}{l}$ $V_D = \frac{Pa}{l}$　　$M_B = M_C = -\frac{3ab}{2l(2k+3)}P$ $M_P = \frac{ab(4k+3)}{2l(2k+3)}P$
		$V_A = -V_D = \frac{wh^2}{2l}$　　$H_A = wh - H_D$ $H_D = \frac{5k+6}{8(2k+3)}wh$　　$M_B = \frac{3(k+2)}{8(2k+3)}wh^2$ $M_C = -H_D h$
		$H_A = H_D = H = \frac{P}{2}$　　$V_A = -V_D = \frac{Ph}{l}$ $M_B = \frac{1}{2}Ph$　　$M_C = -\frac{1}{2}Ph$
		$H_A = H_D = H = \frac{3M}{2(2k+3)h}$ $V_A = -V_D = \frac{M}{l}$　　$M_{BA} = M_C = Hh$ $M_{BC} = M_{BA} - M$



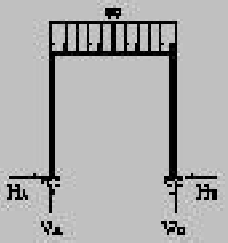
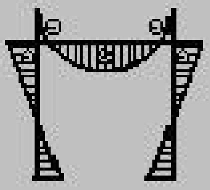
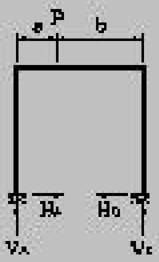
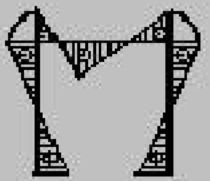
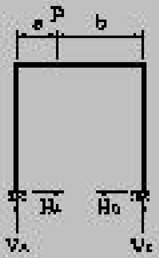
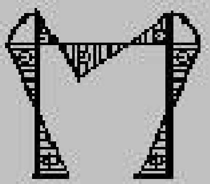
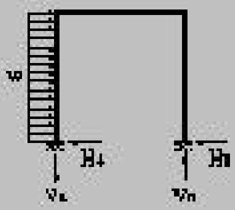
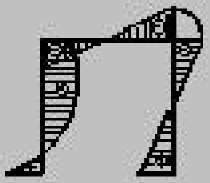
l ：跨度

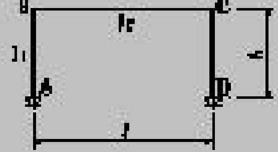
h ：簷高

I_1 ：柱斷面慣性矩

I_2 ：梁斷面慣性距

$k = \frac{I_2 h}{I_1 l}$

載重形式	彎矩圖	反力及各部應力
		$H_A = H_D = \frac{wl^2}{4(k+2)h}$ $V_A = V_D = \frac{wl}{2}$ $M_A = M_D = \frac{wl^2}{12(k+2)}$ $M_B = M_C = -\frac{wl^2}{6(k+2)}$
		$H_A = H_D = \frac{3Pab}{2(k+2)hl}$ $V_A = \frac{Pb}{l} + \frac{Pab(l-2a)}{(6k+1)l^2}$ $V_D = \frac{Pa(6kl^2+3al-2a^2)}{l^3(6k+1)}$ $M_A = \frac{(5k-1)l+2a(k+2)}{2(k+2)(6k+1)l^2}Pab$ $M_D = \frac{(7k+3)l-2a(k+2)}{2(k+2)(6k+1)l^2}Pab$ $M_B = -\frac{(13k+4)l-2a(k+2)}{2(k+2)(6k+1)l^2}Pab$ $M_C = -\frac{11kl+2a(k+2)}{2(k+2)(6k+1)l^2}Pab$
		$H_A = H_D = \frac{3Pab}{2(k+2)hl}$ $V_A = \frac{Pb}{l} + \frac{Pab(l-2a)}{(6k+1)l^2}$ $V_D = \frac{Pa(6kl^2+3al-2a^2)}{l^3(6k+1)}$ $M_A = \frac{(5k-1)l+2a(k+2)}{2(k+2)(6k+1)l^2}Pab$ $M_D = \frac{(7k+3)l-2a(k+2)}{2(k+2)(6k+1)l^2}Pab$ $M_B = -\frac{(13k+4)l-2a(k+2)}{2(k+2)(6k+1)l^2}Pab$ $M_C = -\frac{11kl+2a(k+2)}{2(k+2)(6k+1)l^2}Pab$
		$V_A = V_D = \frac{k}{(6k+1)l}wh^2$ $H_D = \frac{(2k+3)}{8(k+2)}wh$ $H_A = wh - H_D$ $M_A = -\frac{(30k^2+73k+15)}{24(k+2)(6k+1)}wh^2$ $M_D = \frac{(18k^2+35k+9)}{24(k+2)(6k+1)}wh^2$ $M_B = \frac{k(6k+23)}{24(k+2)(6k+1)}wh^2$ $M_C = -\frac{k(18k+25)}{24(k+2)(6k+1)}wh^2$



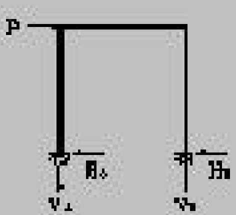
l ：跨度

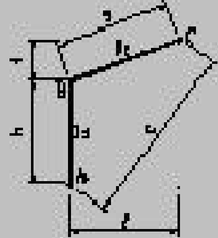
h ：簷高

I_1 ：柱斷面慣性矩

I_2 ：梁斷面慣性距

$$k = \frac{I_2 h}{I_1 l}$$

載重形式	彎矩圖	反力及各部應力
		$V_A = -V_D = \frac{3k}{(6k+1)l}Ph$ $H_A = H_D = \frac{P}{2}$ $M_A = -\frac{(3k+1)}{2(6k+1)}Ph$ $M_D = \frac{(3k+1)}{2(6k+1)}Ph$ $M_B = \frac{3k}{2(6k+1)}Ph$ $M_C = -\frac{3k}{2(6k+1)}Ph$



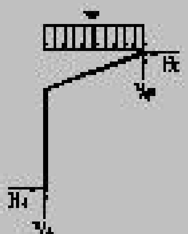
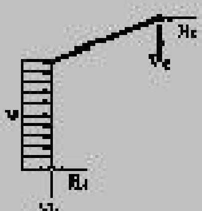
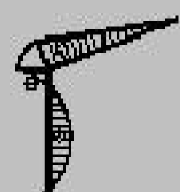
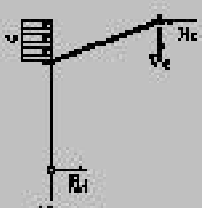
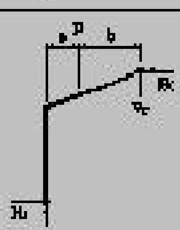
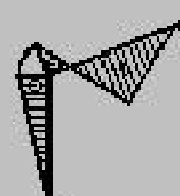
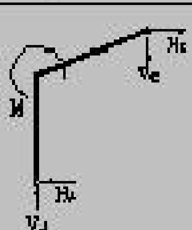
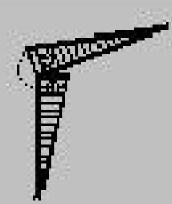
l ：跨度

h ：簷高

I_1 ：柱斷面慣性矩

I_2 ：梁斷面慣性距

$k=\dfrac{I_2 h}{I_1 s}$, $m=1+k$, $n=\dfrac{f}{h}$, $s^2=l^2+(h+f)^2$

載重形式	彎矩圖	反力及各部應力
		$M_B=-\dfrac{wl^2}{8m}$ $H_A=\dfrac{wl^2}{8mh}$ $V_A=\dfrac{wl}{2}\left(1+\dfrac{1+n}{4m}\right)$ $V_C=\dfrac{wl}{2}\left(1+\dfrac{1+n}{4m}\right)$
		$M_B=-\dfrac{kwh^2}{8m}$ $H_A=\dfrac{wh}{2}\left(1-\dfrac{k}{4m}\right)$ $H_C=\dfrac{wh}{2}\left(1+\dfrac{k}{4m}\right)$ $V_C=-V_A=\dfrac{wh^2}{2l}\left\{n+\dfrac{k(1+n)}{4m}\right\}$
		$M_B=-\dfrac{wf^2}{8m}$ $H_A=\dfrac{wf^2}{8mh}$ $H_C=wf-H_A$ $V_A=V_C=\dfrac{wf^2}{2l}\left(1+\dfrac{1+n}{4m}\right)$
		$M_B=-\dfrac{Pab}{2l^2m}(l+b)$ $H_A=H_C=-\dfrac{M_B}{h}$ $V_A=\dfrac{Pb-(1+n)M_B}{l}$ $V_C=\dfrac{Pa-(1+n)M_B}{l}$
		$M_{BA}=\dfrac{M}{m}$ $M_{BC}=-\dfrac{kM}{m}$ $V_A=-V_C=\dfrac{M-(1+n)M_{BA}}{l}$ $H_A=H_C=\dfrac{M}{mh}$