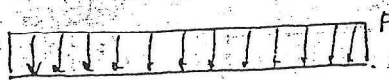


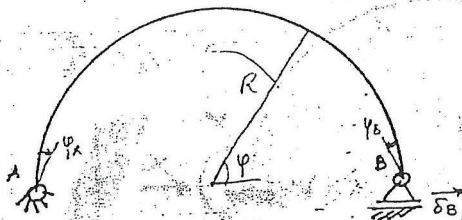
$$M(\varphi) = PR \sin \varphi$$

$$\delta_B = \frac{PR^3 \pi}{2EJ} \quad \left[K = \frac{2EJ}{R^3 \pi} \right]$$

$$\varphi_A = \varphi_B = \frac{PR^2}{EJ}$$

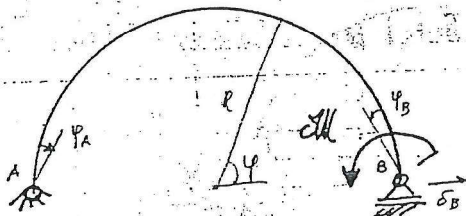


$$M(\varphi) = \frac{PR^2}{2} \sin^2 \varphi$$



$$\delta_B = \frac{2PR^4}{3EJ}$$

$$\varphi_A = \varphi_B = \frac{PR^3 \pi}{8EJ}$$



$$M(\varphi) = \frac{PR^2}{2} (1 + \cos \varphi)$$

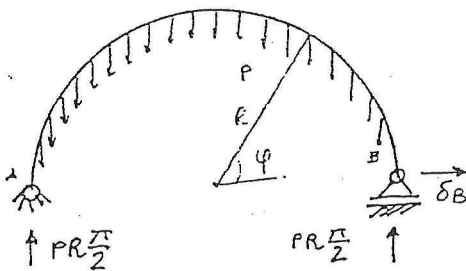
$$\delta_B = \frac{3PR^2}{EJ}$$

$$\varphi_A = \frac{3PR}{8EJ} \pi$$

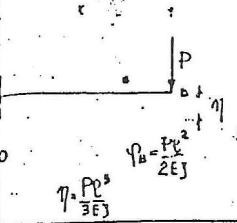
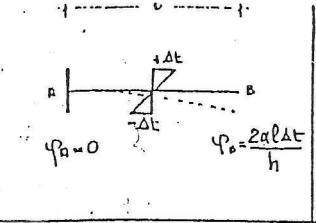
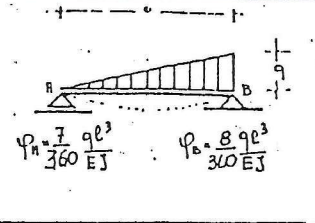
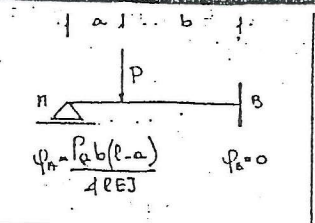
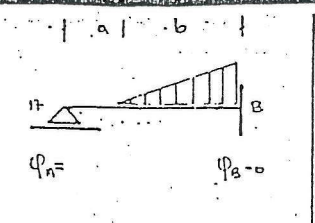
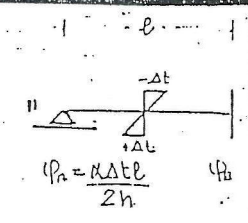
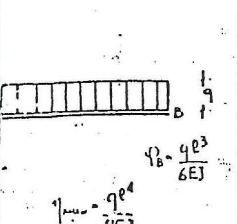
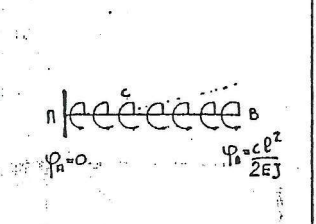
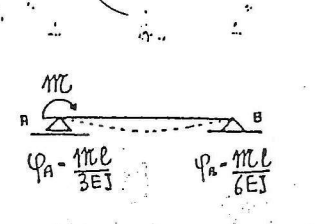
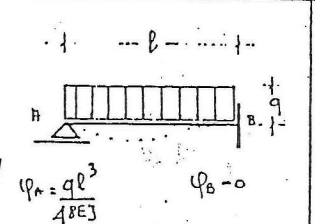
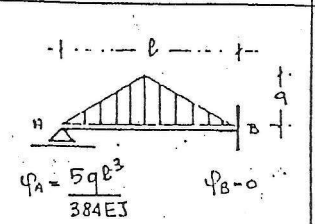
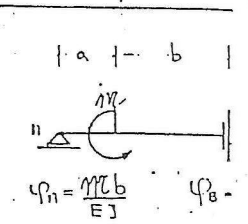
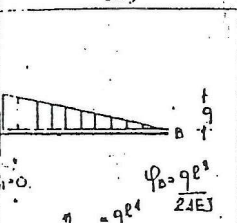
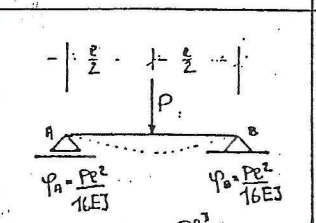
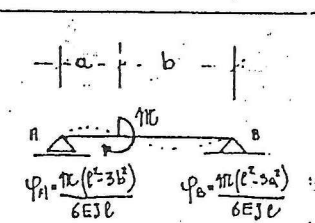
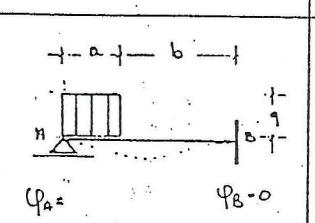
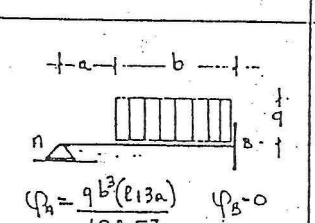
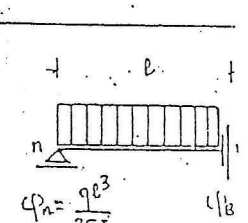
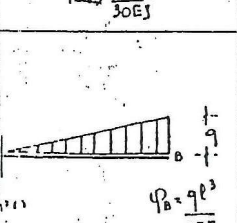
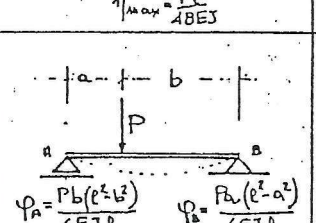
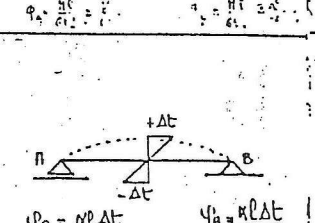
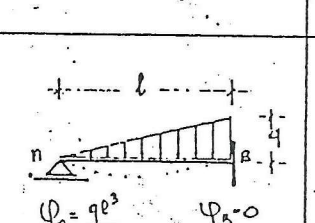
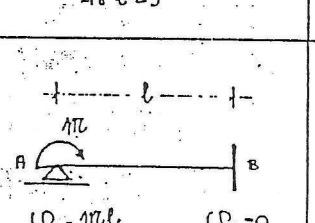
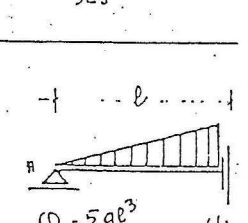
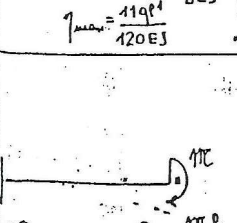
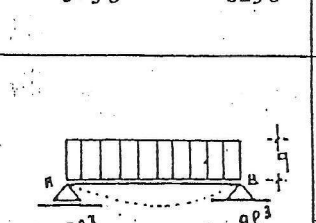
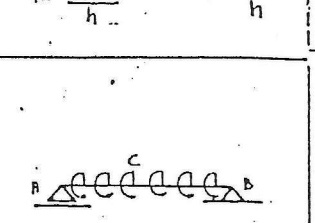
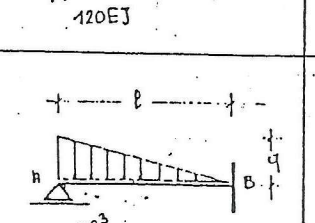
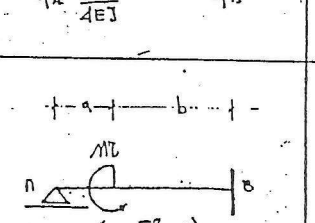
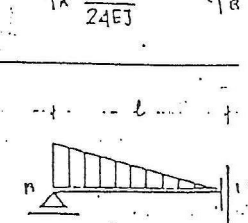
$$\varphi_B = \frac{3PR}{8EJ} \pi$$

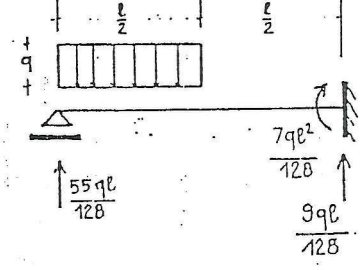
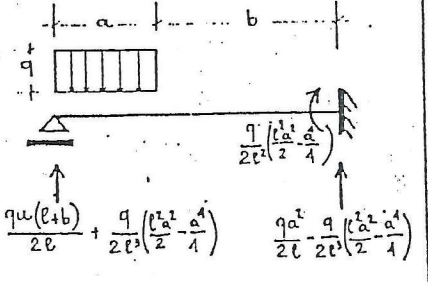
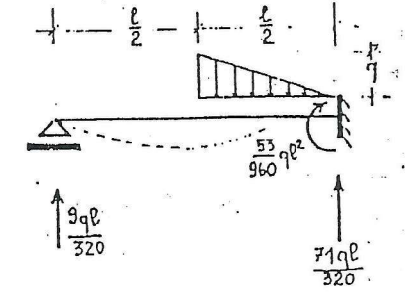
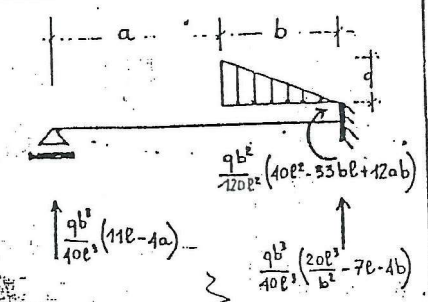
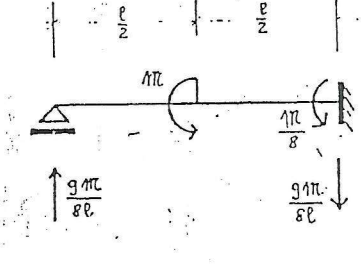
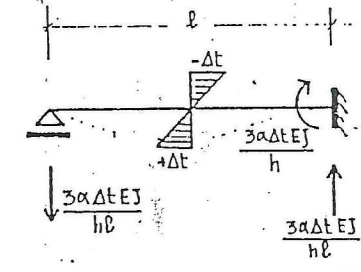
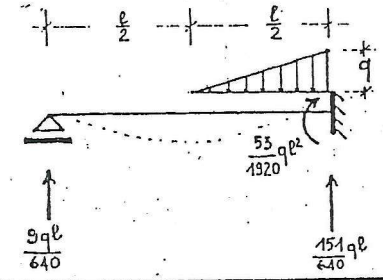
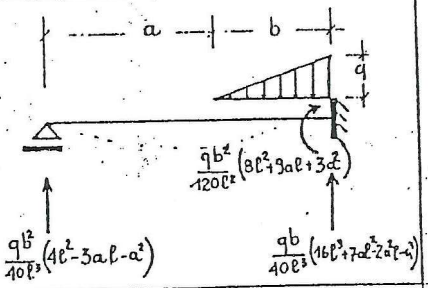
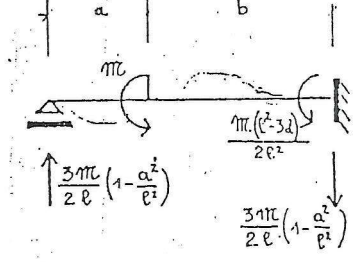
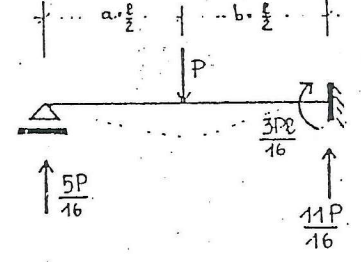
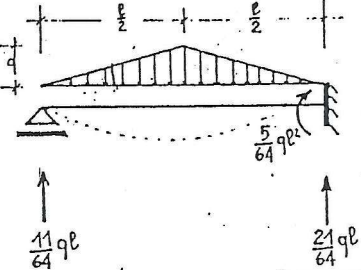
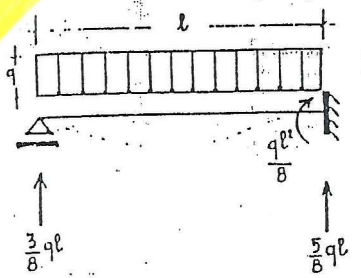
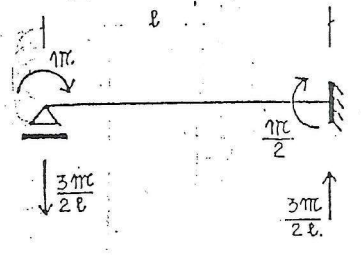
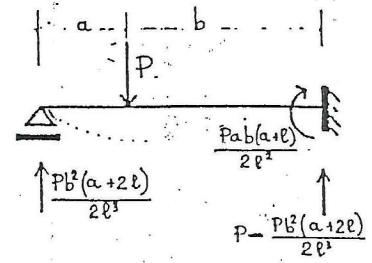
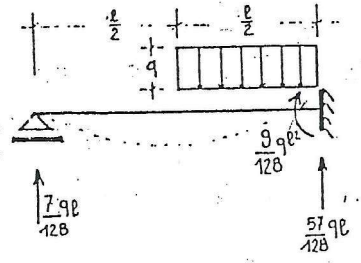
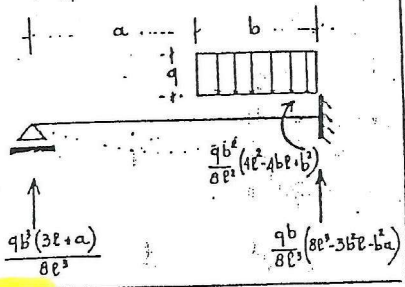
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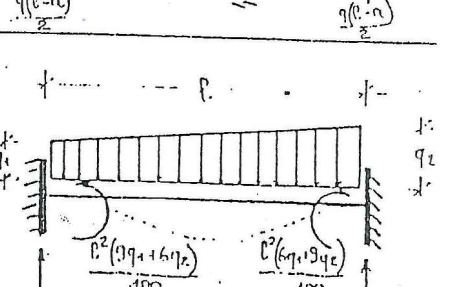
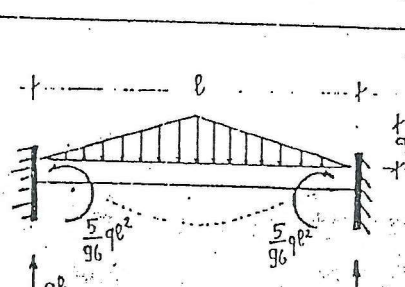
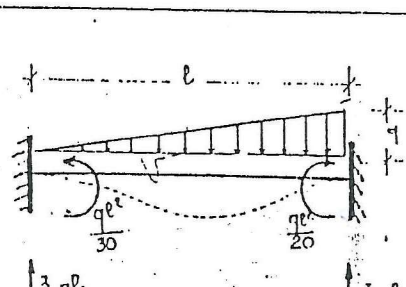
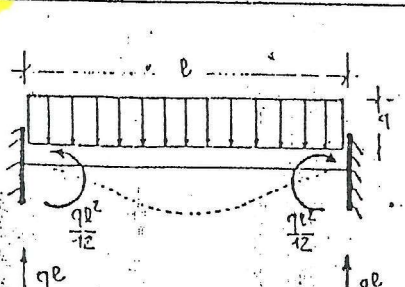
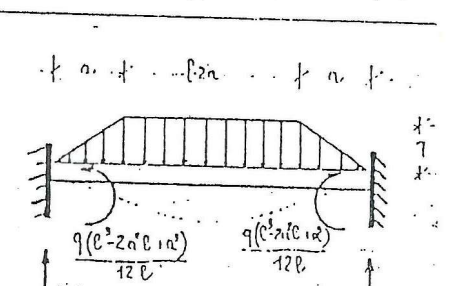
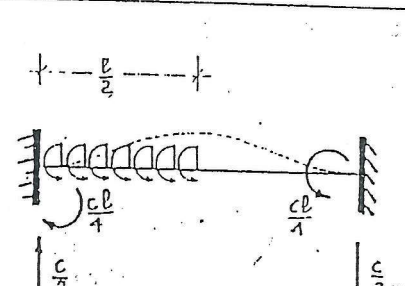
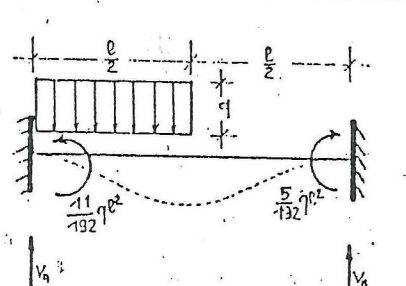
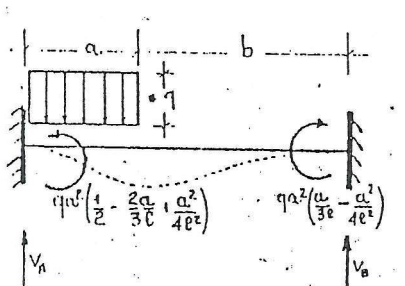
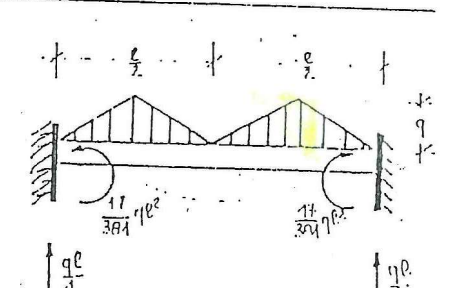
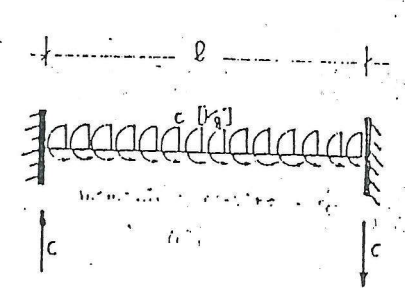
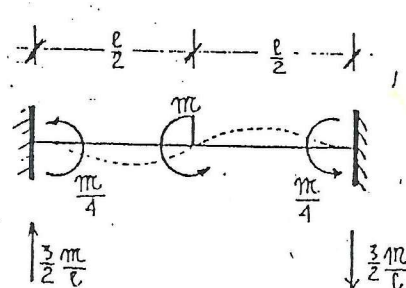
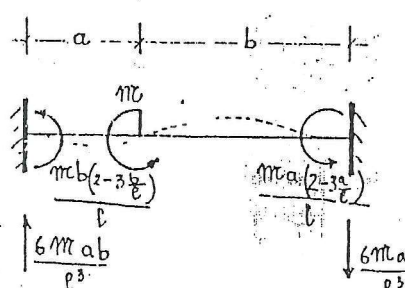
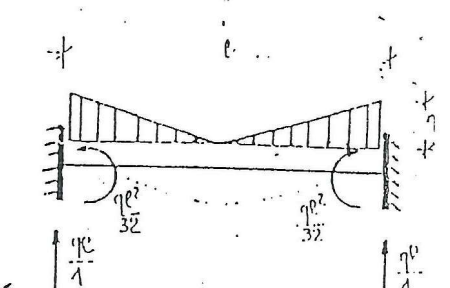
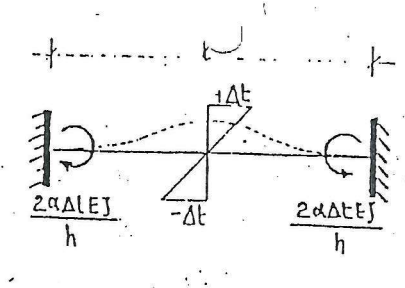
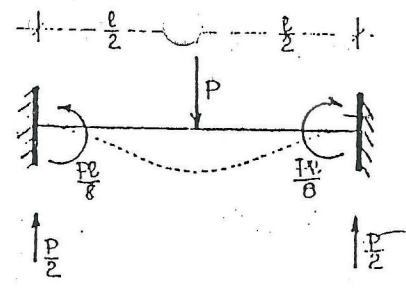
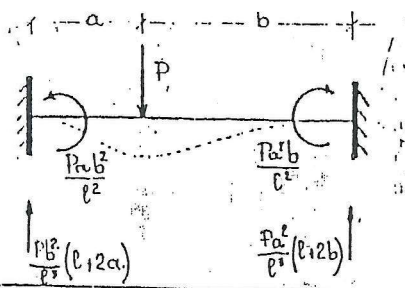
$$M(\varphi) = PR^2 \left[\frac{\pi}{2} + \cos \varphi \left(\varphi - \frac{\pi}{2} \right) - \sin \varphi \right]$$



$$\delta_B = \frac{PR^4}{4EJ} \pi$$

 $\varphi_A = \frac{Pl^3}{3EI}$ $\varphi_B = \frac{Pl^2}{2EI}$	 $\varphi_A = 0$ $\varphi_B = \frac{2\alpha l \Delta t}{h}$	 $\varphi_A = \frac{7}{360} \frac{q l^3}{EI}$ $\varphi_B = \frac{8}{360} \frac{q l^3}{EI}$	 $\varphi_A = \frac{P a b (l-a)}{4EI}$ $\varphi_B = 0$	 $\varphi_A = 0$ $\varphi_B = 0$	 $\varphi_A = \frac{\alpha \Delta t l}{2h}$ $\varphi_B = 0$
 $\varphi_B = \frac{q l^3}{6EI}$ $f_{max} = \frac{q l^4}{8EI}$	 $\varphi_A = 0$ $\varphi_B = \frac{q l^3}{2EI}$	 $\varphi_A = \frac{11 q l^3}{36EI}$ $\varphi_B = \frac{11 q l^3}{36EI}$	 $\varphi_A = \frac{q l^3}{48EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{5 q l^3}{384EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{11 q l^3}{36EI}$ $\varphi_B = 0$
 $\varphi_B = \frac{q l^3}{24EI}$ $f_{max} = \frac{q l^4}{30EI}$	 $\varphi_A = \frac{Pl^2}{16EI}$ $\varphi_B = \frac{Pl^2}{16EI}$ $f_{max} = \frac{Pl^3}{48EI}$	 $\varphi_A = \frac{Pl^2(3b)}{6EI}$ $\varphi_B = \frac{Pl^2(3a)}{6EI}$	 $\varphi_A = 0$ $\varphi_B = 0$	 $\varphi_A = \frac{q l^3 (l+3a)}{48EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{q l^3}{3EI}$ $\varphi_B = 0$
 $\varphi_B = \frac{q l^3}{8EI}$ $f_{max} = \frac{11 q l^4}{120EI}$	 $\varphi_A = \frac{P b (l^2 - b^2)}{6EI l}$ $\varphi_B = \frac{P a (l^2 - a^2)}{6EI l}$	 $\varphi_A = \frac{\alpha l \Delta t}{h}$ $\varphi_B = \frac{\alpha l \Delta t}{h}$	 $\varphi_A = \frac{q l^3}{120EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{11 q l^3}{48EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{5 q l^3}{24EI}$ $\varphi_B = 0$
 $\varphi_B = \frac{11 q l^3}{24EI}$ $f_{max} = \frac{11 q l^4}{24EI}$	 $\varphi_A = \frac{q l^3}{24EI}$ $\varphi_B = \frac{q l^3}{24EI}$ $f_{max} = \frac{5 q l^4}{384EI}$	 $\varphi_A = 0$ $\varphi_B = 0$	 $\varphi_A = \frac{q l^3}{10EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{11 q (l a - l^2 - 3 a^2)}{48EI}$ $\varphi_B = 0$	 $\varphi_A = \frac{q l^3}{8EI}$ $\varphi_B = 0$





0,15 0,30