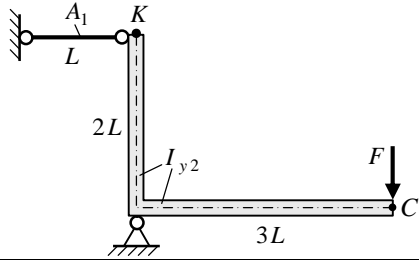


8



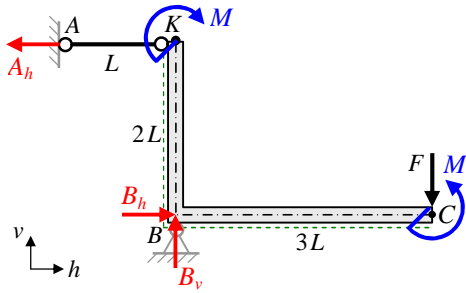
_____ ;
 _____ ,
 $I_{y2} = \text{const}$
 $I_{y3} = \text{const}$.
 _____ ;
 _____ ;
 $F; L; A_1; I_{y2}; E$.

1. _____ (_____) .
2. _____ . _____ (_____)
 _____ L . _____ N . _____ (_____ , _____ $2L$)
 (_____ , _____ $3L$) , _____ Q_z _____ ,
 _____ , ...

$$\kappa_C = \frac{\partial U}{\partial M_\Phi} = \int_{L_1} \frac{N_1}{EA_1} \frac{\partial N_1}{\partial M_\Phi} dx + \int_{L_2} \frac{M_{y2}}{EI_{y2}} \frac{\partial M_{y2}}{\partial M_\Phi} dx + \int_{L_3} \frac{M_{y3}}{EI_{y3}} \frac{\partial M_{y3}}{\partial M_\Phi} dx. \quad (1)$$

N , _____ , _____ .

3.



$$M_i = 0: \quad A_h \cdot 2L - F \cdot 3L + M - M = 0; \quad A_h = 3F/2.$$

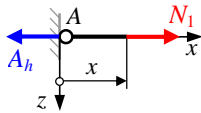
$$h_i = 0: \quad B_h - A_h = 0; \quad B_h = 3F/2.$$

$$v_i = 0: \quad B_v - F = 0; \quad B_v = F.$$

$$M_{Ai} = 0: \quad B_h \cdot 2L + B_v \cdot L - F \cdot 4L + M - M = 0$$

$$3FL + FL - 4FL = 0 \Rightarrow$$

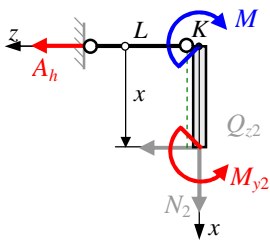
4.



4.1. (), , $x \in [0; L]$

$$x_i = 0: \quad N_1 - A_h = 0; \quad N_1 = 3F/2;$$

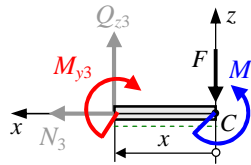
$$N_1/ = 0.$$



4.2. (), , $x \in [0; 2L]$

$$M_{yi} = 0: \quad M_{y2} + A_h \cdot x - M = 0; \quad M_{y2} = -3F/2 \cdot x;$$

$$Q_2/ = 1.$$



4.3. (BD), , $x \in [0; 3L]$

$$M_{yi} = 0: \quad M_{y3} + F \cdot x - M = 0; \quad M_{y3} = M - Fx;$$

$$M_{y3}/ = 1.$$

5.

(1) = 0.

$$K_C = \frac{1}{EA_1} \int_0^L N_1 \frac{\partial N_1}{\partial M_\Phi} dx + \frac{1}{EI_{y2}} \int_0^{2L} M_{y2} \frac{\partial M_{y2}}{\partial M_\Phi} dx + \frac{1}{EI_{y2}} \int_0^{3L} M_{y3} \frac{\partial M_{y3}}{\partial M_\Phi} dx;$$

$$K_C = \frac{1}{EA_1} \int_0^L \frac{3F}{2} \cdot 0 \cdot dx + \frac{1}{EI_{y2}} \left[\int_0^{2L} \left(-\frac{3F}{2} x \right) \cdot 1 \cdot dx + \int_0^{3L} (-Fx) \cdot 1 \cdot dx \right] = \frac{1}{EI_{y2}} \left[-\frac{3F}{2} \frac{4L^2}{2} - F \frac{9L^2}{2} \right];$$

$$K_C = -\frac{15 FL^2}{2 EI_{y2}}.$$