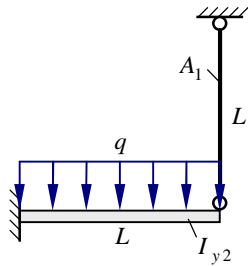


1

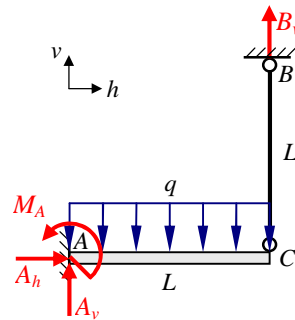


_____ :
 _____ , $I_{y2} = \text{const}$
 $I_1 = \text{const}$.
 _____ :
 _____ :
 $q; L; A_1; I_{y2}; E$.

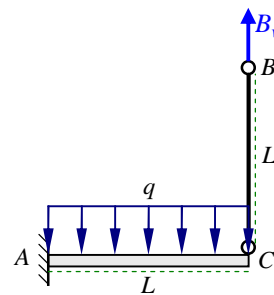
1.

(A_h, A_v, M_A, B_v) , $r_1 = 4$.
 ($h_i = 0$; $v_i = 0$; $M_{Ai} = 0$), $s_1 = 3$.

$$k_1 = r_1 - s_1 = 4 - 3 = 1,$$



1.



3.

L , () , N , Q_z , N .

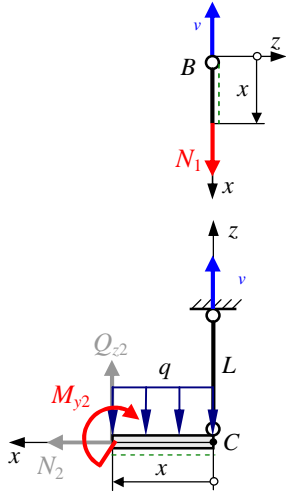
$$B_v = \frac{\partial U}{\partial B_v} = \int_{L_1} \frac{N_1}{EA_1} \frac{\partial N_1}{\partial B_v} dx + \int_{L_2} \frac{M_{y2}}{EI_{y2}} \frac{\partial M_{y2}}{\partial B_v} dx = 0. \quad (1)$$

N_1 2,

3.

B_v .

4.



B_v

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

$$x_i = 0: \quad N_1 - B_v = 0; \quad N_1 = B_v; \\ N_1 / B_v = 1.$$

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

$$M_{y2} = 0; \quad M_{y2} - B_v \cdot x + qx^2/2 = 0; \quad M_{y2} = B_v \cdot x - qx^2/2; \\ Q_{z2} / B_v = x.$$

5.

(1)

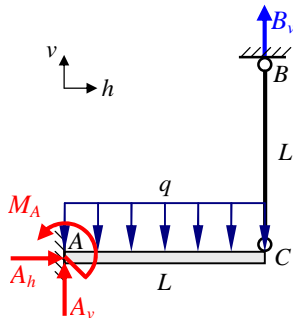
$$\frac{1}{EA_1} \int_0^L N_1 \frac{\partial N_1}{\partial B_v} dx + \frac{1}{EI_{y2}} \int_0^L M_{y2} \frac{\partial M_{y2}}{\partial B_v} dx = 0;$$

$$\frac{1}{EA_1} \int_0^L B_v \cdot 1 dx + \frac{1}{EI_{y2}} \int_0^L \left(B_v \cdot x - \frac{qx^2}{2} \right) x dx = 0;$$

$$\frac{B_v L}{EA_1} + \frac{B_v L^3}{3EI_{y2}} - \frac{qL^4}{8EI_{y2}} = 0;$$

$$B_v = \frac{3qL^3 A_1}{24I_{y2} + 8L^2 A_1}.$$

6.



$$\sum A_h = 0; \quad A_h = 0.$$

$$\sum A_v = 0; \quad A_v + B_v - qL = 0; \quad A_v = qL - \frac{3qL^3 A_1}{24I_{y2} + 8L^2 A_1}.$$

$$\sum M_A = 0; \quad M_A + B_v \cdot L - \frac{qL^2}{2} = 0; \quad M_A = \frac{qL^2}{2} - \frac{3qL^4 A_1}{24I_{y2} + 8L^2 A_1}.$$