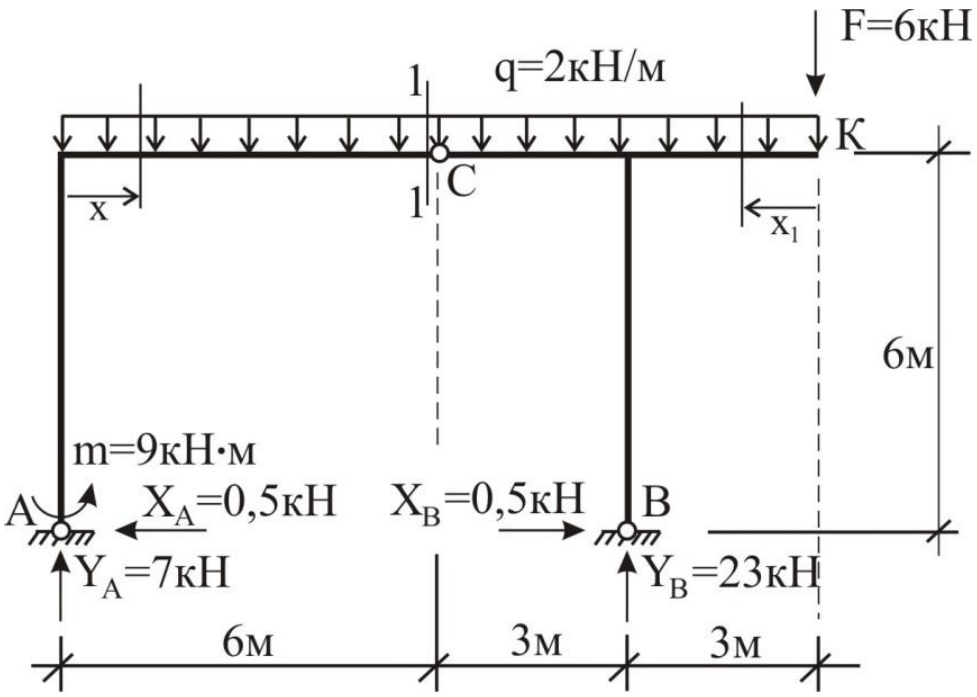
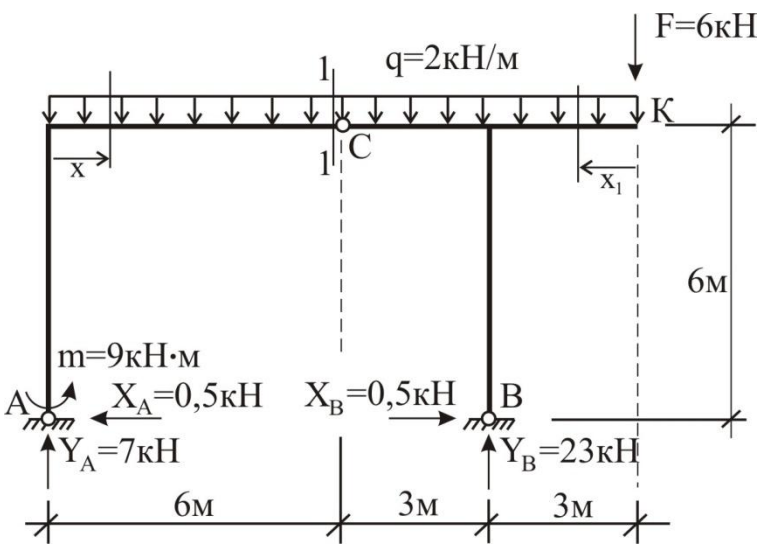
Определить $v_K, u_K, \theta_1.$

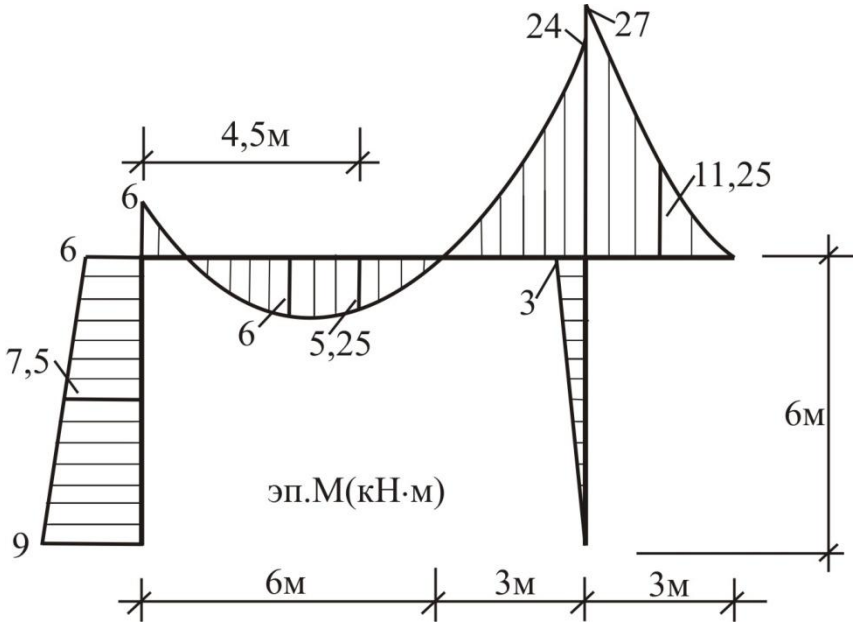
$$\frac{EI_P}{EI_C} = 3$$

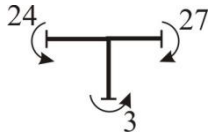


$$\left.\begin{aligned} \sum M_B = 0: &\quad \rightarrow \quad Y_A = 7\text{кН}, \\ \sum M_A = 0: &\quad \rightarrow \quad Y_B = 23\text{кН} \end{aligned}\right\} \quad \sum Y = 0\,!$$

$$\left.\begin{aligned} \sum M_C^{\text{лев}} = 0: &\quad \rightarrow \quad X_A = 0.5\text{кН}, \\ \sum M_C^{\text{прав}} = 0: &\quad \rightarrow \quad X_B = 0.5\text{кН} \end{aligned}\right\} \quad \sum X = 0\,!$$



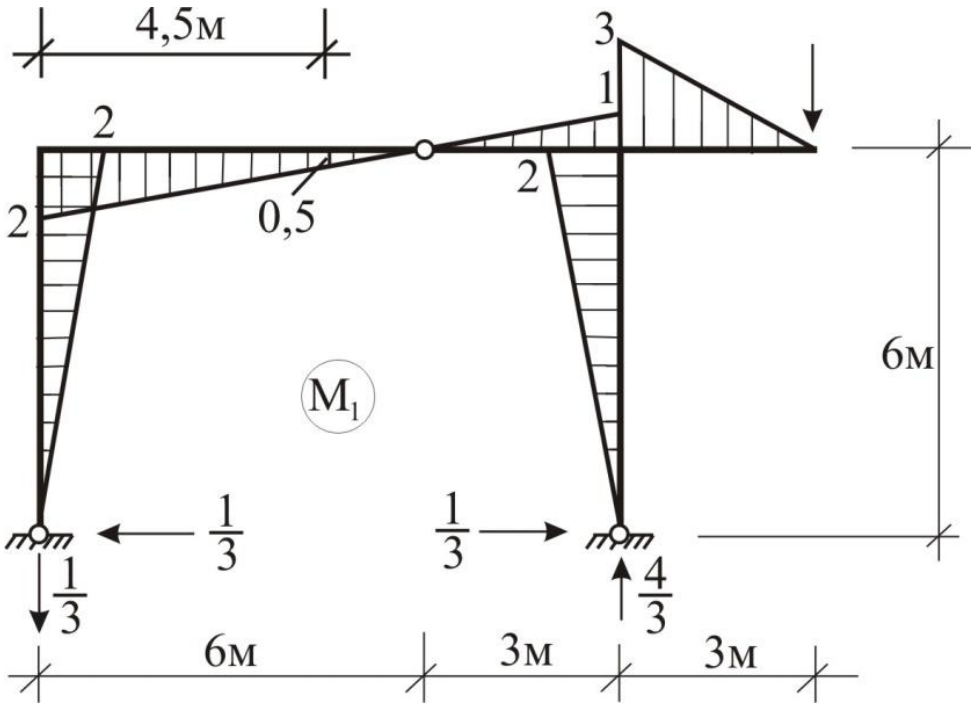


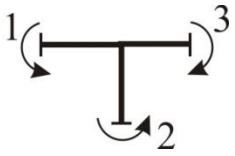


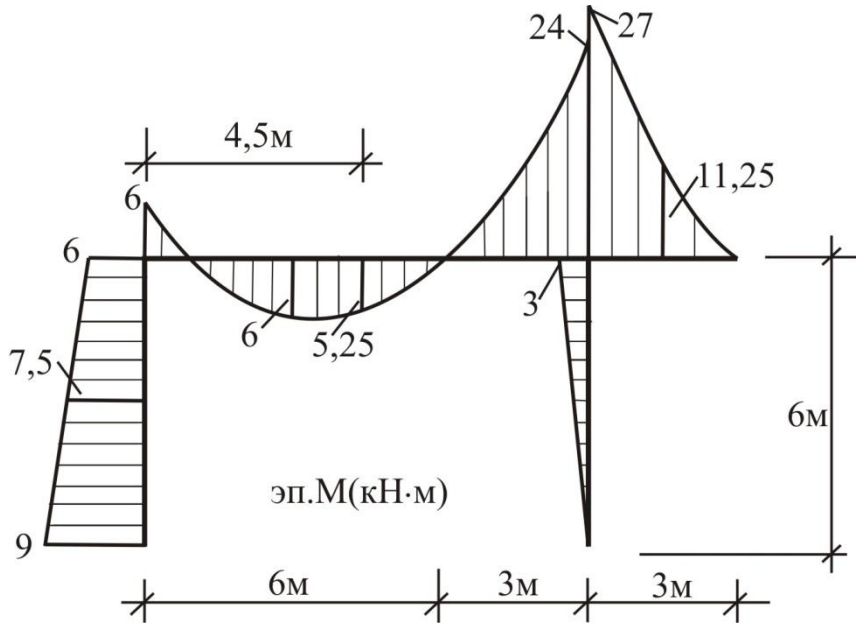
$$M(x) = 7 \cdot x + 0.5 \cdot 6 - 9 - 2 \cdot \frac{x^2}{2},$$

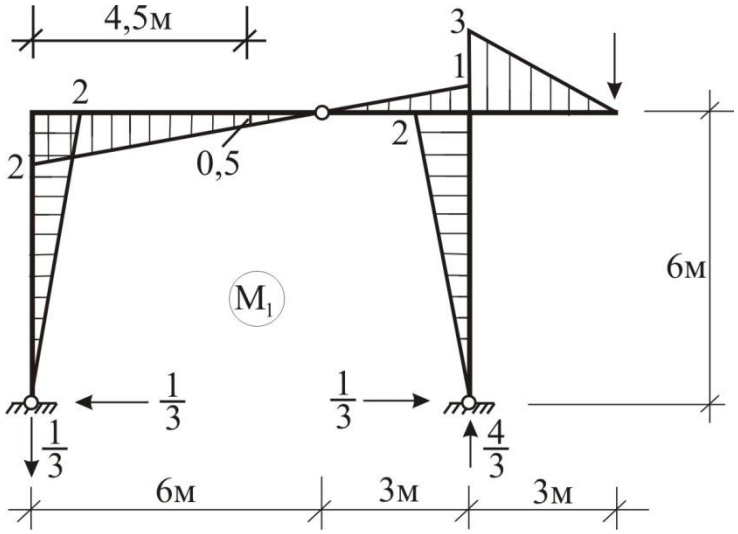
$$M(x_1) = -6 \cdot x_1 - 2 \cdot \frac{x_1^2}{2}.$$

(M;x): (5.25;4.5),(-24;9),(6;3),(-9.75;7.5)
($M;x_1$): (-11.25;1.5),(-27;3)


4,5м
3
1
2
2
2
0,5
6м
M1
1/3
1/3
1/3
4/3
6м
3м
3м

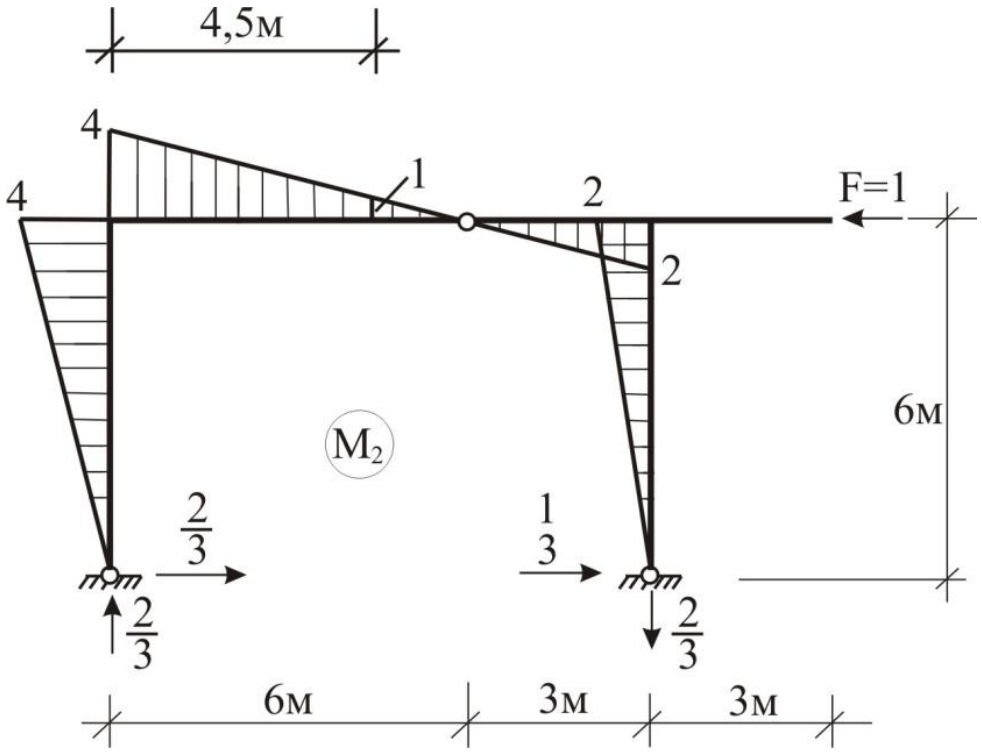

1
3
2

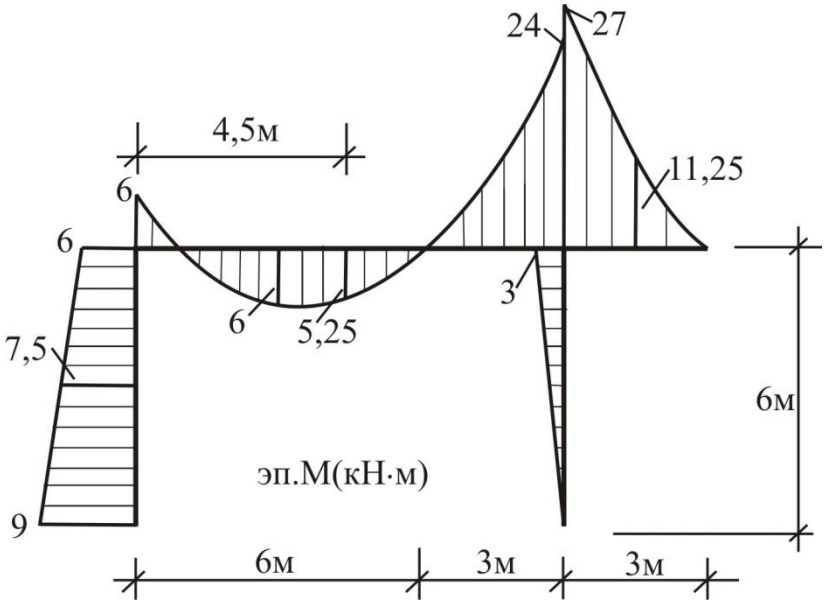


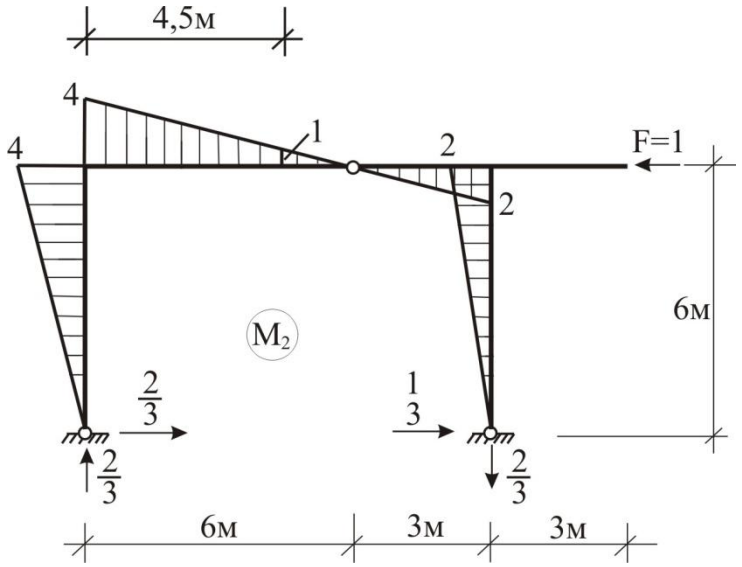


Полагаем $EI_C = EI, \quad EI_P = 3EI$

$$v_K = \Delta_1 = \sum \int \frac{M_1 M}{EI} dx = \frac{1}{EI} \left\{ \left[-\frac{6}{6}(0 + 4 \cdot 7.5 \cdot 1 + 6 \cdot 2) + \frac{3 \cdot 6}{2} \cdot \frac{2}{3} \cdot 2 \right] + \right.$$
$$\left. + \frac{1}{3} \cdot \left[\frac{9}{6}(-6 \cdot 2 + 4 \cdot 5.25 \cdot 0.5 + 24 \cdot 1) + \frac{3}{6}(27 \cdot 3 + 4 \cdot 11.25 \cdot 1.5 + 0) \right] \right\} =$$
$$\frac{-21.75}{EI},$$

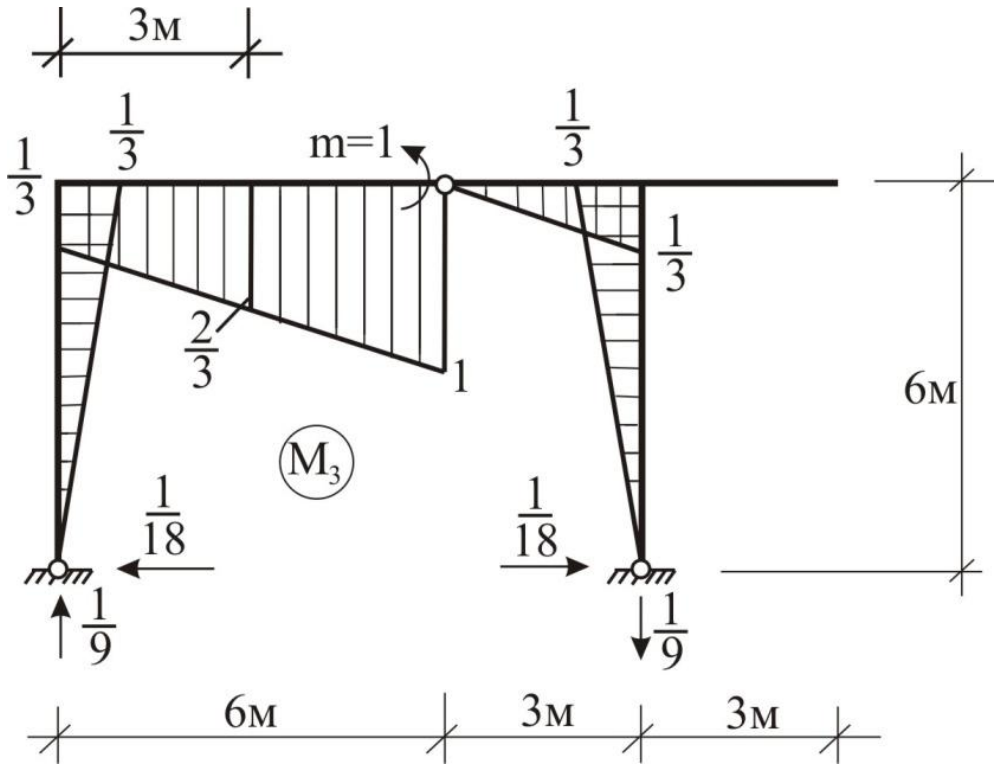

4,5м
4
4
1
2
F=1
2
6м
M2
2/3
1/3
2/3
2/3
6м
3м
3м

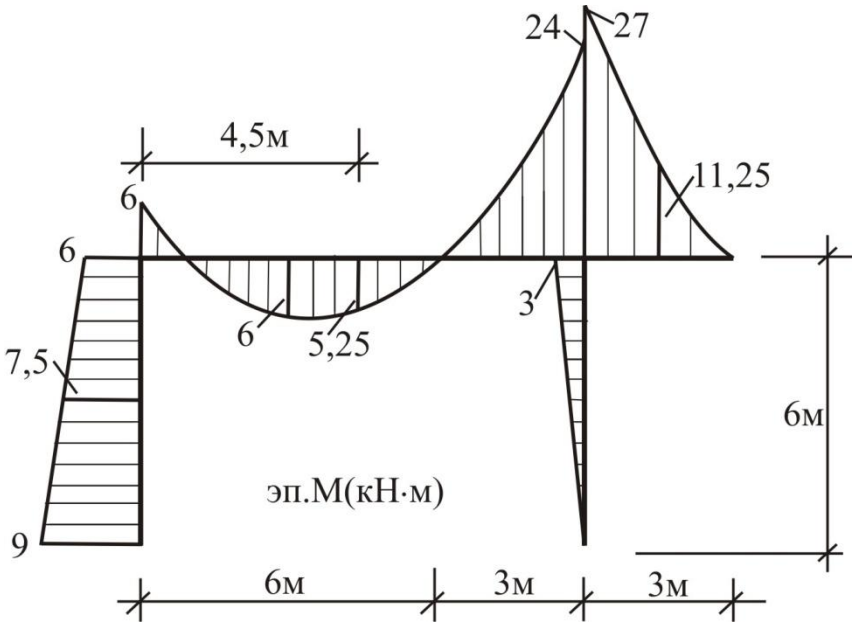


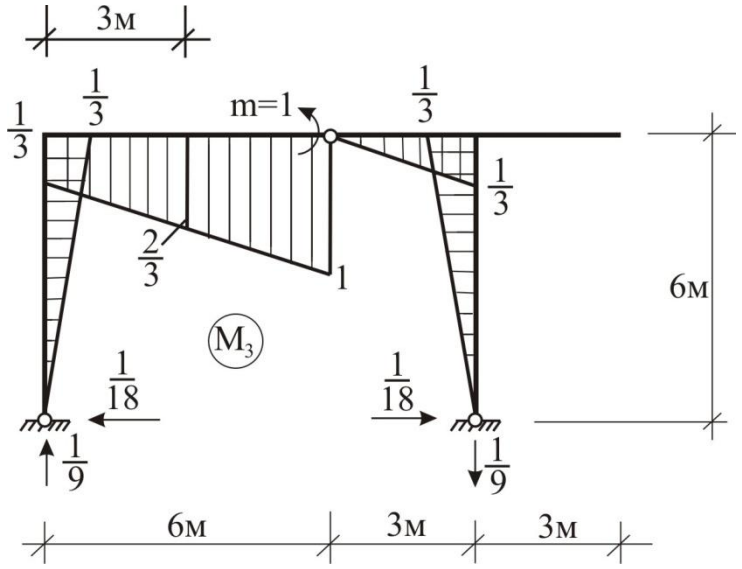


$$u_K = \Delta_2 = \sum \int \frac{M_2 M}{EI} dx = \frac{1}{EI} \left\{ \begin{array}{l} \left[\frac{6}{6}(0 + 4 \cdot 7.5 \cdot 1 + 6 \cdot 4) + \frac{3 \cdot 6}{2} \cdot \frac{2}{3} \cdot 2 \right] + \\ + \frac{1}{3} \cdot \left[\frac{9}{6}(6 \cdot 4 - 4 \cdot 5.25 \cdot 1 - 24 \cdot 2) \right] \end{array} \right\} =$$

$$= \frac{61.5}{EI},$$


3м
1/3
1/3
m=1
1/3
1/3
2/3
1
6м
M3
1/18
1/18
1/9
1/9
6м
3м
3м





$$\theta_1 = \Delta_3 = \sum \int \frac{M_3 M}{EI} dx = \frac{1}{EI} \left\{ \begin{array}{l} \left[-\frac{6}{6}(0 + 4 \cdot 7.5 \cdot \frac{1}{6} + 6 \cdot \frac{1}{3}) + \frac{3 \cdot 6}{2} \cdot \frac{2}{3} \cdot 2 \right] + \\ + \frac{1}{3} \cdot \left[\frac{9}{6} \left(-6 \cdot \frac{1}{3} + 4 \cdot 6 \cdot \frac{2}{3} + 0 \cdot 1 \right) + \frac{3}{6} \left(0 - 4 \cdot 9.75 \cdot \frac{1}{6} - 24 \cdot \frac{1}{3} \right) \right] \end{array} \right\} =$$

$$= \frac{\quad}{EI},$$