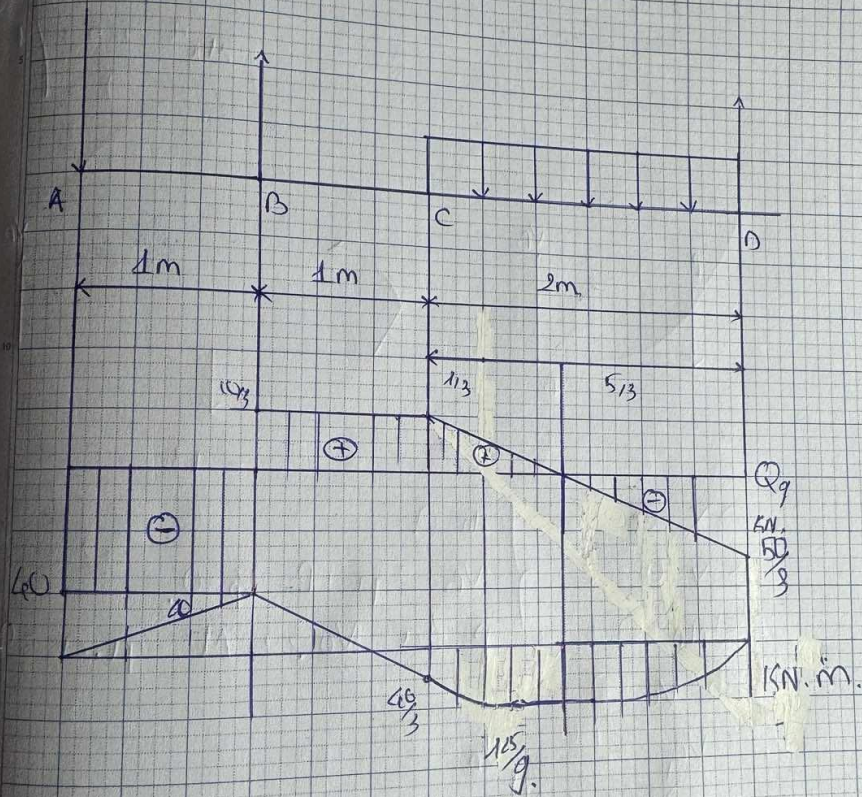


Câu 1



$$Q_y^B = -P + V_B = -40 + \frac{10}{3} = -\frac{110}{3}$$

$$Q_y^D = \frac{10}{3} - 2 \cdot 10 = -\frac{50}{3}$$

$$z = \frac{Q_{\max}}{Q} = \frac{1}{3}$$

$$M_x = 0 - 40 \cdot 1 = -40$$

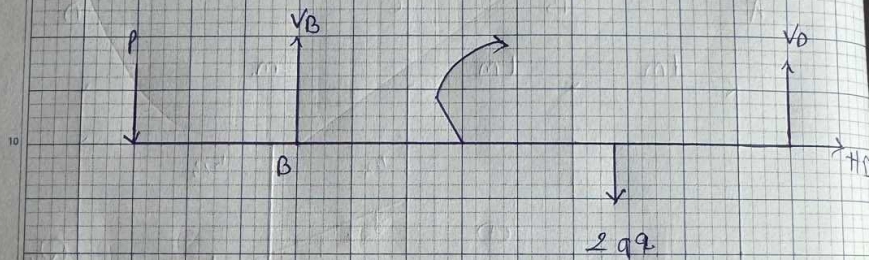
$$M_x = -40 + \frac{10}{3} \cdot 1 = -\frac{110}{3}$$

$$M_{H_{OK}} = -\frac{110}{3} + 50 \cdot \frac{1}{3}$$

$$M_x = \frac{40}{3} + \frac{1}{2} \cdot \frac{10}{3} \cdot \frac{1}{3}$$

$$= \frac{125}{9}$$

$$M_{H_{D}} = \frac{125}{9} \cdot \left(\frac{1}{2} \cdot \frac{10}{3} \cdot \frac{1}{3} \right)$$



$$\sum X = 0$$

$$H_D = 0$$

$$\sum Y = 0$$

$$\Leftrightarrow$$

$$-V_B + 2qa + P - V_D = 0$$

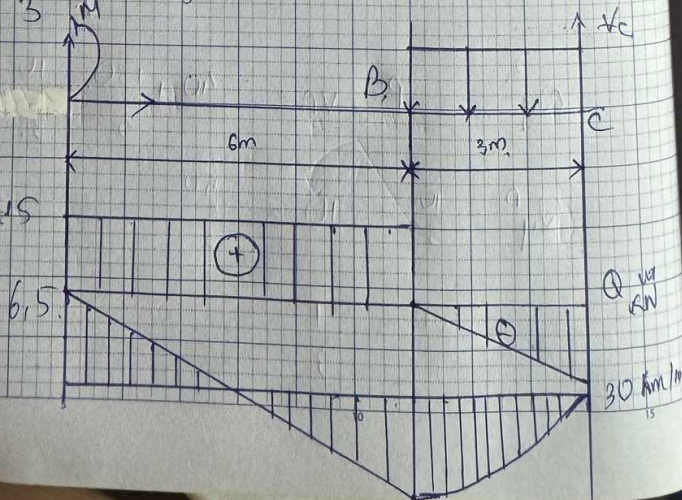
$$\sum M_B = 0$$

$$P \cdot 4a - V_D \cdot 3a - M + 2qa \cdot a = 0$$

$$\Rightarrow V_D = 0$$

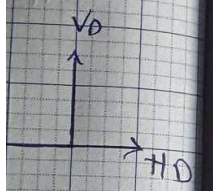
$$V_B = \frac{130}{3}$$

$$V_D = \frac{30}{3}$$

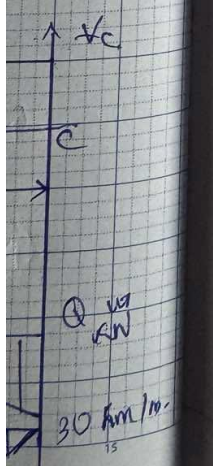


$$\begin{aligned}
 &= \frac{-110}{3} + \frac{50 \cdot 40}{3} \\
 &= \frac{40}{3} + \left(\frac{1}{2} \cdot \frac{10}{3} \cdot \frac{1}{3} \right) \\
 &= \frac{125}{3}
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{1}{2} \cdot \frac{50 \cdot 5}{3} \\
 &= \frac{125}{3}
 \end{aligned}$$

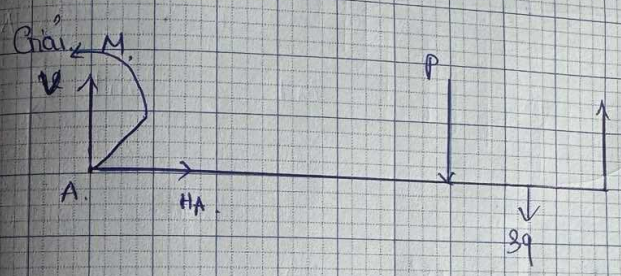
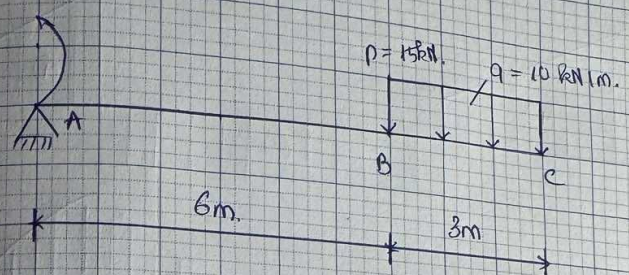


$$= 0$$



Ex 2

$$M = 45 \text{ kN} \cdot \text{m}$$



$$\sum X = 0$$

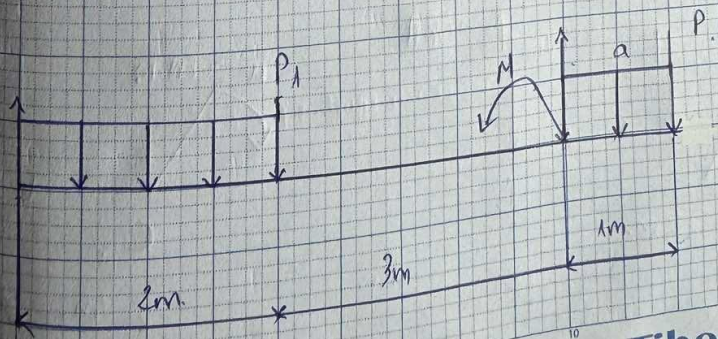
$$\sum Y = 0$$

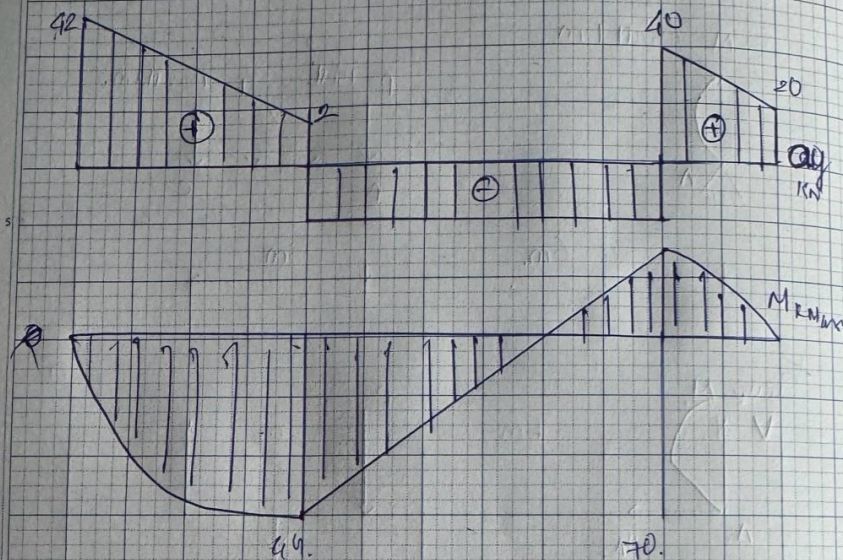
$$\sum M_A = 0$$

$$\Rightarrow \begin{cases} H_A < 0 \\ V_C + 3q + P - V_A = 0 \\ M - P \cdot 6 + -3q \cdot 2.5 + V_C \cdot 9 = 0 \end{cases}$$

$$\Rightarrow H_A = 6$$

$$V_C = 30 ; V_A = 15$$





$$Q_y = 42 - 2 \cdot 20 = 18$$

$$Q_y = 18 - 20 = -2, \quad -2 + 42 = 40$$

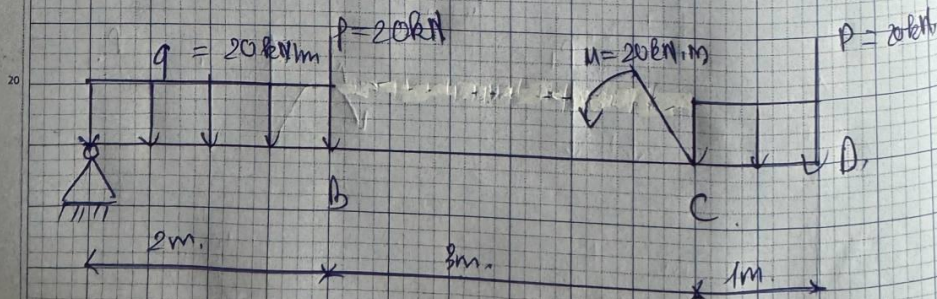
$$Q_y = 40 - 20 \cdot 1 = 20$$

$$M_k = 0 + \frac{1}{2} (42 + 2) \cdot 2 = 44$$

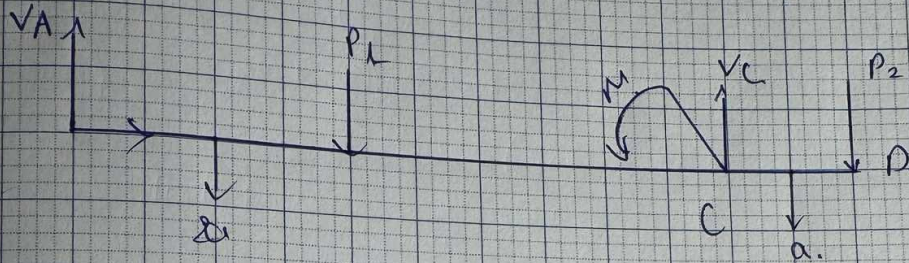
$$M_k = 44 - 18 \cdot 2 - 20 = -30$$

$$M_k = -30 + \frac{1}{2} (40 + 20) \cdot 1 = 0$$

Câu 3:



gou.



$$\sum X = 0.$$

$$\sum Y = 0.$$

$$\sum M_A = 0.$$

$$H_A = 0.$$

$$\rightarrow \left\{ \begin{array}{l} -V_A + 2q + P_1 - V_C + q + P_2 = 0 \\ -2q - P_1 - 2 + M + V_C \cdot 5 - q \cdot 5 = 0 \\ -P_2 \cdot 6 = 0. \end{array} \right.$$

$$\Rightarrow H_A = 0.$$

$$V_C = 50, V_A = 42$$