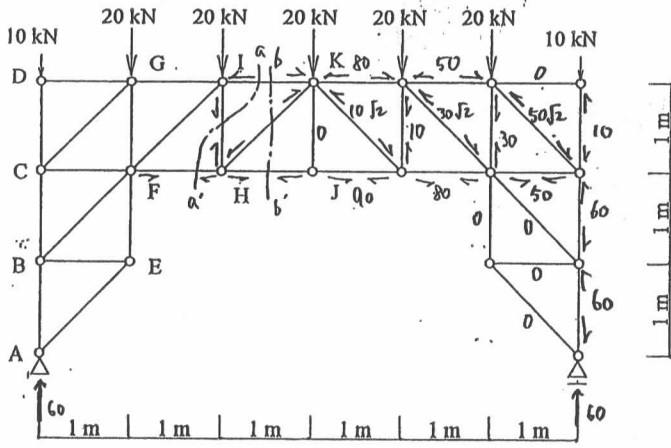


第17回



材料性の  $V_A = 60 \text{ kN}$

a-a' 切断して左をとり.  $\sum Y = 60 - 10 - 20 - 20 - N_{HK} = 0 \therefore N_{HK} = 10 \text{ kN} (+)$

$M_H = 60 \times 2 - 10 \times 2 - 20 \times 1 - N_{JK} \times 1 = 0 \therefore N_{JK} = 80 \text{ kN} (-)$

$M_I = 60 \times 2 - 10 \times 2 - 20 \times 1 - N_{FH} \times 1 = 0 \therefore N_{FH} = 80 \text{ kN} (+)$

b-b' "  $M_K = 60 \times 3 - 10 \times 3 - 20 \times 2 - 20 \times 1 - N_{HT} \times 1 = 0 \therefore N_{HT} = 90 \text{ kN} (+)$

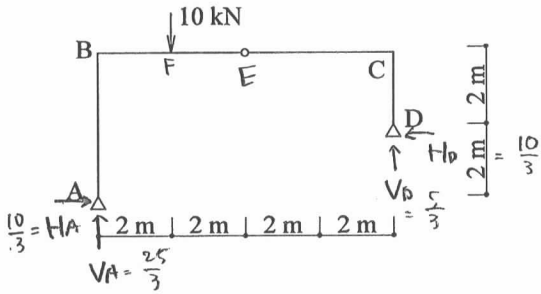
$M_H = 60 \times 2 - 10 \times 2 - 20 \times 1 - N_{JK} \times 1 = 0 \therefore N_{JK} = 80 \text{ kN} (-)$

$M_I = 60 \times 2 - 10 \times 2 - 20 \times 1 - 90 \times 1 + N_{HK} \times \frac{1}{\sqrt{2}} = 0 \therefore N_{HK} = 10\sqrt{2} \text{ kN} (-)$

以下同様.

第7回

下記のMQN図をかけ。



$$M_A = 10 \times 2 - V_D \times 8 - H_D \times 2 = 0$$

$$4V_D + H_D = 10 \quad \dots ①$$

$$\text{to } M_E = H_D \times 2 - V_D \times 4 = 0$$

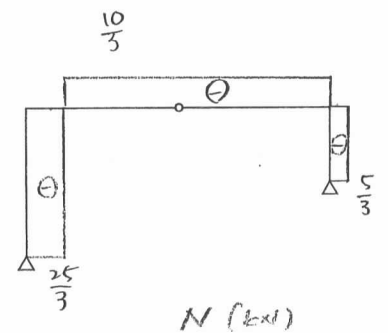
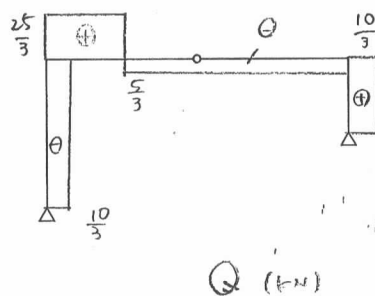
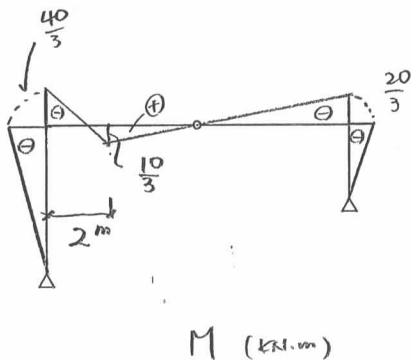
$$H_D = 2V_D \quad \dots ②$$

$$\text{①, ②より } V_D = \frac{5}{3} \text{ kN}, H_D = \frac{10}{3} \text{ kN}$$

$$\sum X = H_A - H_D = 0 \quad \therefore H_A = \frac{10}{3} \text{ kN}$$

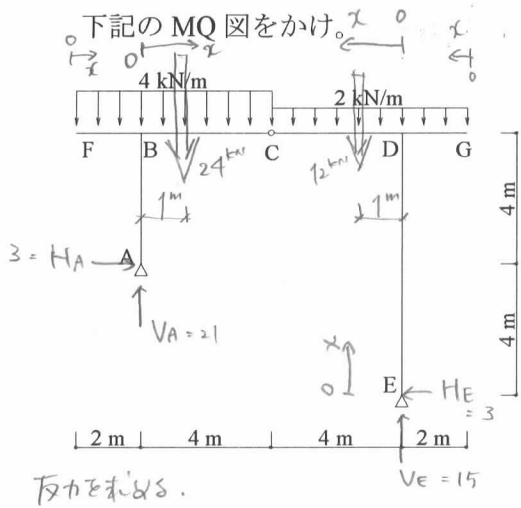
$$\sum Y = -10 + \frac{5}{3} + V_A = 0 \quad \therefore V_A = \frac{25}{3} \text{ kN}$$

|     | M  | Q                                   |
|-----|--|-------------------------------------|
| A-B | $-\frac{10}{3}x$   | $-\frac{10}{3}$                     |
| B-F | $-\frac{40}{3} + \frac{25}{3}x$  | $\frac{25}{3}$                      |
| F-C | $-\frac{40}{3} + \frac{25}{3}x - 10(x-2)$<br>$= \frac{20}{3} - \frac{5}{3}x$ | $-\frac{5}{3}$                      |
| C-D | $-\frac{10}{3}x$   | $-(-\frac{10}{3}x)' = \frac{10}{3}$ |



第7回 学籍番号:

氏名



$$M_{ED} = -3x, \quad Q_{ED} = -(M') = 3$$

$$M_{GD} = -2x \cdot \frac{x}{2}, \quad Q_{GD} = -(M') = 2x$$

$$M_{DC} = -2(x+2) \cdot \frac{(x+2)}{2} + 15x - 3 \cdot 8$$

$$= -x^2 + 11x - 28$$

$$Q_{DC} = -(M') = 2x - 11$$

以上より M、Q図を得る。

$$\sum M_C = 12 \cdot 3 + H_E \cdot 8 - V_E \cdot 4 = 0 \quad \text{①}$$

$$\sum M_A = 24 \cdot 1 + 12 \cdot 7 + H_E \cdot 4 - V_E \cdot 8 = 0 \quad \text{②}$$

$$\text{①、②より } V_E = 15, \quad H_E = 3$$

$$\sum X = H_A - H_E = 0 \text{ より } H_A = 3$$

$$\sum Y = V_A - 24 - 12 + V_E = 0 \therefore V_A = 21$$

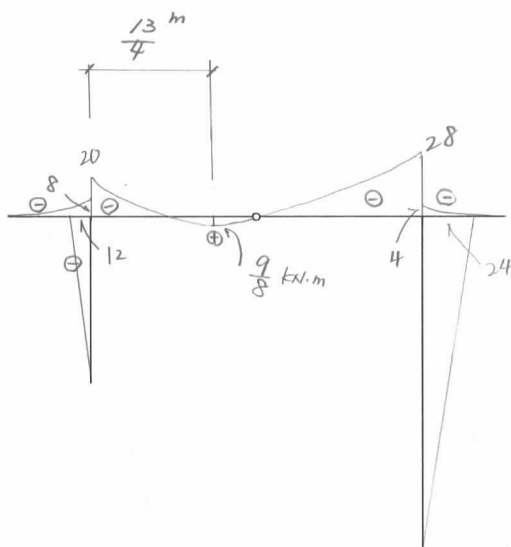
$$M_{AB} = -3x, \quad Q_{AB} = -3$$

$$M_{FB} = -4x \cdot \frac{x}{2}, \quad Q_{FB} = -4x$$

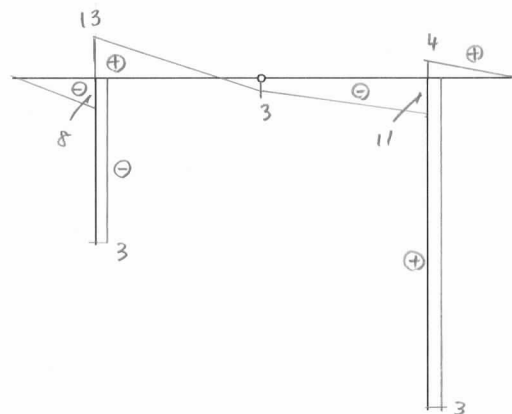
$$M_{BC} = -4(x+2) \cdot \frac{x+2}{2} + 21x - 3 \cdot 4$$

$$= -2x^2 + 13x - 20, \quad Q_{BC} = -4x + 13$$

$$Q_{BC} = 0 \text{ より } x = \frac{13}{4} \text{ として } M = \frac{9}{8}$$



M図 (kN.m)



Q図 (kN)