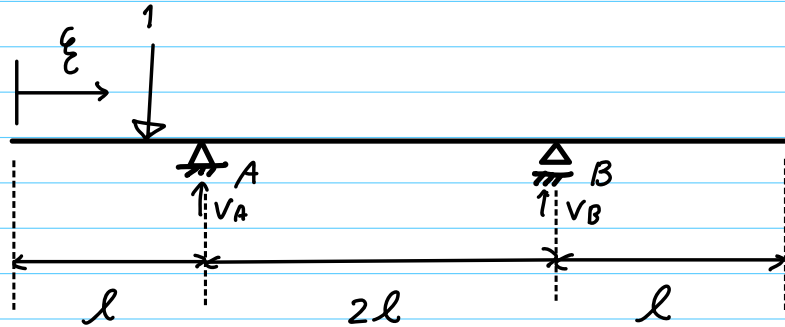
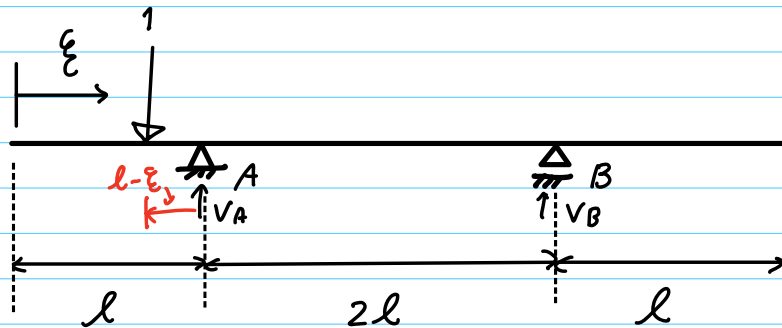


小テスト第12回 解答



場合わけで解く

1) $0 \leq \xi \leq l$ (荷重が A の左にある場合)



$$\uparrow \Sigma: V_A + V_B - 1 = 0$$

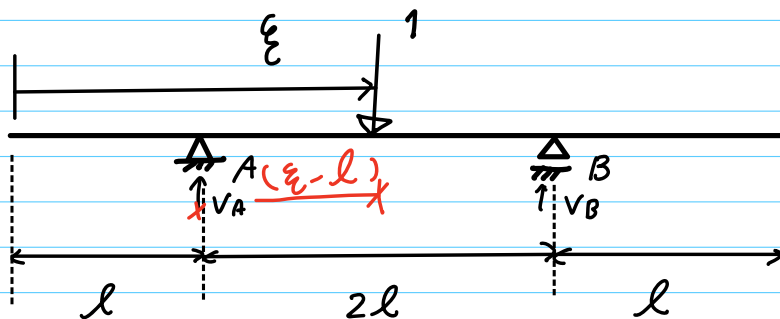
$$\downarrow M_A: V_B + 2l + 1 \cdot (l - \xi) = 0$$

$$V_B 2l = -(l - \xi)$$

$$V_B = \frac{\xi - l}{2l}$$

$$\begin{aligned} V_A &= 1 - V_B \\ &= 1 - \frac{\xi - l}{2l} \\ &= \frac{2l - \xi + l}{2l} \\ &= \frac{3l - \xi}{2l} \end{aligned}$$

2) $l \leq \xi \leq 3l$ (荷重が A と B の間にある場合)



$$\uparrow \Sigma: V_A - 1 + V_B = 0$$

$$V_A = 1 - V_B$$

$$\downarrow M_A: -1 \cdot (\xi - l) + V_B \cdot 2l = 0$$

$$= 1 - \frac{\xi - l}{2l}$$

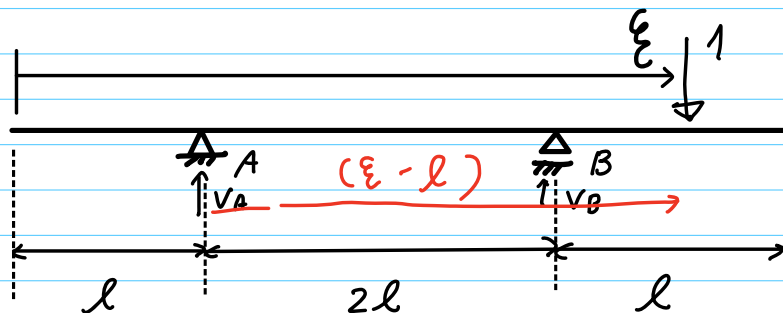
$$2lV_B = (\xi - l)$$

$$V_B = \frac{\xi - l}{2l}$$

$$= \frac{2l - \xi + l}{2l}$$

$$= \frac{3l - \xi}{2l}$$

3) $3l \leq \xi \leq 4l$ (荷重が B より右にある場合)



$$\uparrow V_A + V_B - 1 = 0$$

$$V_A = 1 - V_B$$

$$\downarrow M_A: V_B \cdot 2l - 1 \cdot (\xi - l) = 0$$

$$= 1 - \frac{\xi - l}{2l}$$

$$2l V_B = \xi - l$$

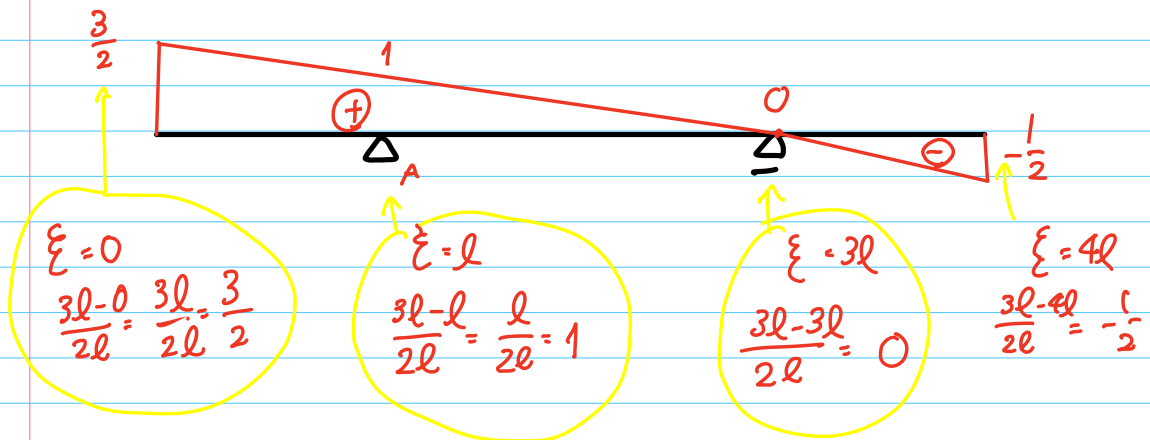
$$V_B = \frac{\xi - l}{2l}$$

$$= \frac{2l - \xi + l}{2l}$$

$$= \frac{3l - \xi}{2l}$$

影響線 V_A

$\Rightarrow V_A$ は $\xi = l$ の場合 $V_A = \frac{3l - \xi}{2l}$



影響線 V_B

$\Rightarrow V_B$ に対する場合 $V_B = \frac{\xi - l}{2l}$

