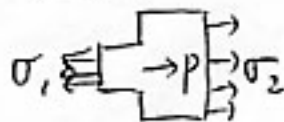
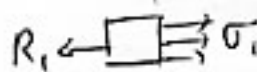
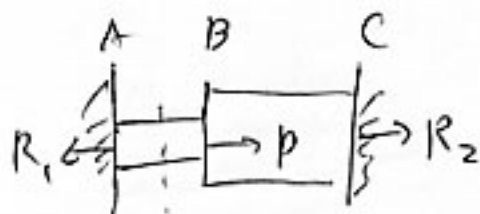


30



両端固定あり

$$\Delta l_1 + \Delta l_2 = \frac{1}{E} \left(\frac{R_1}{A_1} a + \frac{R_2}{A_2} b \right) = 0 \quad \text{--- (8)}$$

$$R_2 = - \frac{A_2 a}{A_1 b} R_1 \quad \text{--- (9)}$$

⑨を⑧に代入して整理すると、

$$R_1 = P - \frac{A_2 a}{A_1 b} R_1, \quad \therefore \begin{cases} R_1 = \frac{A_1 b}{A_2 a + A_1 b} P \\ R_2 = - \frac{A_2 a}{A_2 a + A_1 b} P \end{cases}$$

以上より、

$$(1) \quad \sigma_1 = \frac{R_1}{A_1} = \frac{b}{A_2 a + A_1 b} P, \quad \epsilon_1 = \frac{b}{A_2 a + A_1 b} \frac{P}{E}$$

$$(2) \quad \sigma_2 = \frac{R_2}{A_2} = - \frac{a}{A_2 a + A_1 b} P, \quad \epsilon_2 = - \frac{b}{A_2 a + A_1 b} \frac{P}{E}$$

$$(7) \quad \Delta l_1 = \epsilon_1 a = \frac{a b}{A_2 a + A_1 b} \frac{P}{E}$$

$$(4) \quad R_1 = \frac{A_1 b}{A_2 a + A_1 b} P, \quad R_2 = - \frac{A_2 a}{A_2 a + A_1 b} P$$

(3) 表)

Yuzo

30 両端固定あり

$$R_1 = P + R_2 \quad \text{--- (1)}$$

AB [a]

$$\sigma_1 = \frac{R_1}{A_1} \quad \text{--- (2)}, \quad \epsilon_1 = \frac{\sigma_1}{E} = \frac{R_1}{EA_1} \quad \text{--- (3)}$$

$$\Delta l_1 = \epsilon_1 a = \frac{R_1 a}{EA_1} \quad \text{--- (4)}$$

BC [b]

$$\sigma_2 = \frac{R_2}{A_2} \quad \text{--- (5)}, \quad \epsilon_2 = \frac{\sigma_2}{E} = \frac{R_2}{EA_2} \quad \text{--- (6)}$$

$$\Delta l_2 = \epsilon_2 b = \frac{R_2 b}{EA_2} \quad \text{--- (7)}$$