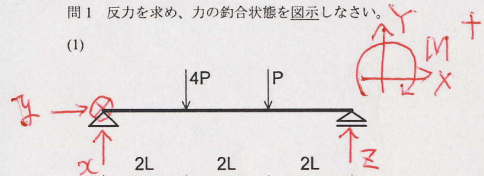


建築構造力学 I A・同演習 第3回 演習問題 実施日2012/05/02	学生証 番号	氏名 解答	得点
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問1 反力を求め、力の釣合状態を図示しなさい。

(1)

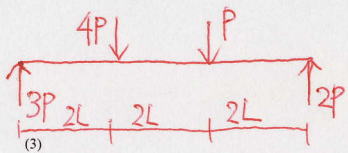


$$\sum X_i = y = 0$$

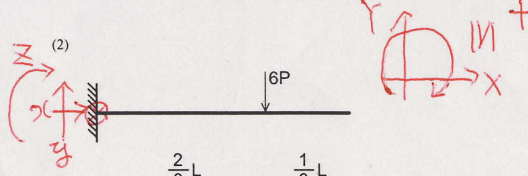
$$\sum Y_i = x + z - 4P - P = 0 \quad x = 3P$$

$$\sum M_i = 4P \times 2L + P \times 4L - z \times 6L = 0$$

$$z = 2P$$



(2)

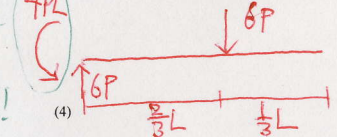


$$\sum X_i = x = 0$$

$$\sum Y_i = y - 6P = 0 \quad y = 6P$$

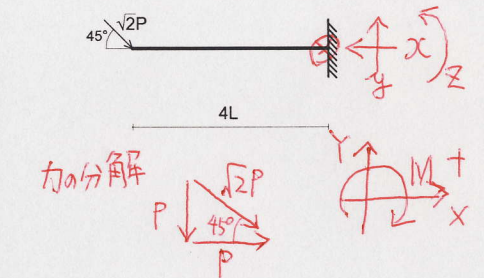
$$\sum M_i = 6P \times \frac{2}{3}L + z = 0$$

$$z = -4PL$$



向に注意!!

力の分解

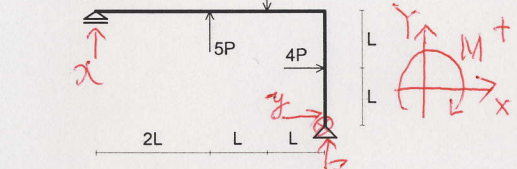
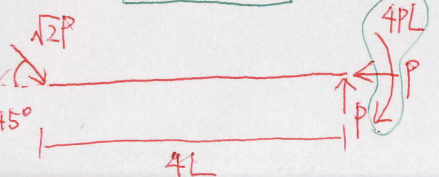


$$\sum X_i = P - x = 0 \quad x = P$$

$$\sum Y_i = -P + y = 0 \quad y = P$$

$$\sum M_i = -P \times 4L - z = 0$$

$$z = -4PL$$

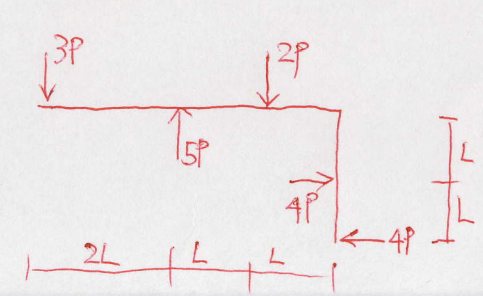


$$\sum X_i = 4P - y = 0 \quad y = -4P$$

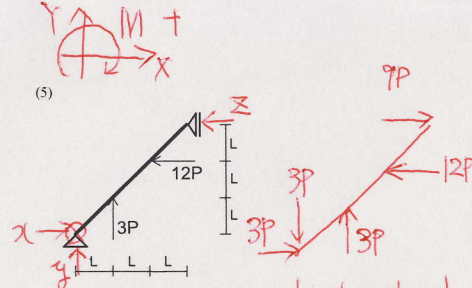
$$\sum Y_i = x + z + 5P - 2P = 0 \quad -3P + z + 3P = 0 \quad z = 0$$

$$\sum M_i = x \times 4L + 5P \times 2L - 2P \times L + 4P \times L = 0$$

$$x = -3P$$



(5)

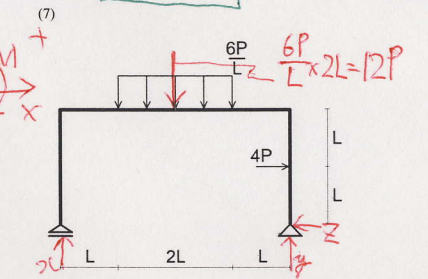


$$\sum X_i = x - 12P - z = 0 \quad x - 12P + 9P = 0 \quad x = 3P$$

$$\sum Y_i = y + 3P = 0 \quad y = -3P$$

$$\sum M_i = -3P \times L - 12P \times 2L - z \times 3L = 0$$

$$-3PL - 24PL - 3zL = 0 \quad z = -9P$$

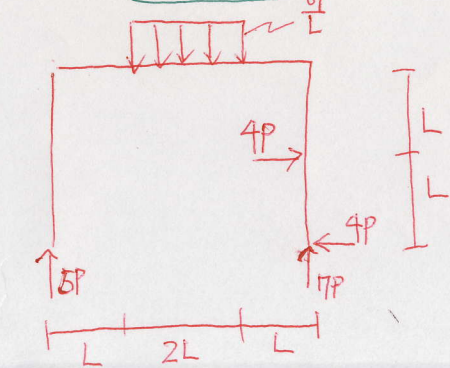


$$\sum X_i = 4P - z = 0 \quad z = 4P$$

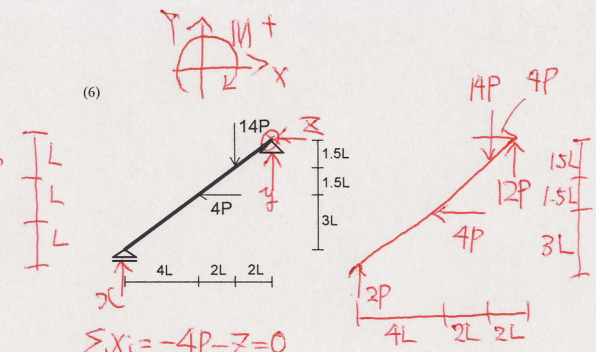
$$\sum Y_i = x + y - 12P = 0 \quad 5P + y - 12P = 0 \quad y = 7P$$

$$\sum M_i = x \times 4L - 12P \times 2L + 4P \times L = 0$$

$$4x - 24P + 4P = 0 \quad x = 5P$$



(6)

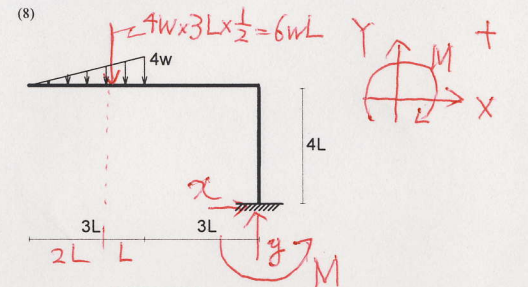


$$\sum X_i = -4P - z = 0 \quad z = -4P$$

$$\sum Y_i = x + y - 14P = 0 \quad 2P + y - 14P = 0 \quad y = 12P$$

$$\sum M_i = x \times 8L + 4P \times 3L - 14P \times 2L = 0$$

$$8x + 12P - 28P = 0 \quad x = 2P$$



$$\sum X_i = x = 0$$

$$\sum Y_i = y - 6wL = 0 \quad y = 6wL$$

$$\sum M_i = -6wL \times 4L - M = 0$$

$$M = -24wL^2$$

