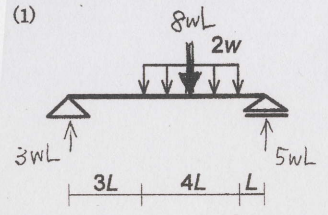
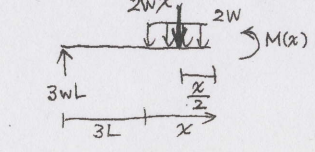


軸力図 (AFD)、せん断力図 (SFD)、曲げモーメント図 (BMD) を図中に描きなさい。なお、分布荷重がある場合の曲げモーメント図では、分布荷重がかかった範囲での曲げモーメントの極大値とその位置、分布荷重の中心位置の曲げモーメント値も図示しなさい。



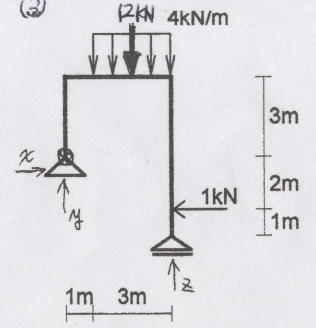
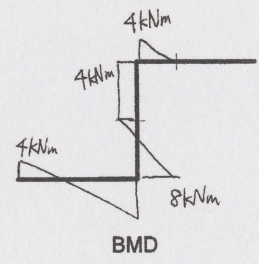
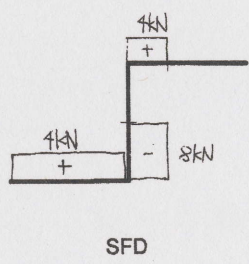
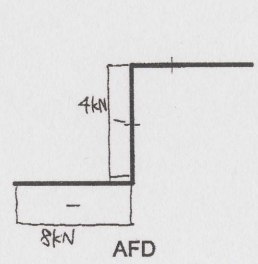
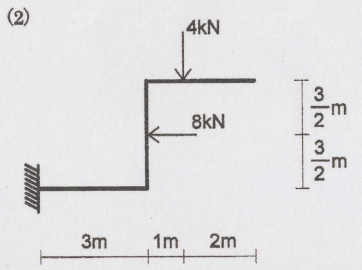
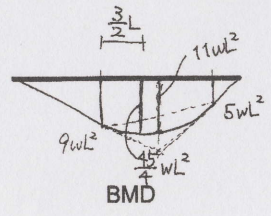
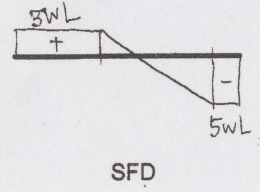
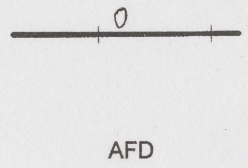
曲げモーメントの極大値発生位置
 $3:5 = x:4L-x$
 $5x = 3(4L-x)$
 $8x = 12L$
 $x = \frac{3}{2}L$



$$\sum \uparrow M(x) + 2wx \times \frac{x}{2} - 3wL(3L+x) = 0$$

$$M(x) = 9wL^2 + 3wLx - wx^2$$

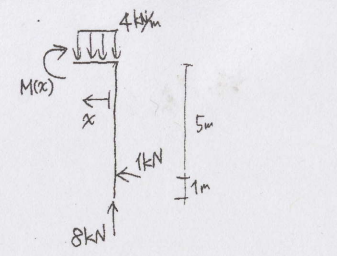
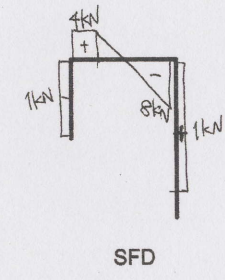
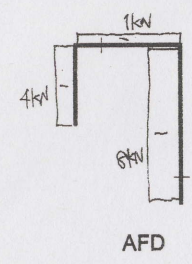
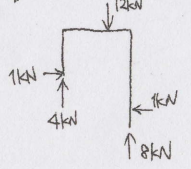
$$x = \frac{3}{2}L \text{ のとき } M\left(\frac{3}{2}L\right) = 9wL^2 + \frac{9}{2}wL^2 - \frac{9}{4}wL^2 = \frac{45}{4}wL^2$$



$$\sum \curvearrowright 12kN \times 2.5m + 1kN \times 2m - z \times 4m = 0$$

$$z = 8kN$$

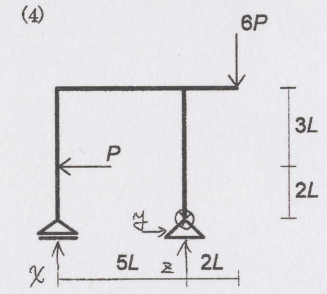
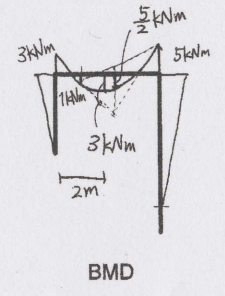
$$\therefore y = 4kN$$



$$\sum \curvearrowright M(x) + 4x \times \frac{x}{2} + 1kN \times 5m - 8kN \times x = 0$$

$$M(x) = -2x^2 + 8x - 5$$

$$x = 2m \text{ のとき } M(2) = -8 + 16 - 5 = 3$$



$$\sum \curvearrowright x \times 5L - P \times 2L + 6P \times 2L = 0$$

$$z = -2P$$

$$\therefore z = 8P$$

