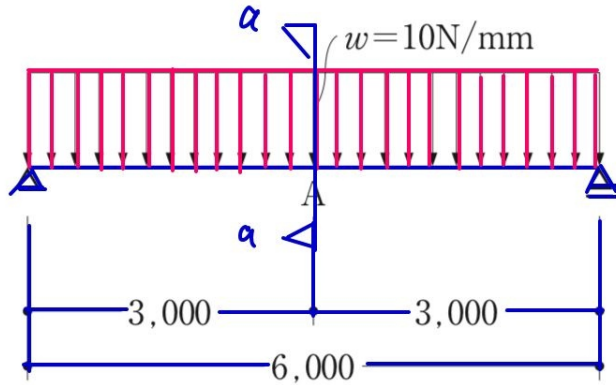
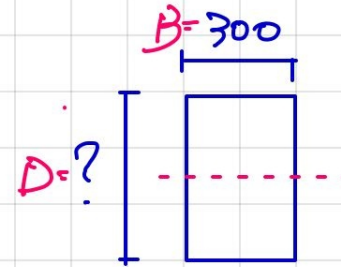


令和6年NO.2

幅300mmの矩形断面のA点の最大曲げ応力度が $10\text{N/mm}^2$ となるための(お)を定める

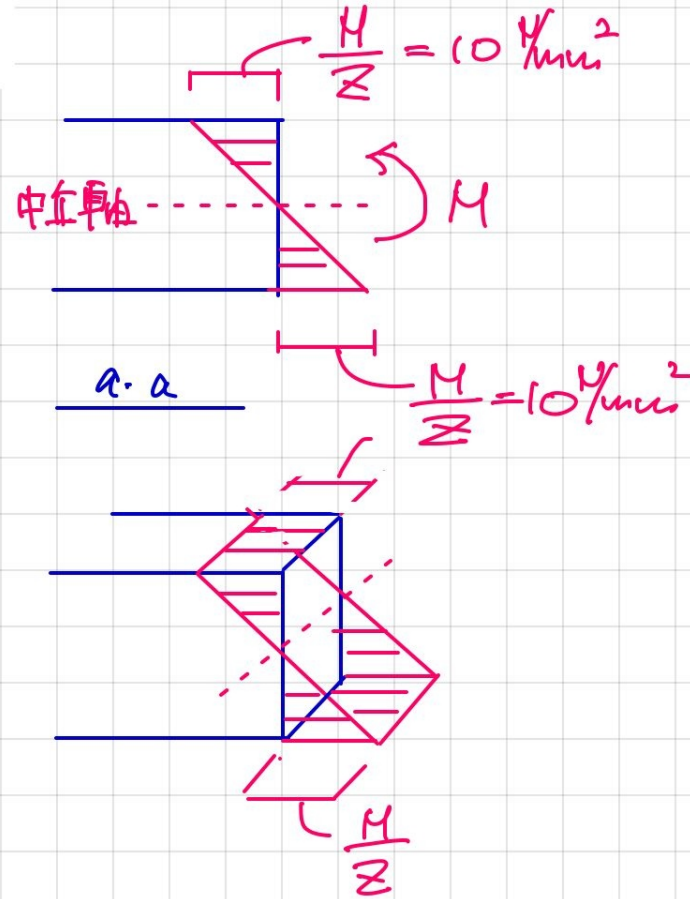


$$M = \frac{wL^2}{8}$$



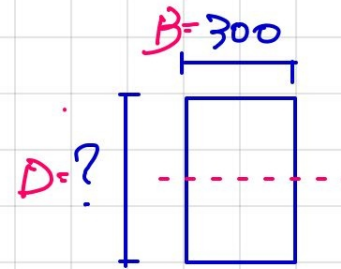
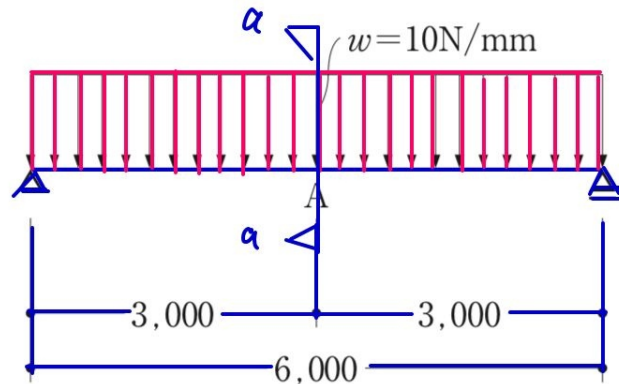
$$Z = \frac{BD^2}{6} \text{ (mm}^3\text{)}$$

(断面係数)



令和6年NO.2

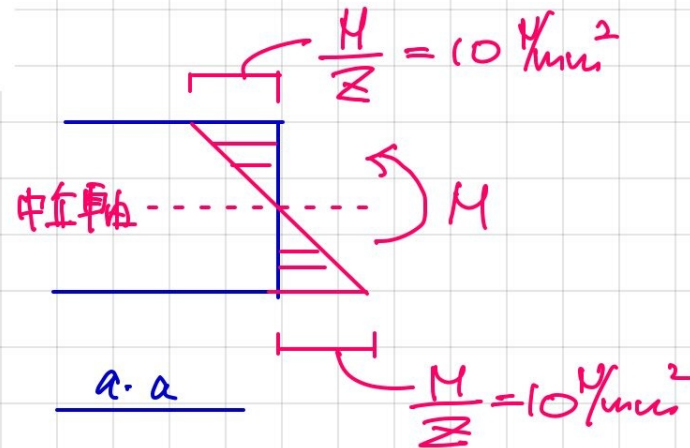
幅300mmの矩形断面のA点の最大曲げ応力度が $10\text{N/mm}^2$ となるための(お)を定める



$$Z = \frac{BD^2}{6} \text{ (mm}^3\text{)}$$

(断面係数)

$$M = \frac{wL^2}{8} \text{ (お)}$$
$$= \frac{10 \cdot 6000^2}{8} = \frac{59}{8} \times 10^6$$
$$= 45 \times 10^6 \text{ N}\cdot\text{mm}$$



$$\frac{M}{Z} = 10 \text{ (お)}$$

$$\frac{45 \times 10^6}{50D^2} = 10$$

$$50D^2 = 45 \times 10^6$$
$$D^2 = \frac{45}{50} \times 10^6$$

$$= 90000$$

$$\Rightarrow D = \sqrt{90000} = \underline{\underline{300\text{mm}}}$$

$$Z = \frac{300 \cdot D^2}{6} = 50D^2 \text{ mm}^3$$