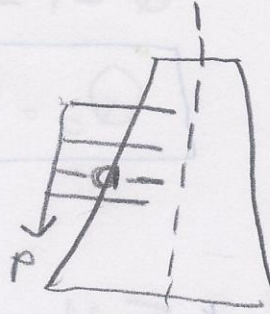
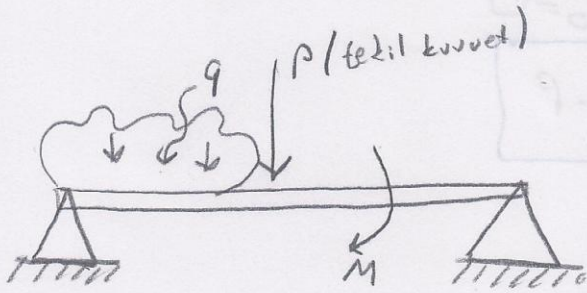
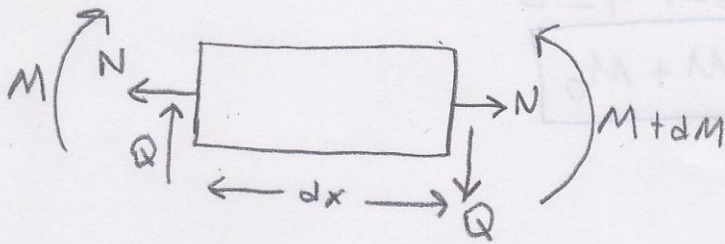


Kesme kuvveti (Q), yayılı yük (q) ve Eğilme momenti (M) arasındaki bağlantılar



$$M = P \cdot a$$



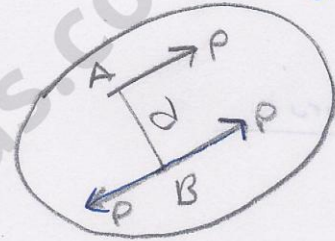
$$* + \sum M_i = 0$$

$$M + Q dx - (M + dM) = 0$$

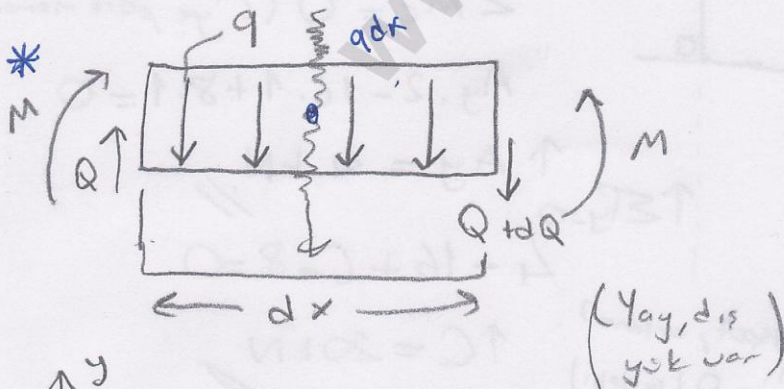
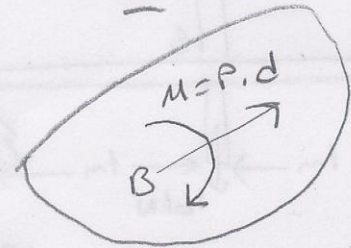
$$\boxed{\frac{dM}{dx} = Q \text{ (kesme kuvveti)}}$$

(dış yük yok)

Kuvvetin İndirgenmesi



=



$$\rightarrow + \uparrow \sum F_y$$

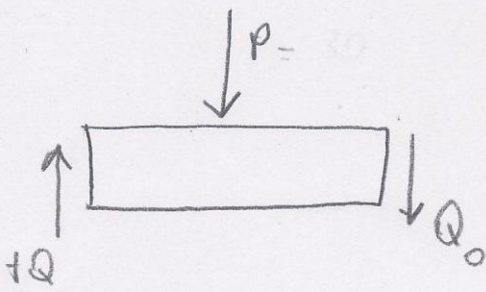
$$Q - q dx - (Q + dQ) = 0$$

$$\boxed{\frac{dQ}{dx} = -q}$$

$$\rightarrow + \sum M = 0$$

$$Q dx + M - q dx \cdot \frac{dx}{2} - (M + dM) = 0$$

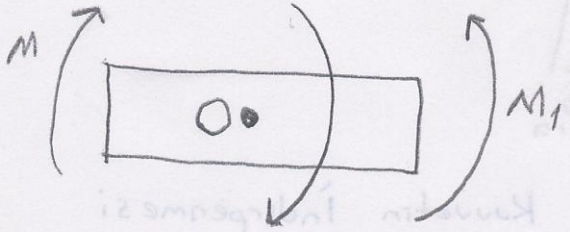
$$\boxed{\frac{dM}{dx} \approx Q} \quad \text{dış yük var.}$$



$$+\uparrow \sum F_y = 0$$

$$Q - P - Q_0 = 0$$

$$Q_0 = Q - P$$

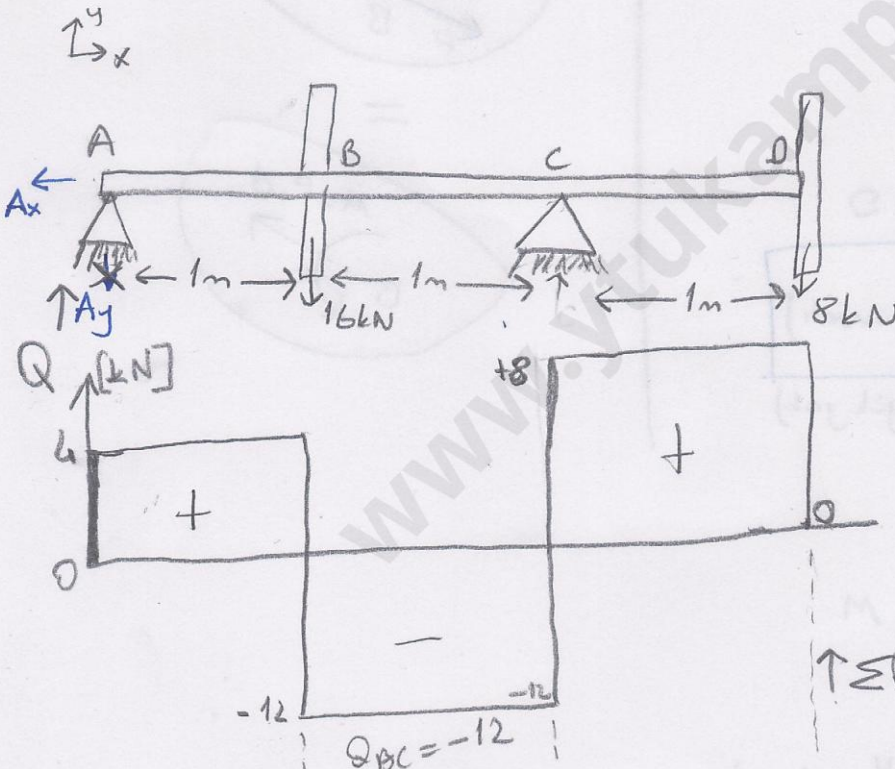


$$* \sum M_i = 0$$

$$M + M_0 - M_1 = 0$$

$$M_1 = M + M_0$$

Çıkış Soru



Kesme kuvveti diagramı

Eğilme momenti diagramı alınır.

$$\sum F_x = 0 \rightarrow A_x = 0 //$$

$$\sum M_C = 0 \text{ (C'ye göre moment)}$$

$$A_y \cdot 2 - 16 \cdot 1 + 8 \cdot 1 = 0$$

$$\uparrow A_y = 4 \text{ kN} //$$

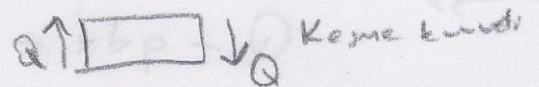
$$\uparrow \sum F_y = 0$$

$$4 - 16 + C - 8 = 0$$

$$\uparrow C = 20 \text{ kN} //$$

= sinavda ispat, ortan?
 $\frac{dM}{dx} = Q$ (sebebi)
 bir derece farklı

Hatırlatma



Kesme kuvveti

Soldan başlıyarsak
yukarı pozitif



Soldan başlıyarsak
sol taraf pozitif

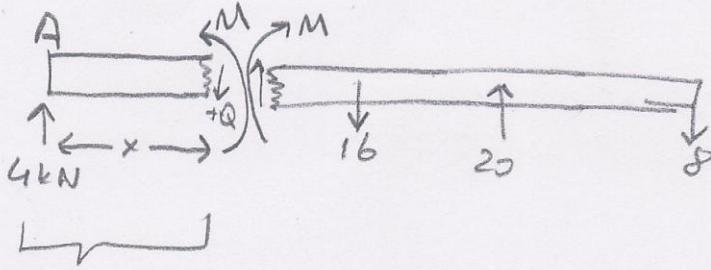
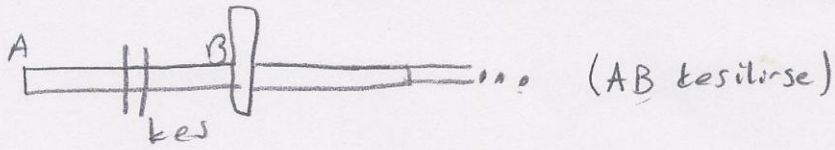
$$M_A = 0$$

$$M_B = 4 \cdot 1 = 4$$

$$M_C = 4 \cdot 2 - 16 \cdot 1 = -8 \text{ kNm}$$

İspat=

Moment denklemi bulma ispatı (sinavda cıkar)



$$\uparrow \sum F_y = 0 \quad 4 - Q = 0$$

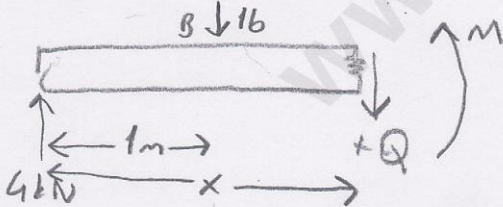
$$\boxed{Q = 4}$$

$$\curvearrowright \sum M = 0$$

$$4 \cdot x - M = 0 \quad \boxed{M = 4x}$$

BC aralığı kesilirse

$$1\text{ m} < x < 2\text{ m}$$



$$\sum F_y = 0 \quad 4 - 16 - Q = 0$$

$$Q = -12 \text{ kN}$$

$$\curvearrowright \sum M = 0$$

$$+4x - 16(x-1) - M_{BC} = 0$$

$$\boxed{M_{BC} = -12x + 16}$$