

{3.3절}

3.82 $T = 2.24 \text{ kN}$, $\alpha = 20^\circ$, $\beta = 30^\circ$, $d_{AB} = 2.4 \text{ m}$, $d_{BC} = 3 \text{ m}$

S; 2차원 등가 힘-우력 계

M; 자유물체도(F.B.D.)

A; $\mathbf{F}_C = T \searrow \alpha = 2.24 \text{ kN} \searrow 20^\circ$

(a) $\Sigma \mathbf{F}$; $\mathbf{F}_A = \mathbf{F}_C = 2.24 \text{ kN} \searrow 20^\circ$

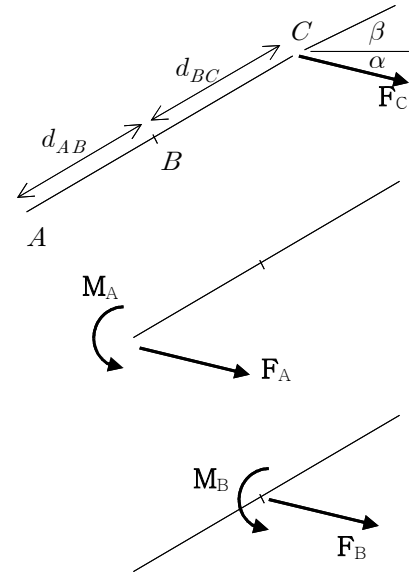
$$\begin{aligned} \uparrow \Sigma M_A ; M_A &= -(d_{AB} + d_{BC}) [F_C \sin(\alpha + \beta)] \\ &= -(5.4 \text{ m}) (2.24 \text{ kN}) \sin 50^\circ \\ &= -9.267 \text{ kN}\cdot\text{m} \end{aligned}$$

$\Rightarrow \mathbf{F}_A = 2.24 \text{ kN} \searrow 20^\circ$, $\mathbf{M}_A = 9.27 \text{ kN}\cdot\text{m} \curvearrowleft$

(b) $\Sigma \mathbf{F}$; $\mathbf{F}_B = \mathbf{F}_C = 2.24 \text{ kN} \searrow 20^\circ$

$$\begin{aligned} \uparrow \Sigma M_B ; M_B &= -d_{BC} [F_C \sin(\alpha + \beta)] \\ &= -(3 \text{ m}) (2.24 \text{ kN}) \sin 50^\circ \\ &= -5.148 \text{ kN}\cdot\text{m} \end{aligned}$$

$\Rightarrow \mathbf{F}_B = 2.24 \text{ kN} \searrow 20^\circ$, $\mathbf{M}_B = 5.15 \text{ kN}\cdot\text{m} \curvearrowleft$



R; (과정의 타당성 검토)

T; (결과의 의미 검토)