{2.2절}

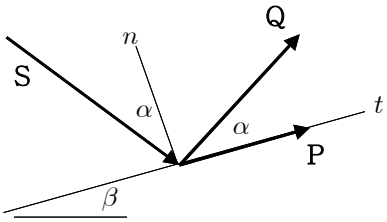
2.42 [직각성분 합에 의한 힘의 합성]

P = 60 N, Q = 80 N, S = 120 N

β = 20°, ϕ = 0

(a) α = ?, (b) R = ?

자유물체도 (F.B.D.)



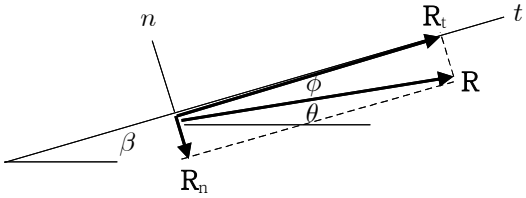
(a) S; (전략)

M; 자유물체도 (F.B.D.)

A; $R_n = Q\sin\alpha - S\cos\alpha = 0$

$\Rightarrow \quad \tan\alpha = \dfrac{S}{Q} = \dfrac{120\text{ N}}{80\text{ N}} = 1.50$

$\Rightarrow \quad \alpha = \tan^{-1}(1.50) = 56.3°$



R; (과정의 타당성)

T; (결과 검토)

(b) S; (전략)

M; 자유물체도 (F.B.D.)

A; $R_t = P + Q\cos\alpha + S\sin\alpha$

$= (60\text{ N}) + (80\text{ N})\cos56.3° + (120\text{ N})\sin56.3°$

$= 204.2\text{ N} \qquad \Rightarrow \quad R = 204\text{ N}$

R; (과정의 타당성)

T; (결과 검토)