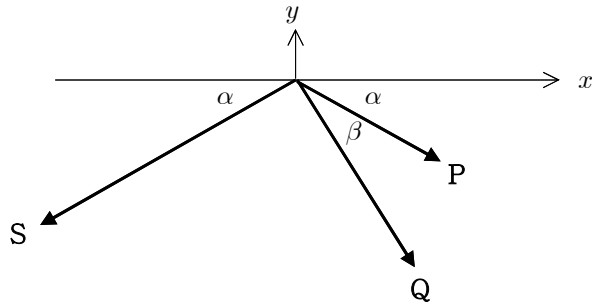


[2.2절]

2.35 S; $P = 100 \text{ N}$, $Q = 150 \text{ N}$, $S = 200 \text{ N}$, $\alpha = 35^\circ$, $\beta = 30^\circ$,
 known : P, Q, S, α, β , unknown : 합력(resultant) \mathbf{R} 의 크기와 방향
 \Rightarrow 직각성분 합에 의한 힘의 합성

M; 자유물체도 (F.B.D.)



A; $\gamma = \alpha + \beta = 35^\circ + 30^\circ = 65^\circ$

$$R_x = P \cos\alpha + Q \cos\gamma - S \cos\alpha$$

$$= (100 \text{ N}) \cos 35^\circ + (150 \text{ N}) \cos 65^\circ - (200 \text{ N}) \cos 35^\circ$$

$$= (81.92 \text{ N}) + (63.39 \text{ N}) - (163.83 \text{ N}) = -18.52 \text{ N}$$

$$R_y = -P \sin\alpha - Q \sin\gamma - S \sin\alpha$$

$$= -(100 \text{ N}) \sin 35^\circ - (150 \text{ N}) \sin 65^\circ - (200 \text{ N}) \sin 35^\circ$$

$$= -(57.36 \text{ N}) - (135.95 \text{ N}) - (114.72 \text{ N}) = -308.03 \text{ N}$$

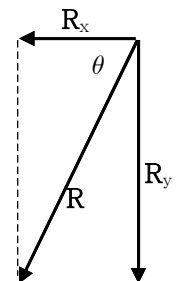
$$\mathbf{R} = R_x \mathbf{i} + R_y \mathbf{j} = (-18.52 \text{ N}) \mathbf{i} + (-308.0) \mathbf{j}$$

$$R = \sqrt{R_x^2 + R_y^2} = \sqrt{(-18.52 \text{ N})^2 + (-308.0 \text{ N})^2} = 308.6 \text{ N}$$

$$\tan\theta = \frac{|R_y|}{|R_x|} = \frac{308.0 \text{ N}}{18.52 \text{ N}} = 16.631$$

$$\theta = \tan^{-1}(16.631) = 86.56^\circ$$

$$\Rightarrow \mathbf{R} = 309 \text{ N} \nearrow 86.6^\circ$$



R; 과정의 타당성 (가령, 삼각법(힘 삼각형 방법)으로 해결하면 어떤지)

T; 결과 검토 (가령, 합력의 방향에 관하여)