

8.7 $\mu_s = 0.30, \mu_k = 0.25, m = 10 \text{ kg}, \theta = 35^\circ$
 $W = (10 \text{ kg})(9.806 \text{ m/s}^2) = 98.06 \text{ N}$

S; 마찰각 $\phi_k = \tan^{-1}(0.25) = 14.04^\circ$
 블록과 벨트에서 각각 힘 삼각형

(a) A;

블록에서 (힘 삼각형)

$$\alpha = 90^\circ - \theta - \phi_k$$

$$= 90^\circ - 35^\circ - 14.04^\circ = 41.0^\circ$$

$$\beta = 90^\circ + \theta = 90^\circ + 35^\circ = 125^\circ$$

sine공식 $\frac{R}{\sin\beta} = \frac{W}{\sin\alpha}$

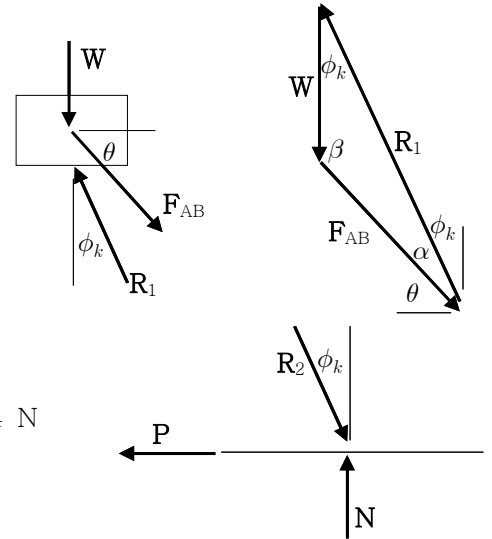
$$\Rightarrow R = \frac{\sin\beta}{\sin\alpha} W = \frac{\sin 125^\circ}{\sin 41.0^\circ} (98.06 \text{ N}) = 122.4 \text{ N}$$

벨트에서

$$\Sigma F_x = 0 ; -P + R \sin\phi_k = 0$$

$$\Rightarrow P = R \sin\phi_k = (122.4 \text{ N}) \sin 14.04^\circ = 29.69 \text{ N} \Rightarrow P = 29.7 \text{ N} \leftarrow$$

M;



(b) A;

블록에서 (힘 삼각형)

$$\alpha = 90^\circ - \theta = 90^\circ - 35^\circ = 55^\circ$$

$$\beta = 180^\circ - \alpha - \phi_k$$

$$= 180^\circ - 55^\circ - 14.04^\circ = 110.96^\circ$$

sine공식 $\frac{R}{\sin\alpha} = \frac{W}{\sin\beta}$

$$\Rightarrow R = \frac{\sin\alpha}{\sin\beta} W = \frac{\sin 55^\circ}{\sin 110.96^\circ} (98.06 \text{ N}) = 86.02 \text{ N}$$

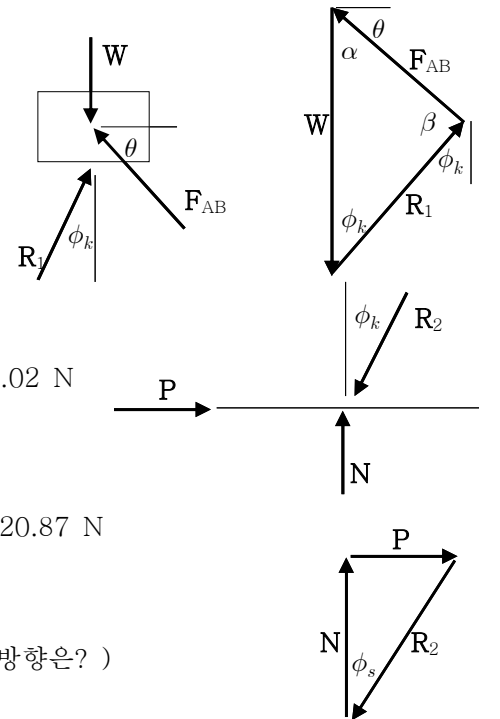
벨트에서

$$\Sigma F_x = 0 ; P - R \sin\phi_k = 0$$

$$\Rightarrow P = R \sin\phi_k = (86.02 \text{ N}) \sin 14.04^\circ = 20.87 \text{ N}$$

$$\Rightarrow P = 20.9 \text{ N} \rightarrow$$

M;



R; (과정의 타당성 검토) (가령, 링크 AB가 가하는 힘의 방향은?)

T; (결과의 의미 검토) (가령, 힘 P에 따른 마찰력의 방향은?)