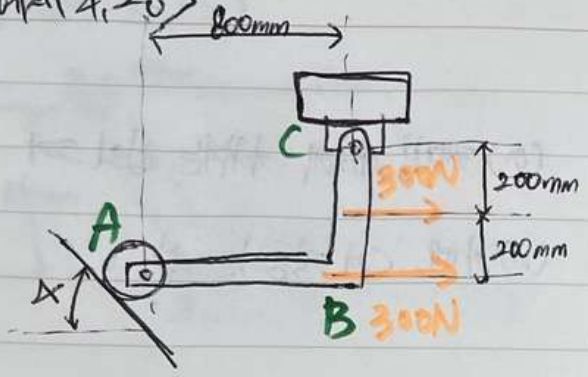
<예제 4.28>

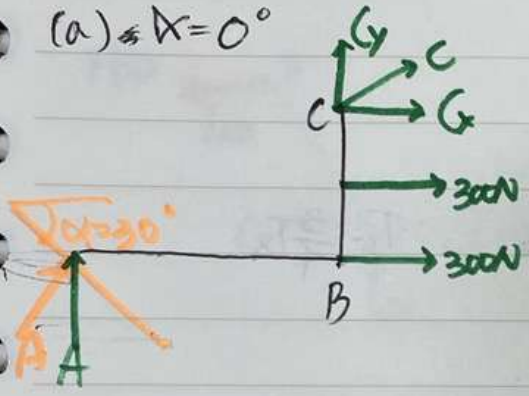


A와 CONA 작용하는 힘을 구하여라.

(a) $\alpha = 0$ 일 때

(b) $\alpha = 30°$ 일 때

(a) $\alpha = 0°$



$+\circlearrowleft \sum M_C = 0 : (300N)(0.2m) + (300N)(0.4m) - A(0.8m) = 0$

$A = 255N$

$+\uparrow \sum F_y = 0 : C_y + 255N = 0 \quad , C_y = -255N$

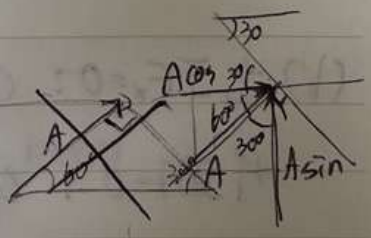
$\pm\rightarrow \sum F_x = 0 : 300N + 300N + C_x = 0 \quad , C_x = -600N$

$C = \sqrt{(255)^2 + (600)^2} = 640.80N \quad , \alpha = \tan^{-1}\left(\frac{C_y}{C_x}\right) = 20.556°$

(b) $\alpha = 30°$

$+\circlearrowleft \sum M_C = 0 : (300N)(0.2m) + (300N)(0.4m) - (A\cos 30°)(0.8m) + (A\sin 30°)(0.8m) = 0$

$A = 365.24N \quad , 60°$



$\pm\rightarrow \sum F_x = 0 : 300N + 300N + (365.24N)\sin 30° + C_x = 0$

$C_x = -782.62$

$+\uparrow \sum F_y = 0 : C_y + (365.24N)\cos 30° = 0 \quad , C_y = -316.31N$

$C = \sqrt{(782.62)^2 + (316.31)^2} = 884.12N$

$\alpha = \tan^{-1}\left(\frac{C_y}{C_x}\right) = 22.007°$