S. 108/1

$|\vec{v}_1| = 400\ km \cdot h^{-1}$

$|\vec{v}_w| = 100\ km \cdot h^{-1}$

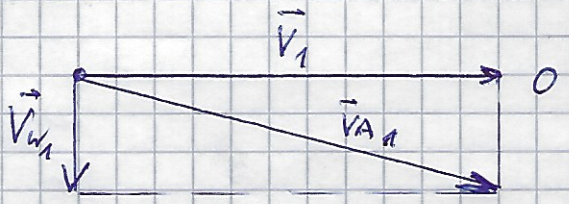
$\vec{v}_{A_1}$ – Absolut

$\vec{v}_{A_2}$ – Absolut

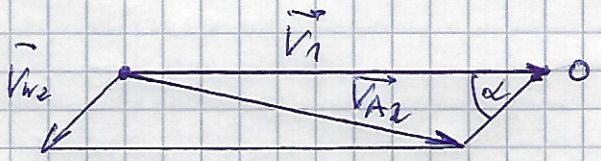
$|\vec{v}_{w_2}| = 50\ km \cdot h^{-1}$

$\alpha = 45°$

a)



b)



zu a) ges.: $|\vec{v}_{A_1}|$

Lös.: $|\vec{v}_{A_1}|^2 = |\vec{v}_1|^2 + |\vec{v}_{w_1}|^2$

$|\vec{v}_{A_1}| = \sqrt{400^2 + 100^2} = \underline{412{,}31\ km \cdot h^{-1}}$

zu b) ges.: $|\vec{v}_{A_2}|$

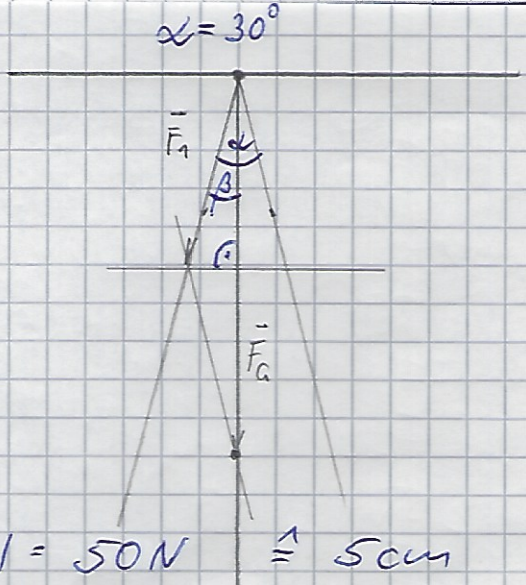
Lös.: $|\vec{v}_{A_2}|^2 = |\vec{v}_1|^2 + |\vec{v}_{w_2}|^2 - 2|\vec{v}_1| \cdot |\vec{v}_{w_2}| \cdot \cos 45°$

$|\vec{v}_{A_2}|^2 = 400^2 + 50^2 - 2 \cdot 400 \cdot 50 \cdot \frac{1}{2}\sqrt{2}$

$|\vec{v}_{A_2}|^2 = 159671{,}58$

$|\vec{v}_{A_2}| \approx \underline{399{,}6\ km \cdot h^{-1}}$

S. 111/9 a)

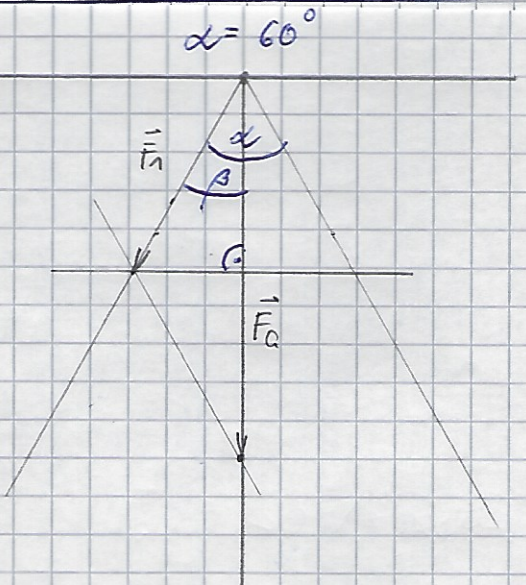


$|\vec{F}_G| = 50N \hat{=} 5cm$

$|\vec{F}_1| = |\vec{F}_2| = 2{,}5cm \hat{=} \underline{25N}$

Lös: z.B.: $|\vec{F}_1| = \frac{\frac{1}{2}|\vec{F}_G|}{\cos\beta} = \underline{25{,}9N}$

b)



$|\vec{F}_1| = |\vec{F}_2| = 2{,}9cm \hat{=} \underline{29N}$

$|\vec{F}_1| = \frac{\frac{1}{2}|\vec{F}_G|}{\cos\beta} = \underline{28{,}9N}$