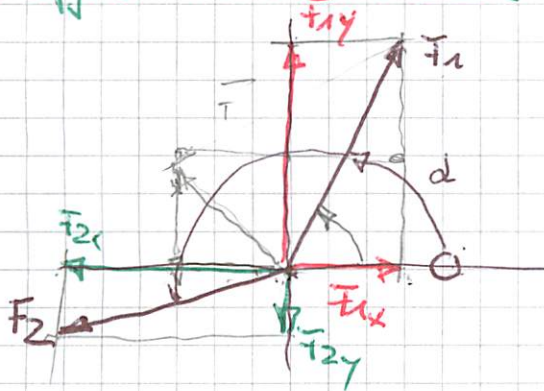


Zusammensetzen - systematische Lösung

Aufg. 5 Mobile Antenne



	$ F  [N]$	$\alpha [^\circ]$	$F_x [N]$	$F_y [N]$
$F_1$	250	70	85,5	234,9
$F_2$	200	190	-197,0	-34,7
$F_R$	229,2	119,1	-111,5	200,2

$$F_{1x} = F_1 \cdot \cos \alpha_1 = 250 \text{ N} \cdot \cos 70^\circ = 85,5 \text{ N}$$

$$F_{1y} = F_1 \cdot \sin \alpha_1 = 250 \text{ N} \cdot \sin 70^\circ = 234,9 \text{ N}$$

$$F_{2x} = F_2 \cdot \cos \alpha_2 = 200 \text{ N} \cdot \cos 190^\circ = -196,96 \text{ N}$$

$$F_{2y} = F_2 \cdot \sin \alpha_2 = 200 \text{ N} \cdot \sin 190^\circ = -34,7 \text{ N}$$

$$F_{Rx} = F_{1x} + F_{2x} + \dots = 85,5 \text{ N} + (-197,0 \text{ N}) = -111,5 \text{ N}$$

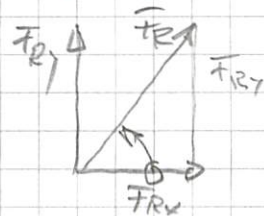
$$F_{Ry} = F_{1y} + F_{2y} + \dots = 234,9 \text{ N} + (-34,7 \text{ N}) = 200,2 \text{ N}$$

$$F_R = \sqrt{F_{Rx}^2 + F_{Ry}^2} = \sqrt{(-111,5 \text{ N})^2 + (200,2 \text{ N})^2} = 229,2 \text{ N}$$

$$\tan \alpha_R = \frac{GK}{AK} = \frac{F_{Ry}}{F_{Rx}}$$

$$\alpha_R = \arctan \frac{F_{Ry}}{F_{Rx}}$$

$$= \arctan \frac{200,2 \text{ N}}{-111,5 \text{ N}} = -60,9^\circ$$



T: Mo, 27.04  
11:00

