Schiefe Ebene

1. $F_H = F_G \cdot \sin(\alpha)$ 1. $F_N = F_G \cdot \cos(\alpha)$

F_G	α	F_H	F_N
25N	30°	12,5N	21,65N
15N	41,81°	10 N	11,18 N
20N	41,41°	13,23N	15N
	33,69°	10N	15 N

$\sin(\alpha) = \frac{F_H}{F_G}$ $\cos(\alpha) = \frac{F_N}{F_G}$

2. $F_G = \frac{F_H}{\sin(\alpha)}$ 2. $F_G = \frac{F_N}{\cos(\alpha)}$

3.

$\frac{F_H}{\sin(\alpha)} = \frac{F_N}{\cos(\alpha)} \quad | : F_N$

$\frac{F_H}{\sin(\alpha) \cdot F_N} = \frac{1}{\cos(\alpha)} \quad | \cdot \sin(\alpha)$

$\frac{F_H}{F_N} = \frac{\sin(\alpha)}{\cos(\alpha)}$

$\frac{10N}{15N} = \tan(\alpha)$

4. $\alpha = 33,69°$

$\sin(\alpha) = \frac{\text{Gegenk.}}{\text{Hypotenuse}}$

$\cos(\alpha) = \frac{\text{Ank.}}{\text{Hypotenuse}}$

$\sin(\alpha) : \cos(\alpha) = \frac{\text{Gegenk.}}{\text{Hyp.}} : \frac{\text{Ank.}}{\text{Hyp.}} = \frac{\text{Gegenk}}{\cancel{\text{Hyp}}} \cdot \frac{\cancel{\text{Hyp}}}{\text{Ank.}} = \frac{\text{Gegenk.}}{\text{Ank.}} = \tan(\alpha)$