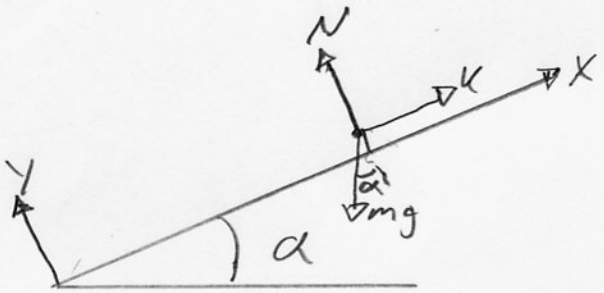
9,3



Effekten $P = \bar{F} \cdot \bar{v}$

Effekten "genererar" kraften $\bar{K}$ (genom att friktionskraft uppstår i kontaktytan mellan bakdäck och underlag när han trampar).

$P = \bar{K} \cdot \bar{v}$ $\quad \bar{v}$ = hastigheten

$\bar{K} = K\bar{e}_x \quad \bar{v} = v\bar{e}_x$

$P = \bar{K} \cdot \bar{v} = Kv$

K okänd

V = konst enl text

NII: $\bar{F} = m\bar{a} = \bar{0}$ ty $\bar{v}$ = konst vektor

→ x: $K - mg\sin\alpha = 0 \Rightarrow K = mg\sin\alpha \Rightarrow P = Kv = mgv\sin\alpha$

↑ y: $N - mg\cos\alpha = 0$

$$\boxed{P = mgv\sin\alpha}$$

$m = 90\,kg$

$g = 9{,}81\,m/s^2$

$v = 20\,km/h = 20 \cdot \frac{1000}{3600}\,m/s = \frac{200}{36}\,m/s$

$\alpha = 10° = \frac{10°}{360°} \cdot 2\pi\,rad$

$$P = 90kg \cdot 9{,}81\frac{m}{s^2} \cdot \frac{200}{36}\frac{m}{s}\sin(10°) = 851{,}74\frac{kgm^2}{s^3} \approx$$

$$\approx 852\,N/s = \underline{\underline{852\,W}}$$

GK