

$$\textcircled{3} 1.1 \quad \vec{F} = m \cdot \frac{\Delta v}{\Delta t} = 40 \text{ kg} \cdot \frac{2,3 \text{ m s}^{-1}}{0,90 \text{ s}} = \underline{1,0 \cdot 10^2 \text{ N}}$$

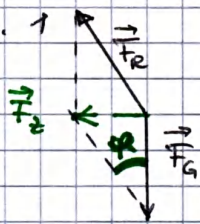
$$\textcircled{3} 1.2 \quad a = g \cdot \sin(\alpha) = 9,81 \text{ m s}^{-2} \cdot \sin(35^\circ) = \underline{5,6 \text{ m s}^{-2}}$$

$$\textcircled{4} 1.3 \quad E_{\text{pot}}(A) + E_{\text{kin}}(A) = E_{\text{kin}}(D)$$

$$\Rightarrow mgh + \frac{1}{2} m v_A^2 = \frac{1}{2} m v_D^2 \Leftrightarrow v_D = \sqrt{2gh + v_A^2}$$

$$v_D = \sqrt{2 \cdot 9,81 \text{ m s}^{-2} \cdot 5,6 \text{ m} + (2,3 \text{ m s}^{-1})^2} = 10,7 \frac{\text{m}}{\text{s}} = \underline{11 \frac{\text{m}}{\text{s}}}$$

④ 1.4. 1



$\vec{F}_G$ : Gew.kr.

$\vec{F}_Z$ : Zentripetalkr.

$\vec{F}_R$ : Kraft Rinne auf Gast

$$\textcircled{6} 1.4.2 \quad \tan(\varphi) = \frac{F_Z}{F_G} = \frac{\tilde{m} v^2 / r}{\tilde{m} g} = \frac{v^2}{r g} = \frac{(11 \text{ m s}^{-1})^2}{10 \text{ m} \cdot 9,81 \text{ m s}^{-2}} \Rightarrow \underline{\varphi = 51^\circ}$$

$$\cos(\varphi) = \frac{F_G}{F_R} \Leftrightarrow F_R = \frac{F_G}{\cos(\varphi)} = \frac{m g}{\cos(\varphi)} = \frac{40 \text{ kg} \cdot 9,81 \text{ N/kg}}{\cos(51^\circ)} \stackrel{\textcircled{3}}{=} \underline{0,62 \text{ kN}}$$

$$\textcircled{6} 1.5 \quad s = v_F \cdot t \quad ; \quad h = \frac{1}{2} g t^2 \Leftrightarrow t = \sqrt{\frac{2h}{g}}$$

$$\Rightarrow s = v_F \cdot \sqrt{\frac{2h}{g}} = 11 \frac{\text{m}}{\text{s}} \cdot \sqrt{\frac{2 \cdot 0,50 \text{ m}}{9,81 \text{ m s}^{-2}}} \stackrel{\textcircled{3}}{=} \underline{3,5 \text{ m}}$$

$$\tan(\beta) = \frac{v_y}{v_x} = \frac{\sqrt{2gh}}{v_F} = \frac{\sqrt{2 \cdot 9,81 \text{ m s}^{-2} \cdot 0,50 \text{ m}}}{11 \text{ m s}^{-1}} \Rightarrow \underline{\beta = 16^\circ}$$

$\Sigma = 26$

