

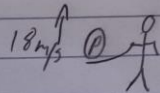
Mekanikka tehtävä 1.

$$m = 0,145 \text{ kg}$$

objekti

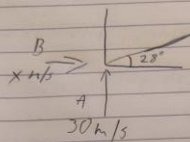
$$Laski korkeus $H = \frac{V_0^2}{2g} = \frac{18^2 \text{ m/s}^2}{2 \cdot 9,80665} = 16,5 \text{ m}$$$

$$g = 9,80665 \text{ m/s}^2$$



Mekanikka

4.



$$\frac{m_A V_A}{m_B V_B} = \frac{\cos \alpha}{\sin \alpha} = \frac{1}{\tan \alpha}$$

$$\frac{100 \times 10^3 \text{ km/h}}{100 \times x \text{ km/h}} = \frac{1}{\tan 28^\circ} \quad \parallel \text{solve } x$$

$$x = 36,421 \text{ km/s} \approx 203,1 \text{ km/h}$$

$$\tan \alpha (28^\circ) = 0,5317094717$$

$$\frac{m_A \times V_A}{m_B \times V_B} = \tan \alpha$$

$$V_2 = \frac{V_A}{\tan \alpha} = V_2 = \frac{30}{\tan \alpha}$$

Mekanikka

tehtävä 2

$$F = kx$$

$$m = 140 \text{ g}$$

$$JV = 240 \text{ N}$$

$$F = 240 \text{ N/h} \cdot 0,12 \text{ m}$$

$$F = 30 \text{ N}$$

$$F = 100 \text{ N}$$

$$1 \text{ N} = 1 \text{ kg} \cdot \text{m/s}^2$$

$$\text{Kiihtyvyyttä } 1 \text{ m/s}^2$$

$$k = 100 \text{ N/m}$$

$$F = \frac{30 \text{ N}}{0,24 \text{ m}} = 120 \text{ N/m}$$

$$x = 100 \text{ N}$$

$$V_1 = V_0 + 2ad$$

$$a = 120 \text{ m/s}^2$$

$$V_1 = (0 \text{ m/s})^2 + 2 \cdot (120 \text{ m/s}^2) \cdot 0,12 \text{ m}$$

$$d = 0,12 \text{ m}$$

$$V_1 = 28,8 \text{ m/s} \parallel V$$

$$V_0 = 0 \text{ m/s}$$

$$V_1 = 4,36 \text{ m/s}$$

PARHAUS- ja OSANVUOTO

tehtävä



Mekanikka tehtävä 5.

$$P.P.M. = 500$$

$$\text{Levyä, halkaisija} = 120 \text{ mm}$$

$$P = 500 \text{ RPM}$$

$$n = \frac{500 \text{ RPM}}{60 \text{ sec}} = 8.333 \text{ 1/s}$$

$$a) \text{ Kulma nopeus} = 2\pi n$$

$$= 2 \cdot \pi \cdot 8.333 \text{ 1/s}$$

$$= 52.36 \text{ 1/s}$$

$$b) \text{ Kehänopeus} = 0.12 \text{ m} \cdot 52.36 \text{ 1/s}$$

$$= 6.28 \text{ m/s}$$

$$B) \text{ Kehänopeus} = 0.06 \text{ m} \cdot 52.36 \text{ 1/s}$$

$$= 3.14 \text{ m/s}$$

Mekaniikka tehtävä 3.

Pallon massa = 0,065 kg

$$V_0 = 25 \text{ m/s}$$

$$V_1 = -35 \text{ m/s}$$

$$\Delta t = 4 \text{ ms} = 0,004 \text{ s}$$

$$a = \frac{V_0 - V_1}{\Delta t} = 15$$

$$a = \frac{25 \text{ m/s} - (-35 \text{ m/s})}{0,004 \text{ s}}$$

$$a = 15000 \text{ m/s}^2$$

$$F = m \cdot a$$

$$F = (0,065) \cdot (15000)$$

$$F = 975 \text{ N}$$