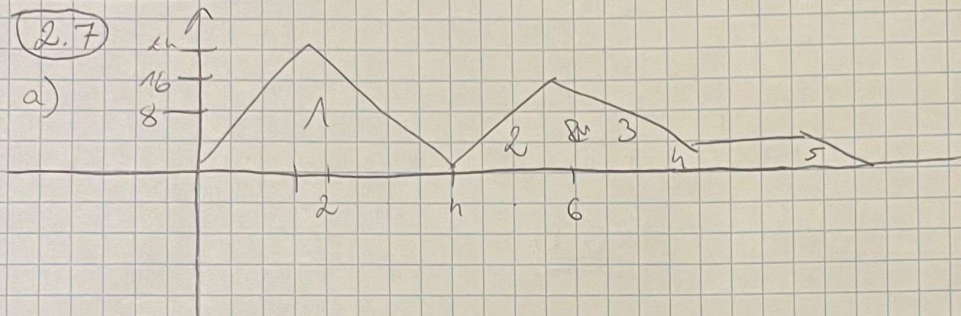


2.7

a)



$$\text{dla } 1s_1 = \frac{1}{2} \cdot h \cdot 2h \frac{\text{rad}}{s} = 48 \text{ rad}$$

$$\text{dla } 2s_2 = 32 \text{ rad}$$

$$\text{dla } 3s_3 = 16 \text{ rad}$$

$$\text{dla } 4s_4 = 48 \text{ rad}$$

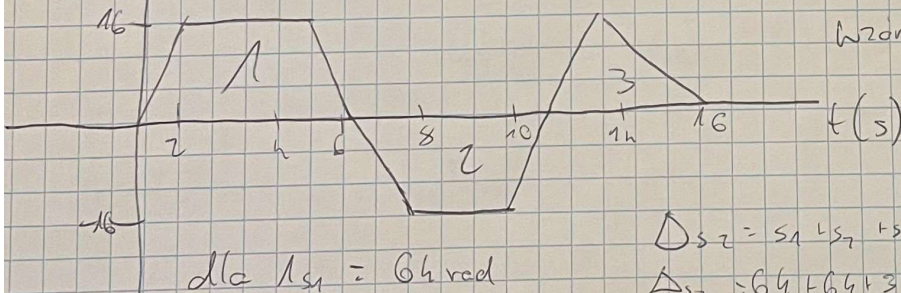
$$\text{dla } 5s_5 = 8 \text{ rad}$$

$$\Delta s_1 = 48 + 32 + 16 + 48 + 8 \text{ (rad)} = 152 \text{ rad}$$

$$\omega_{sr} = \frac{\Delta s}{\Delta t}$$

$$\omega_{sr} = \frac{152}{16s} = 9.5 \frac{\text{rad}}{s}$$

$\omega \times \left(\frac{1}{5}\right)$



Wzór na pole trapezów i trójkątów

$$\text{dla } 1s_1 = 64 \text{ rad}$$

$$\text{dla } 2s_2 = 64 \text{ rad}$$

$$\text{dla } 3s_3 = 32 \text{ rad}$$

$$\Delta s_2 = s_1 + s_2 + s_3$$

$$\Delta s_2 = 64 + 64 + 32 \text{ (rad)} = 160 \text{ rad}$$

$$\omega_{sr} = \frac{160 \text{ rad}}{16s} = 10 \frac{\text{rad}}{s}$$

b) dla prędkości bryły

$$\omega_0 = 0 \text{ rad/s} \quad \omega_1 = 2 \text{ rad/s} \quad \omega_2 = 0 \text{ rad/s} \quad \omega_3 = 16 \text{ rad/s} \quad \omega_4 = 8 \text{ rad/s} \\ \omega_5 = 8 \text{ rad/s} \quad \omega_6 = 0 \text{ rad/s}$$

$$t_0 = 0 \text{ s} \quad t_1 = 2 \text{ s} \quad t_2 = 4 \text{ s} \quad t_3 = 8 \text{ s} \quad t_4 = 12 \text{ s} \quad t_5 = 14 \text{ s} \quad t_6 = 16 \text{ s}$$

$$\epsilon = \frac{\Delta \omega}{\Delta t} \quad \epsilon = \frac{\omega_2 - \omega_1}{t_2 - t_1}$$

$$\epsilon_1 = \frac{2 \text{ rad/s} - 0 \text{ rad/s}}{2 - 0} = 1 \text{ rad/s}^2$$

$$\epsilon_2 = \frac{-2 \text{ rad/s}}{2} = -1 \text{ rad/s}^2$$

$$\epsilon_3 = \frac{16 \text{ rad/s}}{4} = 4 \text{ rad/s}^2$$

$$\epsilon_4 = \frac{-8 \text{ rad/s}}{4} = -2 \text{ rad/s}^2$$

$$\epsilon_5 = \frac{0 \text{ rad/s}}{2} = 0 \text{ rad/s}^2$$

$$\epsilon_6 = \frac{-8 \text{ rad/s}}{2} = -4 \text{ rad/s}^2$$

dla bryły drugiej

$$\omega_0 = 0 \text{ rad/s} \quad \omega_1 = 16 \text{ rad/s} \quad \omega_2 = 16 \text{ rad/s} \quad \omega_3 = -16 \text{ rad/s} \quad \omega_4 = -16 \text{ rad/s} \\ \omega_5 = 16 \text{ rad/s} \quad \omega_6 = 0 \text{ rad/s}$$

$$t_0 = 0 \text{ s} \quad t_1 = 2 \text{ s} \quad t_2 = 4 \text{ s} \quad t_3 = 8 \text{ s} \quad t_4 = 10 \text{ s} \quad t_5 = 14 \text{ s} \quad t_6 = 16 \text{ s}$$

$$\epsilon_1 = \frac{16 \text{ rad/s}}{2} = 8 \text{ rad/s}^2$$

$$\epsilon_2 = \frac{0 \text{ rad/s}}{2} = 0 \text{ rad/s}^2$$

$$\epsilon_3 = \frac{-32 \text{ rad/s}}{4} = -8 \text{ rad/s}^2$$

$$\epsilon_4 = \frac{0 \text{ rad/s}}{2} = 0 \text{ rad/s}^2$$

$$\epsilon_5 = \frac{32 \text{ rad/s}}{4} = 8 \text{ rad/s}^2$$

$$\epsilon_6 = \frac{-16 \text{ rad/s}}{2} = -8 \text{ rad/s}^2$$

Mateusz
Kuczyński
2018

