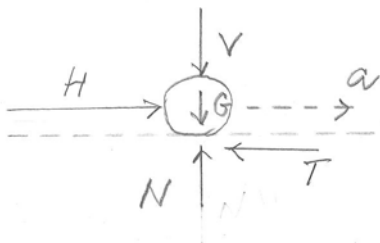


NA HRPAVOD PODLOZI MIRUJE
MATERIJALNA TOČKA TEŽINE
 $G = 10\text{ N}$. NA TOČKU POČNE
DJELOVATI KOSA SILA ČIJA JE
VELIČINA $P(t) = 2t + 4\text{ (N)}$

TREBA ODREDITI :

- U KOJEM JE TRENUTKU $t_1 = ?$ OD POČETKA
DJELOVANJA SILE POČELO GIBANJE?
- KOLIKA JE BRZINA TOČKE 4 SEKUNDE OD
POČETKA GIBANJA
- KOLIKO SE METARA TOČKA UDALJILA OD
POČETNOG POLOŽAJA 4 10 SEKUNDI OD
POČETKA DJELOVANJA SILE



$$H = P(t) \cdot \frac{\sqrt{3}}{2} = \sqrt{3}t + 2\sqrt{3}$$

$$V = P(t) \cdot \frac{1}{2} = t + 2$$

$$T = N \cdot \mu$$

$$1) \sum Y = 0 \Rightarrow N = G + V = 10 + t + 2 = 12 + t$$

$$T = \frac{\sqrt{3}}{4} \cdot (12 + t)$$

$$2) \text{ X smjer } \Rightarrow m \cdot \vec{a} = \sum \vec{F} = \vec{R}(t) \quad R(t) = H - T$$

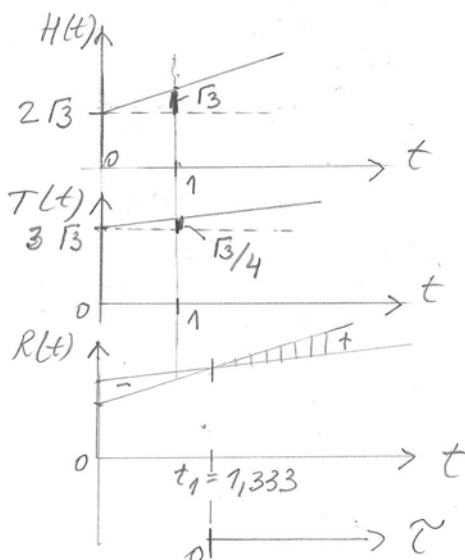
UVJET GIBANJA: $R(t) \geq 0$

a) POČETAK GIBANJA: $R(t_1) = 0$

$$R(t) = \sqrt{3}t_1 + 2\sqrt{3} - \frac{\sqrt{3}}{4}(12 + t_1) = 0$$

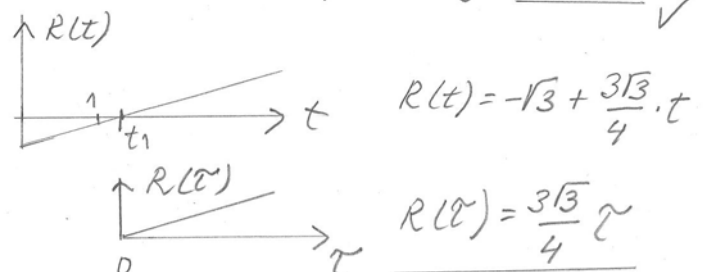
$$t_1 \sqrt{3} \left(1 - \frac{1}{4}\right) = \sqrt{3}$$

$$t_1 \cdot \frac{3}{4} = 1 \Rightarrow \underline{t_1 = \frac{4}{3} \text{ (s)}}$$



$$H(t_1) = \sqrt{3} \cdot \frac{4}{3} + 2\sqrt{3} = 5,77\text{ N}$$

$$T(t_1) = \frac{\sqrt{3}}{4} \left(12 - \frac{4}{3}\right) = 5,77\text{ N} \quad \checkmark$$



POČETAK GIBANJA: $\tau = 0$

$$R(t) = -\sqrt{3} + \frac{3\sqrt{3}}{4} \cdot t$$

UVODI SE NOVO VRISTEME $\tau = t - t_1 = t - \frac{4}{3}$

$$t = \tau + \frac{4}{3} \quad (\text{GIBANJE POČINJE ZA } \tau = 0 \text{ ILI } t = \frac{4}{3} \text{ s})$$

$$R(\tau) = -\sqrt{3} + \frac{3\sqrt{3}}{4} \left(\tau + \frac{4}{3}\right) = -\sqrt{3} + \sqrt{3} + \frac{3\sqrt{3}}{4} \tau = \frac{3\sqrt{3}}{4} \tau$$

$$m \cdot a = \frac{3\sqrt{3}}{4} \tau$$

$$a(\tau) = \frac{3\sqrt{3}}{4} \cdot \frac{g}{G} \cdot \tau = \frac{3\sqrt{3}}{4} \cdot \frac{9,81}{10} \cdot \tau$$

$$a(\tau) = 1,2744 \cdot \tau$$

$$v(\tau) = \int_0^{\tau} a(\tau) d\tau + v_0 = 1,2744 \frac{\tau^2}{2}$$

$$s(\tau) = \int_0^{\tau} v(\tau) d\tau + s_0 = 1,2744 \cdot \frac{\tau^3}{6}$$

b) za $\tau = 4$ (s) BRZINA JE:

$$v_{(4)} = 1,2744 \cdot \frac{4^2}{2} = 10,2 \text{ m/s}$$

c) PRIDEDENI PUT NAKON $t = 10$ s

$$\tau = 10 - \frac{4}{3} = 8,667 \text{ s}$$

$$s = 1,2744 \cdot \frac{8,667^3}{6} = \underline{\underline{138,26 \text{ m}}}$$