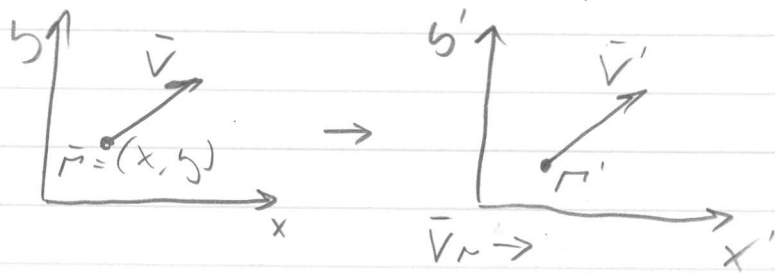


→ "רצו" = v_{rel} , "רצו" → v_{rel}



"רצו" → v_{rel} → v_{rel}

$$\vec{r}'(t) = \vec{r}(t) - \vec{v}_r t$$

"רצו" → v_{rel}

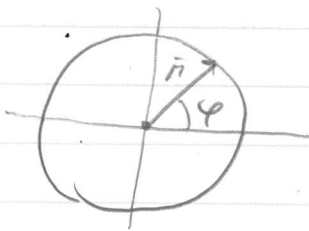
$$\vec{v}' = \vec{v} - \vec{v}_r$$

→ "רצו" → "רצו"

$$\vec{a}'(t) = \frac{d\vec{v}'}{dt} = \frac{d\vec{v}}{dt} = \vec{a}(t) \quad \text{שם} \quad v_r = \text{const} \quad \text{רצו}$$

$$\vec{r}(t) = (R \cos \varphi, R \sin \varphi)$$

→ "רצו" → "רצו"



$$\omega = \frac{d\varphi}{dt} = \frac{v}{R}$$

$$\alpha = \frac{d\omega}{dt}$$

$$\varphi(t) = \varphi_0 + \omega t + \frac{\alpha t^2}{2}$$

→ "רצו" → "רצו"

$$a_{\perp} = \frac{v_{||}^2}{R} = \omega^2 R$$

→ "רצו" → "רצו"

→ "רצו" → "רצו" → "רצו" → "רצו"

$$V_{||,0} = 0 \quad \text{const} = a_{||}$$

1/2

2

$$V_{||} = \int a_{||} dt = a_{||} t$$

$$a_{\perp} = \frac{V_{||}^2}{R} = \frac{a_{||}^2 t^2}{R}$$

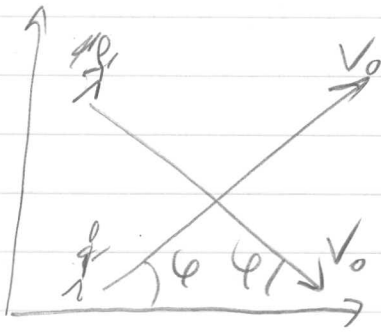
$$W(t) = \frac{V_{||}(t)}{R} = \frac{a_{||} t}{R}$$

$$\Phi(t) = \int W(t) dt = \int \frac{a_{||} t}{R} dt = \frac{a_{||} t^2}{2R}$$

$$t^2 = \frac{2R \Phi(t)}{a_{||}}$$

и к = 2R/a_{||} (3)

$$a_{\perp} = \frac{a_{||}^2 t^2}{R} = \frac{a_{||}^2 \cdot 2R \cdot \Phi(t)}{R a_{||}} = 2 a_{||} \Phi(t)$$



מהירות ממוצעת של הרכב
 במהלך תהליך הפיתוח

$$\vec{V} = V_0 (\cos \varphi, \sin \varphi)$$

מהירות ממוצעת

$$\vec{V}_r = V_0 (\cos \varphi, -\sin \varphi)$$

מהירות ממוצעת

$$\vec{V}' = \vec{V} - \vec{V}_r = V_0 (\cos \varphi - \cos \varphi, \sin \varphi - (-\sin \varphi))$$

$$= V_0 (0, 2 \sin \varphi) = 0.75 \left[\frac{\text{m}}{\text{sec}} \right] \cdot 2 \cdot \sin 38^\circ \hat{y}$$

$$= 0.92 \left[\frac{\text{m}}{\text{sec}} \right] \hat{y}$$

$$\langle \bar{v} \rangle = 200 \left[\frac{\text{m}}{\text{sec}} \right]$$

3

$$a_{\perp} \leq 0.1g \approx 1 \left[\frac{\text{m}}{\text{sec}^2} \right]$$

$$a_{\perp} = \frac{\langle \bar{v} \rangle^2}{R} \leq 0.1g$$

$$R \geq \frac{\langle \bar{v} \rangle^2}{0.1g} = \frac{(200 \left[\frac{\text{m}}{\text{sec}} \right])^2}{1 \left[\frac{\text{m}}{\text{sec}^2} \right]} = 40 \text{ [km]}$$

$$a_{\perp} = \frac{V_{\text{max}}^2}{\tilde{R}} \leq 0.1g$$

$$\tilde{R} = 1000 \text{ m}$$

$$V_{\text{max}}^2 \leq 0.1g \tilde{R}$$

$$V_{\text{max}}^2 = 0.1 \cdot 10 \left[\frac{\text{m}}{\text{sec}^2} \right] \cdot 1000 \text{ [m]}$$

$$V_{\text{max}} = 31.6 \left[\frac{\text{m}}{\text{sec}} \right]$$