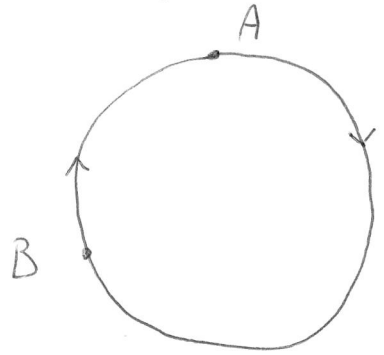
Es 1.40 p. 36 Mz. Ni. Vo



$\alpha = 2\ rad/s^2$

$\vartheta_0 = 0$

$\omega_0 = 0$

$\vartheta(t_B) = \frac{3}{2}\pi$

$R = 0{,}5\ m$

Per tutti i tempi vale:

$$\vartheta(t) = \frac{1}{2}\alpha t^2 + \omega_0 t + \vartheta_0$$

in particolare al tempo t_B

$$\vartheta(t_B) = \frac{1}{2}\alpha t_B^2 \Rightarrow \frac{3}{2}\pi = \frac{1}{2}\alpha t_B^2$$

$$t_B^2 = \frac{3\pi}{\alpha}$$

$$t_B = \sqrt{\frac{3\pi}{\alpha}} \sim 2{,}17\ s$$

~~$|a_c(t_B)| = \frac{|v^2(t_B)|}{R}$~~

~~$|v(t)| = |\omega(t)| \cdot R$.~~

~~$\omega(t) = \alpha(t)$ $\omega(t)$~~

$$a_c(t_B) = \frac{v^2(t_B)}{R}$$

~~A~~ tempo vale $v(t) = \omega(t) R$.

" " " $\omega(t) = \alpha t$.

$$a_c(t_B) = \frac{R^2\alpha^2 t_B^2}{R} = R\alpha^2 t_B^2 = 9{,}42\ m/s^2$$

L'accelerazione centripeta è diretta lungo il raggio della circonferenza ed il suo verso è verso il centro

~~$\vartheta_{t_A} = 2\pi$~~ $\vartheta_A = 2\pi$ $\quad \vartheta(t) = \frac{1}{2}\alpha_1 t^2 + \vartheta_B + \omega_B t$ ~~$+\vartheta_A$~~

~~Al tempo t_A~~ ~~$\vartheta_A - \vartheta_B$~~ $\quad \omega(t) = \alpha_1 t + \omega_B$

Al tempo t_A $\vartheta_A = 2\pi$ $\omega_A = 0$ $\Rightarrow t_A = -\frac{\omega_B}{\alpha_1}$

$$\Rightarrow 2\pi = \frac{1}{2}\alpha_1 \frac{\omega_B^2}{\alpha_1^2} + \frac{3}{2}\pi \Rightarrow \pi = -\frac{\omega_B^2}{\alpha_1} \Rightarrow \alpha_1 = -\frac{\omega_B^2}{\pi} = \frac{-\alpha^2 t_B^2}{\pi}$$

$= -6\ rad/s^2$ $\Rightarrow a_t = \alpha_1 R = -3\ m/s^2$ opposta al moto.