

Tečné a normálové zrychlení - kruhový pohyb

$$\begin{aligned}\vec{a} &= \frac{dv}{dt} \vec{\tau}^0 + \frac{v^2}{R} \vec{\nu}^0 = \frac{d}{dt} (R\omega) \vec{\tau}^0 + \frac{R^2 \omega^2}{R} \vec{\nu}^0 = \\ &= \frac{d\omega}{dt} R \vec{\tau}^0 + R \omega^2 \vec{\nu}^0 = \vec{\varepsilon} R \vec{\tau}^0 + \omega^2 R \vec{\nu}^0\end{aligned}$$

$$\vec{a} = \frac{d\vec{v}}{dt} = \frac{d}{dt} (\vec{\omega} \times \vec{r}) = \frac{d\vec{\omega}}{dt} \times \vec{r} + \vec{\omega} \times \frac{d\vec{r}}{dt} = \vec{\varepsilon} \times \vec{r} + \vec{\omega} \times \vec{v}$$