



$$\vec{a} = \vec{a}_n + \vec{a}_\tau$$

$$a_\tau = \beta R$$

$$a_n = \omega^2 R$$

$$\vec{v} \parallel \vec{a}_\tau$$

$$\vec{v} = \vec{\omega} \times \vec{R}$$

$$v = v_\tau = \omega R$$

β дано и $\beta = \alpha t$. Не трудно найти ωt :

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

$$\int d\omega = \int \alpha t dt$$

$$\omega = \frac{\alpha t^2}{2}$$

$$\phi = \vec{v} \wedge \vec{a} = \vec{a}_\tau \wedge \vec{a}$$

$$\operatorname{tg} \phi = \frac{a_n}{a_\tau} = \frac{\omega^2 R}{\beta R} = \frac{\omega^2}{\beta} = \frac{\alpha^2 t^4}{4\alpha t} = \frac{\alpha t^3}{4}$$

$$t = \sqrt[3]{\frac{4 \operatorname{tg} \phi}{\alpha}} = 7 \text{ c}$$