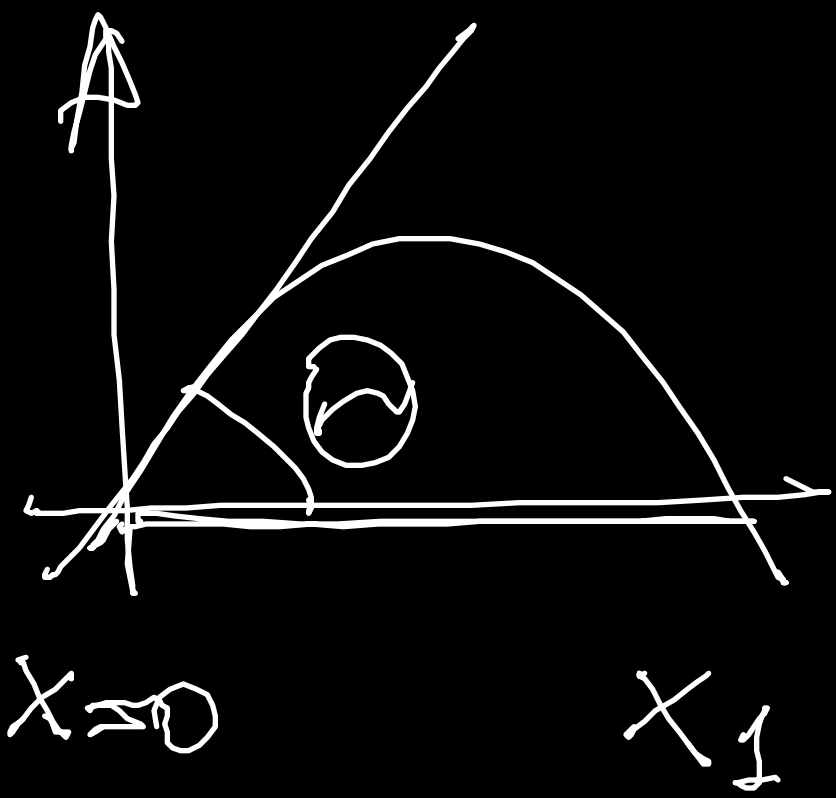


$$y = \tan \theta x - \frac{g x^2}{2 v_0^2 \cos^2 \theta}$$



$$\tan \theta x - \frac{g x^2}{2 v_0^2 \cos^2 \theta} = 0$$

$$\tan \theta - \frac{g x_1}{2 v_0^2 \cos^2 \theta} = 0$$

$$D = GWTATA$$

$$\Rightarrow x_1$$

$$x_1 \Rightarrow \frac{2 v_0^2 \tan \theta \cos^2 \theta}{g}$$

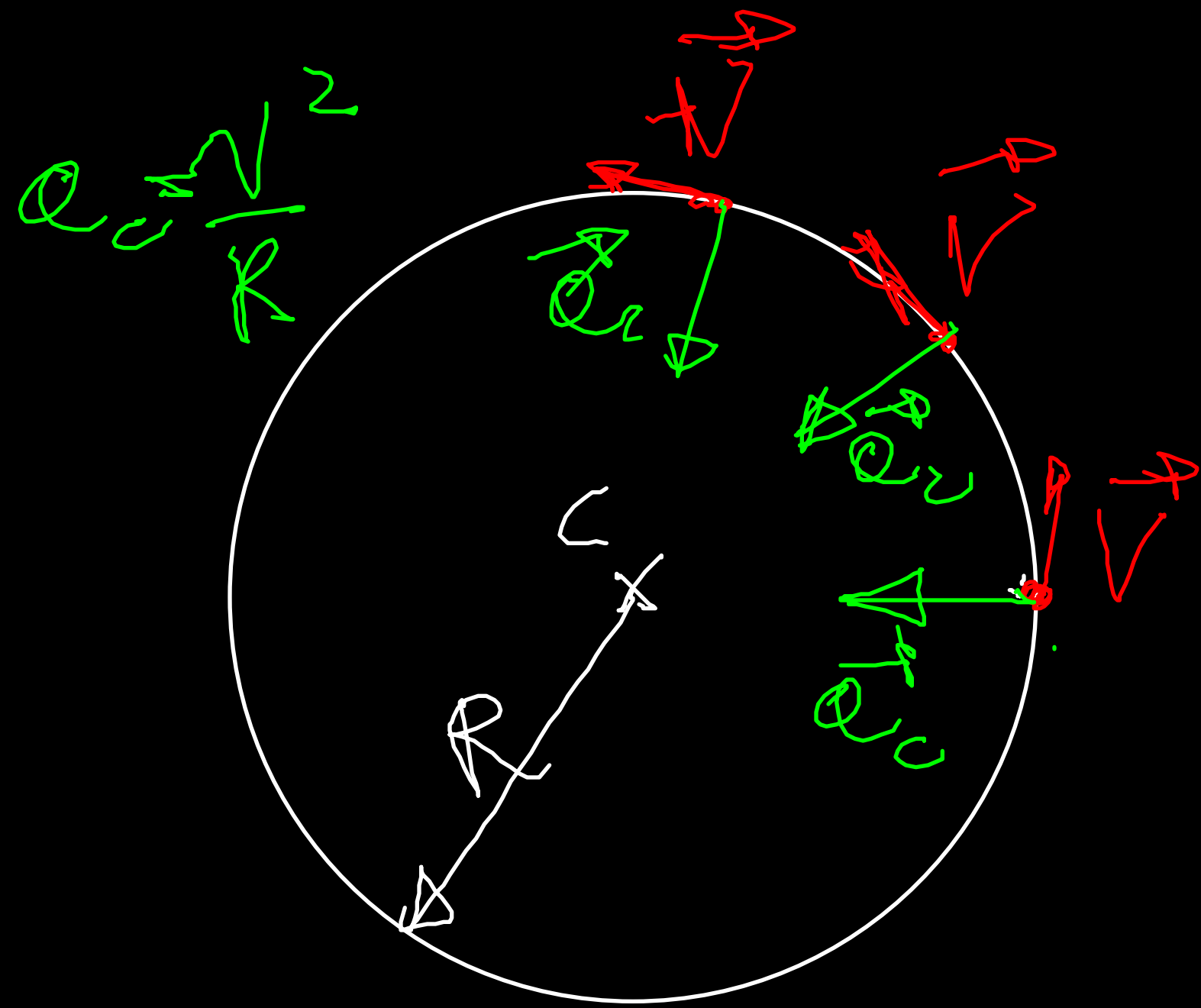
$$x_1 = \frac{2 v_0^2 \sin \theta \cos \theta}{g}$$

$$x_1 = \frac{v_0^2 \sin(2\theta)}{g}$$

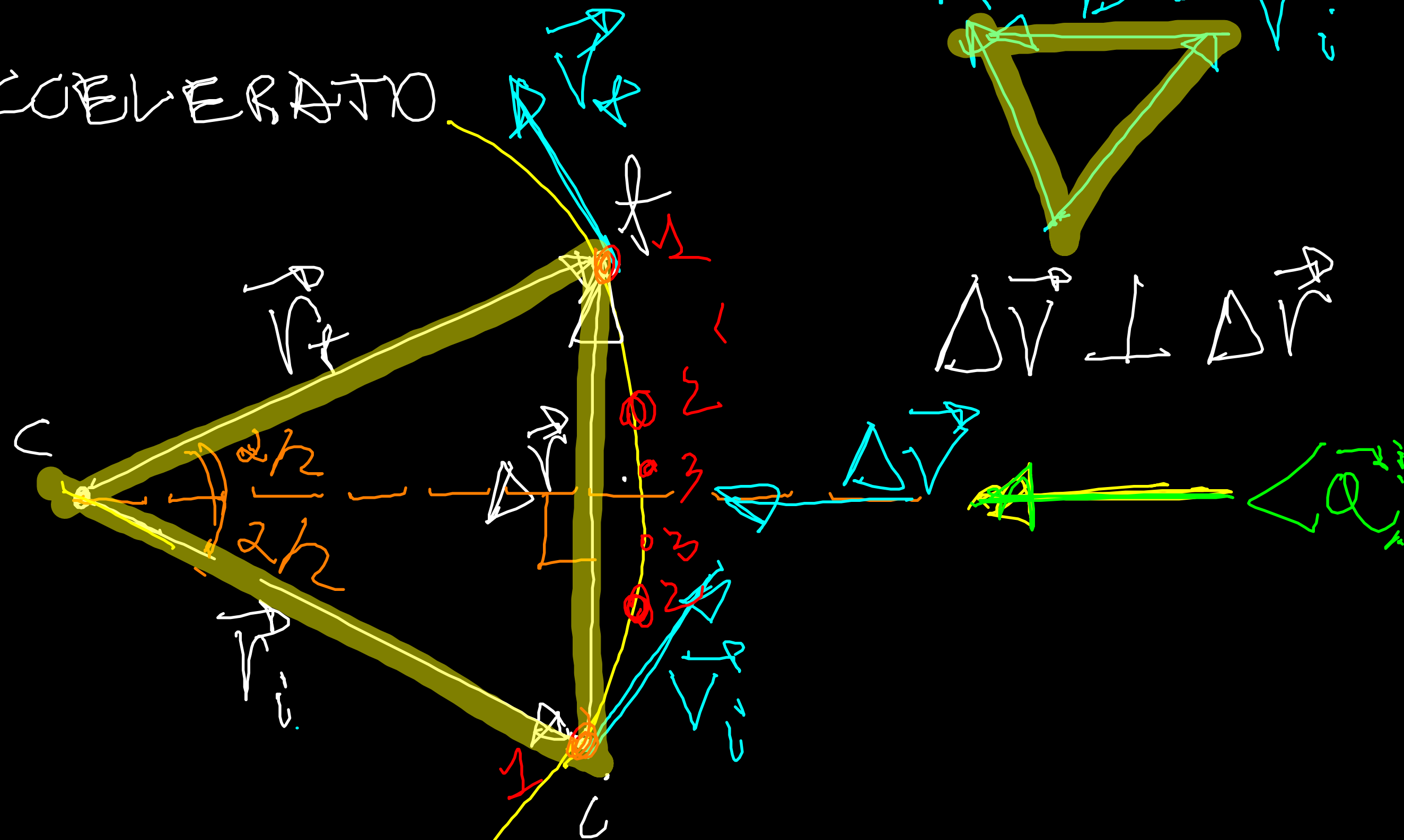
$$2\theta_M = \frac{\pi}{2}$$

$$\theta_M = \frac{\pi}{4}$$

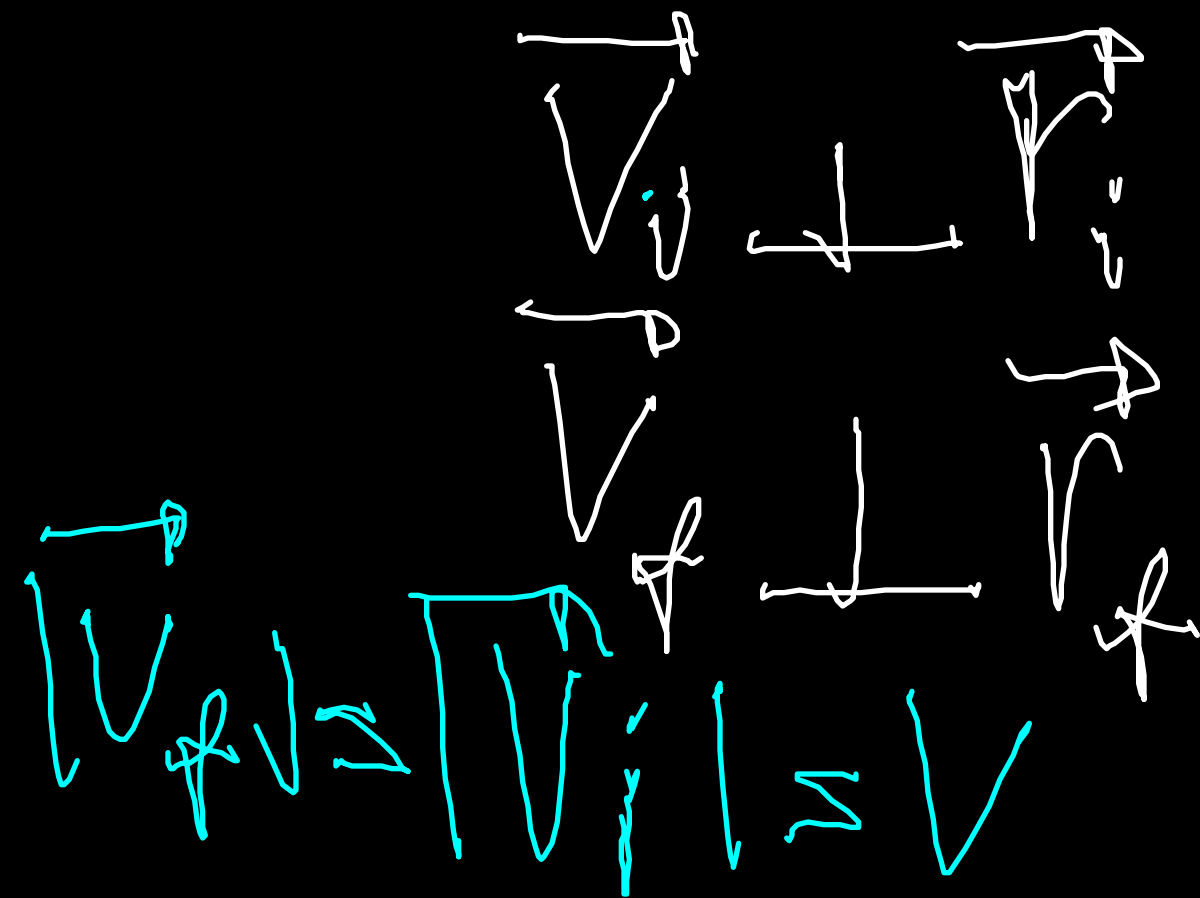
MOTO CIRCOLARE UNIFORME



ACCELERAZIONE

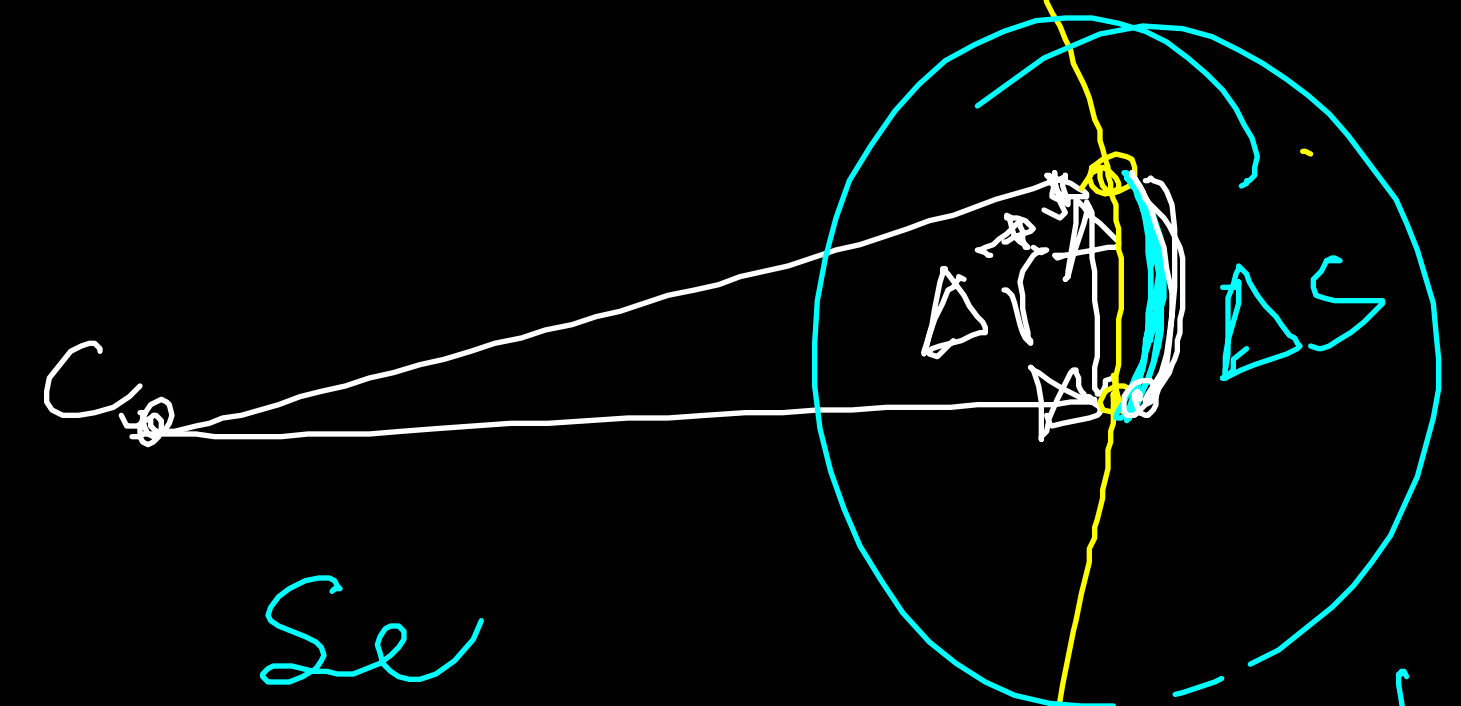
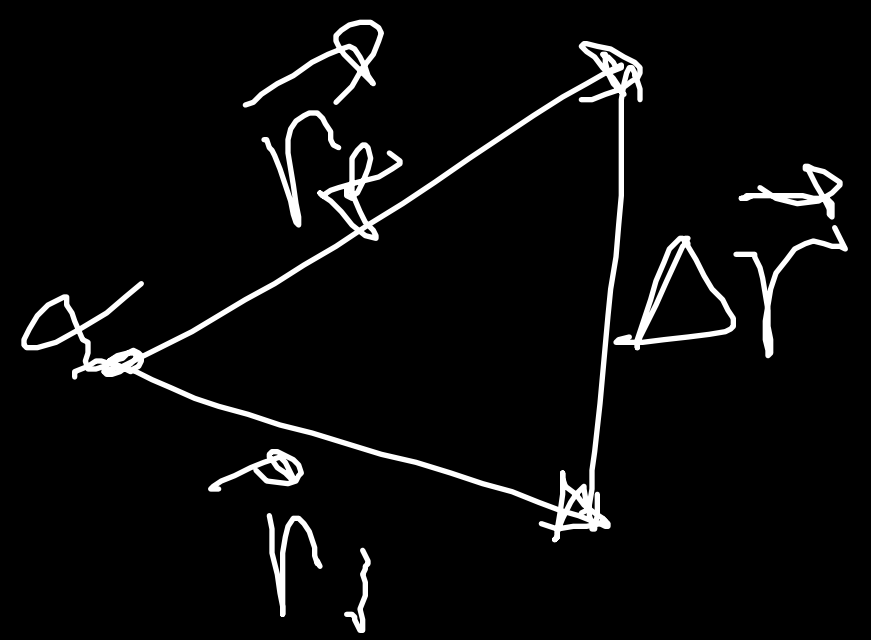
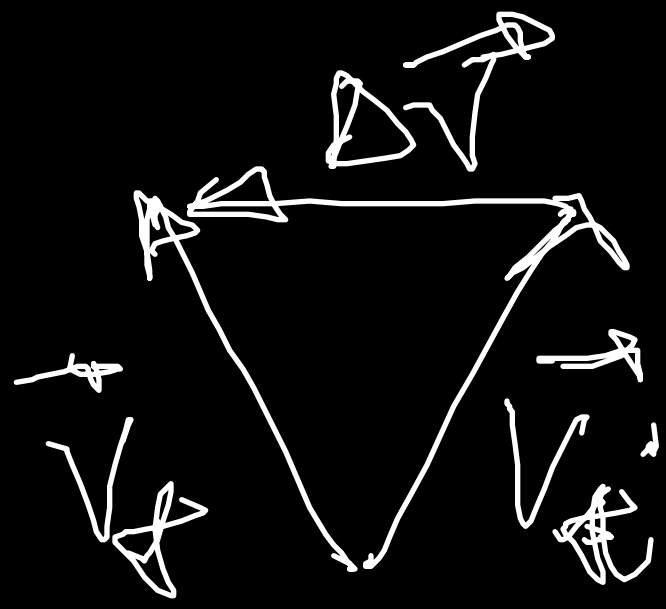


$|\vec{v}| = \text{costante} = v$



$$\langle \vec{a} \rangle = \frac{\vec{v}_f - \vec{v}_i}{\Delta t} = \frac{\Delta \vec{v}}{\Delta t}$$

$\vec{a} = \lim_{\Delta t \rightarrow 0} \frac{\Delta \vec{v}}{\Delta t} = \vec{a}_c$ CENTRIPETA



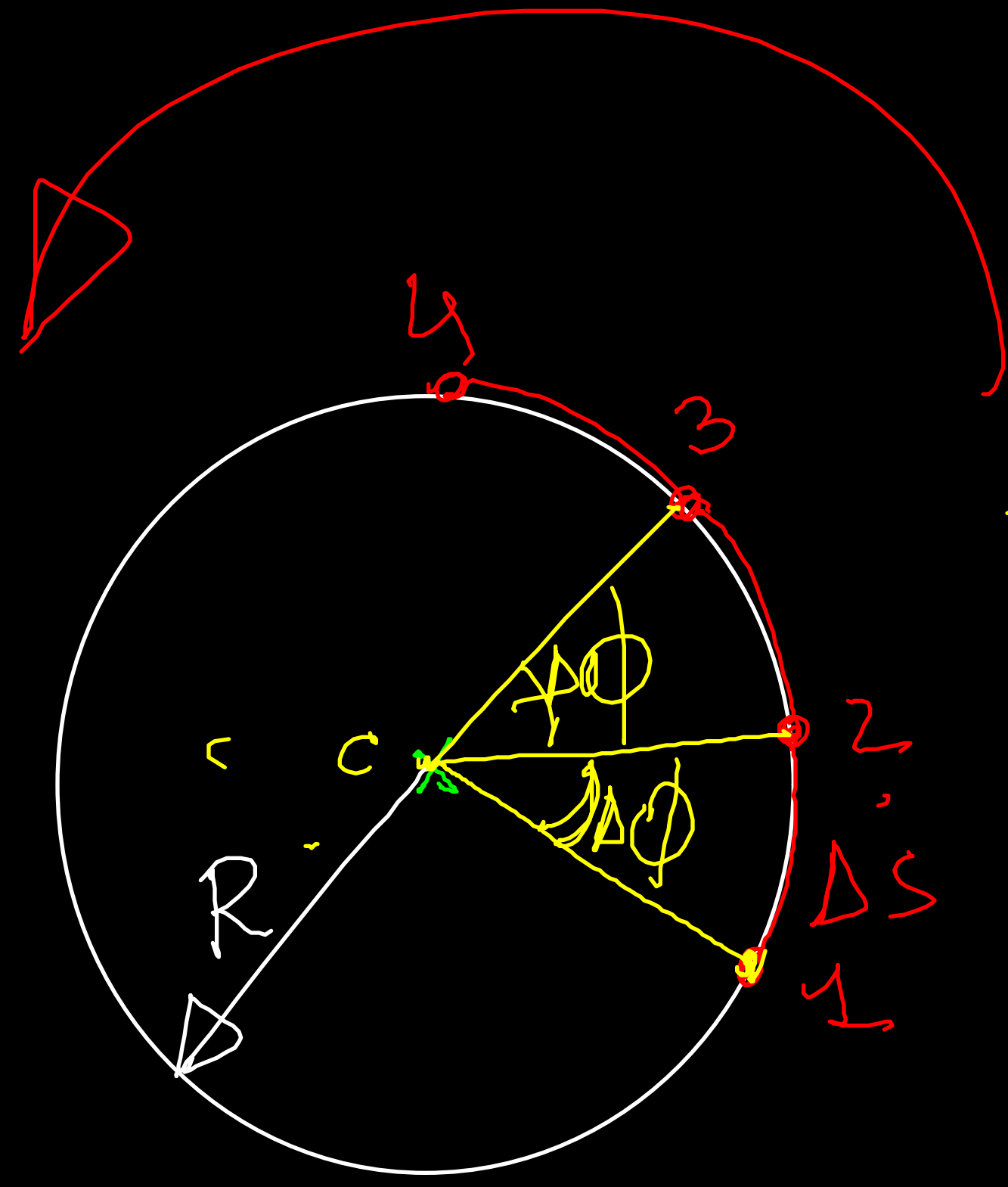
See $\Delta t \rightarrow 0 \quad \Delta s = |\Delta \vec{r}|$

$$\frac{|\Delta \vec{v}|}{v} \approx \frac{|\Delta \vec{r}|}{R} \Rightarrow |\Delta \vec{v}| = \frac{v}{R} |\Delta \vec{r}|$$

$$|\vec{a}| \approx \lim_{\Delta t \rightarrow 0} \frac{|\Delta \vec{v}|}{\Delta t}$$

$$a_c = \frac{v}{R} \left(\lim_{\Delta t \rightarrow 0} \frac{\Delta s}{\Delta t} \right) = \frac{v^2}{R} = a_c$$

$$a_c = \lim_{\Delta t \rightarrow 0} \frac{|\Delta \vec{v}|}{\Delta t} = \lim_{\Delta t \rightarrow 0} \frac{v}{R} \frac{|\Delta \vec{r}|}{\Delta t} = \frac{v}{R} \lim_{\Delta t \rightarrow 0} \frac{|\Delta \vec{r}|}{\Delta t}$$



$$\Delta\phi \approx \frac{\Delta s}{R}$$

$$d\phi = \frac{ds}{R}$$

$$\omega = \frac{d\phi}{dt} = \frac{1}{R} \frac{ds}{dt} = \frac{v}{R}$$

$\frac{\Delta\phi}{\Delta t} \approx \langle \omega \rangle$ VEL. ANGOLARE
- MEDIA

$$\Delta t$$

$$12 \approx 23 \approx 34$$

$$v = \frac{\Delta s}{\Delta t}$$

$$\lim_{\Delta t \rightarrow 0} \frac{\Delta\phi}{\Delta t} = \omega = \langle \omega \rangle$$

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$$\omega \approx \frac{d\phi}{dt}$$

$$\omega = \frac{v}{R}$$

