

1) mouvement circulaire uniforme

$$\vec{OM} = R \vec{e}_r$$

$$\vec{V} = R \dot{\theta} \vec{e}_\theta$$

$$\vec{V} = R \omega \vec{e}_\theta$$

$\dot{\theta} = \omega$

$$v = R \omega =$$

$$\theta = \dot{\theta} t + \theta^0, \quad \theta = \pi$$

$$\dot{\theta} = \frac{\theta}{t} = \frac{\pi}{t} = \omega$$

on: $x = v t \Rightarrow$

$$v = \frac{x}{t} = \frac{\pi R}{t}$$

$$= \frac{3,14 \times 2,3}{1,9} = 3,8 \text{ m/s}$$

• la vitesse angulaire ω

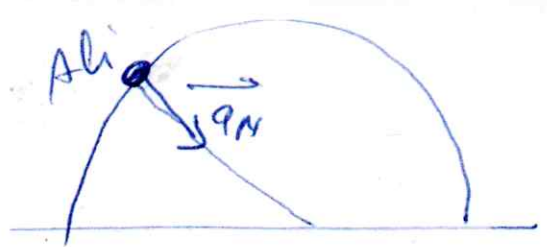
$$\omega = \frac{v}{R} = \frac{3,8}{2,3} = 1,65 \text{ rad/s}$$

l'accélération:

$$a_T = \frac{d|\vec{v}|}{dt} = 0$$

$$a_N = \frac{v^2}{R} = \frac{(1,65)^2}{2,3}$$

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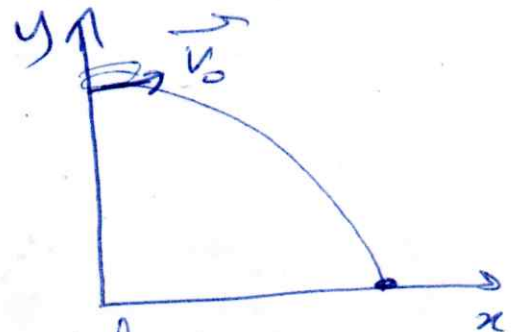


$$\vec{a} = -R \dot{\theta}^2 \vec{e}_r + R \ddot{\theta} \vec{e}_\theta$$

$$\left\{ \begin{array}{l} \vec{a}_T = R \ddot{\theta} \vec{e}_\theta = 0 \\ \vec{a}_N = -R \dot{\theta}^2 \vec{e}_r \end{array} \right.$$

$$\vec{a}_N = -R \dot{\theta}^2 \vec{e}_r$$

Exo #



un projectile: \rightarrow

sur (ox): MRU \Rightarrow

$$\left\{ \begin{array}{l} a_x = 0 \\ x = v_0 t + x_0 \\ v = v_{0x} = v_0 = ct \end{array} \right.$$

sur (oy): MRUV

$$\left\{ \begin{array}{l} a_y = -g \\ v_y = -gt + v_{0y} \\ y = -\frac{1}{2}gt^2 + v_{0y}t + y_0 \end{array} \right.$$

(4)