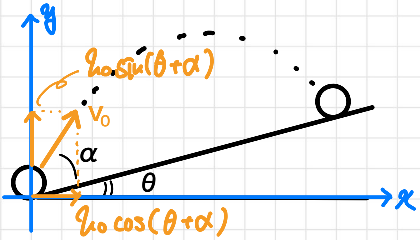

(1)
$$\begin{cases} x = v_0 \cdot \cos(\theta+\alpha) \cdot t & \cdots ① \\ y = v_0 \sin(\theta+\alpha) \cdot t - \frac{1}{2} g t^2 & \cdots ② \end{cases}$$

斜面に到達 $\Rightarrow \dfrac{y}{x} = \tan\theta$

$\Rightarrow y = x \cdot \tan\theta$

$$v_0 \sin(\theta+\alpha) \cdot t - \frac{1}{2} g t^2 = v_0 \cos(\theta+\alpha) \cdot t \cdot \tan\theta$$

$$t\left\{\frac{1}{2} g t - v_0 \sin(\theta+\alpha) + v_0 \cos(\theta+\alpha) \cdot \tan\theta\right\} = 0$$

$t > 0$ より

$$t = \frac{2}{g}\left\{v_0 \sin(\theta+\alpha) - v_0 \cos(\theta+\alpha) \tan\theta\right\}$$

$$= \frac{2v_0}{\theta} \cdot \frac{\sin(\theta+\alpha)\cos\theta - \cos(\theta+\alpha)\sin\theta}{\cos\theta}$$

$$= \frac{2v_0 \sin\{(\theta+\alpha) - \theta\}}{g \cdot \cos\theta}$$

$$= \frac{2v_0 \sin\alpha}{g \cdot \cos\theta} \,/\!/$$

(2) $\sqrt{x^2 + y^2}$ などで求める.

$$\frac{2v_0^2 \sin\alpha \cos(\theta+\alpha)}{g \cos^2\theta} \,/\!/$$