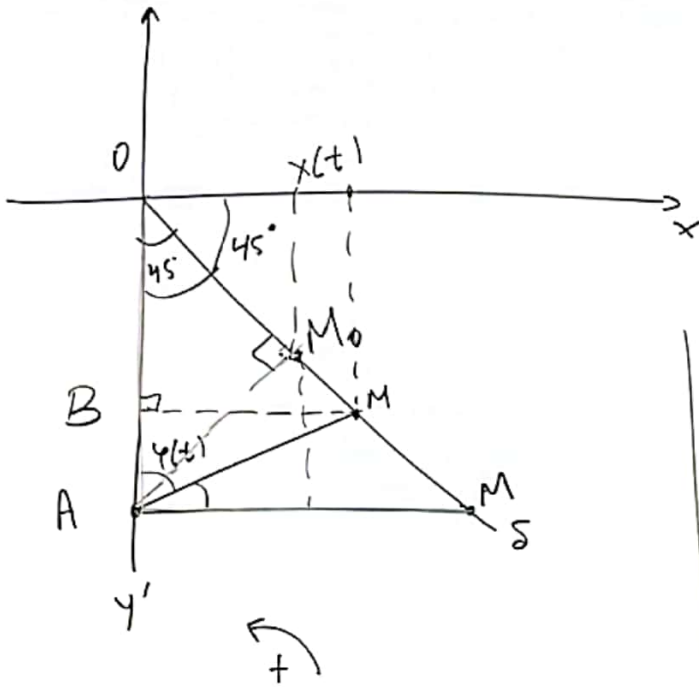


αβγ.11



$A(0, -30)$ .  $\varphi'(t) = -0,15 / \text{sec}$

$|OM| = d(t)$ .  $\varphi(t_0) = 45^\circ$

$d'(t_0) = ?$

$d'(t_0) = \sqrt{2} x'(t_0) = -\sqrt{2} \cdot 13,5 \text{ m/s}$

Την ωριμότητα  $x$  π. ορίζουν  $t$ . Το  $M(x(t), y(t))$

Η εξίσωση της  $OS$  είναι  $y = -x$

Άρα  $M(x(t), -x(t))$

Η απόσταση του  $M$  από το  $O$  είναι

$$d(t) = \sqrt{x^2(t) + y^2(t)} = \sqrt{x^2(t) + x^2(t)} = \sqrt{2} |x(t)| = \sqrt{2} \cdot x(t) \rightarrow$$

$\Delta ABM$ :  $\tan \varphi(t) = \frac{BM}{AB} = \frac{x(t)}{30 - y(t)} = \frac{x(t)}{30 + x(t)}$

$\tan \varphi(t) = \frac{x(t)}{30 + x(t)} \Rightarrow$

$$\frac{1}{\tan^2 \varphi(t_0)} \cdot \varphi'(t_0) = \frac{x'(t_0) \cdot (30 + x(t_0)) - x(t_0) \cdot x'(t_0)}{(30 + x(t_0))^2}$$

$$2 \cdot (-0,15) = \frac{x'(t_0) (30 + 15) - 15 \cdot x'(t_0)}{(30 + 15)^2} = \frac{30 x'(t_0)}{45^2}$$

$$\Rightarrow x'(t_0) = \frac{-0,2 \cdot 45^2}{30} = \frac{-0,2 \cdot 45 \cdot 3}{2} = -13,5$$

абн.5  $f(a) = f(b) = 0, f(x) > 0 \forall x \in (a, b)$

$\xi_1 < \xi_2 : f'(\xi_1) - f'(\xi_2) \geq \frac{4M}{b-a}, M$  — максимум на  $[a, b]$ .

$f(x_0) = M. \frac{f(x_0) - f(a)}{x_0 - a} = f'(\xi_1)$

$\frac{f(b) - f(x_0)}{b - x_0} = f'(\xi_2)$

$f'(\xi_1) - f'(\xi_2) = \frac{f(x_0)}{x_0 - a} + \frac{f(x_0)}{b - x_0} = \frac{M}{x_0 - a} + \frac{M}{b - x_0} \geq \frac{4M}{b-a}$