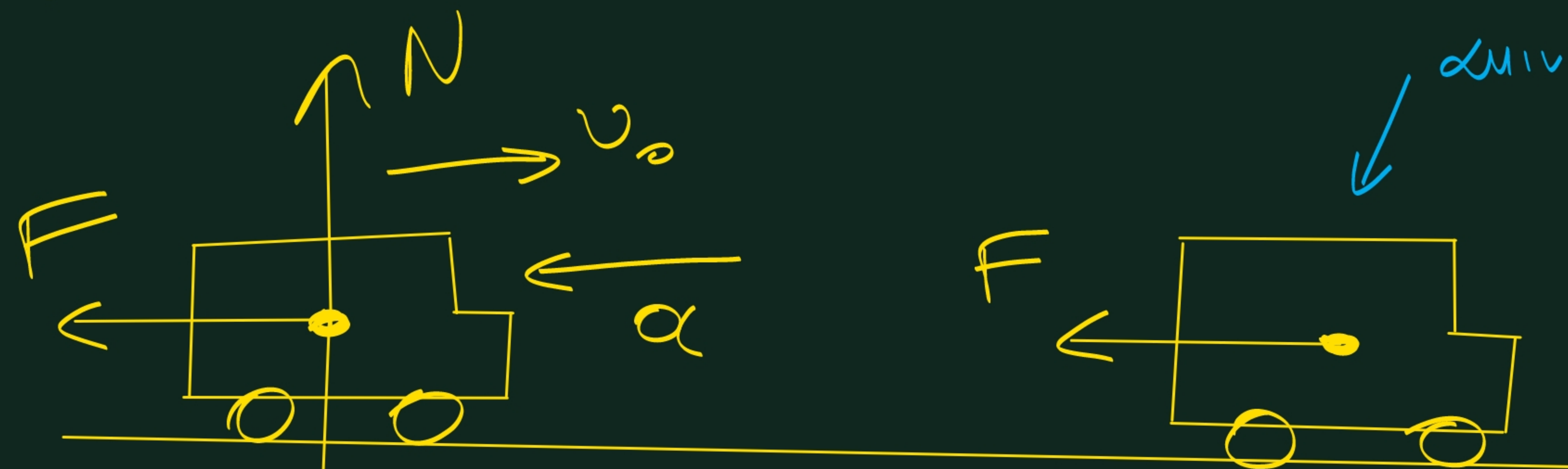


Ασκ. 17. 6ε2.108-



$t_0 = 0$

$W = mg$

$$F = 2 \cdot 10^4 \text{ N}$$

$$m = 4.000 \text{ kg}$$

Απλ: $\Sigma F = m \cdot a \Rightarrow F = m \cdot a \Rightarrow$

$$2 \cdot 10^4 = 4.000 \cdot a \Rightarrow 20.000 = 4.000 a \Rightarrow$$

$$a = 5 \text{ m/s}^2$$

A. Η κίνηση είναι ευβραδυόνευση.

$$v = v_0 - at \Rightarrow 0 = v_0 - at_1 \Rightarrow at_1 = v_0 \Rightarrow$$

$$t_1 = \frac{v_0}{a} \quad (\text{χρόνος κίνησης})$$

Διόσυντα φρεναρίσματος.

$$s = v_0 t - \frac{1}{2} at^2 \Rightarrow s_{01} = v_0 t_1 - \frac{1}{2} a t_1^2 \Rightarrow$$

$$s_{01} = \underbrace{v_0}_{\frac{v_0^2}{2a}} \cdot \underbrace{\frac{v_0}{a}}_{\frac{1}{2a}} - \frac{1}{2} a \cdot \left(\frac{v_0}{a} \right)^2 = \frac{v_0^2}{a} - \frac{1}{2} \frac{v_0^2}{a} \Rightarrow$$

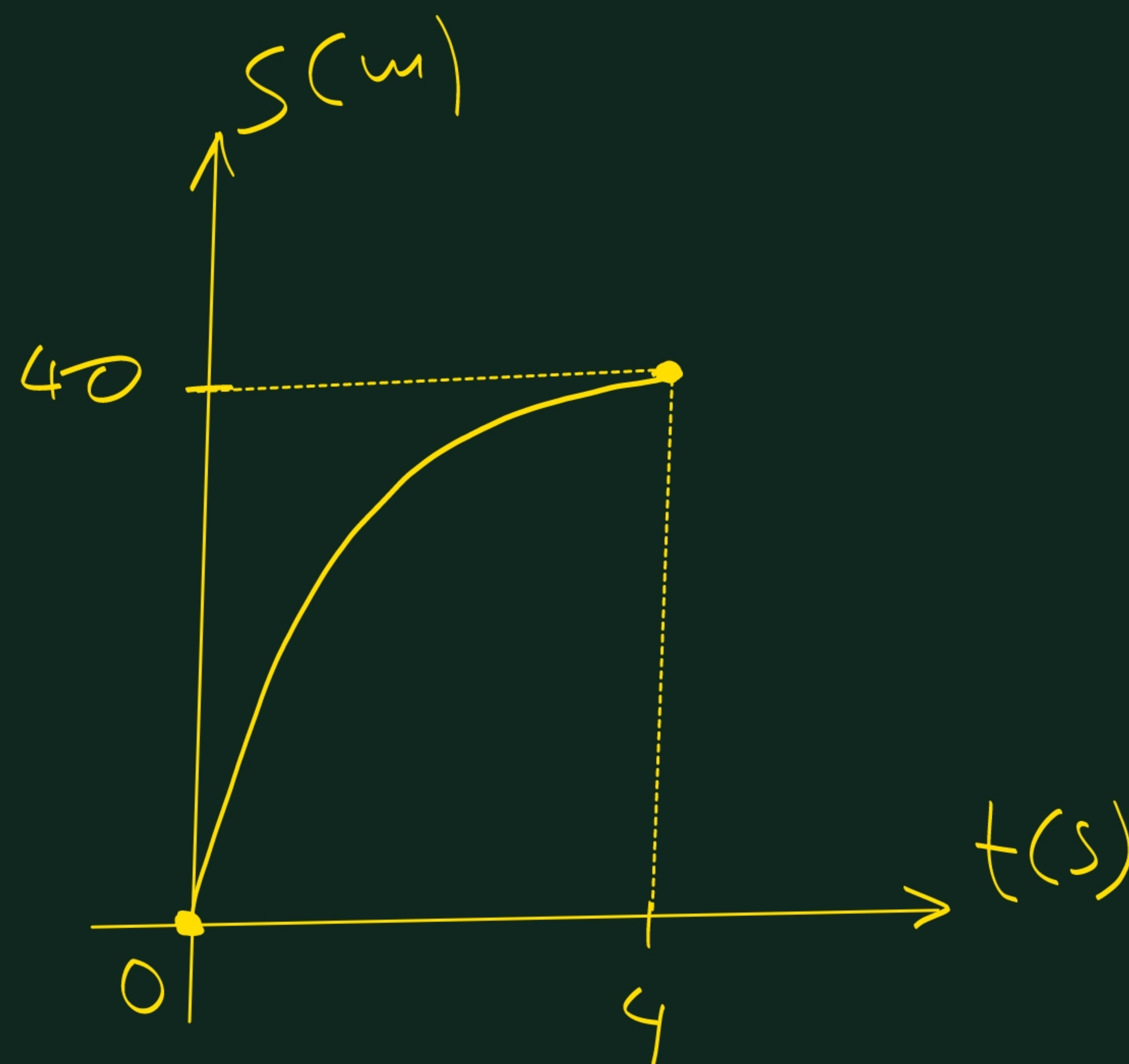
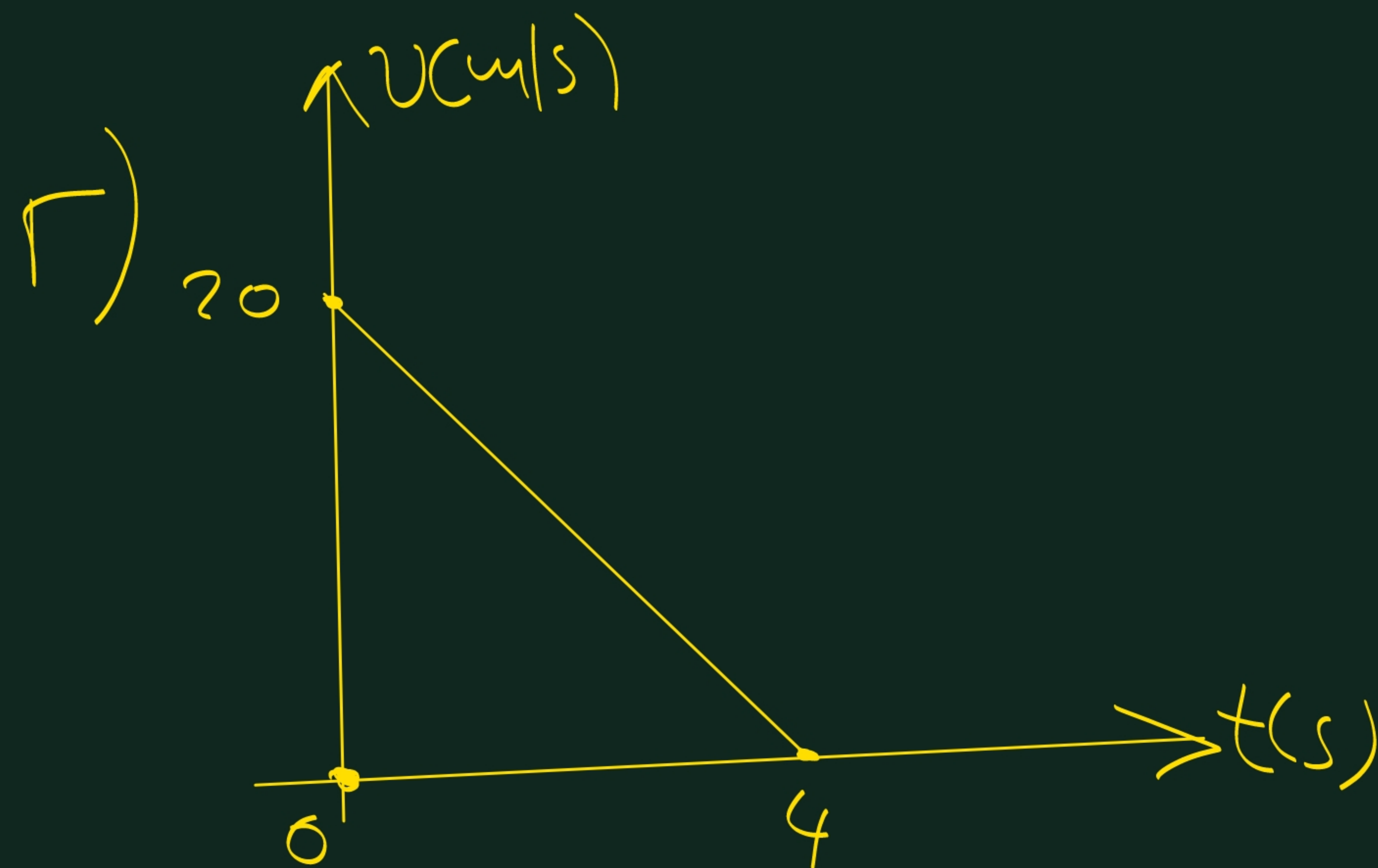
$$s_{01} = \frac{v_0^2}{a} - \frac{v_0^2}{2a} \Rightarrow s_{01} = \frac{2v_0^2}{2a} - \frac{v_0^2}{2a} \Rightarrow$$

$$s_{01} = \frac{v_0^2}{2a}$$

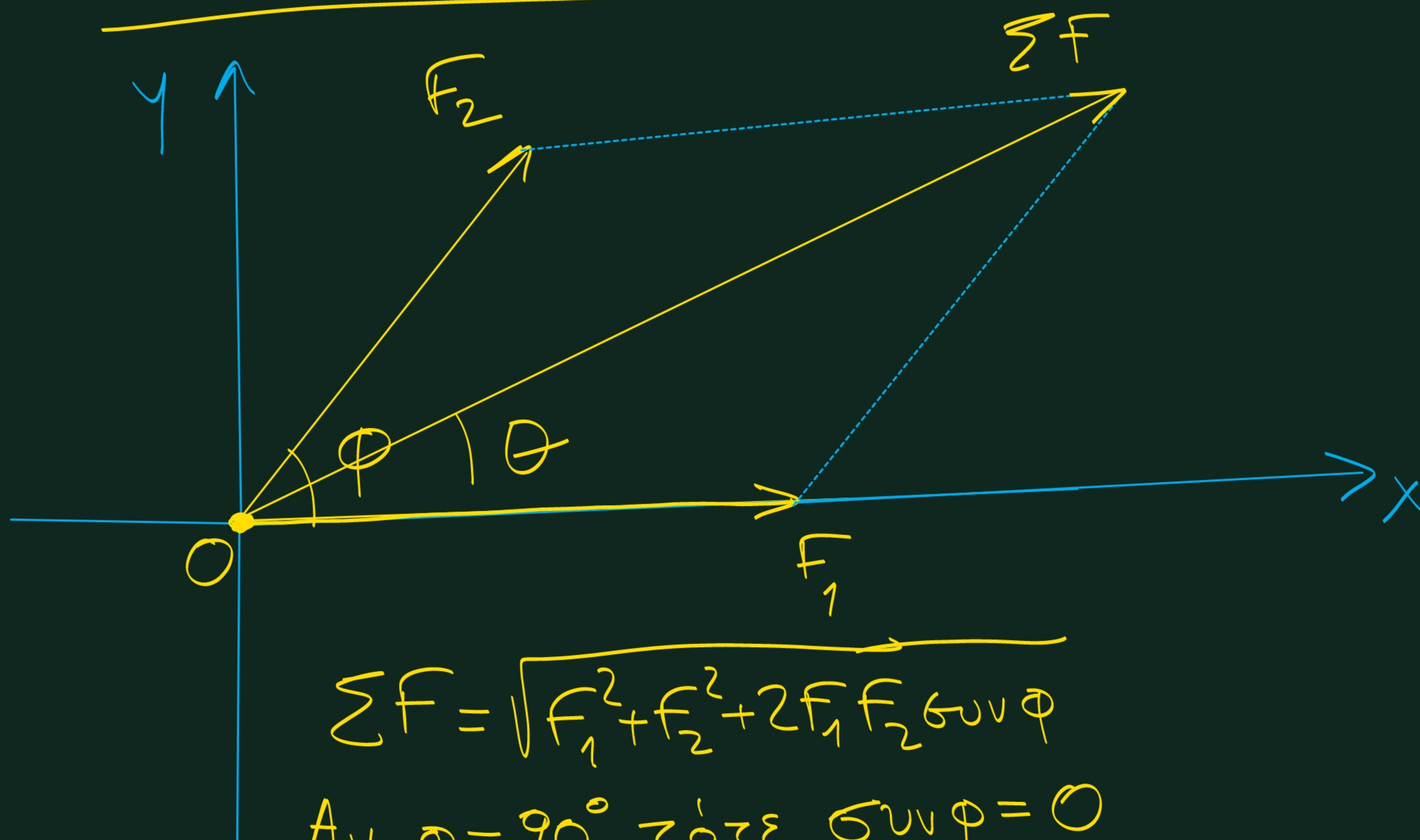
$$s_{0x} = \frac{v_0^2}{2a} \Rightarrow 40 = \frac{v_0^2}{2 \cdot 5} \Rightarrow$$

$$v_0^2 = 400 \Rightarrow v_0 = 20 \text{ m/s}$$

$$B) t_1 = \frac{v_0}{a} = \frac{20}{5} = 4 \text{ sec}$$



Σύνθεση δυνάμεων



$$\Sigma F = \sqrt{F_1^2 + F_2^2 + 2F_1F_2\cos\phi}$$

Αν $\phi = 90^\circ$ τότε $\cos\phi = 0$

$$\text{οπότε: } \Sigma F = \sqrt{F_1^2 + F_2^2}$$