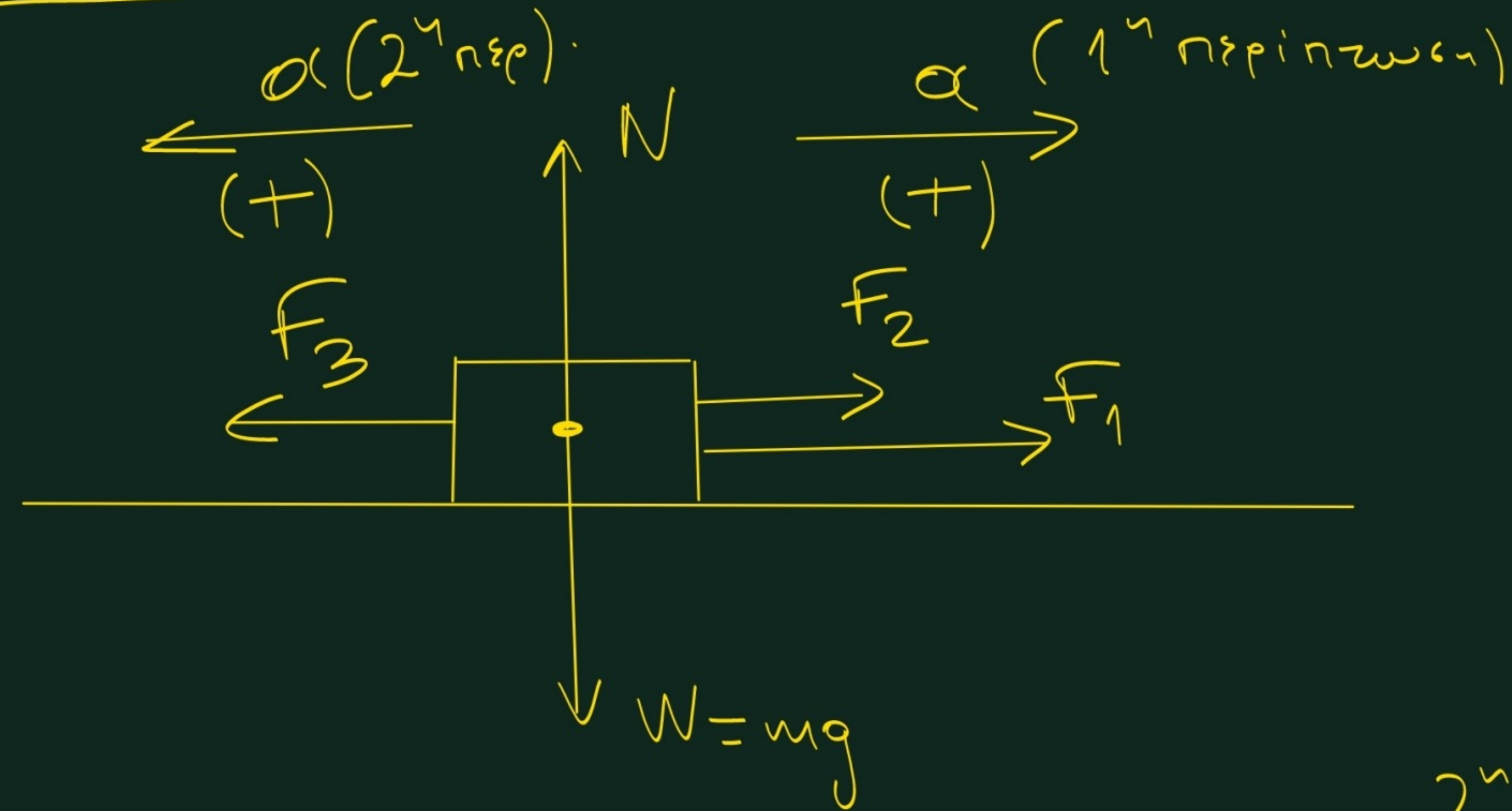


$$A_{6u.13} \text{ } 6ε2.108.$$



$N = \text{νόρμα δύναμη}$

(Normal force)

$W = m \cdot g = \text{βάρος (weight)}$

$$A. \quad S = \frac{1}{2} a t^2 \Rightarrow 24 = \frac{1}{2} a \cdot 4^2 \Rightarrow$$

$$48 = a \cdot 16 \Rightarrow a = 3 \text{ m/s}^2$$

B. 1^η περίωση (προς τα δεξιά)

$$\Sigma F = ma \Rightarrow F_1 + F_2 - F_3 = ma \Rightarrow$$

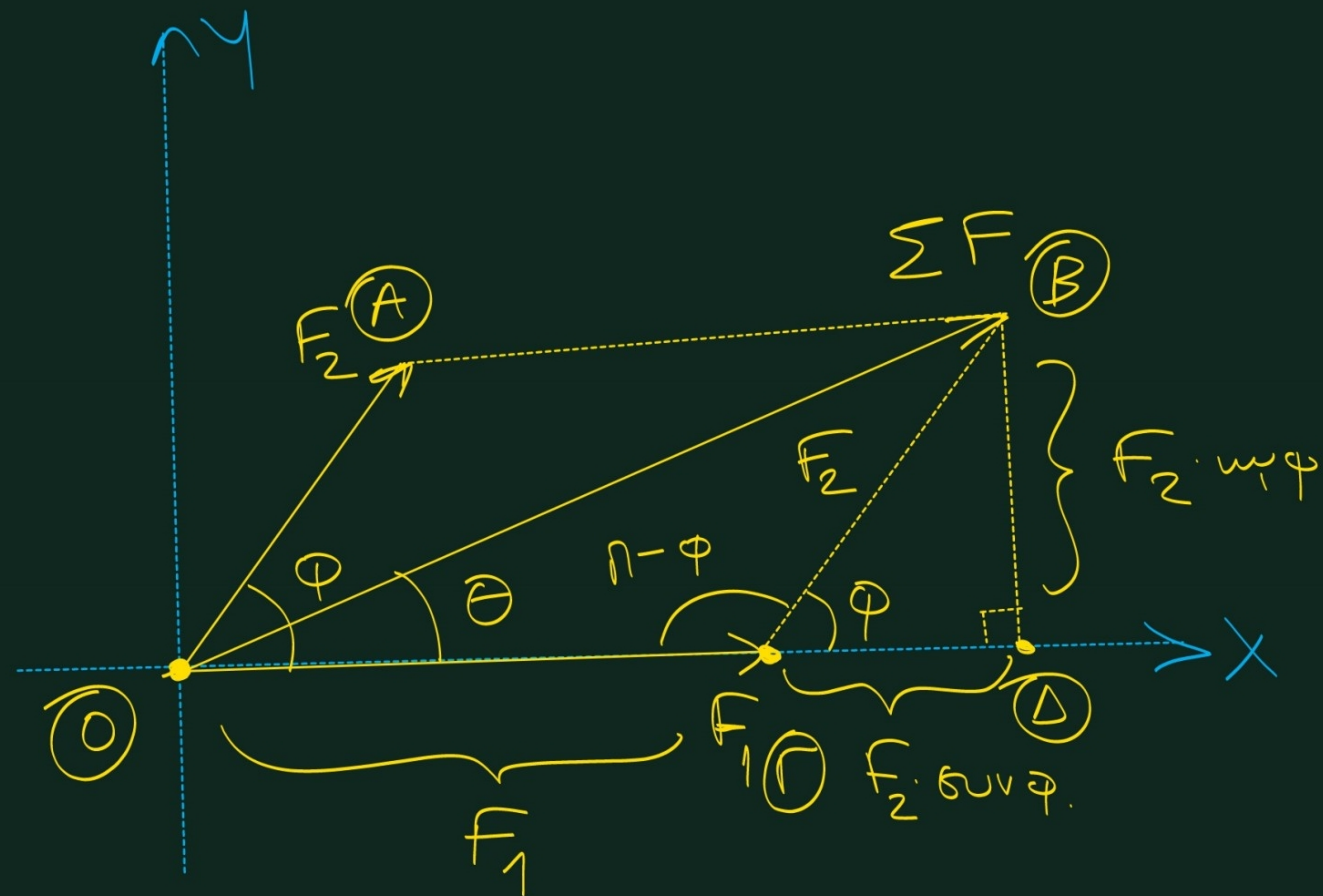
$$6 + 2 - F_3 = 1 \cdot 3 \Rightarrow F_3 = 5 \text{ N.}$$

2^η περίωση (προς τα αριστερά).

$$\Sigma F = ma \Rightarrow F_3 - F_2 - F_1 = ma \Rightarrow$$

$$F_3 - 6 - 2 = 1 \cdot 3 \Rightarrow F_3 = 11 \text{ N.}$$

Σύνθεση δυνάμεων που σχηματίζουν
τωχάτα γωνία (κανόνας παραλληλογράμμου).



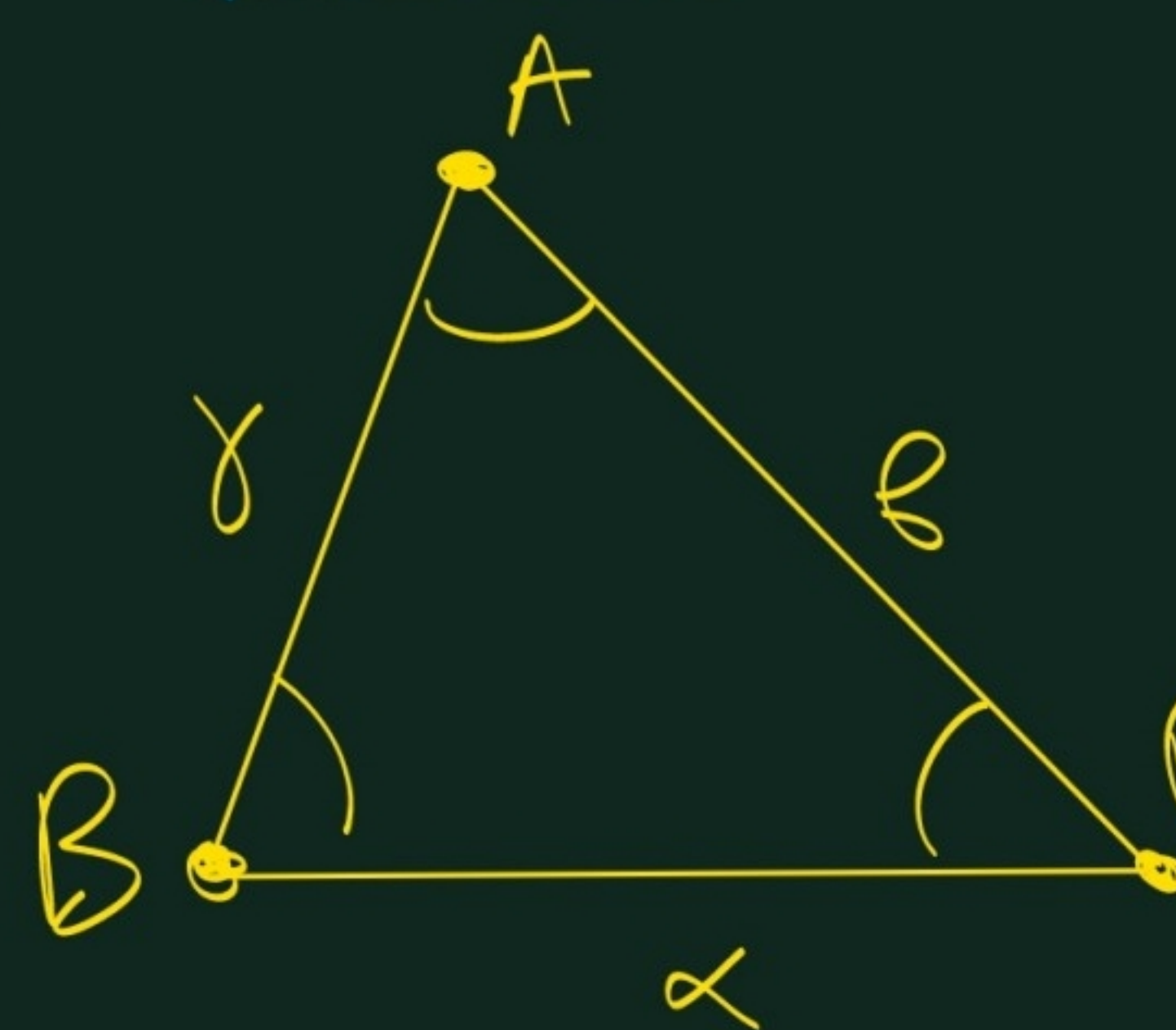
Από το νόμο των συνημιτόνων στο $\triangle O\hat{B}\Gamma$
έχουμε:

$$OB^2 = OG^2 + \Gamma B^2 - 2OG \cdot \Gamma B \cdot \cos(\pi - \varphi) \Rightarrow$$

$$\Sigma F^2 = F_1^2 + F_2^2 - 2F_1 \cdot F_2 \cdot (-\cos \varphi) \Rightarrow$$

$$\Sigma F^2 = F_1^2 + F_2^2 + 2F_1 \cdot F_2 \cdot \cos \varphi \Rightarrow$$

$$\Sigma F = \sqrt{F_1^2 + F_2^2 + 2F_1 \cdot F_2 \cdot \cos \varphi}$$



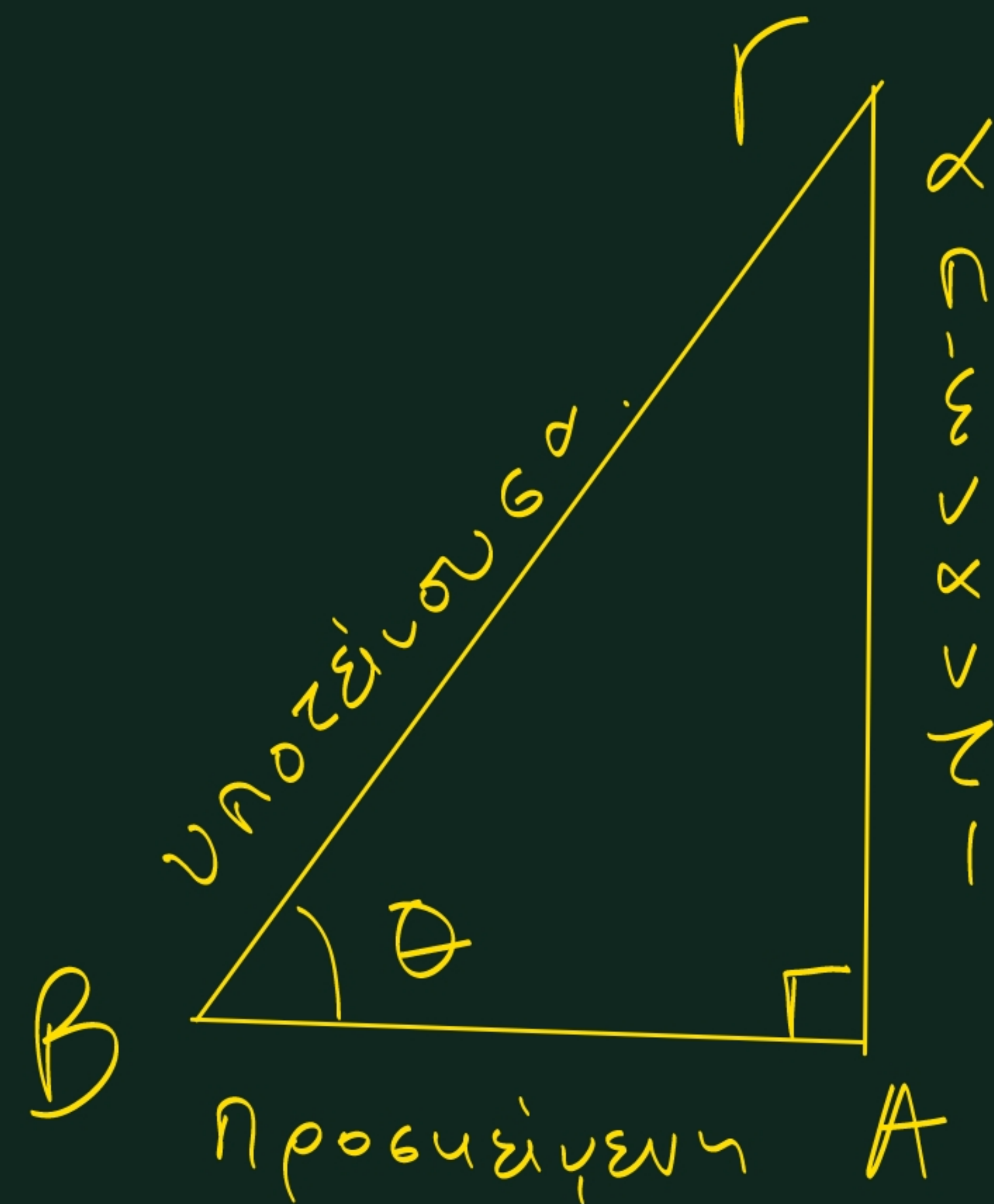
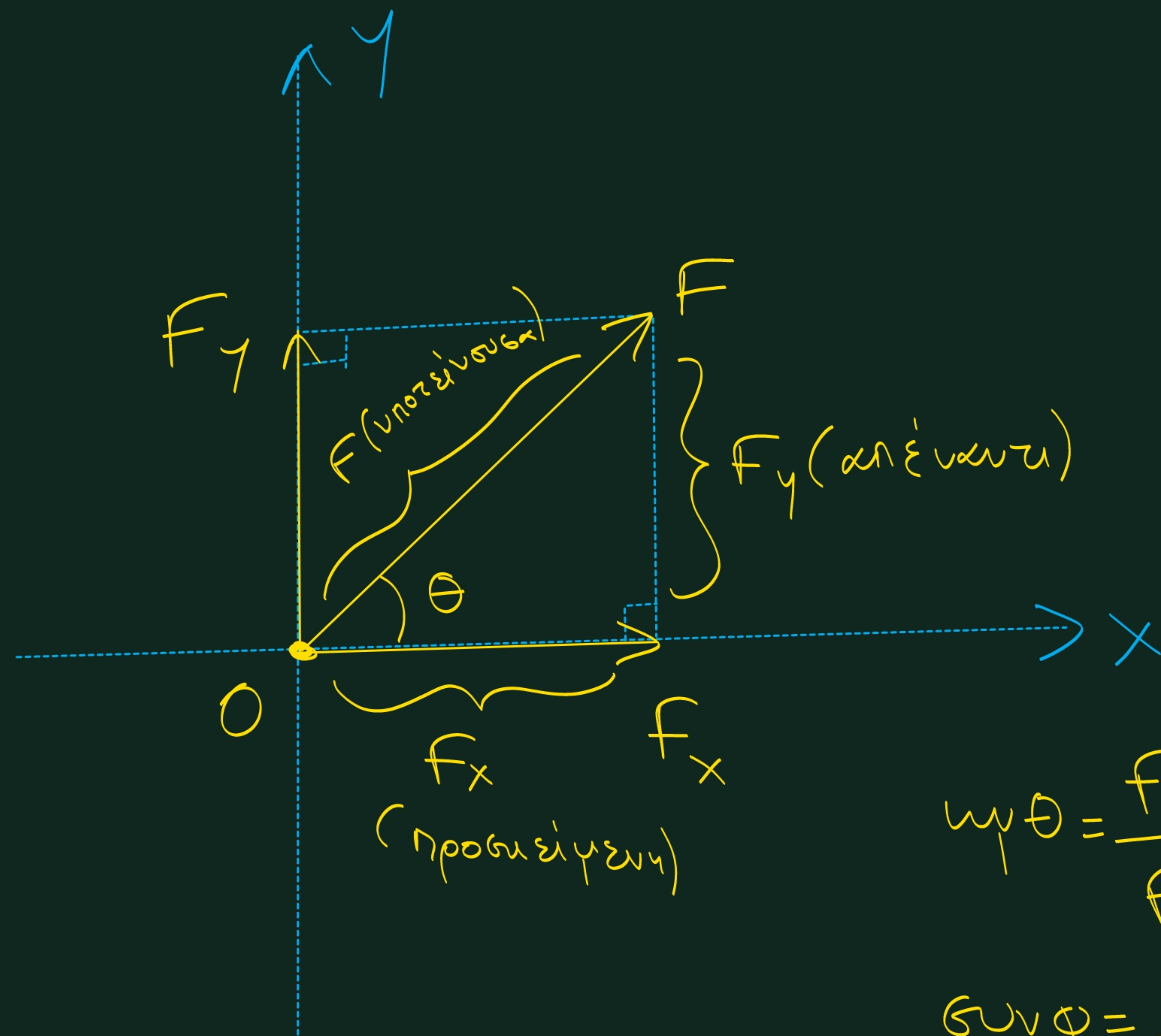
$$\alpha^2 = \beta^2 + \gamma^2 - 2\beta\gamma \cdot \cos A$$

$$\beta^2 = \alpha^2 + \gamma^2 - 2\alpha \cdot \gamma \cdot \cos B$$

$$\gamma^2 = \alpha^2 + \beta^2 - 2\alpha \cdot \beta \cdot \cos \Gamma$$

Νόμος συνημιτόνων

Ανάλυση δύναμης σε συνιστώσες.



$$\omega\gamma\theta = \frac{\alpha\eta\acute{\epsilon}\nu\alpha\eta\eta}{\upsilon\pi\omicron\tau\epsilon\acute{\iota}\nu\omicron\upsilon\varsigma\alpha}$$

$$\varsigma\upsilon\nu\theta = \frac{\eta\pi\omicron\varsigma\upsilon\epsilon\acute{\iota}\gamma\upsilon\eta\eta}{\upsilon\pi\omicron\tau\epsilon\acute{\iota}\nu\omicron\upsilon\varsigma\alpha}$$

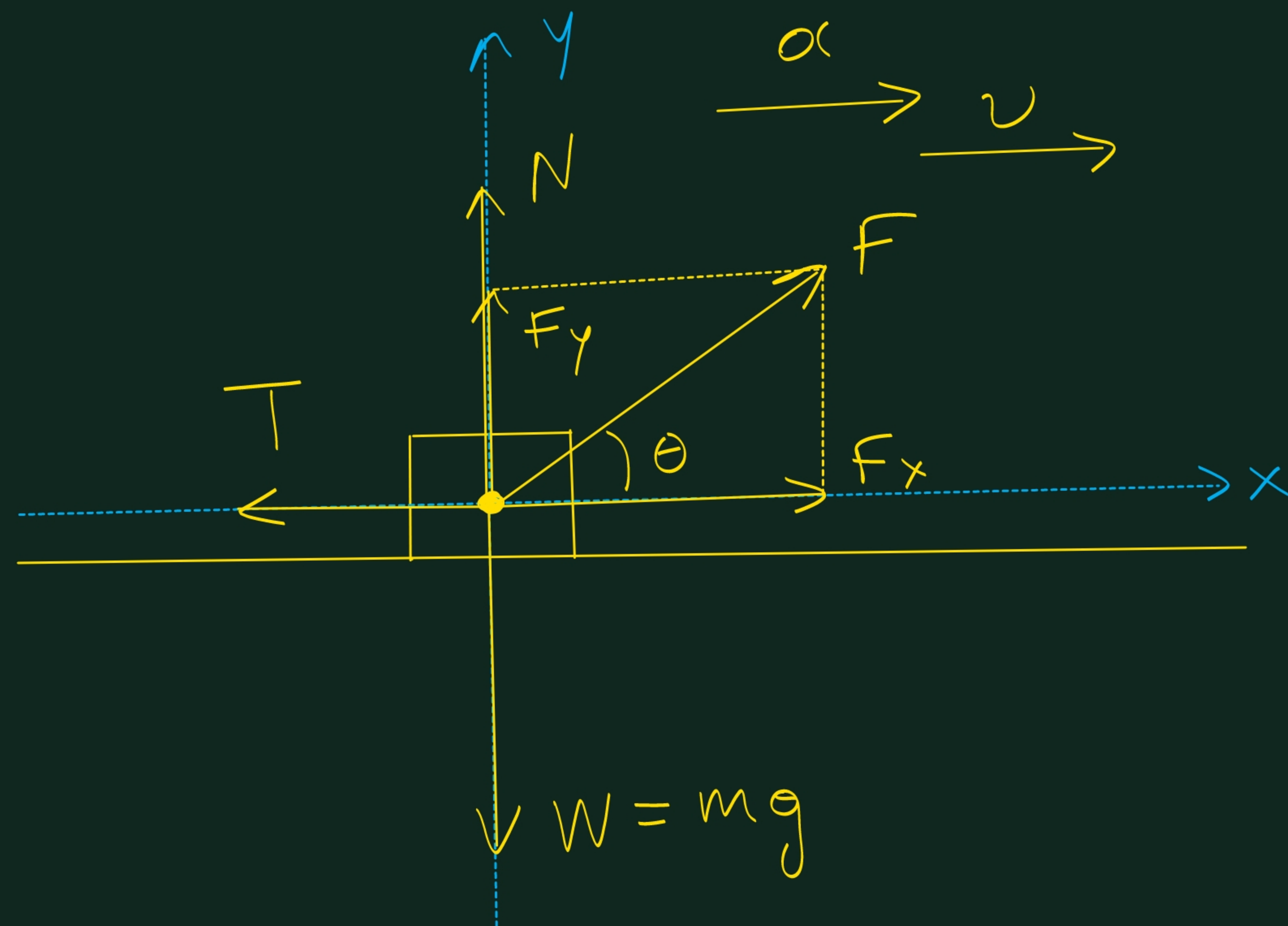
$$\epsilon\varphi\theta = \frac{\alpha\eta\acute{\epsilon}\nu\alpha\eta\eta}{\eta\pi\omicron\varsigma\upsilon\epsilon\acute{\iota}\gamma\upsilon\eta\eta.}$$

$$\omega\gamma\theta = \frac{F_y}{F} \Rightarrow F_y = F \cdot \omega\gamma\theta$$

$$\varsigma\upsilon\nu\theta = \frac{F_x}{F} \Rightarrow F_x = F \cdot \varsigma\upsilon\nu\theta$$

$$\epsilon\varphi\theta = \frac{F_y}{F_x}$$

Παράδειγμα 6ε2. 128-129.



$$W = mg = 10 \cdot 10 = 100 \text{ N.}$$

$$m = 10 \text{ kg}$$

$$F = 80 \text{ N}$$

$$\theta = 30^\circ$$

$$\gamma = 0,25$$

$$d) T = ;$$

$$T = \gamma \cdot N$$

$$\sin \theta = \frac{F_y}{F} \Rightarrow \sin 30^\circ = \frac{F_y}{80} \Rightarrow$$

$$\frac{1}{2} = \frac{F_y}{80} \Rightarrow F_y = 40 \text{ N.}$$

$$\cos \theta = \frac{F_x}{F} \Rightarrow \cos 30^\circ = \frac{F_x}{80} \Rightarrow$$

$$\frac{\sqrt{3}}{2} = \frac{F_x}{80} \Rightarrow \frac{2 \cdot F_x}{2} = \frac{80 \cdot \sqrt{3}}{2} \Rightarrow$$

$$F_x = 40\sqrt{3} \approx 40 \cdot 1,7 = 68 \text{ N}$$

$$\sqrt{3} \approx 1,7$$