

Πορδ δαρυα εελ. 128.)

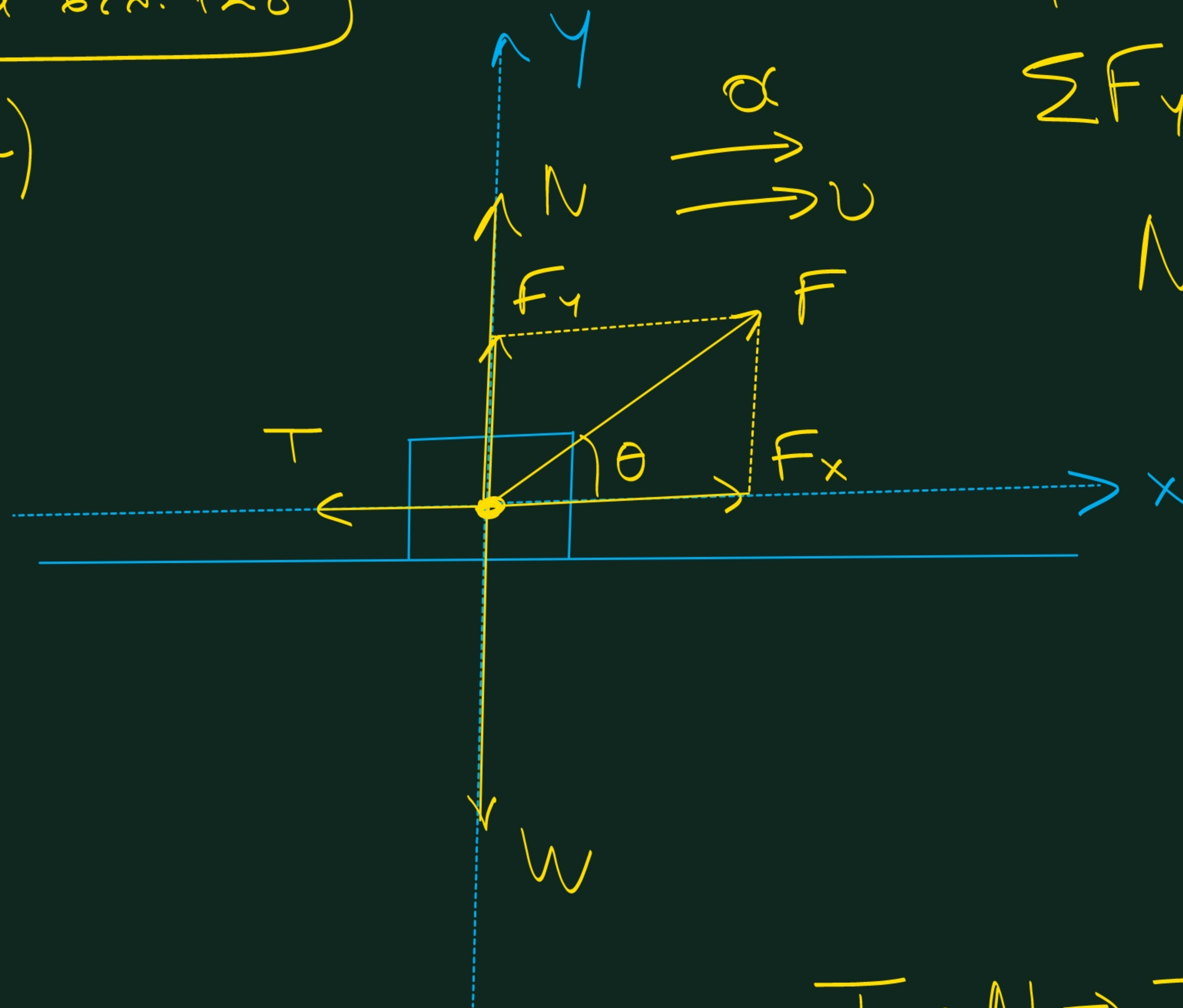
$m = 10 \text{ kg}$ α)

$F = 80 \text{ N}$

$\theta = 30^\circ$

$g = 10 \text{ m/s}^2$

$\mu = 0,25$



$$T = \mu N$$

$$\Sigma F_y = 0 \Rightarrow N + F_y - W = 0 \Rightarrow$$

$$N + F \cdot \sin \theta - mg = 0 \Rightarrow$$

$$N = mg - F \cdot \sin \theta \Rightarrow$$

$$N = 10 \cdot 10 - 80 \cdot \sin 30^\circ \Rightarrow$$

$$N = 100 - 80 \cdot \frac{1}{2} \Rightarrow$$

$$N = 100 - 40 \Rightarrow N = 60 \text{ N}$$

$$T = \mu N \Rightarrow T = 0,25 \cdot 60 \Rightarrow$$

$$T = 15 \text{ N}$$

$$b) \Sigma F_x = ma \Rightarrow$$

$$F_x - T = ma \Rightarrow$$

$$F \cdot \cos \theta - T = ma \Rightarrow$$

$$80 \cdot \cos 30^\circ - 15 = 10a \Rightarrow$$

$$80 \cdot \frac{\sqrt{3}}{2} - 15 = 10a \Rightarrow$$

$$40\sqrt{3} - 15 = 10a \Rightarrow$$

$$40 \cdot 1,7 - 15 = 10a \Rightarrow$$

$$53 = 10a \Rightarrow a = 5,3 \text{ m/s}^2$$

$$g) S = \frac{1}{2} \cdot a \cdot t^2 \Rightarrow$$

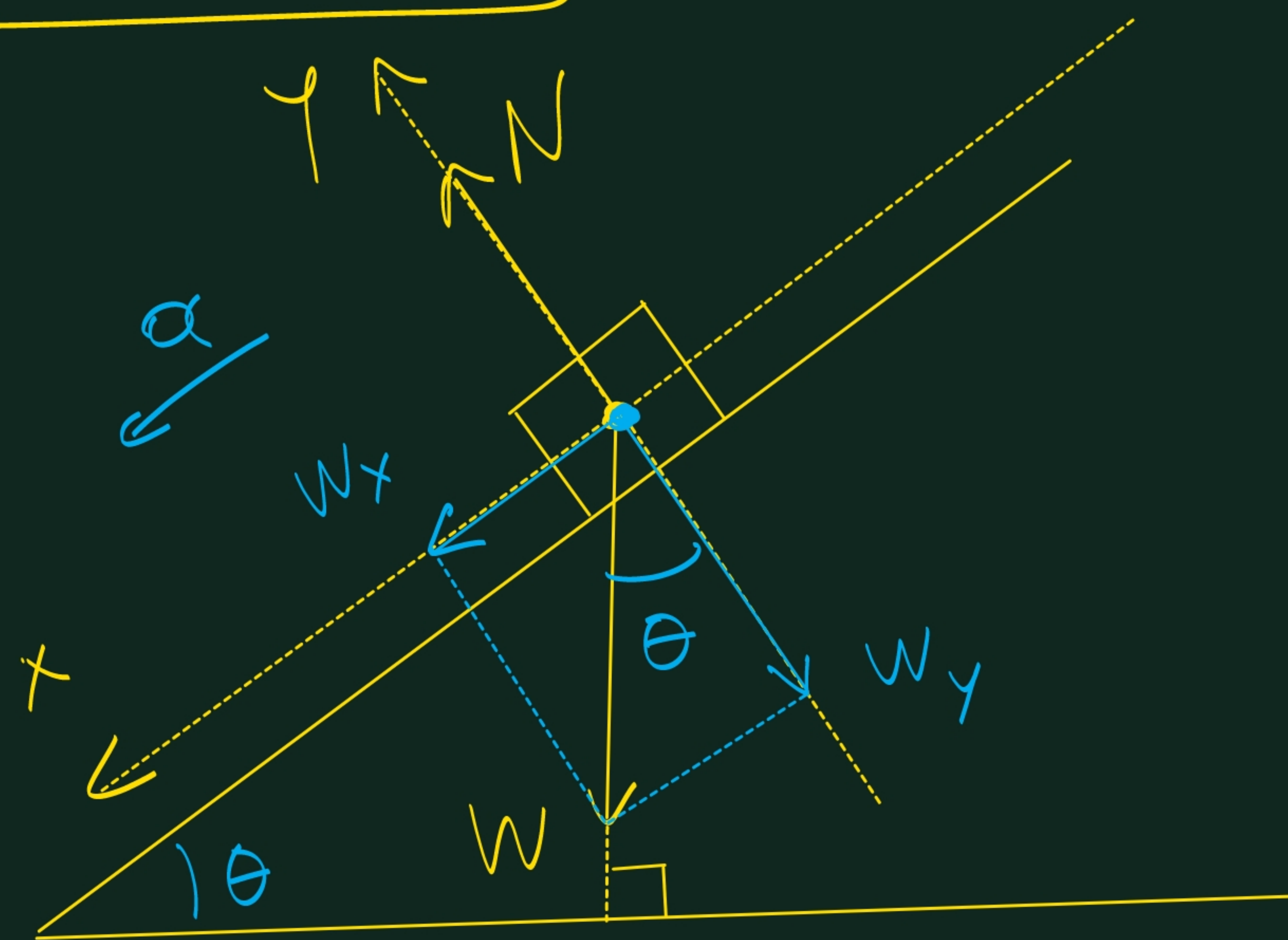
$$S = \frac{1}{2} \cdot 5,3 \cdot 4^2 \Rightarrow$$

$$S = \frac{1}{2} \cdot 5,3 \cdot 16 \Rightarrow$$

$$S = 8 \cdot 5,3 \Rightarrow$$

$$S = 42,4 \text{ m}$$

Α6α. 7 εελ. 157



$$\begin{aligned} b) \quad W_y &= W \cdot \sin \theta = mg \cdot \sin \theta \\ W_x &= W \cdot \cos \theta = mg \cdot \cos \theta \end{aligned}$$

$$\Sigma F_y = 0 \Rightarrow N - W_y = 0 \Rightarrow$$

$$N = W_y = mg \cdot \sin \theta$$

$$\Sigma F_x = ma \Rightarrow W_x = ma \Rightarrow$$

$$\cancel{m}g \cdot \cos \theta = \cancel{m}a \Rightarrow$$

$$a = g \cdot \cos \theta \Rightarrow a = 10 \cdot \cos 30^\circ \Rightarrow$$

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

a) Στο σώμα ασκούνται δύο δυνάμεις:

Το βάρος $\vec{W}$ από τη Γη
και η κάθετη δύναμη $\vec{N}$ από το
κατακόρυφο επίπεδο.