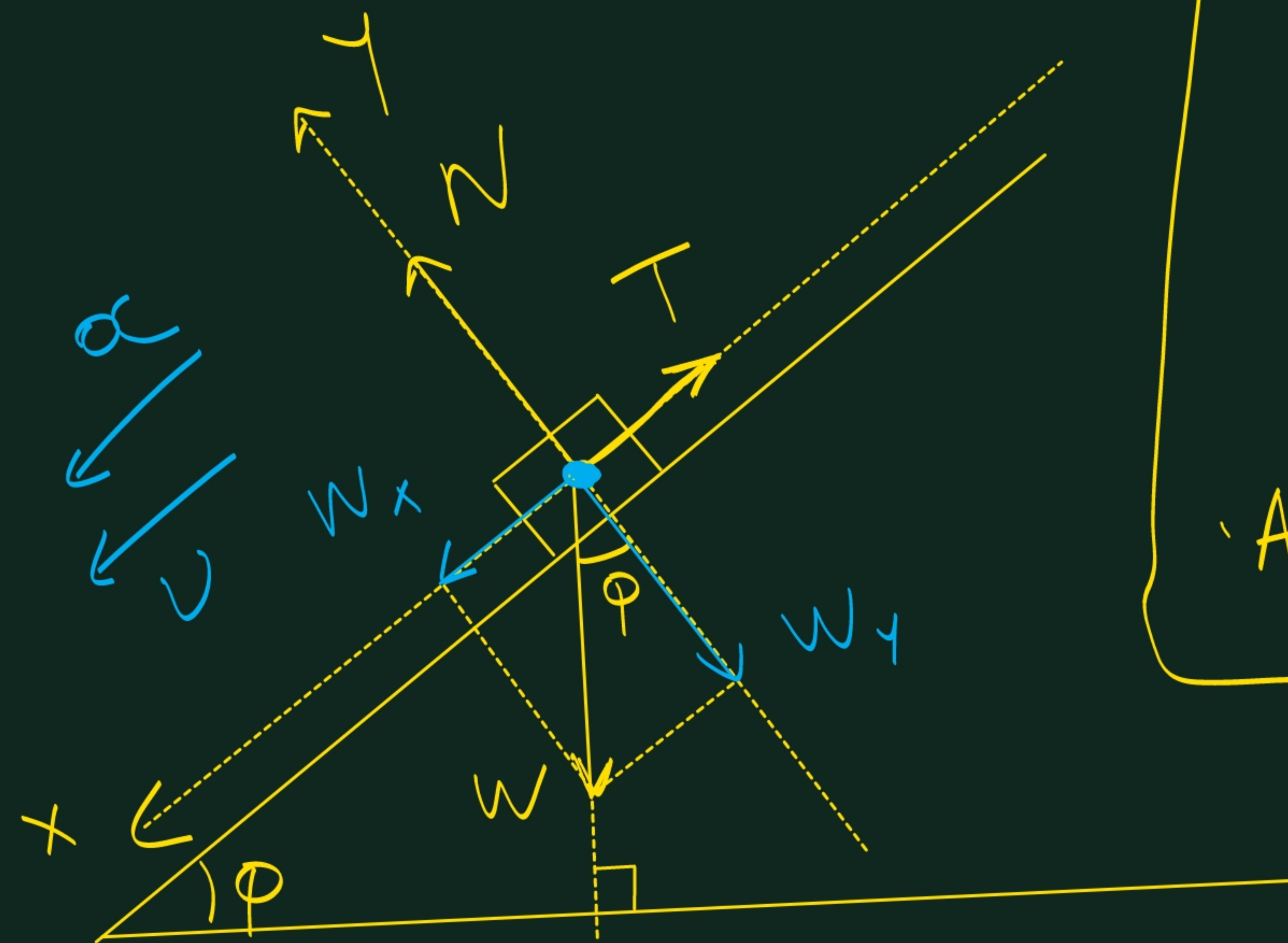


Ασκ. 13 Σεπ. 198.

α) Στο σώμα ασκούνται τρεις δυνάμεις.



Η τριβή T από το οριζόντιο επίπεδο
 Η κάθετη δύναμη N από το οριζ. επίπεδο
 Το βάρος W από τη Γη.

$$\beta) T = \mu N$$

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

$$N = W \cdot \cos \phi \Rightarrow$$

$$N = mg \cdot \cos 30^\circ \Rightarrow$$

$$N = 1 \cdot 10 \cdot \frac{\sqrt{3}}{2} \Rightarrow N = 5\sqrt{3} \text{ N}$$

$$\text{Αρα: } T = \mu N = \frac{\sqrt{3}}{6} \cdot 5 \cdot \sqrt{3} \Rightarrow$$

$$T = \frac{3}{6} \cdot 5 \Rightarrow$$

$$T = 2,5 \text{ N}$$

$$\delta) W_x = W \cdot \sin \phi \Rightarrow$$

$$W_x = mg \cdot \sin \phi \Rightarrow$$

$$W_x = 1 \cdot 10 \cdot \sin 30^\circ \Rightarrow$$

$$W_x = 10 \cdot \frac{1}{2} = 5 \text{ N}$$

$$\Sigma F_x = ma \Rightarrow$$

$$W_x - T = ma \Rightarrow$$

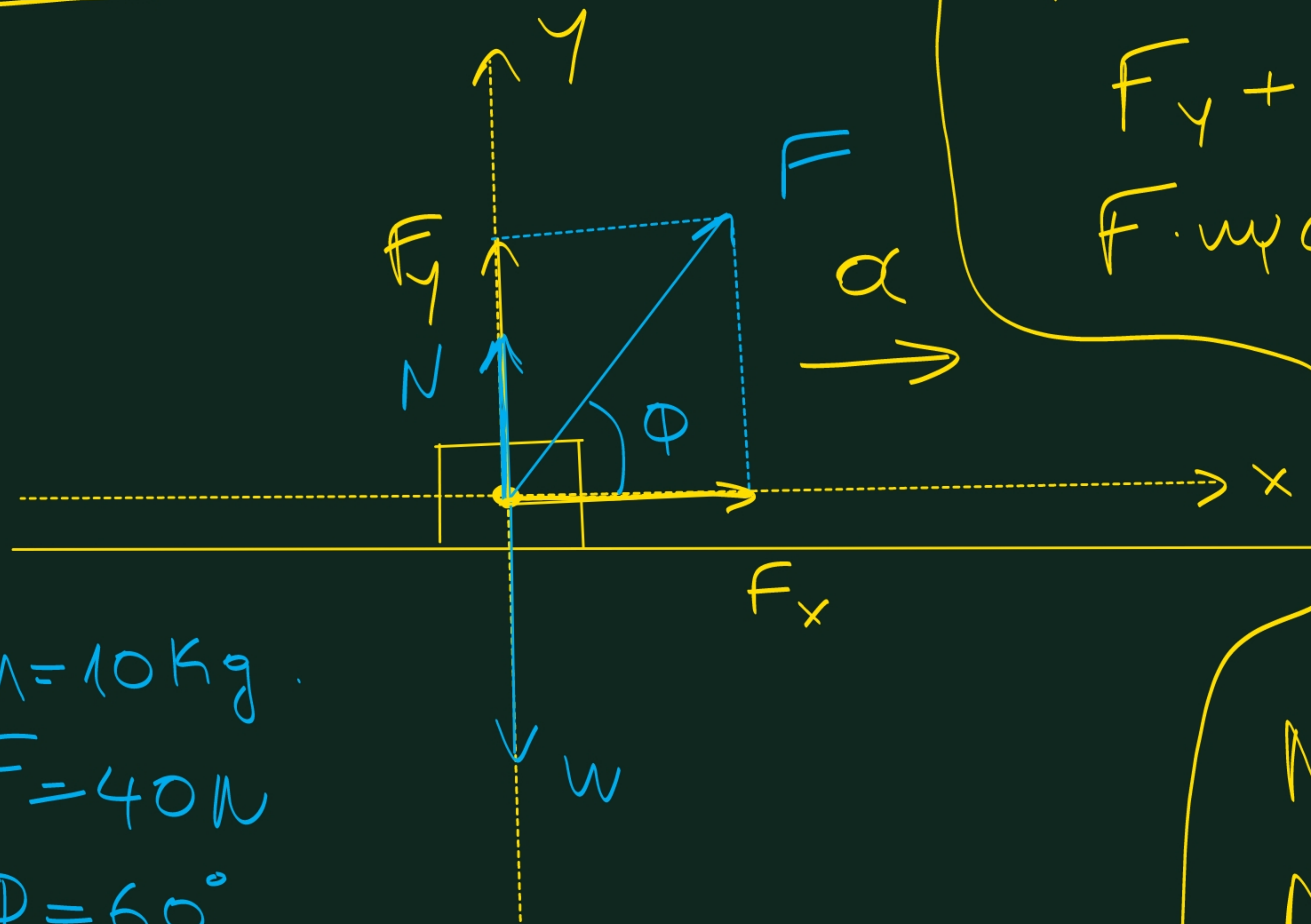
$$5 - 2,5 = 1 \cdot a \Rightarrow$$

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

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

$$S = \frac{1}{2} \cdot 2,5 \cdot 1^2 \Rightarrow S = 1,25 \text{ m}$$

Αβλ. 22 εελ. 159.



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

$$F = 40 \text{ N}$$

$$\phi = 60^\circ$$

$$\sqrt{3} \approx 1.7$$

$$a) \sum F_y = 0 \Rightarrow$$

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

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

$$40 \cdot \sin 60^\circ + N - 10 \cdot 10 = 0 \Rightarrow$$

$$40 \cdot \frac{\sqrt{3}}{2} + N - 100 = 0 \Rightarrow$$

$$N = 100 - 20\sqrt{3} \Rightarrow$$

$$N = 100 - 20 \cdot 1.7 \Rightarrow$$

$$N = 66 \text{ N}$$

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

$$F \cdot \cos \phi = ma \Rightarrow$$

$$40 \cdot \cos 60^\circ = 10 \cdot a \Rightarrow$$

$$40 \cdot \frac{1}{2} = 10 \cdot a \Rightarrow$$

$$20 = 10 \cdot a \Rightarrow$$

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

$$0 \rightarrow 1 \rightarrow 2 \rightarrow 3 \rightarrow 4 \rightarrow 5$$

1° 2° 3° 4° 5°

$$S(t) = \frac{1}{2} a t^2$$

$$S(4) = \frac{1}{2} \cdot 2 \cdot 4^2 = 16 \text{ m}$$

$$S(5) = \frac{1}{2} \cdot 2 \cdot 5^2 = 25 \text{ m}$$

$$\text{Απο: } S = S(5) - S(4) = 25 - 16 = 9 \text{ m}$$

Aug. 8 662. 158.

