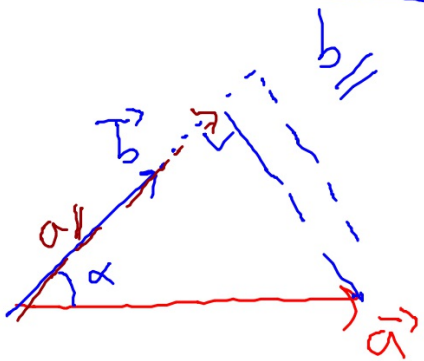


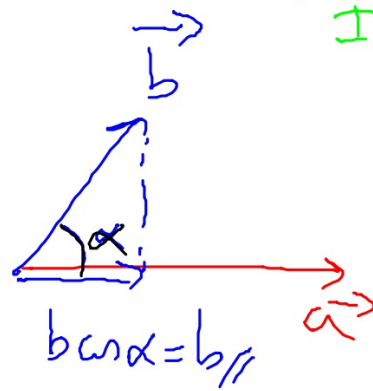
# LAVORO

Prodotto scalare

$$\vec{a} \cdot \vec{b} = a b \cos \alpha$$

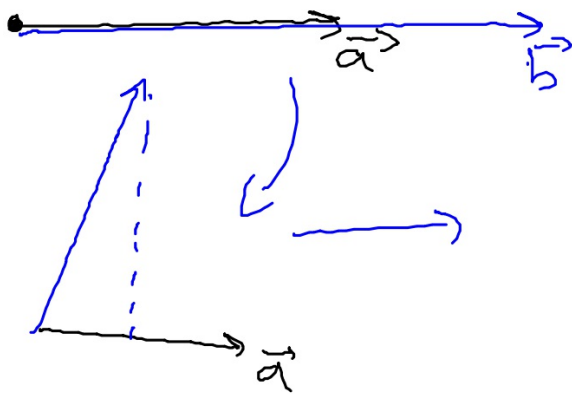


$$a_{\parallel} = a \cos \alpha$$

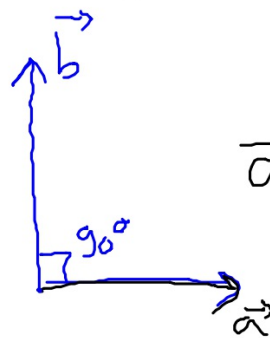


$$\vec{a} \cdot \vec{b} = ab \cos \alpha = a b_{\parallel} = a_{\parallel} b$$

$\alpha = 0^\circ$  PROD. SCAL. MASSIMO



$$\vec{a} \cdot \vec{b} = ab$$



$$\vec{a} \cdot \vec{b} = 0$$



$$\alpha = 180^\circ$$

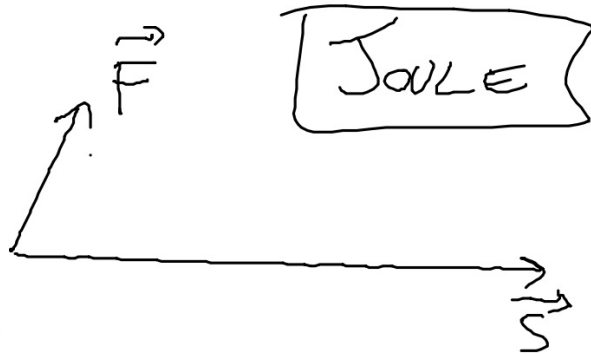
$$\vec{a} \cdot \vec{b} = -ab$$

## LAVORO FORZA COSTANTE

$$L = \vec{F} \cdot \vec{s} =$$

$$= F s \cos \alpha$$

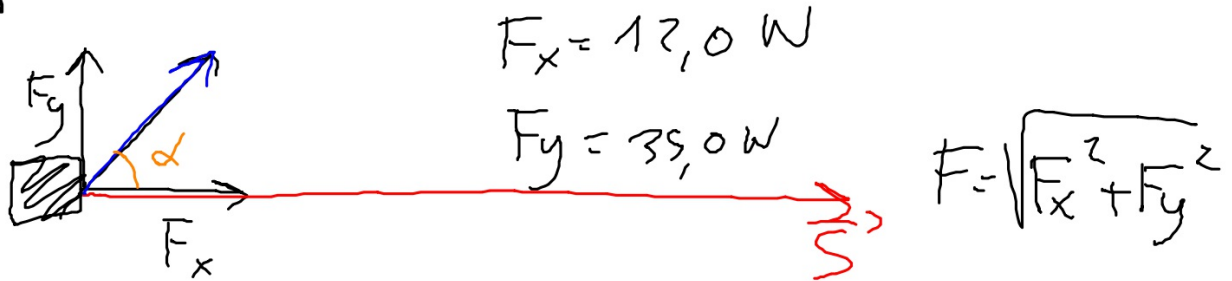
L MAX se  $\alpha = 0^\circ$



$$1 \text{ J} = 1 \text{ N} \cdot 1 \text{ m} = 1 \text{ kg} \frac{\text{m}^2}{\text{s}^2}$$

1

Spostamento 20 m  $\alpha = ?$   $L = 370 \text{ J}$



$$L = \vec{F} \cdot \vec{S} = F s \cos \alpha \quad \cos \alpha = \frac{L}{Fs}$$

$$F = \sqrt{(12)^2 + (35)^2} = 37,0 \text{ N}$$

$$\cos \alpha = \frac{370 \text{ J}}{37,0 \text{ N} \cdot 20 \text{ m}} = 0,50$$

$$\alpha = \cos^{-1}(0,50) = 60^\circ$$

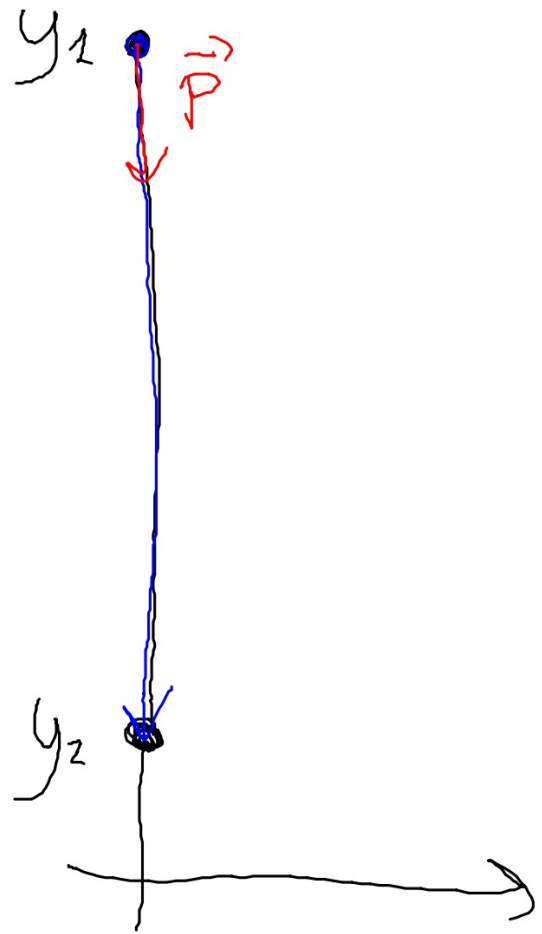
$$P = mg$$

$$L = P \cdot \Delta y > 0$$

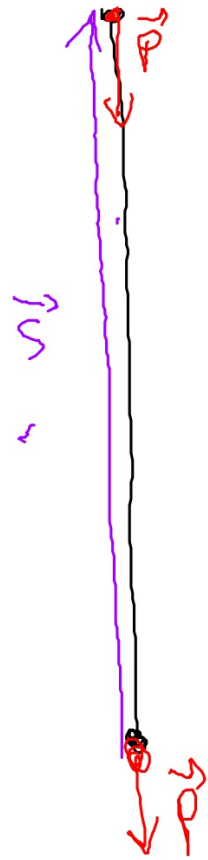
$$m = 0,30 \text{ kg}$$

$$h = 2,00 \text{ m}$$

$$L = m \cdot g \cdot h$$



$$L < 0$$



$$L = \vec{P} \cdot \vec{s} = P s_{\parallel} = m g \Delta y$$

