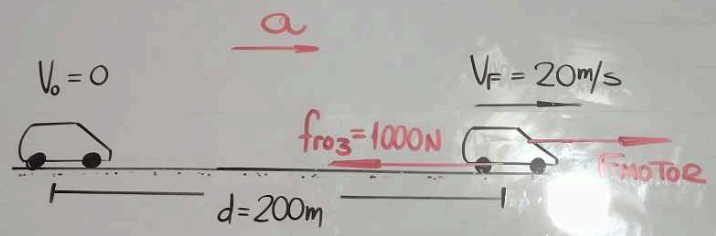
① $m = 1500\,kg$



*) $V_F^2 = V_0^2 + 2ad$

$20^2 = 2a\,(200)$

$a = 1\,m/s^2$

*) $F_R = ma$

$F_{MOTOR} - 1000 = 1500(1)$

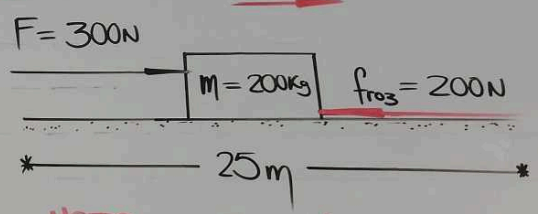
$F_{MOTOR} = 2500\,N$

*) $W = F.d$

$(2500)(200)$

$W = 500\,kJ$ /.

② .



✓ $W^{NETO} = F_R . d$

$(300 - 200)(25) = 2500\,J$ /.

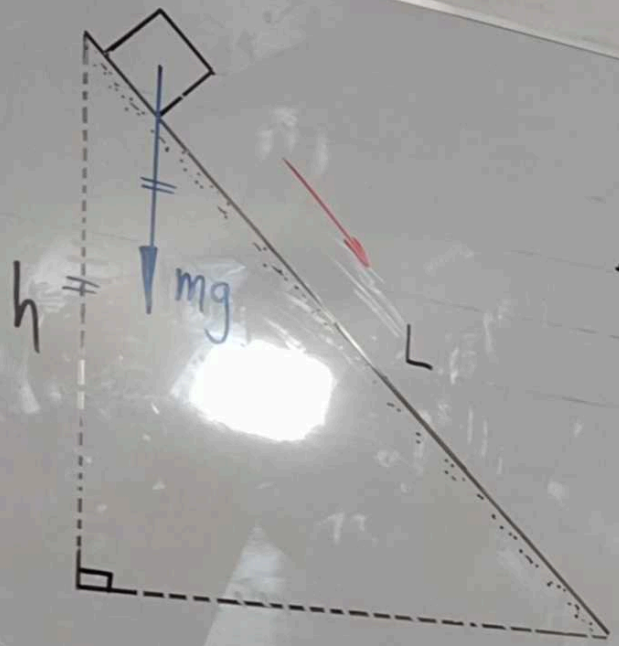
✓ $F_R = ma$

$100 = 200\,a$

$a = 0{,}5\,m/s^2$ /.

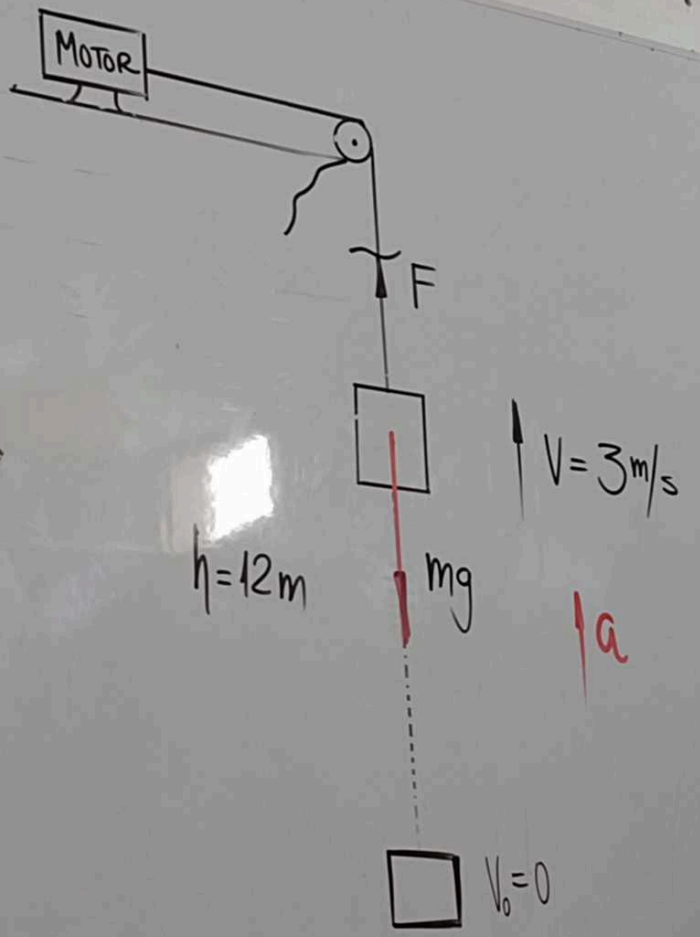
⑧ .

⑧.



$W^{mg} = +(mg)(h)$ ✓

⑨



*) $V_F^2 = V_0^2 + 2ad$

$3^2 = 2a(12)$

$a = \frac{3}{8}\ m/s^2$

*) $F_R = ma$

$F - mg = ma$

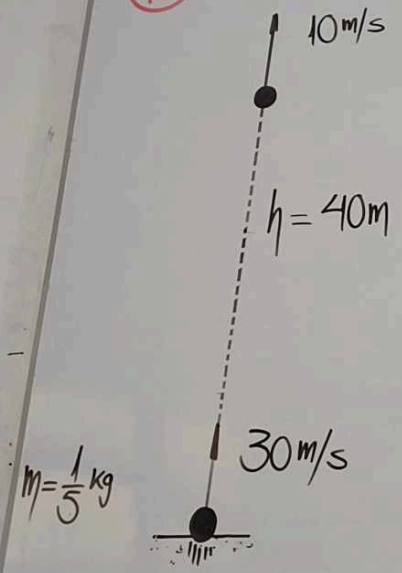
$F - (1000)(10) = (1000)\left(\frac{3}{8}\right)$

$F = 10375\ N$

*) $W = F \cdot d$

$(10375)(12) = 124500\ J$ ✓

(13)



$E_c = \frac{1}{2} m v^2$

$\frac{1}{2}\left(\frac{1}{5}\right)(10)^2$

$E_c = 10\,J$

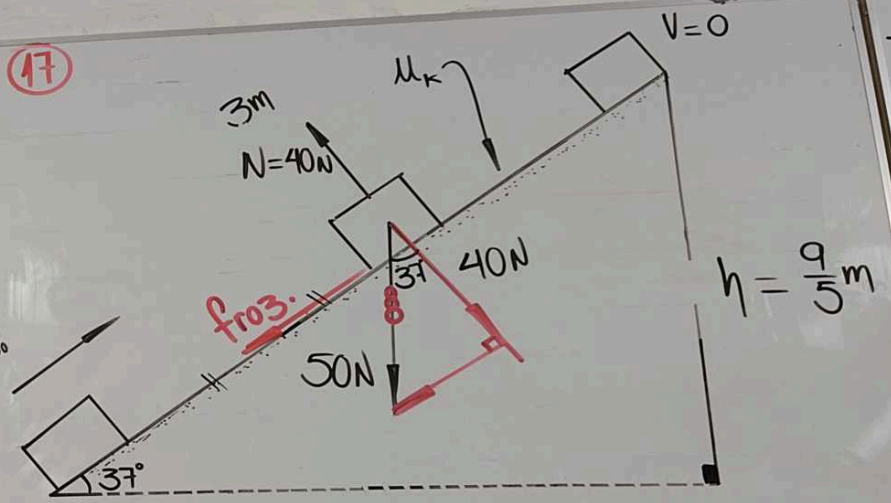
$E_{pg} = mgh$

$\left(\frac{1}{5}\right)(10)(40)$

$E_{pg} = 80\,J$

$\frac{E_c}{E_{pg}} = 1/8$

(17)



$W^{FNC} = E_M^{Final} - E_M^{inicial}$

$W^{Ro3} = mgh - \frac{1}{2} m V^2$

$-f_{ro3} \cdot d = (5)(10)\left(\frac{9}{5}\right) - \frac{1}{2}(5)(8)^2$

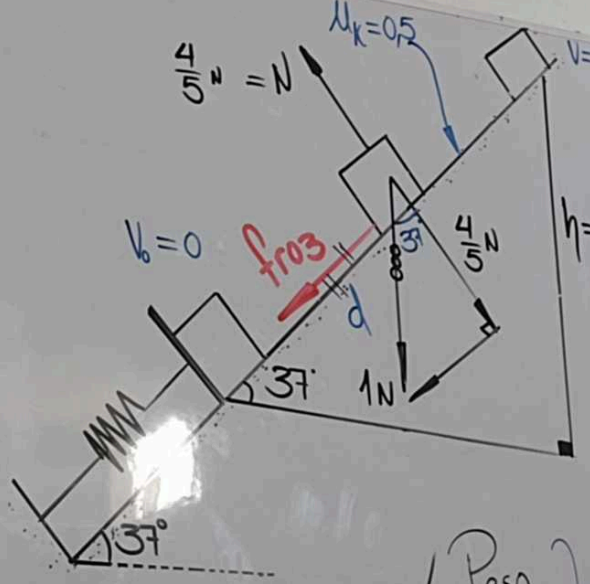
$-(\mu \cdot N)(3) = 90 - 160$

$-\mu(40)(3) = -70$

$\mu = \frac{7}{12}$

$\mu = 0{,}58$ /

(32)



$W^{FNC} = E_M^F - E_M^i$

$W^{Roz} = mg\left(\frac{3}{5}d\right) - \left(\frac{1}{2}kx^2\right)$

$-(0{,}5)\left(\frac{4}{5}\right) \cdot d = (0{,}1)(10)\left(\frac{3}{5}d\right) - \frac{1}{2}(50)(0{,}4)^2$

$-0{,}4d = 0{,}6d - 2{,}5$

$2{,}5 = d$

$\therefore d = 2{,}5\,m$ /

✓ Peso
✓ F. elást.
✓ F. eléctr.

} Fuerzas Conservativas.