



Problematario

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Nombre del tema: Problematario

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Nombre de la Licenciatura: Bachillerato En Enfermería

PROBLEMARIO FISICA II

Gabriela Montserrat Calvo Vazquez

- 1) $F = 30 \text{ Nw}$ a) Trabajo
 $d = 60 \text{ cm}$ b) T. mecanica $\theta = 300^\circ$

$$\begin{aligned} \text{a) } T &= F \cdot d & \text{b) } F &= T \cos \theta & T &= F \cdot d \\ T &= (30)(0.6) & F &= 18 \cos 300 & T &= (14.4)(0.6) \\ T &= 18 \text{ J} & F &= 14.4 & T &= 8.64 \end{aligned}$$

- 2) $m = 25 \text{ kg}$ Encontrar: Trabajo
 $d = 6.4 \text{ m}$

$$\begin{aligned} F &= P = m \cdot g & T &= F \cdot d \\ F &= P = (25)(9.8) & T &= (160)(6.4) \\ F &= 160 \text{ Nw} & T &= 1,024 \text{ J} \end{aligned}$$

- 3) $F = 3 \text{ Nw}$ Encontrar: Trabajo
 $d = 12,00 \text{ cm}$

$$\begin{aligned} T &= F \cdot d \\ T &= (3)(12) \\ T &= 36 \text{ J} \end{aligned}$$

- 4) $m = 60,00 \text{ kg}$ a) Tension b) Trabajo

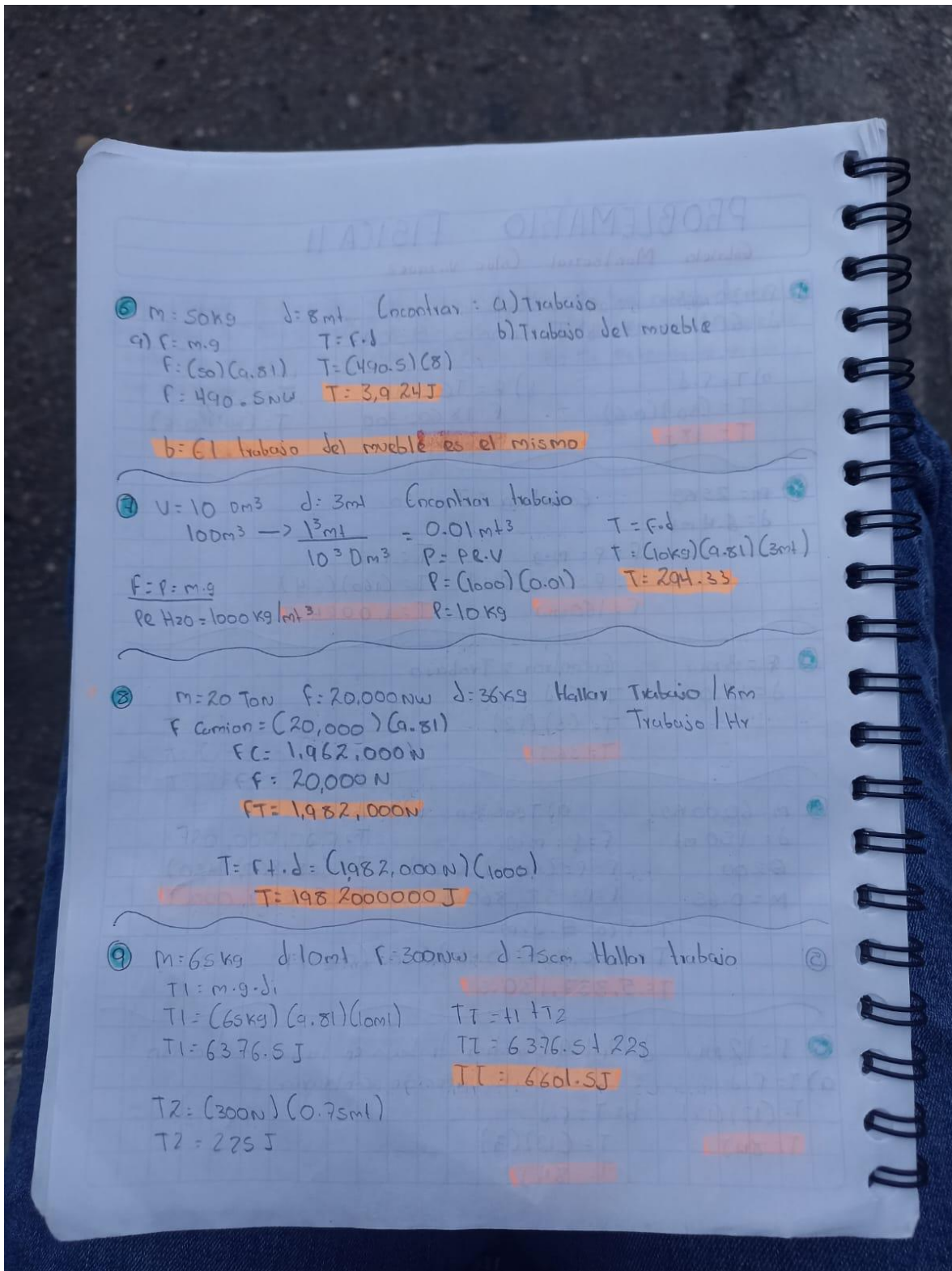
$$\begin{aligned} d &= 150 \text{ m} & F &= P = m \cdot g & T &= F \cdot d \\ \theta &= 200 & F &= P = (6000)(9.81) & T &= (58,860)(150) \\ M &= 0.65 & F &= P = 58,860 \text{ Nw} & T &= 8,829,000 \text{ J} \end{aligned}$$

$$\begin{aligned} T &= F \cos \theta \cdot d \cdot m \\ T &= (58,860)(0.48)(150)(0.65) \\ T &= 5,337,130.5 \end{aligned}$$

- 5) $F = 12 \text{ Nw}$ $d = 7 \text{ m}$: a) Encontrar trabajo en la misma direccion

b) En la direccion contraria

$$\begin{aligned} \text{a) } T &= F \cdot d & \text{b) } T &= F \cdot d \\ T &= (12)(7) & T &= (12)(7) \\ T &= 84 \text{ J} & T &= 84 \text{ J} \end{aligned}$$



6) $m = 50 \text{ kg}$ $d = 8 \text{ m}$ Encuentra: a) Trabajo
 b) Trabajo del mueble
 $F = m \cdot g$ $T = F \cdot d$
 $F = (50)(9.81)$ $T = (490.5)(8)$
 $F = 490.5 \text{ N}$ $T = 3,924 \text{ J}$

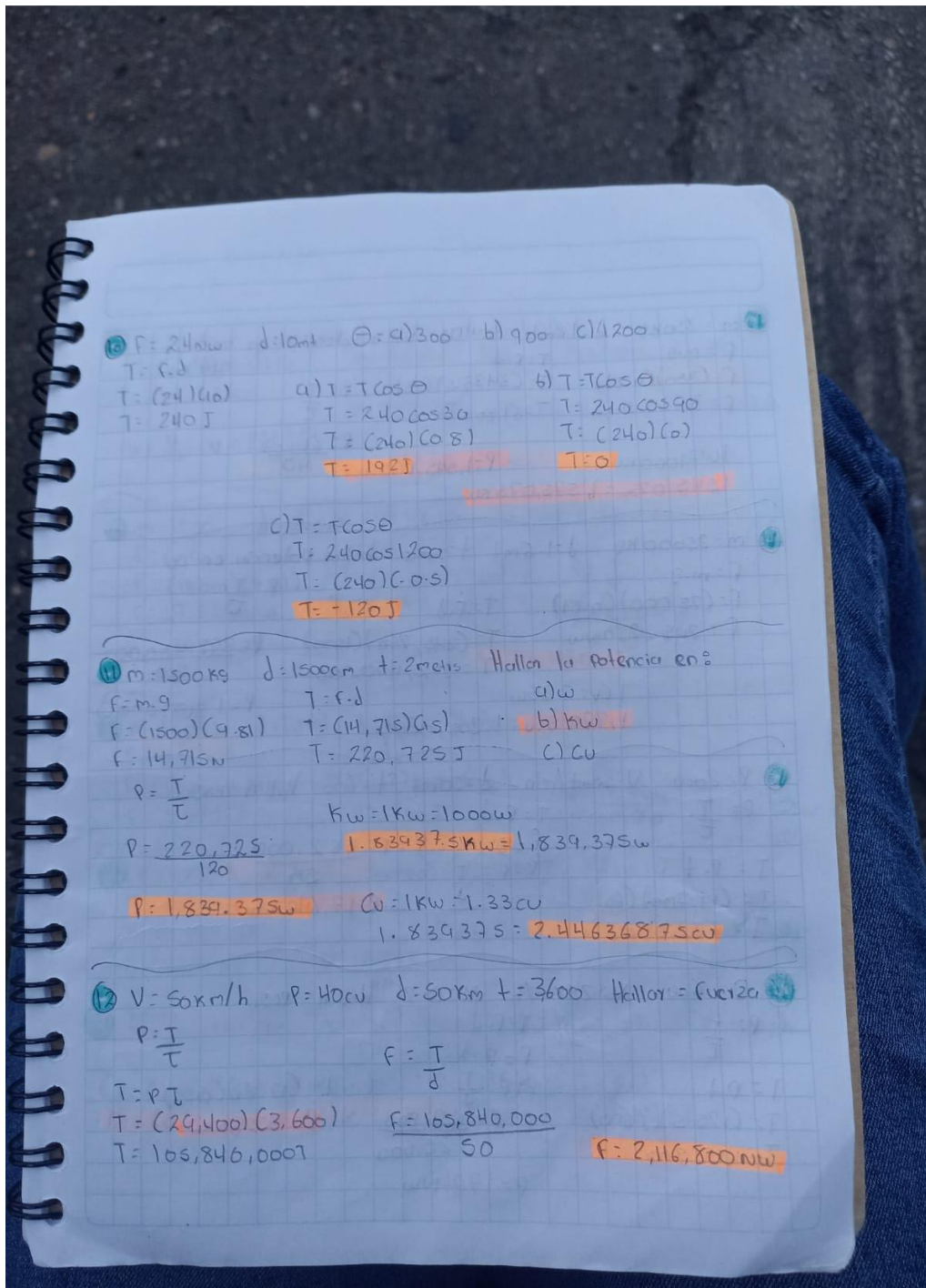
b: El trabajo del mueble es el mismo

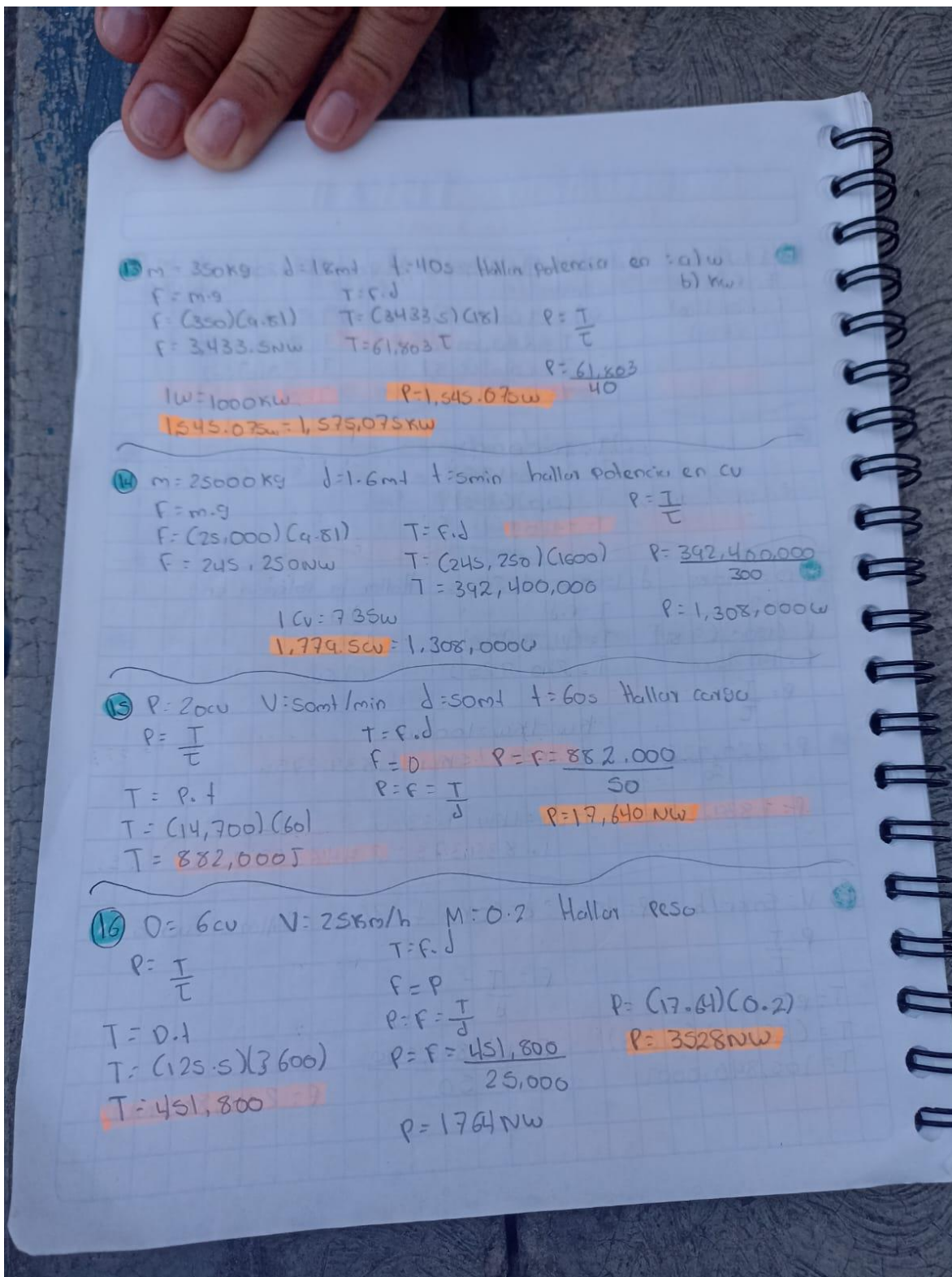
7) $V = 10 \text{ dm}^3$ $d = 3 \text{ m}$ Encuentra Trabajo
 $10 \text{ dm}^3 \rightarrow \frac{1^3 \text{ m}}{10^3 \text{ Dm}^3} = 0.01 \text{ m}^3$ $T = F \cdot d$
 $F = P \cdot V$ $T = (10 \text{ kg})(9.81)(3 \text{ m})$
 $P = (1000)(0.01)$ $T = 294.33$
 $P_{\text{H}_2\text{O}} = 1000 \text{ kg/m}^3$ $P = 10 \text{ kg}$

8) $m = 20 \text{ Ton}$ $F = 20,000 \text{ N}$ $d = 36 \text{ km}$ Hallar Trabajo / Km
 Trabajo / Hr
 $F_{\text{camion}} = (20,000)(9.81)$
 $F_c = 1,962,000 \text{ N}$
 $F = 20,000 \text{ N}$
 $T = 1,982,000 \text{ N}$

$T = F \cdot d = (1,982,000 \text{ N})(1000)$
 $T = 1,982,000,000 \text{ J}$

9) $m = 65 \text{ kg}$ $d = 10 \text{ m}$ $F = 300 \text{ N}$ $d = 75 \text{ cm}$ Hallar Trabajo
 $T_1 = m \cdot g \cdot d_1$
 $T_1 = (65 \text{ kg})(9.81)(10 \text{ m})$ $T_1 = 6376.5 \text{ J}$
 $T_2 = (300 \text{ N})(0.75 \text{ m})$
 $T_2 = 225 \text{ J}$
 $T = T_1 + T_2$
 $T = 6376.5 + 225$
 $T = 6601.5 \text{ J}$





13 $m = 350\text{kg}$ $d = 18\text{m}$ $t = 40\text{s}$ Hallar potencia en : a) w b) kw
 $F = m \cdot g$ $T = F \cdot d$ $P = \frac{T}{t}$
 $F = (350)(9.81)$ $T = (3433.5)(18)$ $P = \frac{61,803}{40}$
 $F = 3433.5\text{Nw}$ $T = 61,803\text{J}$
 $1\text{w} = 1000\text{kw}$ $P = 1,545.075\text{w}$
 $1,545.075\text{w} = 1,575,075\text{kw}$

14 $m = 25000\text{kg}$ $d = 1.6\text{m}$ $t = 5\text{min}$ hallar potencia en cv $P = \frac{T}{t}$
 $F = m \cdot g$ $T = F \cdot d$
 $F = (25,000)(9.81)$ $T = (245,250)(1600)$ $P = \frac{392,400,000}{300}$
 $F = 245,250\text{Nw}$ $T = 392,400,000$ $P = 1,308,000\text{w}$
 $1\text{cv} = 735\text{w}$
 $1,779.5\text{cv} = 1,308,000\text{w}$

15 $P = 20\text{cv}$ $V = 50\text{m}^3/\text{min}$ $d = 50\text{m}$ $t = 60\text{s}$ Hallar en cv
 $P = \frac{T}{t}$ $T = F \cdot d$ $P = F = \frac{882,000}{50}$
 $F = D$ $P = 17,640\text{Nw}$
 $T = P \cdot t$ $P = F = \frac{T}{d}$
 $T = (17,640)(60)$
 $T = 882,000\text{J}$

16 $D = 6\text{cv}$ $V = 258\text{m}^3/\text{h}$ $M = 0.2$ Hallar reso
 $P = \frac{T}{t}$ $T = F \cdot d$
 $T = D \cdot t$ $F = P$ $P = (17.64)(0.2)$
 $T = (125.5)(3600)$ $P = F = \frac{T}{d}$ $P = 3528\text{Nw}$
 $T = 451,800$ $P = F = \frac{451,800}{25,000}$
 $P = 1764\text{Nw}$

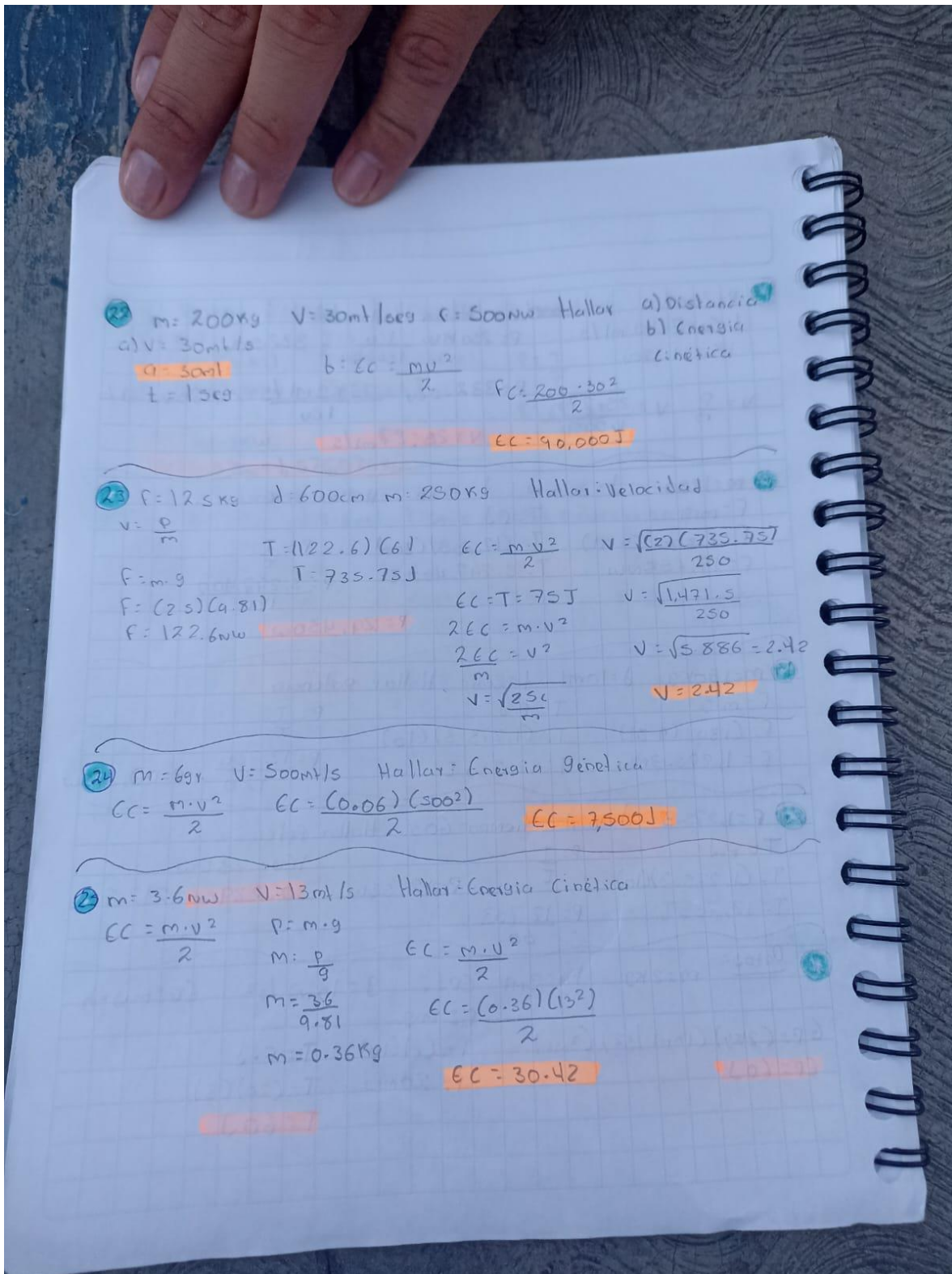
17) $P = 250 \text{ kW}$ $m = 1.000 \text{ kg}$ Hallar velocidad
 $1 \text{ CV} = 76 \text{ kg} \cdot \text{m} / \text{s}$ $P = 250 \text{ kW} \frac{1 \text{ CV}}{1.33 \text{ kW}} = 332.5 \text{ CV}$
 $1 \text{ kW} = 1.33 \text{ CV}$
 $P = 332.5 \text{ CV} \frac{76 \text{ kg} \cdot \text{m} / \text{s}}{1 \text{ CV}} = 25.270 \text{ kg} \cdot \text{m} / \text{s}$
 $v = \frac{P}{m} \quad v = \frac{25.270}{1.000}$
 $v = 25.27 \text{ m/s}$

18) $m = 1800$ $d = 300 \text{ m}$ $t = 3 \text{ min}$ Hallar potencia
 $F = m \cdot g$ $T = F \cdot d$ $P = \frac{T}{t}$
 $F = (1800)(9.81)$ $T = (17.658)(300)$ $P = \frac{5.297.400}{180}$
 $F = 17.658 \text{ N}$ $T = 5.297.400 \text{ J}$ $P = 29.430 \text{ W}$

19) $m = 130 \text{ kg}$ $d = 10 \text{ m}$ $t = 2 \text{ min}$ Hallar potencia
 $F = m \cdot g$ $T = F \cdot d$ $P = \frac{T}{t}$
 $F = (130)(9.81)$ $T = (1.275.3)(10)$ $P = \frac{12.750}{120}$ $P = 106.275 \text{ W}$
 $F = 1.275.3 \text{ N}$ $T = 12.750 \text{ J}$

20) $F = 1.275.3$ $d = 10 \text{ m}$ tiempo = 60s Hallar potencia
 $T = F \cdot d$ $P = \frac{T}{t}$ $1 \text{ CV} = 735 \text{ W}$
 $T = (1.275.3)(10)$ $P = 212.55 \text{ W}$ $0.289 \text{ CV} = 212.55 \text{ W}$
 $T = 12.753 \text{ J}$ $P = \frac{12.753}{60}$

21) Datos: $m = 2 \text{ kg}$ $h = 3 \text{ m}$ $g = 10 \text{ m/s}^2$ $EP = m \cdot g \cdot h$
 $F = m \cdot g$
 $EP = (2 \text{ kg})(10 \text{ m/s}^2)(3 \text{ m})$ $F = (2)(10)$ $T = F \cdot d$
 $EP = 60 \text{ J}$ $F = 20 \text{ N}$ $T = (20)(3)$
 $T = 60 \text{ J}$



22 $m = 200 \text{ kg}$ $v = 30 \text{ m/s}$ $c = 500 \text{ Nw}$ Hallar a) Distancia b) Energía Cinética

a) $v = 30 \text{ m/s}$
 $t = 1 \text{ seg}$

b) $EC = \frac{m \cdot v^2}{2}$
 $EC = \frac{200 \cdot 30^2}{2}$
 $EC = 90,000 \text{ J}$

23 $F = 12 \text{ s kg}$ $d = 600 \text{ cm}$ $m = 250 \text{ kg}$ Hallar: Velocidad

$v = \frac{p}{m}$
 $F = m \cdot g$
 $F = (2 \text{ s})(9.81)$
 $F = 122.6 \text{ Nw}$

$T = (122.6)(6)$
 $T = 735.75 \text{ J}$

$EC = \frac{m \cdot v^2}{2}$
 $2EC = m \cdot v^2$
 $2EC = v^2$
 $v = \sqrt{\frac{2EC}{m}}$

$v = \frac{\sqrt{(2)(735.75)}}{250}$
 $v = \frac{\sqrt{1,471.5}}{250}$
 $v = \sqrt{5.886} = 2.42$
 $v = 2.42$

24 $m = 6 \text{ gr}$ $v = 500 \text{ m/s}$ Hallar: Energía Cinética

$EC = \frac{m \cdot v^2}{2}$
 $EC = \frac{(0.06)(500^2)}{2}$
 $EC = 7,500 \text{ J}$

25 $m = 3.6 \text{ Nw}$ $v = 13 \text{ m/s}$ Hallar: Energía Cinética

$EC = \frac{m \cdot v^2}{2}$
 $P = m \cdot g$
 $m = \frac{P}{g}$
 $m = \frac{3.6}{9.81}$
 $m = 0.36 \text{ kg}$

$EC = \frac{m \cdot v^2}{2}$
 $EC = \frac{(0.36)(13^2)}{2}$
 $EC = 30.42$

28) $m = 5 \text{ kg}$ $EC = 225$ Hallar velocidad

$$EC = \frac{m \cdot v^2}{2}$$

$$2EC = m \cdot v^2$$

$$\frac{2EC}{m} = v^2$$

$$v = \sqrt{\frac{2EC}{m}}$$

$$v = \sqrt{\frac{2(225)}{5}}$$

$$v = \sqrt{90}$$

$$v = 9.4 \text{ J}$$

27) $m = 3 \text{ kg}$ $h = 2.5$ Hallar: Energía Potencial

$$EP = m \cdot g \cdot h$$

$$EP = (3)(9.81)(2.5)$$

$$EP = 73.5$$

26) $m = 6 \text{ kg}$ $EP = 80 \text{ J}$ Hallar altura

$$EP = m \cdot g \cdot h$$

$$\frac{EP}{m \cdot g} = h$$

$$h = \frac{EP}{m \cdot g}$$

$$h = \frac{80}{(6)(9.81)}$$

$$h = 1.3 \text{ m}$$

29) $m = 5 \text{ kg}$ $h = 10 \text{ m}$ hallar: a) Energía Potencial
b) Energía Cinética

a) $EP = m \cdot g \cdot h$

$$EP = (5)(9.81)(10)$$

$$EP = 490.5 \text{ J}$$

b) $EC = m \cdot v^2 = m \cdot g \cdot h$

$$T = EC = EP$$

$$\frac{J}{J} = \frac{J}{J}$$

$$EC = 490.5 \text{ J}$$