

Dats a) c. m s T-c. d

6) 50 kg

d = 6 m f = (30 rev) (9.81 - 12) F(420.5.1)(5) = 272
T = 1) E = -90.5 N

6) 3924 J

7:

m = 1000 m³ = v = 10 L = 10 kg h = 3 m

T = m · g · h

T = 10 kg · 9.81 · 3 = 294.30 J

8. m = 20 Tom 20000 s f = 20000 N v = 36 mm/hr
T = m · a d = m · g d = 20000 · 9.81 = 98
20000

T 20000 s · 9.81 · 9.81 = 1924722

9. Dats

m = 65 kg

d = 10 m

f = 300 N

T = (65 kg) (9.81 m/s²) (10 m) =

T = 6376.5 J

T = m · g · d

$$10. F = 224 \quad d = 15 \text{ m}$$

$$a) 30^\circ \quad T = F \cos \alpha \quad d$$

$$T = (224)(\cos 30^\circ)(10 \text{ m})$$

$$T = 207.84 \text{ J}$$

$$c) 20^\circ$$

$$T = F \cos \alpha \quad d$$

$$T = (224)(\cos 20^\circ)(10 \text{ m})$$

$$T = 210 \text{ J}$$

$$b) 90^\circ \quad T = F \cos \alpha \quad d$$

$$T = (224)(\cos 90^\circ)(10 \text{ m})$$

$$90^\circ = \frac{0}{1} = 0$$

$$11. F = m \cdot g \quad T \cdot d \quad P = \frac{T \cdot d}{t}$$

$$F = (1500 \text{ kg})(9.8 \text{ m/s}^2) = 14,715 \text{ N}$$

$$\text{data } m = 220 \text{ kg}$$

$$T = (14,715 \text{ N})(45 \text{ m}) = 220,125 \text{ J}$$

$$b > 1500 \rightarrow 15 \text{ m}$$

$$P = \frac{T}{t} = \frac{220,125 \text{ J}}{120} = 1,834,375 \text{ W}$$

$$t = 52 \text{ min} \rightarrow 120 \text{ s}$$

$$b) \text{ kW}$$

$$\frac{1}{1000} \text{ kW}$$

$$1,834,375 / 1000$$

$$\text{kW} = 1,834,375$$

$$c) \text{ CV}$$

$$1,834,375 / 1,33 \text{ CV}$$

$$\text{CV} = 2,446,368,45$$

$$12. F = m \cdot g$$

$$v = 50 \text{ km/hr} = 40 \text{ CV}$$

$$v = \frac{d}{t} \quad P = 50 \text{ km} \rightarrow 1 \text{ min} \rightarrow 3600 \text{ s}$$

$$P = 50,000 \text{ m}$$

$$T = (103,076)(3600) = 370,825,2$$

$$L = 3600$$

$$F = T / d = (370,825,2) / (500,000)$$

$$P = 1030,076$$

$$F = 74,165$$

13: Datos = m = 2000 kg

a) w

$$P = \frac{T}{t} \quad P = \frac{618025}{40} = 15450.625 \text{ W}$$

$$F_d = C_d \rho v^2 A = 0.5 \cdot 1.225 \cdot (10)^2 \cdot 2.5 = 153.125 \text{ N}$$

b) kW

$$\Delta \quad \text{kW} = 1000 \text{ W} \quad \frac{1}{1000} \text{ kW} \quad P = 15.450625 //$$

14. datos

$$m = 1000 \text{ kg}$$

$$F = I \cdot r = 1 \cdot d \cdot F \cdot m \cdot g$$

$$h = 1.6 \text{ km} \rightarrow 1600 \text{ m}$$

$$v = 5 \text{ m/s} - 300 \text{ s}$$

$$F = (25000 \text{ kg}) (9.81 \text{ m/s}^2) = 245250 \text{ N}$$

$$T = (245250 \text{ N}) (1600 \text{ m}) = 392400000 \text{ J}$$

$$P = \frac{T}{t} = \frac{392400000}{300000} = 1308 \text{ W}$$

$$\text{kW} = 13.08 \text{ kW}$$

$$13.08 \text{ kW} \cdot 1.33 \text{ C.V.}$$

$$\Delta = \text{kW} = 1.33 \text{ CV}$$

$$\Delta V = 171.96 \text{ V}$$

15.

$$C_v = 20$$

$$v = 50 \text{ m/min}$$

16. $n = m \cdot g$ (250)

$$6v = 6$$

$$v = 25 \text{ km/hr}$$

$$m = 0.2$$

$$17. \rho = 250 \text{ kg/m}^3 \quad w = 1000 \text{ kg} \quad P = 9810 \text{ W} \quad \rho = 1$$

$$d = m \cdot g$$

$$F = m \cdot g = (1000) \cdot (9.8) = 9810 \text{ N}$$

$$d = m \cdot g$$

$$\frac{1}{2} (9810 \text{ N}) (1)$$

$$1000$$

$$V \cdot \rho = 52 //$$

$$d = 9810 \text{ N} = 1$$

$$9810$$

$$m = 80 \text{ kg}$$

$$h = 300 \text{ m}$$

$$t = 5 \text{ min} = 180 \text{ s}$$

$$18 =$$

$$\frac{P}{t}$$

$$P = 235440$$

$$180 \text{ s}$$

$$F = m \cdot g = (80)(9.81) = 784.8 \text{ N}$$

$$T = d = (78.8)(600 \text{ m}) = 235440 \text{ J} \quad P = 1308$$

$$T = m \cdot g \cdot d \quad T = (80)(9.8)(600) = 235440 //$$

$$19. m = 180 \text{ kg} \quad d = 10 \text{ m} \quad t = 2 \text{ min} \rightarrow 120 \text{ s}$$

$$P = \frac{T}{t} = \frac{122532}{120} = 1018.275$$

$$t = 120$$

$$T = d = (1275.3)(10 \text{ m}) = 12753 \text{ J}$$

$$P = m \cdot g = (30)(4.81) = 1275.3 \text{ N}$$

$$d = 20 \text{ m} \quad t = 34 \text{ s}$$

$$20. P = \frac{T}{t} \quad T = F \cdot d \quad F = m \cdot g \quad \rho = 250 \text{ kg/m}^3$$

$$P = 250 \text{ kg/m}^3$$

$$F = (m \cdot g) = (4.81 \text{ m/s}^2) \cdot 1275.3 \text{ N}$$

$$T = (1275.3)(20 \text{ m}) = 25506 \text{ J}$$

$$P = \frac{T}{t} = \frac{25506}{60 \text{ s}} = 425.1 \text{ W}$$

$$t = 60 \text{ s}$$

$$\frac{425.1 \text{ W}}{1000} = \frac{1}{1000} \text{ kW} = 0.4251 \text{ kW} \quad \frac{1.33 \text{ W}}{1 \text{ W}} = 0.34 \text{ W} \quad \frac{1}{2 \text{ V}}$$

21. Datos $m=2 \text{ m}$ o $n=3 \text{ m}$

a) $E_0 \rightarrow \text{moh}$

$$(2 \text{ kg}) \cdot (9.81 \cdot 5^2) \text{ (dm)} = 58.86$$

b) $T = Ep$ 58.8 J

22 Distancia

$M = 200 \text{ kg}$

$v = 30 \text{ m/s}$

$F = 900 \text{ N}$

$$F \cdot d = m \cdot a \cdot d$$

$$F \cdot d = m \cdot v$$

$$d = \frac{m \cdot v}{F}$$

$$d = \frac{(20 \text{ kg})(9.81)}{500 \text{ N}} = 3.924 \text{ m}$$

23 Velocidad

$k = 12.5 \text{ kg} \rightarrow \text{N(m.o)}$
x

$$9.81 = 12.5 \cdot 62 \cdot \frac{v \sqrt{2} \text{ (cm)}}{M}$$

$m = 250 \text{ kg}$

$$v = \frac{1}{\sqrt{2}} \frac{(12.5 \cdot 62) (6)}{250}$$

$$v = \frac{(94.5 \cdot 24) (12)}{250} = 11.77$$

24: E.C una bola de $6 \text{ or } v = 500 \text{ m/s}$

$m = 0.006 \text{ kg}$

$v = 500 \text{ m/s}$

$$E.C = \frac{m \cdot v^2}{2}$$

$E.C = (0.006 \text{ kg})$

$E.C = 15 \text{ J}$

25: P456 $3 \cdot C \text{ N w}$

$v = 3 \text{ m/s} = E.C$

$M = \frac{P}{g} = \frac{(3 \cdot 6)}{9.81} = 0.36$

$E.C = \frac{m \cdot v^2}{2} = \frac{(0.36) \cdot (169)}{2} = 60.84 \text{ J}$

LOVE yourself

26 - Velocidad

$$m = 5 \text{ kg} - 249.05 \text{ N}$$

$$E.C = 2.25 \text{ J}$$

$$g = 9.8$$

$$d = 0.45$$

27. E.P

$$M = 2 \text{ kg}$$

$$h = 2.5 \text{ m}$$

$$g = 9.81$$

$$D = m \cdot g$$

$$(5) \cdot (9.81)$$

$$49.05$$

$$0.9$$

$$E.P = m \cdot g \cdot h$$

$$(2 \text{ kg}) \cdot (9.81) \cdot (2.5) = 49.05 \text{ J}$$

28. Altura

$$M = 6 \text{ kg}$$

$$E.P = 80 \text{ J}$$

$$g = 9.81$$

$$6 \times 9.81 = 58.86 \text{ N}$$

$$d = m \cdot g$$

$$M \cdot g$$

$$d = (6) \cdot (9.81)$$

$$58.8614$$

$$56.86$$

$$58.86$$

29. E.P

$$m = 5 \text{ kg}$$

$$h = 10 \text{ m/s}$$

$$g = 9.81$$

$$a) E.P = m \cdot g \cdot h$$

$$(5) \cdot (9.81) \cdot (10) = 490$$

$$b) E.C = \frac{m \cdot v^2}{2}$$

$$2$$

$$\sqrt{2 \cdot (E.C) \cdot (d)}$$

$$5 \text{ kg} \cdot 9.81 \text{ m/s}^2 = 49.05 \text{ N}$$