

1. Trabajo $T = F \cdot d$

$$a) T = (30 \text{ N}) \cdot (0.6 \text{ m})$$

$$T = 18 \text{ J}$$

$$T = F \cos \theta \cdot d$$

$$T = (30) \cos 30^\circ (0.6 \text{ m})$$

$$T = 15.588 \text{ J}$$

2. Trabajo $T = m \cdot g \cdot d$ $F = m \cdot g$

Datos

$$m = 25 \text{ kg}$$

$$g = 9.81 \text{ m/s}^2$$

$$d = 6.4 \text{ m}$$

$$f = m \cdot g = (25 \text{ kg}) (9.81 \text{ m/s}^2)$$

$$= 245.25 \text{ m/s}^2$$

$$T = d \cdot 245.25 (6.4) = 1,568$$

3. Trabajo $T = F \cdot d$

Datos

$$F = 3 \text{ N} \quad T = (3 \text{ N}) \cdot (12 \text{ m})$$

$$d = 12000 \text{ m} \rightarrow 12 \text{ m} \quad T = 36 \text{ J}$$

4. Datos

$$m = 6000 \text{ kg}$$

$$d = 150 \text{ m}$$

$$M = 0.65$$

a)

b) $F \cdot M \cdot d$

$$T = 58860 \cdot 0.65 \cdot 150$$

$$T = 5,730,850 \text{ J}$$

$$F = (6000) (9.81) = 58860 \text{ J}$$

5. Trabajo

Datos

$$F = 12 \text{ N}$$

$$d = 7 \text{ m}$$

b)

6. Datos

$$m = 50 \text{ kg}$$

$$d = 8 \text{ m}$$

$$T = ?$$

b) 30

$$8. m = 2$$

$$T = m \cdot$$

$$T = 9$$

9. Datos

$$m = 65$$

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

$$F = 30$$

$$T =$$

5. Trabajo $T = F \cdot d$ a)

Datos $T = (12 \text{ N}) \cdot (7 \text{ m})$

$F = 12 \text{ N}$ $T = 84 \text{ J}$

$d = 7 \text{ m}$

b) $T = 84 \text{ J}$

6. Datos a) $F = m \cdot g$ $T = F \cdot d$

$m = 50 \text{ kg}$

$F = (50 \text{ kg}) (9.81 \text{ m/s}^2)$

$d = 8 \text{ m}$

$F = 490.5 \text{ N}$

$T = ?$

$T = (490.5 \text{ N}) (8 \text{ m}) =$

3924 J

3924 J

8. $m = 20$ $T_{\text{on}} = 20000 \text{ kg}$ $F = 20000 \text{ N}$ $v = 36 \text{ km/hr}$

$T = m \cdot g \cdot d$ $d = \frac{m \cdot g}{F}$ $d = \frac{20000 \cdot 9.81}{20000} = 9.81$

$T = 20000 \text{ kg} \cdot 9.81 \cdot 9.81 = 1924722$

9. Datos

$m = 65 \text{ kg}$

$T = (65 \text{ kg}) (9.81 \text{ m/s}^2) (10 \text{ m}) =$

$d = 10 \text{ m}$

$F = 300 \text{ N}$

6376.5 J

$T = m \cdot g \cdot d$

$$10. F = 24 \text{ W} \quad d = 10 \text{ m}$$

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

$$T = (24) (\cos 30^\circ) (10 \text{ m})$$

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

$$c) 120^\circ$$

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

$$T = (24) (\cos 120^\circ) (10 \text{ m})$$

$$T = 120 \text{ J}$$

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

$$T = (24) (\cos 90^\circ) (10 \text{ m})$$

No se afecta trabajo

en el cuerpo no

se puede por que

$$\cos 90^\circ = 0$$

$$11. F = m \cdot a$$

$$F = (1500)$$

$$T = (14,7)$$

$$P = \frac{T}{t}$$

$$kw = 1$$

$$12. F =$$

$$v = 50$$

$$v = \frac{d}{t}$$

$$P = 60$$

$$t = 3$$

$$P = 1$$

$$13.$$

$$a) v$$

$$p =$$

$$T =$$

$$F =$$

$$b$$

$$1$$

Datos = $m = 1500 \text{ kg}$

11. $F = m \cdot g$ $T = F \cdot d$ $P = \frac{T}{t}$ $h = 1500 \rightarrow 13 \text{ m}$
 $F = (1500 \text{ kg}) (9.8 \text{ m/s}^2) = 14,715 \text{ N}$ $t = 2 \text{ min} \rightarrow 120 \text{ s}$

$T = (14,715 \text{ N}) (15 \text{ m}) = 220,725 \text{ J}$

$P = \frac{T}{t} = \frac{220,725 \text{ J}}{120} = 1,839.375 \text{ w}$

$\text{kw} = 1.839375$

c) C.V

$\frac{1.839375 \text{ w}}{1.33} = 1.383 \text{ CV}$
 $\text{CV} = 2.44636875$

12. $F = m \cdot g$

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

$v = \frac{d}{t}$ $P = 50 \text{ km}$ $t = 1 \text{ hr} \rightarrow 3,600 \text{ seg}$

$P = 50,000 \text{ m}$ $t = (1030.07 \text{ w}) (3600) = 3,708,252$

$t = 3,600 \text{ s}$ $F = J/d = (3,708,252) / (50,000)$

$P = 1030.07 \text{ w}$ $F = 74.16 \text{ H}$

13. Datos = $m = 850 \text{ kg}$ $d = 18 \text{ m}$ $T = 40 \text{ s}$ $F = m \cdot g$

a) w

$p = \frac{T}{t}$ $P = \frac{61803 \text{ J}}{40 \text{ s}} = 1545.075 \text{ w}$

$T = F \cdot d = (3433.5) (18) = 61803 \text{ J}$

$F = 350 \cdot 9.81 = 3433.5 \text{ N}$

b) kw

1 kw = 1000 w

$\frac{1545.075 \text{ w}}{1000} = 1.545075 \text{ kw}$

~~1.545075 kw~~

Datos

$$14. m = 25000 \text{ kg}$$

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

$$t = 5 \text{ min} = 300 \text{ seg}$$

$$P = \frac{T}{t}$$

$$T = F \cdot d$$

$$F = m \cdot g$$

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

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

$$P = \frac{T}{t} = \frac{392400000}{300} = 1308000 \text{ W}$$

$$k_{hw} = 13,080 \text{ kw}$$

$$= 1 \text{ kw} = 1.33 \text{ c.v}$$

$$13,080 \text{ kw} \cdot 1.33 \text{ c.v}$$

$$Cv = 17,396,400$$

15

$$Cv = 20$$

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

$$16. D = m \cdot g \text{ (peso)}$$

$$Cv = 6$$

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

$$m = 0.2$$

$$17. P = 25$$

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

$$F = m \cdot g$$

$$9810 \text{ N}$$

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

$$d = \frac{9810}{9810}$$

$$18. m = 8$$

$$P = \frac{T}{t}$$

$$F = m \cdot g$$

$$T = F \cdot d$$

$$T = m$$

$$19. m =$$

$$P = \frac{T}{t}$$

$$T =$$

$$F =$$

$$17. P = 250 \text{ kW} \quad m = 1000 \text{ kg} \quad F = 9810 \text{ W} \quad \rho = 1$$

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

$$v = \frac{\sqrt{2(9810 \text{ W})}}{1000} \quad (1)$$

$$F = m \cdot g = (1000) \cdot (9.81) = 9810 \text{ W}$$

$$v = 19.62 \text{ m/s}$$

$$d = \frac{9810 \text{ W}}{9810}$$

$$d = \frac{9810 \text{ W}}{9810} = 1$$

$$18. m = 80 \text{ kg} \quad h = 300 \text{ m} \quad t = 3 \text{ min} = 180 \text{ s}$$

$$P = \frac{T}{t}$$

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

$$T = F \cdot d = (784.8) (300 \text{ m}) = 235440 \text{ J}$$

$$T = m \cdot g \cdot d \quad T = (80) (9.81) (300) = 235440$$

$$P = 1,308$$

$$(300) = 235440$$

$$19. m = 130 \text{ kg} \quad d = 10 \text{ m} \quad t = 2 \text{ min} \rightarrow 120 \text{ s}$$

$$P = \frac{T}{t} = \frac{127537}{120} = 106.275 \text{ W}$$

$$T = F \cdot d = (1275 \text{ N}) (10 \text{ m}) = 12753 \text{ J}$$

$$F = m \cdot g = (30) (9.81) = 294.3 \text{ N}$$

$$20. P = \frac{T}{t} \quad T = F \cdot d \quad F = h \cdot g \quad \text{Datos:}$$

$$d = 20 \text{ m} \quad t = 60 \text{ s}$$

$$F = (130 \text{ kg})(9.81 \text{ m/s}^2) \quad m = 130 \text{ kg}$$

$$T = (1275.3 \text{ N})(20 \text{ m}) = 25,506 \text{ J}$$

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

$$425.1 \text{ W} \cdot \frac{1}{1000} \text{ kW} = 0.4251 \text{ kW} \quad \frac{1.33 \text{ CV}}{7 \text{ kW}} =$$

~~0.365383 CV~~

$$21. \text{ Datos } m = 2 \text{ kg} \quad h = 3 \text{ m}$$

$$E_0 = mgh$$

$$(2 \text{ kg}) \cdot (9.81 \text{ m/s}^2) \cdot (3 \text{ m}) = 58.86$$

$$b) T = EP \quad \underline{58.86}$$

22. Distancia

$$M = 200 \text{ kg}$$

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

$$F = 500 \text{ N}$$

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

$$F = d = m \cdot g$$

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

$$d = \frac{(200 \text{ kg})(9.81)}{500 \text{ N}}$$

$$= 3.924 \text{ J}$$

23. Velocidad

$$F = 12.5 \text{ kg} \rightarrow W (m \cdot g) \quad v = \sqrt{\frac{2(P)(d)}{m}}$$

$$9 \cdot 81 = 122.62 \quad v = \frac{\sqrt{2(172.42)}(6)}{250}$$

$$D = 6$$

$$M = 250 \text{ kg}$$

$$v = \frac{(245.24)(12)}{2,942.86} = \frac{2,942.86}{250}$$

24. E.C una bala de 6gr $v = 500 \text{ m/s}$

$$m = 0.006 \text{ kg}$$

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

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

$$E.C = \frac{(0.006 \text{ kg})(500 \text{ m/s})^2}{2}$$

$$E.C = 1.5 \text{ J}$$

25. Peso

$$3.6 \text{ N}$$

$$v = 13 \text{ m/s}$$

$$m = \frac{P}{g}$$

$$\frac{(3.6)}{(9.81)} = 0.36$$

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

$$\frac{(0.36) \cdot (169)}{2} = 60.84 \text{ J}$$

26. Velocidad

$$M = 5 \text{ kg} \Rightarrow 49.05 \text{ N}$$

$$E_c = 225 \text{ J}$$

$$v = 9.81$$

$$v_d = 0.9 \text{ J}$$

$$D = \frac{m \cdot g}{P} \sqrt{\sqrt{2} (f) (d)}$$

$$\frac{(5) \cdot (9.81)}{49.05}$$

$$\frac{49.05}{0.9}$$

$$\sqrt{(9.81) (18)} = 16.51$$

$$V = 35.316$$

27 E.P

$$M = 3 \text{ kg}$$

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

$$g = 9.81$$

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

$$(3 \text{ kg}) \cdot (9.81) (2.5) = 73.575 \text{ J}$$

28. Altura

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

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

$$g = 9.81$$

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

$$d = \frac{m \cdot g}{P}$$

$$d = \frac{(6) (9.81)}{58.86 \text{ N}}$$

$$58.86 \text{ N}$$

$$58.86$$

$$\frac{58.86}{58.86} = 1$$

29. E.P

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

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

$$g = 9.81$$

$$\frac{m \cdot g}{P} \sqrt{\sqrt{2} (f) (d)}$$

$$\frac{5 \cdot 9.81}{5 \text{ kg}} \sqrt{(9.81) (18)} = 18.51$$

$$V = 35.316$$

$$(2.5) = 73.575$$

$$(9.81)$$

$$3.86 \text{ N}$$

$$= 7$$

29. E.P

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

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

$$g = 9.81$$

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

$$(5) (9.81) (10) = 490.5 \text{ J}$$

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

$$\sqrt{\sqrt{2} (f) (d)}$$

$$5 \text{ kg} \cdot 9.81 = 49.05 \text{ N}$$