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Nombre del trabajo: Problemario

Materia: Fisica

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Grupo: Enfermeria

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1) $F = 30$ Nw $d = 60$ cm a) Trabajo b) T. mecanico θ 300°

a) $T = F \cdot d$
$T = (30)(0.6)$
$T = 18$ J

b) $F = T\cos\theta$
$F = 18\cos 30$
$F = 14.4$

$T = F \cdot d$
$T = (14.4)(0.6)$
$T = 8.64$

2) $m = 25$ kg $d = 6.4$ mt Encontrar: Trabajo

$F = p = m \cdot g$
$F = p = (25)(6.4)$
$F = 160$ Nw

$T = F \cdot d$
$T = (160)(6.4)$
$T = 1,024$ J

3) $F = 3$ Nw $d = 12.00$ cm Encontrar: Trabajo

$T = F \cdot d$
$T = (3)(12)$
$T = 36$ J

4) $m = 6000$ kg $d = 150$ mt $\theta = 20°$ $\mu = 0.65$ a) Tensión b) Trabajo

$F = p = m \cdot g$
$F = p = (6000)(9.81)$
$F = p = 58,860$ Nw

$T = F \cdot d$
$T = (58,860)(150)$
$T = 8,829,000$ J

$T = F\cos\theta \cdot d \cdot \mu$
$T = (58,860)(0.93)(150)(0.65)$
$T = 5,337,130.5$

5) $F = 12$ Nw $d = 7$ mt Encontrar: a) Trabajo en la misma dirección b) En la dirección contraria

a) $T = F \cdot d$
$T = (12)(7)$
$T = 84$ J

b) $T = F \cdot d$
$T = (12)(7)$
$T = 84$ J

6) $m = 50$ kg $d = 8$ mt Encontrar: a) Trabajo b) Trabajo del mueble

a) $F = m \cdot g$
$F = (50)(9.81)$
$F = 490.5$ Nw

$T = F \cdot d$
$T = (490.5)(8)$
$T = 3,924$ J

b) El trabajo del mueble es el mismo

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7. $V = 10\ Dm^3$ $d = 3mt$ Encontrar: Trabajo

$10\ Dm^3 \rightarrow \frac{1^3 mt}{10^3 Dm^3} = 0.01\ mt^3$

$P = Pc \cdot V$

$P = (1000)(0.01)$

$P = 10\ kg$

$T = F \cdot d$

$T = (10kg)(9.81)(3mt)$

$T = 294.3\ J$

$F = p = m \cdot g$

$Pc\ H_2O = 1000\ kg/mt^3$

8. $m = 20\ TON$ $F = 20,000\ NW$ $d = 36km$ Hallar: Trabajo/km, Trabajo/h

$F\ camion = (20000)(9.81)$

$FC = 1,962,000\ N$

$F = 20000\ N$

$F_T = 1,982,000N$

$T = F_T \cdot d = (1982000N)(1000)$

$T = 1982000000\ J$

9. $m = 65kg$ $d = 10mt$ $F = 300NW$ $d = 75cm$ Hallar: Trabajo

$T_1 = m \cdot g \cdot d$

$T_1 = (65kg)(9.81)(10mt)$

$T_1 = 6376.5\ J$

$T_2 = (300N)(0.75mt)$

$T_2 = 225\ J$

$T_T = T_1 + T_2$

$T_T = 6376.5 + 225$

$T_T = 6601.5\ J$

10. $F = 24\ NW$ $d = 10mt$ $\theta =$ a) 300, b) 900, c) 1200

$T = F \cdot d$

$T = (24)(10)$

$T = 240\ J$

a) $T = T\cos\theta$

$T = 240 \cos 30$

$T = (240)(0.8)$

$T = 192\ J$

b) $T = T\cos\theta$

$T = 240 \cos 90$

$T = (240)(0)$

$T = 0\ J$

c) $T = T\cos\theta$

$T = 240 \cos 1200$

$T = (240)(-0.5)$

$T = -120\ J$

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11. $m = 1500\,kg$ $d = 1500\,cm$ $t = 2\,min$. Hallar la potencia en: a) W b) KW c) CV

$F = m \cdot g$
$F = (1500)(9.81)$
$F = 14,715\,N$

$T = F \cdot d$
$T = (14,715)(15)$
$T = 220,725\,J$

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

$KW = 1kw = 1000\,w$
$1.839375\,kw = 1,839.375\,w$

$CV = 1kw = 1.33\,cv$
$1.839375 = 2.44636875\,cv$

12. $V = 50\,km/h$ $P = 40\,cv$ $d = 50\,km$ $t = 3,600\,s$ Hallar: Fuerza

$P = \frac{T}{t}$
$T = p \cdot t$
$T = (29,400)(3,600)$
$T = 105,840,000\,J$

$F = \frac{T}{d}$
$F = \frac{105,840,000}{50}$
$F = 2,116,800\,Nw$

13. $m = 350\,kg$ $d = 18\,mt$ $t = 40\,s$ Hallar: Potencia en: a) W b) KW

$F = m \cdot g$
$F = (350)(9.81)$
$F = 3,433.5\,Nw$

$T = F \cdot d$
$T = (3433.5)(18)$
$T = 61,803\,J$

$P = \frac{T}{t}$
$P = \frac{61,803}{40}$
$P = 1,545.075\,w$

$1w = 1000kw$
$1,545.075_w = 1,575.075\,KW$

14. $m = 25000\,kg$ $d = 1.6\,mt$ $t = 5\,min$ $300s$. Hallar: Potencia en CV

$F = m \cdot g$
$F = (25,000)(9.81)$
$F = 245,250\,Nw$

$T = F \cdot d$
$T = (245,250)(1600)$
$T = 392,400,000$

$P = \frac{T}{t}$
$P = \frac{392,400,000}{300}$
$P = 1,308,000\,w$

$1\,CV = 735\,w$
$1,739.5_{cv} = 1,308,000\,w$

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15. P = 20 cv V = 50 mt/min d = 50 mt t = 60 s Hallar: carga

$P = \frac{T}{t}$ $T = F \cdot d$ $F = P$ $P = F = \frac{T}{d}$

$T = P \cdot t$

$T = (14,700)(60)$

$T = 882,000\ J$

$P = F = \frac{882,000}{50}$

$P = 17,640\ Nw$

122.5 w

16. P = 6 cv V = 25 km/h $\mu = 0.2$ Hallar: Peso

$P = \frac{T}{t}$ $T = F \cdot d$ $F = P$ $P = F = \frac{T}{d}$

$T = P \cdot t$

$T = (125.5)(3,600)$

$T = 451,800$

$P = F = \frac{451,800}{25,000}$

$P = 17.64\ Nw$

$P = (17.64)(0.2)$

$P = 3528\ Nw$

17. P = 250 kw m = 1,000 kg Hallar: velocidad

1 cv = 76 kg m/s 1 kw = 1.33 cv

$P = 250\ kw \frac{1\ cv}{1.33\ kw} = 332.5\ cv$

$P = 332.5\ cv \frac{76\ kg\ m/s}{1\ cv} = 25,270\ kg\ m/s$

$V = \frac{P}{m}$ $V = \frac{25,270}{1,000}$ $V = 25.27\ m/s$

18. m = 1800 d = 300 mt t = 3 min Hallar: Potencia

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

$F = (1800)(9.81)$ $T = (17,658)(300)$

$F = 17,658\ Nw$ $T = 5,297,400\ J$

$P = \frac{5,297,400}{180}$

$P = 29,430\ w$

19. m = 130 kg d = 10 mt t = 2 min Hallar: Potencia

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

$F = (130)(9.81)$ $T = (1,275.3)(10)$

$F = 1,275.3\ Nw$ $T = 12,750\ J$

$P = \frac{12,750}{120}$

$P = 106.235\ w$

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20. $F = 1,275.3$ $d = 10$ mt tiempo $= 60$s Hallar: Potencia en CV

$T = F \cdot d$

$T = (1,275.3)(10)$

$T = 12,753$ J

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

$P = \frac{12,753}{60}$

$P = 212.55$ W

1CV — 735w

0.289CV — 212.55w

21. $2kg = m$ $h = 3$mt Hallar: a) valor Ep Gravitacional $g = 10$mt/seg2

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

$Ep = (2)(10)(3)$

$Ep = 60$ J

b) $F = m \cdot g$

$F = (2)(10)$

$F = 20$ NW

b) Trabajo

$T = F \cdot d$

$T = (20)(3)$

$T = 60$ J

22. $m = 200$ kg $V = 30$ Mt/seg $F = 500$ NW Hallar: a) distancia b) Energía cinética

a) $V = 30$mts/s

$d = 30$mt

$t = 1$seg

b) $Ec = \frac{m \cdot v^2}{2}$

$Ec = \frac{200 \cdot 30^2}{2}$

$Ec = 90,000$ J

23. $F = 125$ kg $d = 600$ cm $m = 250$ kg Hallar: Velocidad

$V = \frac{p}{m}$ $T = (122.6)(6))$

$T = 735.75$ J

$F = m \cdot g$

$F = (12.5)(9.81)$

$F = 122.6$ NW

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

$Ec = T = 735$ J

$2Ec = m \cdot v^2$

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

$V = \sqrt{\frac{2Ec}{m}}$

$V = \sqrt{\frac{(2)(735.75)}{250}}$

$V = \sqrt{\frac{1,471.5}{250}}$

$V = \sqrt{5.886} = 2.42$

$V = 2.42$

24. $m = 6$ gr $V = 500$ mt/s Hallar: Energía Cinética

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

$Ec = \frac{(6.006)(500^2)}{2}$

$Ec = 7,500$ J

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25. P = 3.6 Nw V = 13 Mt/s Hallar: Energía Cinética

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

$P = m \cdot g$

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

$m = \frac{3.6}{9.81}$

$m = 0.36 kg$

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

$Ec = \frac{(0.36)(13^2)}{2}$

$Ec = 30.42$

26. m = 5kg Ec = 225 Hallar: Velocidad

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

$2Ec = m \cdot v^2$

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

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

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

$v = \sqrt{90}$

$v = 9.4 J$

27. m = 3kg h = 2.5 Hallar: Energía Potencial

$Ep = m \cdot g \cdot h$

$Ep = (3)(9.81)(2.5)$

$Ep = 73.5$

28. m = 6kg Ep = 80J Hallar: Altura

$Ep = m \cdot g \cdot h$

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

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

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

$h = 1.3 mt$

29. m = 5kg h = 10mt Hallar: Energía potencial / Energía cinética

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

$Ep = (5)(9.81)(10)$

$Ep = 490.5 J$

b) $Ec = \frac{m \cdot v^2}{2} = m \cdot a \cdot h$

T = Ec = Ep

J = J = J

$Ec = 49.5 J$