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Grado: 5to cuatrimestre de bachillerato

Grupo: recursos humanos

materia: física

nombre de la actividad:

ejercicios

Alberto Bermudez Trujillo

Trabajo 1 $T = F \cdot d$

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

$T = 18\text{ J}$

$F = 30\text{N}$

$d = 60\text{cm} \rightarrow 0.6\text{m}$

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

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

$T = 15.588\text{ J}$

Trabajo 2

Dato

$T = m \cdot g \cdot d$

$F = m \cdot g$

$m = 25\text{kg}$

$(25)\text{kg} (9.81\text{ m/s}^2)$

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

245.25 m/s^2

$d = 6.4\text{m}$

$245.25 (6.4) = 1.568$

Trabajo 3

Dato $T = F \cdot d$

$F = 8\text{N}$

$T = (8\text{N}) \cdot (12\text{m})$

$d = 1200\text{ cm}$

$T = 96$

12m

Trabajo 4

Dato $m = 6000\text{kg}$

b) $T = m \cdot d$

$d = 150\text{m}$

$T = 58860 \cdot 0.65 = 38259$

$F = 70$

$T = 5.7888 \cdot 10^7\text{ J}$

$m = 0.65$

$F = (6000)(9.81) = 58860$

Trabajo 5

Datos

$T = F \cdot d$

$F = 12\text{N}$

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

$d = 7\text{m}$

$T = 84\text{ J}$

$T = 84\text{ J}$

Trabajo 6 $W = F \cdot d$

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

$d = 8 \text{ m}$ $F = 490.5 \text{ N}$

b) 3924 J

Trabajo 8 $m = 20 \text{ Ton} = 20000 \text{ kg}$ $F = 20000 \text{ N}$ $v = 36 \text{ km/h}$

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

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

Trabajo 9

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

$m = 65 \text{ kg}$ $T = 6376.5 \text{ J}$

$d = 10 \text{ m}$

$F = 300 \text{ N}$ $T = m \cdot g \cdot d$

Trabajo 10

$F = 24 \text{ N}$ $d = 10 \text{ m}$

a) 30° $T = F \cdot \cos \theta \cdot d$
 $T = (24)(\cos 30^\circ)(10 \text{ m})$
 $T = 207.84 \text{ J}$

b) 120°
 $T = F \cdot \cos \theta \cdot d$
 $T = (24)(\cos 120^\circ)(10 \text{ m})$
 $T = -120 \text{ J}$

b) 90° $T = F \cdot \cos \theta \cdot d$
 $T = (24)(\cos 90^\circ)(10 \text{ m})$

No se efectua porque $\cos 90^\circ = 0$

Trabajo 11 $F = mg$ $T = Fd$ $p = \frac{T}{t}$

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

$F = (1500 \text{ kg})(9.8 \text{ m/s}^2) = 14700 \text{ N}$

$T = (14700 \text{ N})(15 \text{ m}) = 220500 \text{ J}$

$p = \frac{T}{t} = \frac{220500 \text{ J}}{120} = 1837.5 \text{ W}$

b) $\text{kw} = \frac{1837.5 \text{ W}}{1000} = 1.8375 \text{ kw}$

$\text{cv} = 2.44636875$

Trabajo 12

$F = ma$

$v = 50 \text{ km/hr} = 13.89 \text{ m/s}$

$v = \frac{d}{t}$ $t = \frac{d}{v} = \frac{50 \text{ km}}{13.89 \text{ m/s}} = 3600 \text{ s}$

$p = 50,000 \text{ m}$ $f = 1030.07 \text{ w}$ $f = 74.164$

$t = 3600 \text{ s}$ $f = 51d = (370822) / (50000)$

$p = 1030.07 \text{ w}$ $f = 74.164$

Trabajo 13

a) w Datos $m = 850 \text{ kg}$ $d = 18 \text{ m}$ $T = 40 \text{ s}$

$p = \frac{T}{t}$ $p = \frac{15180 \text{ J}}{40 \text{ s}} = 379.5 \text{ w}$

$\text{kw} = \frac{379.5 \text{ w}}{1000} = 0.3795 \text{ kw}$

b) $\text{kw} = 1000 \text{ w}$ $\text{kw} = 1.545075 \text{ kw}$

$1.545075 \text{ kw} \div 1000 = 1.545075$

Trabajo 15

$$v = 20$$

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

Trabajo 16 $d = m \cdot g$ (1000)

$$v = 6$$

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

$$M = 0.2$$

Trabajo 17

$$D = 250 \text{ Kw } m = 1000 \text{ kg } f = 9810 \text{ w } a = 1$$

$$d = \frac{m \cdot g}{F} \quad v = \frac{\sqrt{2 \cdot (9810) \cdot (1)}}{1000}$$

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

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

$$v = 19.62 \text{ m/s}^2$$

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

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

$$P = \frac{T}{t} \quad P = \frac{235440}{180}$$

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

$$E = m \cdot g \cdot h = 23544 \text{ J}$$

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

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

$$= 235440$$

Trabajo 19

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

$$P = \frac{T}{t} \quad \frac{127530}{120} = 106.275$$

$$T = F \cdot d (106.275 \text{ W}) (10 \text{ m}) = 1062.75 \text{ J}$$

$$F = m \cdot g = (130) (9.81) = 1275.3 \text{ W}$$

Trabajo 20 $P = \frac{W}{t}$ $W = m \cdot g \cdot h$ $P = \frac{m \cdot g \cdot h}{t}$

Datos $d = 20m$ $g = 9.8$ $m = 130kg$

$$P = (130kg)(9.8)(20m) = 25506W$$

$$T = (25506W)(20m) = 510120J$$

$$P = \frac{W}{t} = \frac{510120J}{60s} = 8502W$$

$$425.14 \frac{W}{1000} = 0.4251 kW \quad | \quad 1.33 CV = 0.9738 kW$$

Trabajo 21 Datos $m = 2kg$ $h = 3m$

a) $E_p = mgh$

$$(2kg)(9.8)(3m) = 58.8J$$

b) $T = E_p = 58.8J$

Trabajo 22 distancia a

$$F = 12.5 kg \rightarrow W(m \cdot g) \quad v = \sqrt{2(LF) / m}$$

$$9.81 = 12.5 \cdot 6$$

$$D = 6$$

$$M = 290kg$$

$$v = \sqrt{2(12.5)(6)} = 12.247$$

$$v = 11.77$$

Trabajo 23 $v = 500 m/s$

$$m = 0.006 kg$$

$$v = 500 m/s$$

$$E \cdot c = \frac{(0.006kg)(500 m/s)^2}{2}$$

$$E \cdot c = 1.5 J$$

Trabajo 25 36 Nw $v = 13 \text{ m/s}$ E.C. $\frac{mv^2}{2}$

$$m = \frac{p}{g} = \frac{(3.6)}{9.81} = 0.36 \quad E.C. = \frac{mv^2}{2}$$

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

Trabajo 26

$$m = 5 \text{ kg} \rightarrow 49.05 \text{ N} \quad \rho = mg$$

$$E.C. = 275 \text{ J}$$

$$J = 9.8$$

$$d = 0.95$$

$$\frac{(5) \cdot (9.81)}{49.05} \cdot \sqrt{\frac{2(275)}{2(49.05)(0.95)}}$$

$$v(9.81) = (48.9) \text{ T}$$

$$v = 35.316$$

Trabajo 27

$$m = 3 \text{ kg} \quad E.P. = m \cdot g \cdot h$$

$$h = 2.05 \text{ m} \quad (3 \text{ kg}) \cdot (9.81) \cdot (2.05) = 73.85 \text{ J}$$

$$g = 9.81$$

Trabajo 28

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

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

$$g = 9.81$$

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

$$\rho = mg$$

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

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

Trabajo

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

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

$$g = 9.81$$

$$A) E_p = m \cdot g \cdot h$$

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

$$B) E_c = \frac{m v^2}{2}$$

$$v \sqrt{2 (F) (d)}$$

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