UDS

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Parcia : 2

Nombre de la materia : Física

Carrera : BRH

Física

1.- $V = 60 \, mt/seg$
$T = 8 \, seg$
$M = 45 \, kg$
- Fuerza aplicada

$$F = m \cdot a$$
$$a = \frac{m \cdot V}{T} \rightarrow \frac{(45kg)(60mt/seg)}{8 \, seg} = 337.5 \, mt/seg$$
$$F = (45kg)(337.5) = \boxed{15,187.5 \, NW}$$

- Impulso

$$I = F \cdot T \rightarrow (15,187.5 \, NW)(8s) = \boxed{121,500s}$$

- La cantidad de movimiento
$$q = m \cdot V \rightarrow (45kg)(8s) = 360$$

2.- $M = 50 \, kg$
$V = 2.4 \, mt/seg$
- Cantidad de movimiento
$$q = m \cdot V \rightarrow (50kg)(2.4mt/seg) = \boxed{120}$$

3.- $P = 1 \, tonelada \rightarrow 1,000 \, kg$
$V = 20 \, mt/seg \quad G = 9.81 \, mt/s$
$D = 160 \, mt$
- Aceleración
$$a \cdot d = (Vf^2)(Vi^2) \, (400)(400) = \boxed{800}$$
- Tiempo
$$T = F \cdot d \rightarrow (800,000ww)(160) \rightarrow \boxed{128,000000}$$
- $F = m \cdot a$
$$(1000kg)(800) = \boxed{800,000NW} \cdot q = m \cdot V \rightarrow (1000)(20mt/seg) = \boxed{20,000}$$

5.- $q = m \cdot v$ $P = 150N$ $v = 50$ km

$M = \dfrac{P}{g}$ $m = \dfrac{150}{9.81} = 15.29$ kg

$\qquad\qquad\qquad\qquad q = (5.29)(50)$
$\qquad\qquad\qquad\qquad q = 764.5$

8.- $250N \rightarrow d = 36m$ $m = 500$ kg

$V = \sqrt{\dfrac{2(F)(d)}{m}}$ $V = \sqrt{\dfrac{2(250)(36)}{500 \text{ kg}}}$

9.-

Datos
  $h = 4m$
  $M = 1m$
  $mas = 2$ kg

b) E·G a 1 m

  $E\,PB = (2)(9.81)(1)$
      $Ep\,13 = 19.62$ J

a) E·G en el techo

  $EP = m \cdot g \cdot h$
  $Ep = (2)(9.81)(4)$
  $Ep = 78.48$ J

c) J

$T = F \cdot d$
$F = m \cdot g \cdot F = (2)(9.8) = 19.62$ N
$T = (19.62)(4) = 78.48$ J

10.- Datos

m = 200 kg
V = 30 m/s
F = 500 NW

a) Distancia

$$d = \frac{(200)(9.81)}{500\ NW} = 3.924\ J$$

b) Energía cinética

$$Ec = \frac{mv^2}{2} \qquad Ec = \frac{(200)(30)}{2} = \frac{180,000}{2}$$

$$Ec = 90,000\ Kgmt/s$$

11.- Velocidad

d = 600 cm
F = horizontal 12.5 kg
Ca,g = 250 kg

$$V = \sqrt{\frac{2(F)(d)}{m}}$$

$$V = \sqrt{\frac{2(12.5)(600)}{250}}$$

$$V = 60$$

12..

P = 3.6 NW
V = 13 mt/s
$$M = \frac{P}{g} \quad \frac{(3.6)}{9.81\ mt/s} = 0.36$$

$$Ec = \frac{mv^2}{2}$$

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

13.- M = 6kg

G = 9.81
$$Ep = m \cdot g \cdot h$$

$$Ep = (6)(9.81)$$