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Nombre del trabajo: Problemario

Materia: Fisica

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Grupo: Enfermeria

1. $v = 60 \text{ mt/sec}$ $t = 8 \text{ seg}$ $m = 45 \text{ kg}$ Encontrar: a) Fuerza
b) Cant. Mov.
c) Impulso
- a) $F = m \cdot a$ $a = \frac{v}{t}$ b) $q = m \cdot v$
 $F = (45)(7.5)$ $a = \frac{60}{8}$ $q = (45)(60)$
 $F = 337.5 \text{ N}$ $a = 7.5 \text{ mt/s}^2$ $q = 2,700 \text{ kgmt/s}$ c) $I = F \cdot t$
 $I = (337.5)(8)$
2. $m = 50 \text{ kg}$ $v = 2.4 \text{ mt/sec}$ Encontrar: Mov. $I = 2,700 \text{ kgmt/s}$
- $q = m \cdot v$
 $q = (50)(2.4)$
 $q = 120 \text{ kgmt/s}$
3. $m = 1,000 \text{ kg}$ $v = 20 \text{ mt/sec}$ $d = 160 \text{ mt}$ Encontrar: a) Aceleración
b) t. aceleración
c) Fuerza
d) Cant. Movimiento
- a) $a = \frac{v}{t}$ b) $t = \frac{d}{v}$ c) $F = m \cdot a$
 $a = \frac{20}{8}$ $t = \frac{160}{20}$ $F = (1,000)(2.5)$
 $a = 2.5 \text{ mt/s}^2$ $t = 8 \text{ seg}$ $F = 2,500 \text{ N}$
 $d = q = m \cdot v$
 $q = (1,000)(20)$
 $q = 20,000 \text{ kgmt/s}$
4. $m = 200 \text{ g}$ $v_i = 3 \text{ m}$ $v_f = 8$ $t = 4 \text{ seg}$ Encontrar: a) Impulso
b) Fuerza
c) MI y MF
- $I = F \cdot t$ $F = m \cdot a$ $a = \frac{v_f - v_i}{t}$
 $I = (0.25)(4)$ $a = \frac{3 - 8}{4}$
 $I = 1 \text{ kgmt/s}$ $a = -1.25 \text{ mt/s}^2$ c) $q_f = m \cdot v$
 $q_i = (0.2)(3)$
 $q_i = 0.6 \text{ mt/s}^2$
 $q_f = m \cdot v$
 $q_f = (0.2)(8)$
 $q_f = 1.6 \text{ mt/s}^2$
5. $m = 150$ $v = 50 \text{ km/hr}$ Encontrar: Cantidad de movimiento
- $q = m \cdot v$
 $q = (150)(50)$
 $q = 7,500 \text{ kgmt/s}$

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6. $m = 60 \text{ kg}$ $v = 10 \text{ m/s}$ $m_2 = 50 \text{ kg}$ Encontrar: a) Cant. Movimiento
b) Velocidad m_2

a) $q = m \cdot v$ b) $v = \frac{q}{m}$
 $q = (60)(10)$
 $q = 600 \text{ kgm/s}$

$v = \frac{600}{50}$
 $v = 12 \text{ m/s}$

7. $m_1 = 100 \text{ kg}$ $v_1 = 0$ $m_2 = 2 \text{ kg}$ $v_2 = 10 \text{ m/s}$ Encontrar: velocidad

$m_1 v_1 + m_2 v_2 = m_1 v_1 + m_2 v_2$

$(100)(0) + (2)(0) = m_1 v_1 + m_2 v_2$ $v_2 = \frac{m_1 v_1}{m_2}$

$0 = m_1 v_1 + m_2 v_2$

$\frac{m_1 v_1}{m_2} = v_2$ $v_2 = \frac{(100)(10)}{2}$
 $v = 500 \text{ cm/seg}$

8. $F = 250 \text{ N}$ $d = 36 \text{ m}$ $m = 500 \text{ kg}$ Encontrar: velocidad

$F \cdot d = \frac{mv^2}{2} \rightarrow \frac{2F \cdot d}{m} = v^2 \rightarrow \sqrt{\frac{2F \cdot d}{m}} = v$

$\sqrt{\frac{2(250)(36)}{500}} = 6 \text{ m/s}$

9. $h = 4 \text{ m}$ 1 m al piso $m = 2 \text{ kg}$ Encontrar: a) E. gravitacional
b) E. gravitacional al piso
c) Trabajo

$E_p = m \cdot g \cdot h$ $E_p = m \cdot g \cdot h$
 $E_p = (2)(9.81)(4)$ $E_p = (2)(9.81)(1)$
 $E_p = 78.48 \text{ J}$ $E_p = 19.62 \text{ J}$

$T = m \cdot g \cdot h$
 $T = (2)(9.81)(4)$
 $T = 78.48 \text{ J}$

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10. $m = 200 \text{ kg}$ $v = 30 \text{ m/sec}$ $F = 500 \text{ N}$ Encontrar: a) Distancia
b) E. cinética

$$a) 30 \text{ m}$$

$$b) E_c = \frac{mv^2}{2}$$

$$E_c = \frac{(200)(30^2)}{2}$$

$$E_c = 90.000 \text{ J}$$

11. $F = 12.5 \text{ kg}$ $d = 600 \text{ cm}$ $m = 250 \text{ kg}$ Encontrar: velocidad

$$v = \sqrt{\frac{2F \cdot d}{m}} = \sqrt{\frac{2(12.5)(6)}{250}} = 0.7 \text{ m/s}$$

12. $m = 3.6 \text{ N}$ $v = 13 \text{ m/sec}$ $g = 9.81$ Encontrar: Energía Cinética

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

$$E_c = \frac{(3.6)(13^2)}{2}$$

$$E_c = 301.2 \text{ J}$$

13. $m = 6 \text{ kg}$ $E_p = 80 \text{ J}$ Encontrar: Altura

$$E_p = m \cdot g \cdot h \quad h = \frac{E_p}{m \cdot g}$$

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

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

$$h = 1.3 \text{ m}$$