



DIEGO EDUARDO CRUZ AGUILAR

BRH

5 CUATRIMESTRE

UNIDAD II

FISICA

1.-
a) $F = \frac{(45 \text{ kg})(60 \text{ m/s})}{8} = \frac{2700}{8} \quad \boxed{F = 337.5}$

b) $q = m \cdot v \quad q = (45 \text{ kg})(60 \text{ m/s}) = \boxed{2700 \text{ kg m/s}}$

c) $I = F \cdot t \quad I = (337.5 \text{ N})(8 \text{ s}) = \boxed{2700 \text{ kg m/s}}$

2.-
Datos $q = m \cdot v \quad q = (50 \text{ kg})(2.4 \text{ m/s}) = \boxed{120 \text{ kg m/s}}$
 $m = 50 \text{ kg}$
 $v = 2.4 \text{ m/s}$

3.-
a) $a = \frac{F}{m} \quad a = \frac{9810 \text{ N}}{1000 \text{ kg}} = \boxed{9.81 \text{ m/s}^2}$

$F = p = mg \quad F = (1000 \text{ kg})(9.81 \text{ m/s}^2) = \boxed{9810}$

b) $F \cdot t = m \cdot d$
 $t = \frac{m \cdot d}{F} = \frac{(1000 \text{ kg})(9.81 \text{ m/s}^2) \cdot t}{9810 \text{ N}} = \boxed{1 \text{ seg}}$

c) $\boxed{9810 \text{ N}}$

d) $q = m \cdot v \quad (1000 \text{ kg})(20 \text{ m/s}) = \boxed{20000 \text{ kg m/s}}$

5.-

$$q = m \cdot v$$

$$p = 150 \text{ N} \quad v = 50 \text{ km/hr}$$

$$q = m \cdot v$$

$$m = \frac{p}{v}$$

$$m = \frac{150}{9.81} = 15.29$$

$$q = (15.29 \text{ kg})(50 \text{ km/hr})$$

$$q = 764.5$$

6.-

a)

Datos

$$p = 60 \text{ kg}$$

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

$$q = m \cdot v$$

$$q = (60 \text{ kg})(10 \text{ m/s}) = 600 \text{ m/s}$$

b)

$$q = m \cdot v$$

$$q = 50 \cdot 10$$

$$q = 500 \text{ kgm/s}$$

7.-

Datos

$$m = 100 \text{ kg}$$

8.-

$$F_{\text{horizontal}} = 250 \text{ N} \quad d = 36 \text{ m} \quad m = 500 \text{ kg}$$

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

$$v = \frac{\sqrt{2(250 \text{ N})(36 \text{ m})}}{500 \text{ kg}}$$

$$v = 3.6$$

9.

Datos

$$h = 4 \text{ m}$$

$$h_b = 1 \text{ m}$$

$$m = 2 \text{ kg}$$

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

$$E_p = (2 \text{ kg})(9.81)(4 \text{ m})$$

$$E_p = 78.48 \text{ J}$$

$$b) ~~E_p = m \cdot g \cdot h~~$$

$$E_{PB} = (2 \text{ kg})(9.81 \text{ m/s}^2)(2 \text{ m})$$

$$E_{PB} = 19.62 \text{ J}$$

$$c) T = F \cdot d$$

$$F = m \cdot a \quad F = (2 \text{ kg})(9.81 \text{ m/s}^2) = 19.62$$

$$T = (19.62 \text{ N})(4 \text{ m}) = 78.48$$

10.

Datos

$$m = 100 \text{ kg}$$

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

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

$$a) d = \frac{(200 \text{ kg})(9.81)}{500 \text{ N}} = 3.924 \text{ J}$$

$$b) E_c = m \cdot v^2 \quad E_c = \frac{(100 \text{ kg})(30 \text{ m/s}^2)}{2} = \frac{180,000}{2}$$
$$E_c = 90,000 \text{ kgm}^2/\text{s}^2$$

11.

Datos

$$d = 600 \text{ cm}$$

$$r_{\text{horizontal}} = 12.5 \text{ kg}$$

$$c_{\text{ad}} = 250 \text{ kg}$$

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

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

$$v = 60$$

12.

Datos

$$P = 3.6 \text{ N}$$

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

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

$$EC = (0.36 \text{ kg}) (13 \text{ m/s})^2$$

$$m = \frac{P}{g} = \frac{3.6}{9.81 \text{ m/s}^2} = 0.36 \text{ kg}$$

$$EC = 30.42 \text{ J}$$

13.

Datos

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

$$h = 0$$

$$E.P = mgh$$

$$y = 9.81 \text{ m/s}^2 \quad h = \frac{E.P}{mg} = \frac{20}{6 \cdot 9.81}$$

$$h = 1.36 \text{ m}$$

