

40850 NA-DNHK
 $F_R = \sqrt{3^2 + 4^2} = 5N$

1)

2) $F_R = \sqrt{4^2 + 1^2} = \sqrt{17}$
 $4,123N$

3)

$F_R = \sqrt{5^2 + 12^2} = 13N$

4)

$F = m \cdot a$
 $6 = 3 \cdot a \rightarrow a = 2m/s^2$

5)

$F = 20N$ $a = 4m/s^2$
 $F = m \cdot a \rightarrow m = 5kg$
 $F = m \cdot a \rightarrow a = \frac{100}{5} = 20m/s^2$

6)

$F = 10N$ $a = 0,5m/s^2$
 $m = \frac{F}{a} = 20kg$
 $V_f = V_0 + at = 0 + 0,5 \cdot 2 = 1m/s$

7)

$F = 20N$ $8kg$ $V_0 = 3m/s$
 $Calculo a \rightarrow a = \frac{F}{m} = \frac{20}{8} = 2,5m/s^2$
 $V_f = V_0 + at = 3 + 2,5 \cdot 4 = 13m/s$
 $X_f = 0 + V_0 t + \frac{1}{2} a t^2 = 0 + 3 \cdot 4 + \frac{1}{2} 2,5 \cdot 4^2 = 32m$

8)

F_R F $30kg$ $V_0 = 0m/s$ $X_f = 20m$ $t = 5s$
 $Calculo a \Rightarrow X_f = X_0 + V_0 t + \frac{1}{2} a t^2$
 $20 = 0 + 0 + \frac{1}{2} a \cdot 5^2$
 $a = 1,6m/s^2$
 $F^T - F = m \cdot a$
 $F - 20 = 30 \cdot 1,6$
 $F = 68N$

9)

$F = 60N$ $300kg$ $V_0 = 0m/s$ $t = 2s$
 $Calculo a$
 $F = m \cdot a$ $a = \frac{60}{300} = 0,2m/s^2$
 $X_f = 0 + 0 + \frac{1}{2} 0,2 \cdot 2^2 = 0,4m$

10)

$m_1 \rightarrow F \rightarrow a = 2m/s^2$
 $m_2 \rightarrow F \rightarrow a = 6m/s^2$
 $F = m_1 \cdot 2$
 $F = m_2 \cdot 6$
 $m_1 \cdot 2 = m_2 \cdot 6$
 $m_1 = 3m_2$

11)

$4kg$ $V_0 = 0m/s$ $10m$ $1s$ $10m/s$
 $Calculo a \rightarrow X_f = X_0 + V_0 t + \frac{1}{2} a t^2$
 $10 = 0 + 0 + \frac{1}{2} a \cdot 1^2$
 $a = 20m/s^2$

12)

$F = 29,4N$ $3kg$
 $Calculo a \rightarrow a = \frac{29,4}{3} = 9,8m/s^2$
 $V_f = 0 + 9,8 \cdot 2 = 19,6m/s$

13)

$F = 9,8N$ $25kg$ $V_0 = 0m/s$
 $Calculo a \rightarrow a = \frac{9,8}{25} = 0,392m/s^2$ $V_f = ?$ $X = 0,5m$
 t en segundos es $0,5m$
 $X_f = X_0 + V_0 t + \frac{1}{2} a t^2$ $0,5 = 0 + 0 + \frac{1}{2} 0,392 t^2$
 $t = 1,597s$
 $V_f = 0 + 0,392 \cdot 1,597 = 0,626m/s$

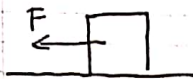
14)

F $5kg$ $V_0 = 7m/s$ $t = 2s$ $V_f = 3m/s$
 $Calculo a \rightarrow V_f = V_0 + at$
 $3 = 7 + a \cdot 2 \rightarrow a = -2,5m/s^2$
 $Calculo F \rightarrow F^T - F = m \cdot a$
 $0 - F = 5 \cdot (-2,5) \rightarrow F = 12,5N$

15)

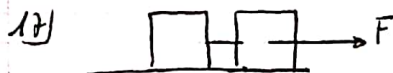
$100kg$ $V_0 = 0m/s$ $X_f = 2m \rightarrow 3s$
 $Calculo a$ $X_f = X_0 + V_0 t + \frac{1}{2} a t^2$
 $2 = 0 + 0 + \frac{1}{2} a \cdot 3^2$ $a = 0,444m/s^2$
 $F^T - F = m \cdot a$
 $F = 100 \cdot 0,444 = 44,444N$

16) $90 \frac{\text{km}}{\text{h}} = 25 \text{ m/s}$ $V_f = 0 \text{ m/s}$
 1000 kg $x_f = 70 \text{ m}$



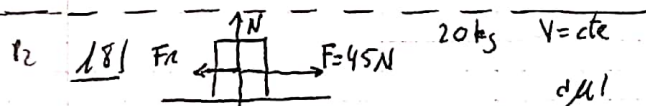
CALCULO a $x_f = x_0 + v_0 t + \frac{1}{2} a t^2$
 $70 = 0 + 25t + \frac{1}{2} a t^2$
 $0 = 25 + at$
 $t = 5,6 \text{ s}$
 $a = \frac{25}{t} = -4,464 \text{ m/s}^2$

CALCULO F $F^+ - P^- = m \cdot a$
 $0 - F = 1000 \cdot (-4,464) = 4464,28 \text{ N}$



$F = (750 + 450) a$

P1 $2400 = 1200 \cdot a$ $a = 2 \text{ m/s}^2$

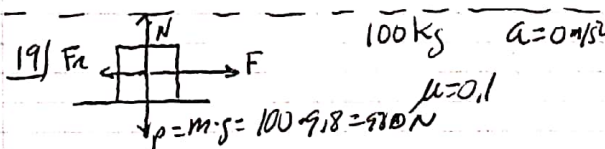


$P = m \cdot g = 20 \cdot 9,8 = 196 \text{ N}$

EJE Y $N - P = 0 \rightarrow N = P = 196 \text{ N}$

EJE X $F - F_r = m \cdot a$

$45 - \mu \cdot 196 = 0 \Rightarrow \mu = \frac{45}{196} = 0,229$

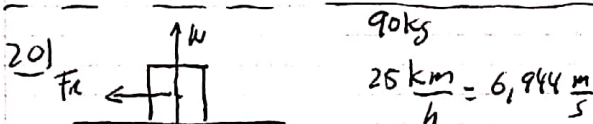


EJE Y $N - P = 0 \Rightarrow N = P = 980 \text{ N}$

EJE X $F - F_r = m \cdot a$

$F - \mu N = 0 \rightarrow F = \mu N = 0,1 \cdot 980$

$F = 98 \text{ N}$



$P = m \cdot g = 90 \cdot 9,8 = 882 \text{ N}$

EJE Y $N - P = 0 \Rightarrow N = P = 882 \text{ N}$

EJE X $0 - F_r = m \cdot a$

$0 - \mu N = m \cdot a$

$0 - 0,2 \cdot 882 = 90 \cdot a$

$a = -1,8 \text{ m/s}^2$

$V_f = V_0 + at \rightarrow 0 = 6,244 - 1,8t$

$t = 3,858 \text{ s}$

21) $30 \text{ s} = 0,03 \text{ kg}$
 $V_0 = 500 \text{ m/s}$ $x_f = 0,15 \text{ m}$



CALCULO LA a $x_f = x_0 + v_0 t + \frac{1}{2} a t^2$

$V_f = V_0 + at$

$0,15 = 0 + 500t + \frac{1}{2} a t^2$

$0 = 500 + at \rightarrow a = \frac{-500}{t} = -83333,333 \text{ m/s}^2$

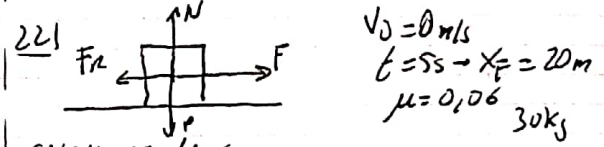
$0,15 = 500t + \frac{1}{2} \left(\frac{-500}{t} \right) t^2$
 $t = 6 \cdot 10^{-4} \text{ s}$

ALORA CALCULO LA F

EJE X $F^+ - F^- = m \cdot a$

$0 - F = 0,03 \cdot (-83333,333)$

$F = 2500 \text{ N}$



CALCULO DE LA a $x_f = x_0 + v_0 t + \frac{1}{2} a t^2$

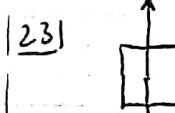
$20 = 0 + 0 + \frac{1}{2} a 5^2$ $a = 1,6 \text{ m/s}^2$

CALCULO DE F

EJE X $F - F_r = m \cdot a$

EJE Y $N - P = 0 \rightarrow N = P = m \cdot g = 30 \cdot 9,8 = 294$

$F - \mu 294 = 0 \rightarrow F = 0,06 \cdot 294 = 17,64$

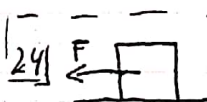


$P = m \cdot g = 200 \cdot 9,8 = 1960 \text{ N}$

EJE Y $F - P = m \cdot a$

$2200 - 1960 = 200 \cdot a$

$a = 1,2 \text{ m/s}^2$



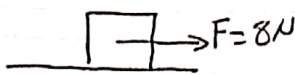
CALCULO DE a

$0 = 20 + a \cdot 40 \rightarrow a = -0,5 \text{ m/s}^2$

EJE X $0 - F = 1500 \cdot (-0,5)$

$F = 750 \text{ N}$

25]



$$6 \text{ kg}$$

$$t = 5 \text{ s}$$

CALCULO DE

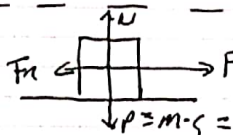
$$\text{EJE X: } F - F_r = m \cdot a$$

$$8 - 0 = 6 \cdot a \rightarrow a = 1,333 \text{ m/s}^2$$

$$V_F = 0 + 1,333 \cdot 5 = 6,665 \text{ m/s}$$

$$X_F = 0 + 0 + \frac{1}{2} \cdot 1,333 \cdot 5^2 = 16,663 \text{ m}$$

26]



$$12 \text{ kg}$$

$$\mu = 0,06$$

$$t = 10 \text{ s}$$

$$p = m \cdot g = 12 \cdot 9,8 = 117,6 \text{ N}$$

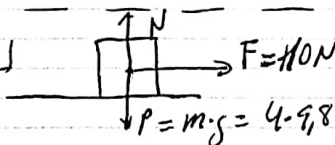
$$\text{EJE Y: } N - p = 0 \rightarrow N = p = 117,6 \text{ N}$$

$$\text{EJE X: } F - F_r = m \cdot a; \quad 60 - 0,06 \cdot 117,6 = 12 \cdot a$$

$$a = 4,412 \text{ m/s}^2$$

$$X_F = 0 + 0 + \frac{1}{2} \cdot 4,412 \cdot 10^2; \quad X_F = 220,6 \text{ m}$$

27]



$$4 \text{ kg}$$

$$\mu = 0,2$$

$$t = 6 \text{ s}$$

$$p = m \cdot g = 4 \cdot 9,8 = 39,2 \text{ N}$$

$$\text{CALCULO DE } X_F = X_0 + V_0 t + \frac{1}{2} a t^2$$

$$21 = 0 + 0 + \frac{1}{2} a \cdot 6^2$$

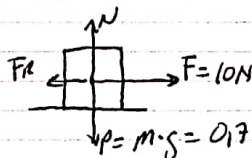
$$\text{EJE Y: } N - p = 0 \rightarrow N = p = 39,2 \text{ N}$$

$$\text{EJE X: } F - F_r = m \cdot a; \quad 110 - \mu \cdot 39,2 = 4 \cdot a$$

$$a = 1,167 \text{ m/s}^2$$

$$\mu = 0,136$$

28]



$$700 \text{ g} = 0,7 \text{ kg}$$

$$\mu = 0,4$$

$$t = 6 \text{ s}$$

$$p = m \cdot g = 0,7 \cdot 9,8 = 6,86 \text{ N}$$

CALCULO DE

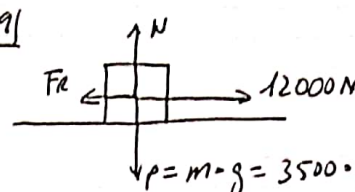
$$\text{EJE Y: } N - p = 0 \rightarrow N = p = 6,86 \text{ N}$$

$$\text{EJE X: } F - F_r = m \cdot a; \quad 10 - 0,4 \cdot 6,86 = 0,7 \cdot a$$

$$a = 10,366 \text{ m/s}^2$$

$$X_F = 0 + 0 + \frac{1}{2} \cdot 10,366 \cdot 6^2 = 186,588 \text{ m}$$

29]



$$3500 \text{ kg}$$

$$\mu = 0,3$$

$$p = m \cdot g = 3500 \cdot 9,8 = 34300 \text{ N}$$

CALCULO DE

$$\text{EJE Y: } N - p = 0 \rightarrow N = p = 34300 \text{ N}$$

$$\text{EJE X: } F - F_r = m \cdot a$$

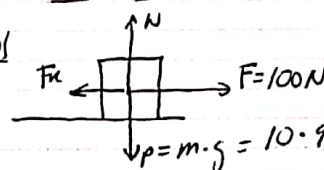
$$12000 - 0,3 \cdot 34300 = 3500 \cdot a$$

$$a = 0,489 \text{ m/s}^2$$

$$X_F = X_0 + V_0 t + \frac{1}{2} a t^2$$

$$X_F = 0 + 0 + \frac{1}{2} \cdot 0,489 \cdot 6^2 = 8,802 \text{ m}$$

30]



$$10 \text{ kg}$$

$$\mu = 0,2$$

$$p = m \cdot g = 10 \cdot 9,8 = 98 \text{ N}$$

CALCULO DE

$$\text{EJE Y: } N - p = 0 \rightarrow N = p = 98 \text{ N}$$

$$\text{EJE X: } F - F_r = m \cdot a$$

$$100 - 0,2 \cdot 98 = 10 \cdot a$$

$$a = 8,04 \text{ m/s}^2$$

$$X_F = X_0 + V_0 t + \frac{1}{2} a t^2$$

$$10 = 0 + 0 + \frac{1}{2} \cdot 8,04 \cdot t^2$$

$$t = 1,577 \text{ s}$$