

Héctor Iván Cruz Alayola

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### Ejercicio propuesto

1:

$$m = 40 \text{ kg}$$

$$F_R = m \times g$$

$$V_0 = 0 \text{ m/s}$$

$$V_f = 3 \text{ m/s}$$

$$F_R = 40 \text{ kg} \times 3 \text{ m/s}^2$$

$$a = V_f - V_0$$

$$F_R = 120 \text{ N}$$

$$a = 3 - 0$$

1

$$a = 3 \text{ m/s}^2$$

2:

$$F = 300 \text{ N}$$

$$100 \text{ cm} - 1 \text{ m}$$

$$a = 150 \text{ (m/s)}^2 \quad 0 \quad 1.5 \text{ m/s}^2$$

$$150 \text{ (m} - 1.5 \text{ m}$$

$$F = m \times a$$

$$m = F$$

a

$$m = 300 \text{ N}$$

$$1.5 \text{ m/s}^2$$

$$m = 200 \text{ kg}$$

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10 11 11

3:

$$F_R = 75 \text{ N}$$

$$m = 1500 \text{ g} = 1.5 \text{ kg}$$

$$F_R = m \times a$$

$$a = \frac{F_R}{m}$$

$$a = \frac{75}{1.5}$$

$$a = 50 \text{ m/s}^2$$

4:

$$m = 10 \text{ kg}$$

$$a = 2.5 \text{ m/s}^2$$

$$F_R = m \times a$$

$$F_R = 10 \text{ kg} \times 2.5 \text{ m/s}^2$$

$$F_R = 25 \text{ N}$$

5:

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

$$g = -9.8 \text{ m/s}^2$$

$$p = m \times g$$

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10 11 12

$$P = 100 \text{ Kg} \times (-9.8 \text{ m/s}^2)$$

$$P = -980 \text{ N}$$

6:

$$P = -1500 \text{ N}$$

$$g = -9.8 \text{ m/s}^2$$

$$P = m \times g$$

$$m = \frac{P}{g}$$

$$m = \frac{-1500}{-9.8}$$

$$m = 153.06 \text{ Kg}$$

7:

$$P = 25 \text{ N}$$

$$g = 3 \text{ m/s}^2$$

$$F_R = m \times g$$

$$P = m \times g$$

$$m = \frac{P}{g}$$

$$F_R = 2.55 \text{ Kg} \times 3 \text{ m/s}^2 \quad m = \frac{-25}{-9.8}$$

$$F_R = 7.65 \text{ N}$$

$$m = 2.55 \text{ Kg}$$

8:

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12 11 11

$$m = 3 \text{ kg}$$

$$F_1 = 30 \text{ N}$$

$$F_2 = 50 \text{ N}$$

$$F_3 = -40 \text{ N}$$

$$F_R = m \times a$$

$$a = \frac{F_R}{m}$$

$$F_R = F_1 + F_2 + F_3$$

$$a = 40$$

3

$$F_R = 30 + 50 - 40$$

$$a = 13.33 \text{ m/s}^2$$

$$F_R = 40 \text{ N}$$

a :

$$m = 8 \text{ kg}$$

$$g = -9.8 \text{ m/s}^2$$

$$V_0 = 0 \text{ m/s}$$

$$V_f = 4 \text{ m/s}$$

$$t = 1.5 \text{ s}$$

a)

$$p = m \times g$$

b)

$$a = V_{fx} - V_{0x}$$

$$F_{Rx} = m \times a$$

$$p = 8 \times 9.8$$

t

$$F_{Rx} = 8 \times 2.67$$

$$p = -78.4 \text{ N}$$

$$a = 4 - 0$$

1.5

$$F_{Rx} = 21.36 \text{ N}$$

$$R = 78.4 \text{ N}$$

$$a = 2.67 \text{ m/s}^2$$

10:

b)

$$p = -950 \text{ N}$$

$$a = 3 \text{ m/s}^2 \downarrow$$

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11 11 11 11

$$F_R = -P + T_n$$

$$F_R = m \times g$$

$$P = m \times g$$

$$F_R = -950 + T_n$$

$$F_R = 96.94 \times$$

$$m = P = -950 \\ g = -9.8$$

$$290.82 = -950 + T_n$$

$$F_R = 290.82 \text{ N} \quad m = 96.94 \text{ kg}$$

$$290.82 + 950 = T_n$$

$$1240.82 = T_n \uparrow$$

N

a)

$$F_R = -P + T_n$$

$$F_R = m \times g$$

$$F_R = -950 + T_n$$

$$F_R = 96.94 \times (-3)$$

$$-290.82 = -950 + T_n$$

$$F_R = -290.82 \text{ N}$$

$$-290.82 + 950 = T_n$$

$$659.18 = T_n \downarrow$$

N

11:

$$q = 1.3 \text{ m/s}^2$$

$$F_R = m \times q$$

$$P = m \times q$$

$$P_1 = -2500 \text{ N}$$

$$P_2 = -2352 \text{ N}$$

$$F_R = 495.10 \times$$

$$m = P = -4852$$

$$1.3$$

$$g$$

$$-9.8$$

$$P_f = -2500 + (-2352)$$

$$F_R = 643.63 \text{ N}$$

$$m = 495.10 \text{ kg}$$

$$P_f = -4852 \text{ N}$$

$$F_R = -P + T_n$$

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11 11 11

$$643.63 = -4852 + T_n$$

$$643.63 + 4852 = T_n$$

$$\boxed{5495.63 \text{ N} = T_n}$$

12:

$$P = -2310 \text{ N}$$

$$T_n = 2935 \text{ N}$$

$$F_n = -P + T_n$$

$$F_n = -2310 + 2935$$

$$m = \frac{-2310}{-9.8}$$

$$F_n = 625 \text{ N}$$

$$m = \frac{P}{g}$$

$$F_n = m \cdot a$$

$$a = \frac{F_n}{m} = \frac{625}{235.71}$$

$$\boxed{a = 2.65 \text{ m/s}^2}$$

$$m = 235.71 \text{ Kg}$$

13:

$$P = -686 \text{ N}$$

$$0 = 2 \text{ m/s}^2 \uparrow$$

$$a) F_n = -P + R \quad F_n = m \cdot a$$

$$F_n = -686 + R \quad F_n = m(2)$$

$$140 = -686 + R \quad m = \frac{P}{g} = \frac{-686}{-9.8} = 70 \text{ Kg}$$

$$140 + 686 = R \quad F_n = 70(2)$$

$$\boxed{826 = R}$$

$$N$$

$$F_n = 140 \text{ N}$$

$$b) F_R = -P + R$$

$$F_n = m \times g$$

$$-140 = -686 + R$$

$$F_R = 70(-1)$$

$$-140 + 686 = R$$

$$546 = R$$

$$F_R = -140 \text{ N}$$

N

14 =

$$P = -7458 \text{ N}$$

$$F_R = m \times g$$

$$P = m \times g$$

$$V_0 = 4 \text{ m/s}$$

$$V_f = 0 \text{ m/s}$$

$$d = -6 \text{ m}$$

$$F_R = 761.01 \times$$

$$1.33$$

$$m = \frac{P}{g} = -7458$$

$$g = 9.8$$

$$F_n = -P + T_n$$

$$F_R = 1012.15 \text{ N} \quad m = 761.01 \text{ Kg}$$

$$F_R = -7458 + T_n$$

$$V_f^2 = V_0^2 + 2gd$$

$$1012.15 + 7458 = T_n$$

$$\theta = 16 + 2(g)(-6)$$

$$8470.15 \text{ N} = T_n$$

$$\theta = 16 - 120$$

$$-16 = -120$$

$$\frac{-16}{-12} = q$$

$$\theta = 1.33 \text{ m/s}^2$$