

Problema M.C.V.

① $\text{Radio} = 6,400 \text{ km}$

$$\text{Radio} = 6.4 \times 10^6 \text{ m} = 6,400,000 \text{ m}$$

$$T = 24 \text{ h} / 3,600 = 86,400 \text{ seg}$$

$$V_t = \frac{2\pi R}{T}$$

$$V = \frac{2(3.14)(6,400,000)}{86,400 \text{ seg}} = 465 \text{ m/s}$$

$$A_c = \frac{V^2}{R}$$

$$A_c = \frac{465^2}{6,400,000}$$

$$= A_c = 0.034 \text{ m/s}^2$$

② $\omega = \frac{2\pi R}{t}$

$$\omega = \frac{2(3.14)}{86,400 \text{ seg}} \text{ Rad} = \omega = 7.28 \times 10^{-5} \text{ Rad/seg}$$

③

90 KM/h.

1.40 Metros.

$$90 \text{ KM/h} = \frac{90000}{3600} \times \frac{1 \text{ h}}{1 \text{ h}} = 25 \text{ m/s}$$

$$V = W \cdot R$$

$$W = \frac{V}{R} = \frac{25 \text{ m/s}}{1.40 \text{ m}} = 17.86 \text{ Rad/sec}$$

④

2000 Rev/minute.

2000 R.p.M

$$W = \frac{\theta}{t}$$

$$\theta = 360^\circ \times 2000 \text{ rev}$$

$$\theta = 720,000^\circ$$

$$W = \frac{720,000^\circ}{60 \text{ sec}}$$

$$W = 12,000 \text{ Grad/sec}$$

⑥ 120 R.P.M.
3 Metros.

período

$$P = \frac{t}{R} \quad P = \frac{60 \text{ seg}}{120 R} = 0.5 \text{ seg}$$

frecuencia

$$f = \frac{1}{t} \quad f = \frac{1 R}{0.5 \text{ seg}} = f = 2 \text{ RPS.}$$

V. Angular

$$W = \frac{V}{R} = W = 4 \pi \text{ Rad/seg} \quad 120 \frac{R}{\text{Min}} * \frac{1 \text{ Min}}{60 \text{ seg}} * \frac{2 \pi \text{ Rad}}{1 R} =$$

V. lineal

$$V = W \cdot R = V = 4 \pi * 60 \text{ seg} = 753 \text{ M/s}$$

A. centrífuga

$$A_c = \frac{V^2}{R} \quad A_c = \frac{(753 \text{ M/s})^2}{3 \text{ M}} = A_c = 189,003 \text{ M/s}^2$$

Radio = 1.2 metros
 Velocidad Angular = 35.4 Rad/seg.

$$V = \omega \cdot R = V = 35.4 \text{ Rad/seg} \times 1.2 \text{ m} = \underline{42.48 \text{ m/s}}$$

$$a_c = \frac{V^2}{R} = a_c = \frac{(42.48 \text{ m/s})^2}{1.2 \text{ m}}$$

$$a_c = \underline{1,503.79 \text{ m/s}^2}$$

⑦ $\theta = 2 \text{ Radianes}$

$$T = 0.25 \text{ seg}$$

$$\text{Radio} = 30 \text{ cm} = 0.3 \text{ m}$$

$$\omega = \frac{\theta}{t} = \omega = \frac{2 \text{ Rad}}{0.25 \text{ seg}} = \omega = \underline{8 \text{ Rad/seg}}$$

$$V = \omega \cdot R = V = 8 \text{ Rad/seg} \times 0.3 \text{ m} = V = \underline{2.4 \text{ m/s}}$$

$$P = \frac{2\pi}{\omega} = P = \frac{2\pi}{8 \text{ Rad/seg}} = P = \underline{0.25 \text{ seg}}$$

$$f = \frac{1}{t} = f = \frac{1}{0.25 \text{ seg}} = f = \underline{4 \text{ Rps}}$$

⑧ 50 cm = 0.5 m.
400 Revolutions
5 Minutes = 300 sec.

$$f = \frac{1}{t}$$

$$f = \frac{400 R}{300 \text{ sec}}$$

$$f = 1.33 \text{ Rps}$$

$$P = \frac{t}{R}$$

$$P = \frac{300 \text{ sec}}{400 R}$$

$$P = 0.75 \text{ sec}$$

$$W = \frac{V}{R}$$

$$W = 73.33 \text{ Rad/sec}$$

$$\frac{400 R}{1 \text{ Min}} \times \frac{1 \text{ Min}}{60 \text{ sec}} \times \frac{2 \pi \text{ Rad}}{1 R}$$

$$V = W \cdot R =$$

$$V = 73.33 \pi \times 60 \text{ sec} = 2,511.37 \text{ m/s}$$

$$A_c = \frac{V^2}{R}$$

$$A_c = \frac{(2,511.37 \text{ m/s})^2}{0.5 \text{ m}}$$

$$A_c = 12,613,958.55 \text{ m/s}^2$$