Fórmulas Física I

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10 de Fevereiro de 2014

$$E_{cin} = \frac{1}{2}mv^2 \qquad E_{pot\,grav} = mgh \qquad E_{pot\,elas} = \frac{1}{2}kx^2$$
$$E_{mec} = E_{pot} + E_{cin}$$

$$p = mv \qquad F = ma \qquad W = F.\triangle S \qquad W = \int F.dx$$
$$F_{cent} = \frac{mv^2}{R} \qquad a_{cent} = \frac{v^2}{R}$$

$$\omega = 2\pi f \qquad f = \frac{1}{T} \qquad v = \omega R$$

$$K_{rot} = \frac{1}{2}I\omega^2 \qquad \vec{\tau} = \vec{r} \times \vec{F}$$
$$\tau = I\alpha \qquad \vec{L} = \vec{r} \times \vec{p} \qquad L = I\omega \qquad \tau = \frac{\triangle L}{\triangle t}$$

$$I = I_{cm} + md^2$$

Massa pontual/aro: $I = mR^2$

Disco/cilindro: $I = \frac{1}{2}mR^2$

Esfera maciça: $I = \frac{2}{5}mR^2$

Esfera oca: $I = \frac{2}{3}mR^2$

Haste delgada:$I = \frac{1}{12}mL^2$

$$F_{grav} = \frac{GMm}{d^2} \qquad g = \frac{GM}{d^2} \qquad v_{escape} = \sqrt{\frac{GM}{R}}$$

$$T = 2\pi\sqrt{\frac{R^3}{GM}} \qquad \frac{T^2}{R^3} = const. = \frac{4\pi^2}{GM}$$

$$G = 6,67.10^{-11}\ Nm^2/kg^2$$