

Gibanje

Hitrost

$$\Delta X = X_2 - X_1$$

$$\Delta t = t_2 - t_1$$

$$V = \frac{\Delta X}{\Delta t}$$

Enakomerno gibanje

$$\bar{V} = \frac{S}{\Delta t}$$

Enakomerno pospešeno gibanje

$$a = \frac{\Delta V}{\Delta t}$$

$$V = V_0 \pm at$$

$$X = V_0 t \pm \frac{at^2}{2}$$

$$V^2 = V_0^2 \pm 2aX$$

Prosti pad in navpični met

$$g = \frac{\Delta V}{\Delta t}$$

$$V = V_0 \pm gt$$

$$h = V_0 t \pm \frac{gt^2}{2}$$

$$V^2 = V_0^2 \pm 2gX$$

$$t = \frac{V - V_0}{g}$$

Ravninsko gibanje

$$V^2 = V_1^2 + V_2^2$$

Vodoravni met

$$X = V_x t$$

$$h = \frac{gt^2}{2}$$

$$V_y = gt$$

$$V^2 = V_x^2 + V_y^2$$

Enakomerno gibanje

$$v = \frac{\Delta x}{t}$$

$$\bar{v} = \frac{v_1 + v_2}{2}$$

$$\bar{v} = \frac{v_1 + v_2}{t_1 + t_2}$$

Pospešeno gibanje

$$a = \frac{\Delta v}{t} = \frac{v - v_0}{t}$$

$$v = v_0 + at$$

$$v^2 = v_0^2 + 2ax$$

$$x = v_0 + \frac{at^2}{2}$$

Prosti pad in navpični met

$$v = v_0 + gt$$

$$x = v_0 + \frac{gt^2}{2}$$

$$v^2 = v_0^2 + 2gx$$

$$h = \frac{gt^2}{2}$$

$$t = \sqrt{\frac{2h}{g}}$$

Kroženje

$$l = r\varphi$$

$$\varphi = \frac{l}{r}$$

$$v = \frac{\Delta l}{t}$$

$$v = \frac{1}{t_0}$$

$$v = r\omega$$

$$\varphi = \omega t$$

$$\omega = \frac{\Delta\varphi}{t} \text{ [s}^{-1}\text{]}$$

$$\omega = 2\pi v$$

$$\omega = \frac{2\pi}{t}$$

$$t = \frac{\alpha^{\text{rad}}}{\frac{\omega_m + \omega_h}{2}}$$

$$\alpha^0 = \frac{\alpha^{\text{rad}} \cdot 180}{\pi}$$

Radialni pospešek

$$a_r = \frac{\Delta v}{t}$$

$$a_r = \omega v$$

$$a_r = \frac{v^2}{r}$$

$$a_r = \omega^2 r$$

$$a_r = \frac{v\varphi}{t}$$

$$a_r = \frac{4\pi^2 R}{t_0^2}$$

Merjenje sile

$$F = kx$$

$$x_z = x_1 + x_2$$

$$x_v = \frac{F}{k_1 + k_2}$$

$$x_z = \frac{F_1}{k_1} + \frac{F_2}{k_2}$$

Sila in pospešek

$$a = \frac{2x}{t^2}$$

$$F = ma$$

$$F_g = mg$$

$$F = \frac{ma}{\cos\varphi}$$

Trenje

$$F_l = k_l N$$

$$a = g \cdot \sin\varphi$$

$$F_t = k_t N$$

Centripetalna sila

$$F = \frac{mv^2}{r}$$

$$F = mr\omega^2$$

$$v_{\text{max}} = \frac{1}{2\pi} \sqrt{\frac{F_0}{mr}}$$

Gravitacijska sila

$$\omega_s = \sqrt{\frac{g}{r}}$$

$$F = G \frac{m_1 m_2}{r^2}$$

Teža

$$g = \frac{mG}{r^2}$$

$$g = \frac{g_0}{\left(1 + \frac{h}{r}\right)^2}$$

Gibanje satelitov

$$v_1 = \sqrt{g_0 r}$$

$$v_2 = \sqrt{2g_0 r}$$