

## Fontosabb összefüggések

### Mechanika

út	sebesség	gyorsulás	idő	erő
egyenletes mozgás				
$s = vt$	$v = \frac{s}{t}$	$a = 0$	$t = \frac{s}{v}$	$\Sigma F = 0$
egyenletesen változó mozgás				
$s = v_0 t + \frac{a}{2} t^2$	$v = v_0 + at = \sqrt{v_0^2 + 2as}$	$a = \frac{v - v_0}{t} = \frac{v^2 - v_0^2}{2a} = \text{állandó}$	$t = \frac{-v_0 \pm \sqrt{v_0^2 + 2as}}{a}$	$\Sigma F = \text{állandó}$
egyenletes körmozgás				
$\alpha = \omega t = \frac{2\pi}{T} t = 2\pi f t$ $s = r\alpha = r\omega t = \frac{2r\pi}{T} t = 2r\pi f t$	$\omega = \frac{\alpha}{t} = \frac{v}{r} = \frac{2\pi}{T} = 2\pi f$ $v = \frac{s}{t} = r\omega = \frac{2r\pi}{T} = 2r\pi f$	$a_t = 0$ $a_{cp} = r\omega^2 = \frac{v^2}{r} = \left(\frac{2\pi}{T}\right)^2 r = 4\pi^2 f^2 r$	$T = \frac{1}{f} = \frac{2\pi}{\omega}$ $t = \frac{s}{v} = \frac{s}{r\omega}$	$\Sigma F_t = 0$ $F_{cp} = m\omega^2 r = m \frac{v^2}{r}$
harmonikus rezgőmozgás				
$x = A \sin \omega t = A \sin \frac{2\pi}{T} t = A \sin 2\pi f t$	$v = v_0 \cos \alpha = A\omega \cos \omega t$ $\omega = \sqrt{\frac{D}{m}}$	$a = -a_0 \sin \alpha = -A\omega^2 \sin \omega t$	$T = 2\pi \sqrt{\frac{D}{m}}$	$F = -Dx$ $D = m\omega^2$