

**NOEN FORMLER**

$$g = 9.81 \text{ m/s}^2$$

Arbeid:  $dW = \mathbf{F} \cdot d\mathbf{s}$     Kinetisk energi:  $K = \frac{1}{2}mv^2$

$U(\mathbf{r}) =$  potensiell energi    Konservativ kraft:  $\mathbf{F} = -\nabla U(\mathbf{r})$

$f \leq \mu_s N$      $f = \mu_k N$     Luftmotstand (liten  $v$ ):  $\mathbf{f} = -k\mathbf{v}$

Tyngdepunkt:  $\mathbf{R}_{CM} = \frac{1}{M} \sum_i \mathbf{r}_i m_i \rightarrow \frac{1}{M} \int \mathbf{r} \cdot dm$

$v = r\omega$     Sentripetalaksel.  $a = -v\omega = -\frac{v^2}{r} = -\omega^2 r$     Baneaksel.  $a = \frac{dv}{dt} = r \frac{d\omega}{dt}$

Dreiemoment:  $\boldsymbol{\tau} = \mathbf{r} \times \mathbf{F}$     Statisk likevekt:  $\sum \mathbf{F}_i = 0$      $\sum \boldsymbol{\tau}_i = 0$

Dreieimpuls:  $\mathbf{L} = \mathbf{r} \times \mathbf{p}$      $\boldsymbol{\tau} = \frac{d\mathbf{L}}{dt}$     Stive legemer:  $\mathbf{L} = I \cdot \boldsymbol{\omega}$      $\boldsymbol{\tau} = I \cdot \frac{d\boldsymbol{\omega}}{dt}$

Kinetisk energi:  $K = \frac{1}{2} I \omega^2$     Trehetsmoment:  $I = \sum_i m_i r_i^2 \rightarrow \int r^2 dm$

Steiners sats:  $I = I_{CM} + Md^2$

Gravitasjon:  $\mathbf{F}(\mathbf{r}) = -G \frac{Mm}{r^2} \hat{r}$      $U(r) = -G \frac{Mm}{r}$

Udempet svingning:  $\ddot{x} + \omega^2 x = 0$      $T = \frac{2\pi}{\omega}$      $f = \frac{1}{T} = \frac{\omega}{2\pi}$

Masse i fjær:  $\omega = \sqrt{\frac{k}{m}}$

Fysisk pendel:  $\omega = \sqrt{\frac{mgd}{I}}$     Matematisk pendel:  $\omega = \sqrt{\frac{g}{L}}$