

Dekomponering av akselerasjonsvektor:

$$\mathbf{a}(t) = v'(t)\mathbf{T}(t) + \kappa(t)v^2(t)\mathbf{N}(t)$$

Diskriminanten i annenderiverttesten:

$$\Delta = AC - B^2 \quad \text{der} \quad A = f_{xx}, B = f_{xy}, C = f_{yy}$$

Koordinatsystemer:

 Sylinderkoordinater (r, θ, z) :

$$\begin{aligned} x &= r \cos \theta, & y &= r \sin \theta, & z &= z, \\ r^2 &= x^2 + y^2, & dV &= r \, dz \, dr \, d\theta \end{aligned}$$

 Kulekoordinater (ρ, φ, θ) :

$$\begin{aligned} x &= \rho \sin \varphi \cos \theta, & y &= \rho \sin \varphi \sin \theta, & z &= \rho \cos \varphi, \\ \rho^2 &= x^2 + y^2 + z^2, & dV &= \rho^2 \sin \varphi \, d\rho \, d\varphi \, d\theta \end{aligned}$$

Flateintegral:

$$d\sigma = |\mathbf{N}(u, v)| \, du \, dv = \left| \frac{\partial \mathbf{r}}{\partial u} \times \frac{\partial \mathbf{r}}{\partial v} \right| \, du \, dv$$

Tyngdepunkt og treghetsmoment for romlige legemer:

$$\bar{x} = \frac{1}{m} \iiint_T x \, dm, \quad \bar{y} = \frac{1}{m} \iiint_T y \, dm, \quad \bar{z} = \frac{1}{m} \iiint_T z \, dm, \quad dm = \delta(x, y, z) \, dV$$

$$I_x = \iiint_T (y^2 + z^2) \, dm, \quad I_y = \iiint_T (x^2 + z^2) \, dm, \quad I_z = \iiint_T (x^2 + y^2) \, dm,$$

$$I_L = \iiint_T R(x, y, z)^2 \, dm$$

Vektoranalyse:

Greens teorem:
$$\oint_C P \, dx + Q \, dy = \iint_R \left(\frac{\partial Q}{\partial x} - \frac{\partial P}{\partial y} \right) \, dA$$

Divergensteoremet:
$$\iint_S \mathbf{F} \cdot \mathbf{n} \, d\sigma = \iiint_T \operatorname{div} \mathbf{F} \, dV$$

Stokes' teorem:
$$\oint_C \mathbf{F} \cdot \mathbf{T} \, ds = \iint_S (\operatorname{curl} \mathbf{F}) \cdot \mathbf{n} \, d\sigma$$