FORMELLISTE

Annenderiverttesten:.

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

Koordinatsystemer:.

Sylinderkoordinater: $\quad x = r\,\cos\theta, \quad y = r\,\sin\theta, \quad z = z,$

$$r^2 = x^2 + y^2, \quad dV = r\,dz\,dr\,d\theta$$

Kulekoordinater: $\quad x = \rho\,\sin\varphi\,\cos\theta, \quad y = \rho\,\sin\varphi\,\sin\theta, \quad z = \rho\,\cos\varphi,$

$$\rho^2 = x^2 + y^2 + z^2, \quad dV = \rho^2 \sin\varphi\,d\rho\,d\varphi\,d\theta$$

Flateintegral:.

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

Tyngdepunkt for romlige legemer:.

$$\overline{x} = \frac{1}{m}\iiint_T x\,dm, \quad \overline{y} = \frac{1}{m}\iiint_T y\,dm, \quad \overline{z} = \frac{1}{m}\iiint_T z\,dm$$

Vektoranalyse:.

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

Divergensteoremet: $\quad \iint_S \vec{F}\cdot\vec{n}\,dS = \iiint_T \nabla\cdot\vec{F}\,dV = \iiint_T \mathrm{div}\vec{F}\,dV$

Stokes teorem: $\quad \oint_C \vec{F}\cdot\vec{T}\,ds = \iint_S (\nabla\times\vec{F})\cdot\vec{n}\,dS = \iint_S (\mathrm{curl}\,\vec{F})\cdot\vec{n}\,dS$

der $\quad \nabla = \left\langle \frac{\partial}{\partial x},\ \frac{\partial}{\partial y},\ \frac{\partial}{\partial z} \right\rangle$