10.10.

$$\mathbf{F} = (x - y + xy, -2x + y, xz)$$

$$\mathbf{n} = \{(1,0,0) - (0,0,1)\} \times \{(0,1,0) - (0,0,1)\}$$

$$\mathbf{n} = (1,0,-1) \times (0,1,-1)$$

$$\mathbf{n} = \begin{vmatrix} \mathbf{e}_1 & \mathbf{e}_2 & \mathbf{e}_3 \\ 1 & 0 & -1 \\ 0 & 1 & -1 \end{vmatrix} = (1,1,1)$$

$$\hat{\mathbf{n}} = \frac{(1,1,1)}{\sqrt{3}}$$

Planets ekvation : $x + y + z = 1.$

$$\mathbf{F} \cdot \hat{\mathbf{n}} = (x - y + xy, -2x + y, xz) \cdot \frac{(1,1,1)}{\sqrt{3}}$$

$$\mathbf{F} \cdot \hat{\mathbf{n}} = (x - y + xy - 2x + y + xz)\frac{1}{\sqrt{3}}$$

$$\mathbf{F} \cdot \hat{\mathbf{n}} = (y - 1 + z)\frac{x}{\sqrt{3}} = \left\{ \begin{array}{l} \text{På ytan:} \\ y - 1 + z = -x. \end{array} \right\} = \frac{-x^2}{\sqrt{3}}$$

$$\text{Flödet } \Phi = \iint_Y \mathbf{F} \cdot \hat{\mathbf{n}} \, d\sigma = \iint_Y \frac{-x^2}{\sqrt{3}} \, d\sigma$$

$$\Phi = \iint_{D_{xy}} \frac{-x^2}{\sqrt{3}} \frac{dxdy}{\left|\frac{1}{\sqrt{3}}\right|} = \iint_{D_{xy}} -x^2 dxdy$$

$$\Phi = \int_{x=0}^{1} \left\{ \int_{y=0}^{1-x} -x^2 dy \right\} dx = \int_{x=0}^{1} (x^3 - x^2) dx = \frac{1}{4} - \frac{1}{3} = -\frac{1}{12}$$

SVAR: Flödet $\Phi = -\frac{1}{12}$, nedåtriktat.