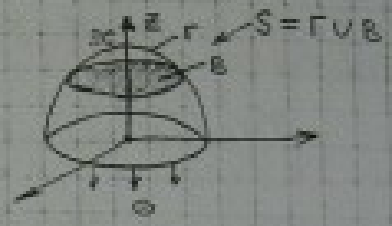
$$I = \oint_C \vec{A} = \oint_\Gamma -2ydz - 2xdz - 2xdy =$$

$$= \iint_D (-2,-2,-2)\cdot(0,0,1)\,dxdy = -2\iint_D dxdy = -2P(D) = -2\sqrt{a}\cdot\sqrt{b}\cdot\pi =$$

$$\Rightarrow \boxed{I = -4ab\pi}$$

б) II начин: – Гаус Остроградски:



$$\Pi = \oint_S \vec{A}\cdot d\vec{S} = \iiint_T = \overset{0 \text{ добили сме раније}}{\operatorname{div}\vec{A}}\cdot dxdydz = 0$$

$$\oint_S = \oint_\Gamma + \oint_B$$

B: $\underline{z = c} \Rightarrow \boxed{dz = 0}$

$$\iint_B (y-z)dydz - (z-x)dxdz + (x-y)dxdy =$$

$$= -\iint_D (x-y)\,dxdy = -\int_0^{2\pi} d\varphi\cdot(a\rho\cos\varphi - b\rho\sin\varphi)\cdot ab\rho\,d\rho =$$

$$= -ab\cdot\int_0^{2\pi} \frac{2\sqrt{2}}{3}(\cos\varphi - \sin\varphi)\,d\varphi = 0 \quad \Rightarrow \boxed{\Pi = 0}$$

$\boxed{27}$ $\vec{A} = (2y - z; -y; z)$

$\Gamma_1: \frac{y^2}{2} + 2x^2 - 2x = 0$ – елипса (цилиндар)

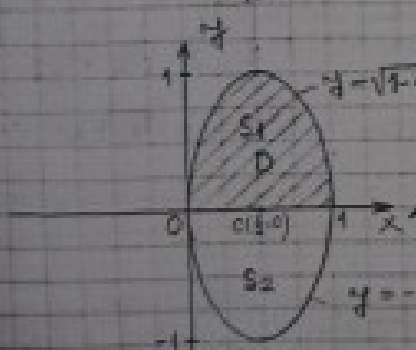
$\Gamma_2: x^2 + \frac{y^2}{2} + \frac{z^2}{4} = 1$ – елипсоид

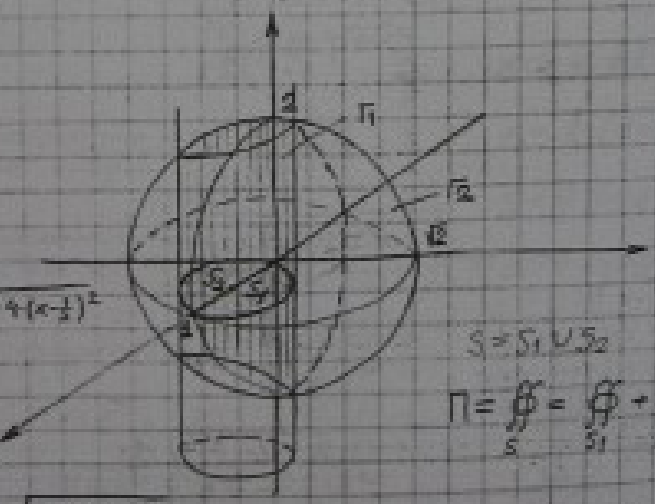
а) Израчунати флуксеви поља $\vec{A}$ кроз спољну страну дела површи Γ_1 између равни $c=0$ и горњег дела површи Γ_2.

$\Gamma_1: y^2 + (2x-1)^2 = 1$

$y^2 + 4\cdot(x-\frac{1}{2})^2 = 1$

$y^2 + \frac{(x-\frac{1}{2})^2}{\frac{1}{4}} = 1$





$S = S_1 \cup S_2$

$$\Pi = \oint_S = \oint_{S_1} + \oint_{S_2}$$