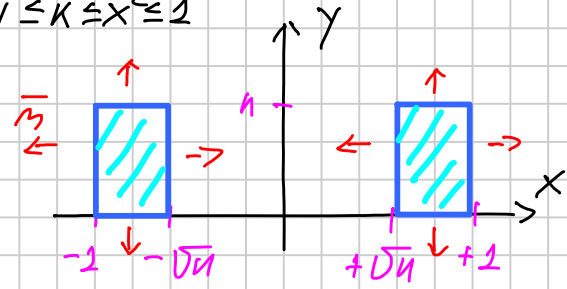


$$\left\{ \begin{array}{l} \Omega = \{ 0 \leq y \leq z \leq x^2 \leq 1 \} \leadsto \begin{cases} z = K & 0 \leq y \leq 1 \\ 0 \leq y \leq K \leq x^2 \leq 1 \end{cases} \\ \vec{E} = (y^2, x^2, z^2) \end{array} \right.$$



$$\operatorname{div} \vec{E} = \cancel{\partial_x(y^2)}^{\color{red}=0} + \cancel{\partial_y(x^2)}^{\color{red}=0} + \partial_z(z^2) = 2z$$

$$\int_{\partial\Omega} \vec{E} \cdot \vec{n} d\sigma = \int_{\Omega} \operatorname{div} \vec{E} dxdydz = \int_{\Omega} 2z dxdydz =$$

$$= 2 \int_0^1 \int_{\sqrt{z}}^1 \int_0^z 2z dxdydz = \int_0^1 \int_{\sqrt{z}}^1 z^2 dydz =$$

$$= \int_0^1 z^2 (1 - \sqrt{z}) dz = \int_0^1 (z^2 - z^{5/2}) dz =$$

$$= \left[\frac{z^3}{3} - \frac{2}{7} z^{7/2} \right]_0^1 = \left(\frac{1}{3} - \frac{2}{7} \right) = \frac{7-6}{21} = \frac{1}{21}$$