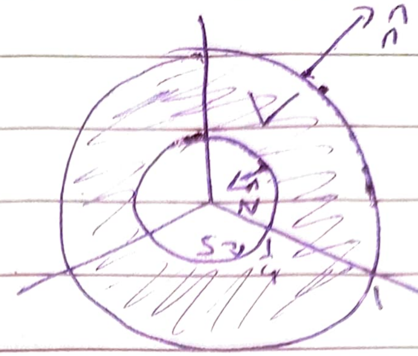


$$\Rightarrow \iint_S F\cdot\hat{n}\,dS = -\iint_S F\cdot\hat{N}\,dS$$

$\Rightarrow$

$$\hat{N} = \frac{2x\hat{i}+2y\hat{j}+2z\hat{k}}{2\sqrt{x^2+y^2+z^2}}$$

$$\hat{N} = \frac{x\hat{i}+y\hat{j}+z\hat{k}}{\sqrt{x^2+y^2+z^2}}$$

$$-\iint_S \frac{x\hat{i}+y\hat{j}+z\hat{k}}{(x^2+y^2+z^2)^2}\cdot\frac{x\hat{i}+y\hat{j}+z\hat{k}}{\sqrt{x^2+y^2+z^2}}\cdot dS$$

$$\Rightarrow -\iint \frac{(x^2+y^2+z^2)}{(x^2+y^2+z^2)^{2+\frac{1}{2}}}\,dS$$

$$\Rightarrow -\iint \frac{1}{(x^2+y^2+z^2)^{3/2}}\,dS$$

$$\Rightarrow = -\iint \frac{1}{\left(\frac{1}{4}\right)^{3/2}}\,dS$$

$$\Rightarrow -8\iint dS \qquad S:\ x^2+y^2+z^2=\frac{1}{4}$$

$$\Rightarrow -8\times\cancel{4}\times\pi\times\frac{1}{\cancel{4}}$$

$$\Rightarrow \boxed{-8\pi}$$