ТИПОВОЙ РАСЧЕТ 1

$$\int_{-\sqrt{2}}^{-1} dx \int_{0}^{\sqrt{2-x^2}} f dy + \int_{-1}^{0} dx \int_{0}^{x^2} f dy$$

$$D_1 : \begin{cases} -\sqrt{2} \le x \le -1 \\ 0 \le y \le \sqrt{2-x^2} \end{cases}$$

$$D_2 : \begin{cases} -1 \le x \le 0 \\ 0 \le y \le x^2 \end{cases}$$

$$x^2 = \sqrt{2-x^2}$$

$$x^4 + x^2 - 2 = 0$$

$$k = x^2 => k^2 + k - 2 = 0 => k_1 = 1; k_2 = -2$$

$$x_1 = \pm 1; x_2^2 \ne -2$$

$$=> y = 1 => (1;1) u (-1;1)$$

$$D_1 : \begin{cases} -\sqrt{2-y^2} \le x \le -\sqrt{y} \\ 0 \le y \le 1 \end{cases}$$

$$=> \int_{0}^{1} dy \int_{-\sqrt{y}}^{\sqrt{2-y^2}} f dx$$

ОТВЕТ

$$\int_{0}^{1} dy \int_{-\sqrt{y}}^{\sqrt{2-y^2}} f dx$$

ТИПОВОЙ РАСЧЕТ 2

$$\iint_D (4xy + 3x^2y^2)2x2y$$

$$D : x = 1; y = x^2; y = -\sqrt{x}$$

$$D : \begin{cases} 0 \le x \le 1 \\ -\sqrt{x} \le y \le x^2 \end{cases}$$

$$\iint_D (4xy + 3x^2y^2)dxdy = \int_0^1 dx \int_{-\sqrt{x}}^{x^2} (4xy + 3x^2y^2)dy = \int_0^1 dx(4x\frac{y^2}{2} + 3x^2\frac{y^3}{3}) =$$

$$\int_0^1 dx(2x^5 + x^8 - 2x^2 + x^{(\frac{7}{2})} = 0$$

ОТВЕТ

0

ТИПОВОЙ РАСЧЕТ 3

$$\iint_D (ycos2xy)dxdy$$

$$D : x = \frac{1}{2}; x = 1; y = \frac{\pi}{2}; y = \pi;$$

$$D : \begin{cases} \frac{1}{2} \leq x \leq 1 \\ \frac{\pi}{2} \leq y \leq \pi \end{cases}$$

$$\iint_D (y + cos2xy)dxdy = \int_{\frac{\pi}{2}}^{\pi} dy \int_{\frac{1}{2}}^{1} (ycos2xy)dx = \int_{\frac{\pi}{2}}^{\pi} dy \frac{y}{2y} sin2xydx =$$

$$\int_{\frac{\pi}{2}}^{\pi} \frac{1}{2}(sin2y - siny)dy = 1$$

ОТВЕТ

1