11. gyakorlat

$$f(x,y)=g(x^2-y^2)$$

$$f'_x = g'(x^2-y^2)\cdot 2x$$

$$V=\iint_T y^2\, d(x,y) = \int_{x=0}^{2}\underbrace{\int_{y=0}^{4} y^2\, dy}_{\left[\frac{y^3}{3}\right]_0^4}\, dx = \int_{x=0}^{2}\frac{64}{3}\, dx =$$

$$=\left[\frac{64}{3}x\right]_0^2=\underline{\underline{\frac{128}{3}}}$$

$$\int_T xy\sin(xy^2)\, dT = \int_{x=2}^{4}\int_{y=0}^{\pi} xy\sin(xy^2)\, dy\, dx =$$

T: $2\leq x\leq 4$ téglalap

$$=\int^{4}\left[\frac{1}{2}(-\cos(xy^2))\right]^{\pi}\, dx =$$

$0 \le y \le \pi$ $\qquad \int_{x=2}$

$= \left[\frac{-\sin(x\pi^2)}{2\pi^2} + \frac{x}{2}\right]_2^4 = \dots$

$$\iint_T x^2\,dT = \int_{x=-2}^{3}\int_{y=x^2}^{x+6} x^2\,dy\,dx = \int_{x=-2}^{3}\left[x^2y\right]_{x^2}^{x+6}dx =$$

T: $y=x^2$, $y=x+6$ határolja

$$\int_{x=-2}^{3} x^3+6x^2-x^4\,dx =$$

$$\left[\frac{x^4}{4} + 2x^3 - \frac{x^5}{5}\right]_{-2}^{3} = \dots$$

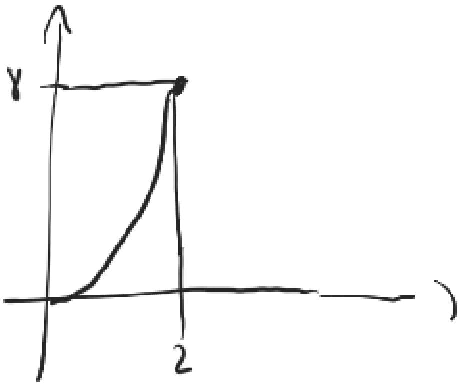
$$\int_{y=0}^{9}\int_{x=a(y)}^{x=b(y)} x^2\,dx\,dy =$$

$$= \int_{y=0}^{4}\int_{x=-\sqrt{y}}^{\sqrt{y}} x^2\,dx\,dy +$$

$$+ \int^{9}\int^{\sqrt{y}} x^2\,dx\,dy$$

$$\int\int_{y=4 \quad x=y^{\cdot}}$$

$$\int_0^8 \int_{\sqrt[3]{y}}^2 \sqrt[6]{1+x^4}\, dx\, dy$$



$$\int_0^2 \int_0^{x^3} \sqrt[6]{1+x^4}\, dy\, dx =$$

$$= \int_0^2 \left[\sqrt[6]{1+x^4}\, y\right]_0^{x^3} dx =$$

$$\left[\frac{(1+x^4)^{\frac{7}{6}}}{\frac{7}{6}\cdot 4}\right]_0^2 = \ldots$$