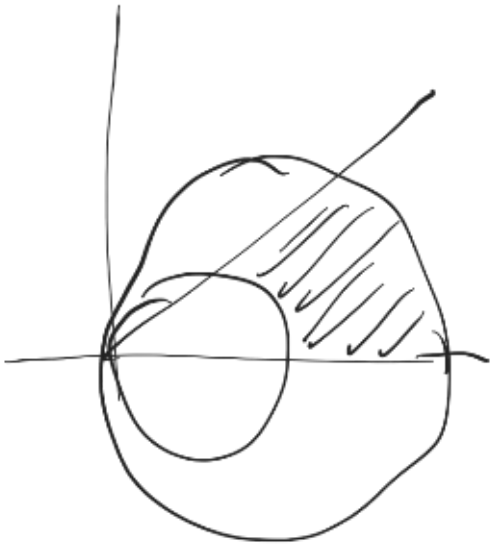
valahanyadik gyak

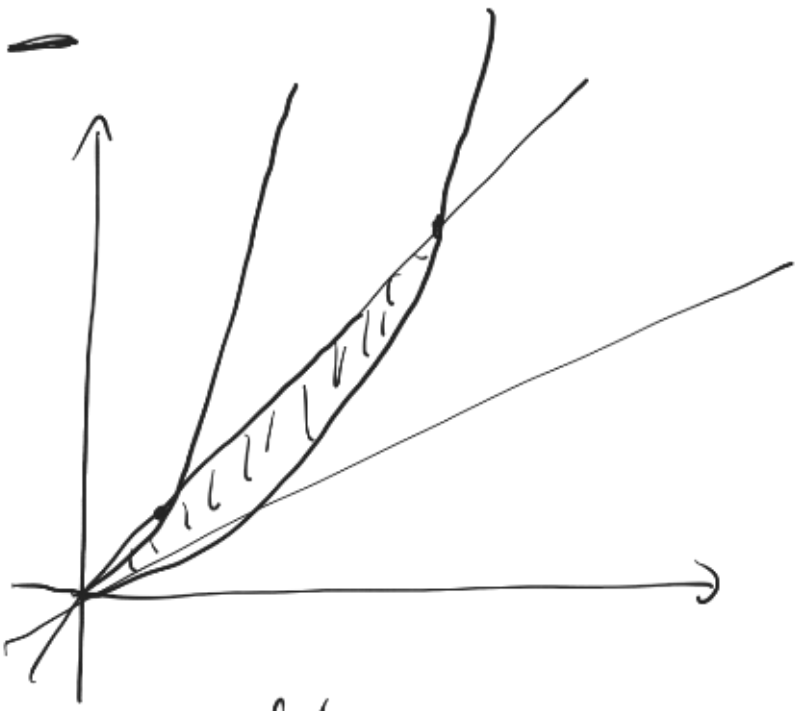
$$\iint_T 1 \, dT = \int_{\varphi=0}^{\frac{\pi}{4}} \int_{r=4\cos\varphi}^{8\cos\varphi} r \, dr \, d\varphi$$



$$\int_{\varphi=0}^{\frac{\pi}{4}} \overbrace{\left[\frac{r^2}{2}\right]_{4\cos\varphi}^{8\cos\varphi}} d\varphi =$$

$$= \int_0^{\frac{\pi}{4}} 24\cos^2\varphi \, d\varphi =$$

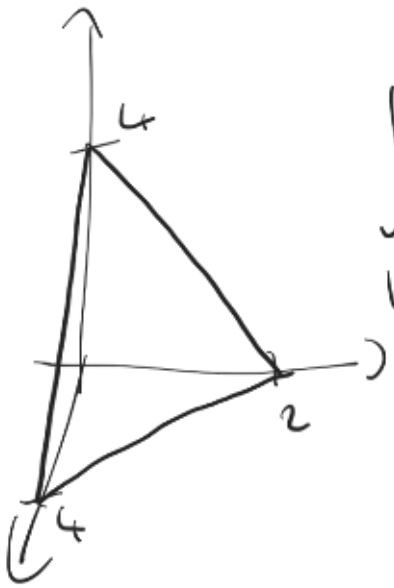
$$\left[12\varphi + 6\cdot\sin 2\varphi\right]_0^{\frac{\pi}{4}} = 3\pi + 6$$



$$\iint 1 \, dT -$$

T

$$\iiint_V z\,dV = \int_{x=0}^{2}\int_{y=0}^{3}\int_{z=0}^{4} z\,dz\,dy\,dx = 48$$



$$\iiint_V z\,dV = \int_{x=0}^{4}\int_{y=0}^{2-\frac{x}{2}}\int_{z=0}^{4-x-2y} z\,dz\,dy\,dx$$

$$\iiint_V 1\,dV = \int_{r=0}^{3}\int_{\varphi=0}^{2\pi}\int_{z=0}^{4-r\cos\varphi} r\,dz\,d\varphi\,dr =$$

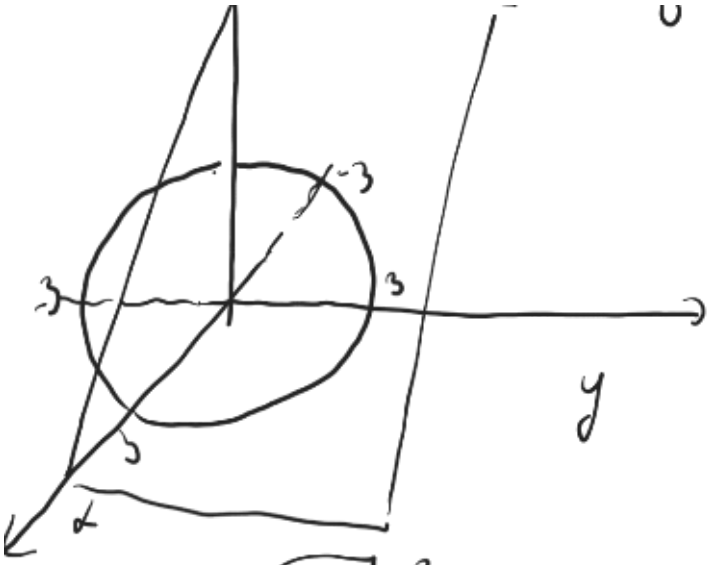
$x^2+y^2=9$

$z\geq 0$

$x+z=4$

$$= \int_0^3\int_0^{2\pi} 4r - r^2\cos\varphi\,d\varphi\,dr =$$

$$= \int_0^3 8\pi\,dr = \left[4r^2\pi\right]_0^3 = 36\pi$$



$$V = \int_{x=0}^{5} \int_{y=0}^{\sqrt{25-x^2}} \int_{z=0}^{3} 1 \, dz \, dy \, dx = \iint_{0}^{\sqrt{\quad}} 3 \, dy \, dx =$$

vegyes határ

$$= \int_{0}^{5} 3\sqrt{25-x^2} \, dx$$

hengeres a vége

$$\int_{x=0}^{5} \int_{\rho=0}^{\frac{\pi}{2}} \int_{z=0}^{3} r \, dz \, d\rho \, dx = \frac{3 \cdot 5^2 \pi}{4} = \frac{75}{4}\pi$$