1) $\iint_G x\,dx\,dy$

$G = \{y = e^x, y = e, x = 0\}$

$y = e^x$

x	0	1
y	1	e

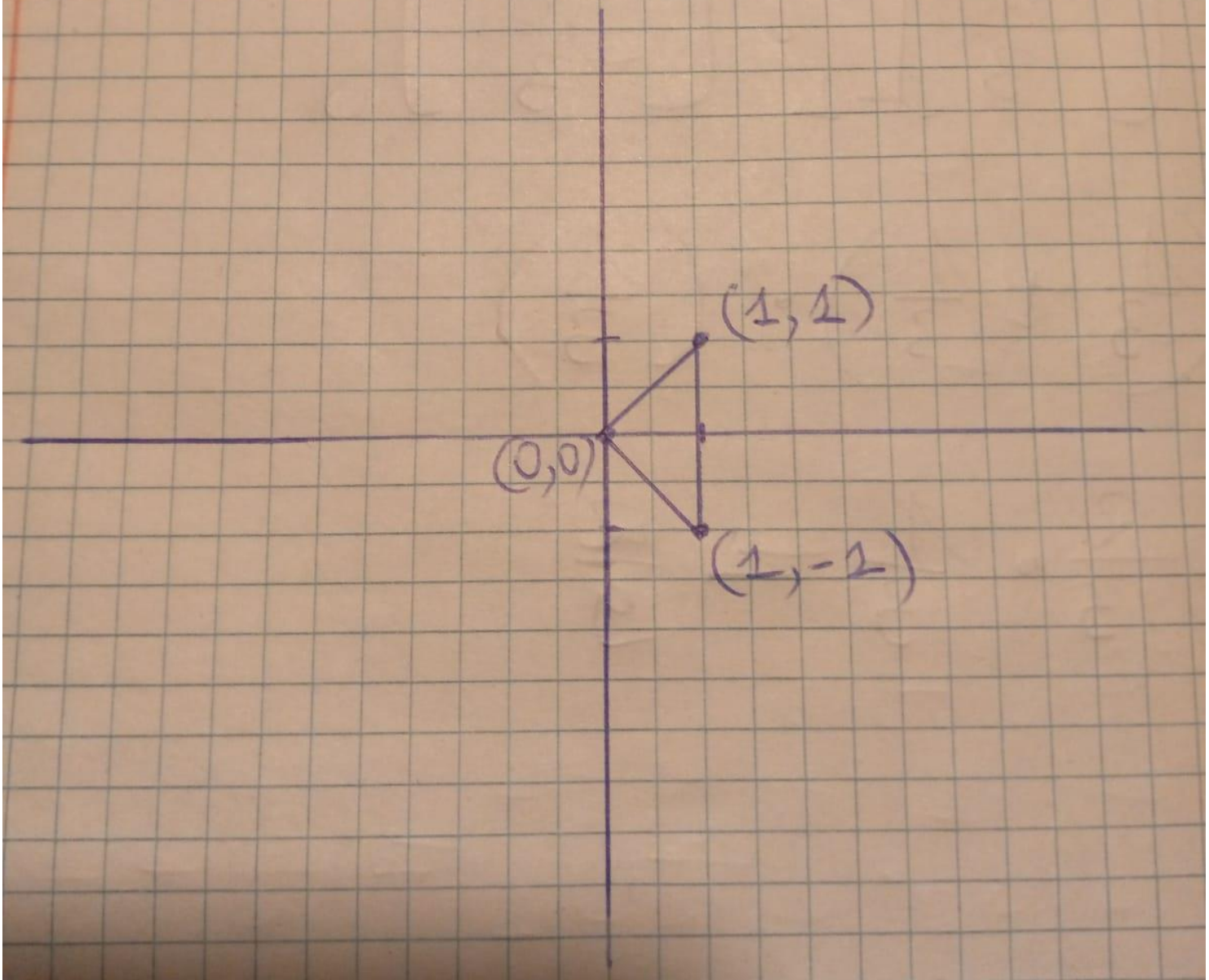
$$\int_0^1 \int_1^e x\,dx\,dy$$

$$\int_0^1 dy \int_1^e x\,dx$$

$$[y]_0^1 \cdot \left[\frac{x^2}{2}\right]_1^e = \frac{e^2}{2} - \frac{1}{2}$$

3) $\iint_T x^2 + y^2 \, dx \, dy$

$(1,1)$; $(0,0)$; $(1,-1)$



$$\int_{-1}^{1}\int_{0}^{1} x^2+y^2\,dx\,dy$$

$$\int_{-1}^{1} y^2\,dy \int_{0}^{1} x^2\,dx$$

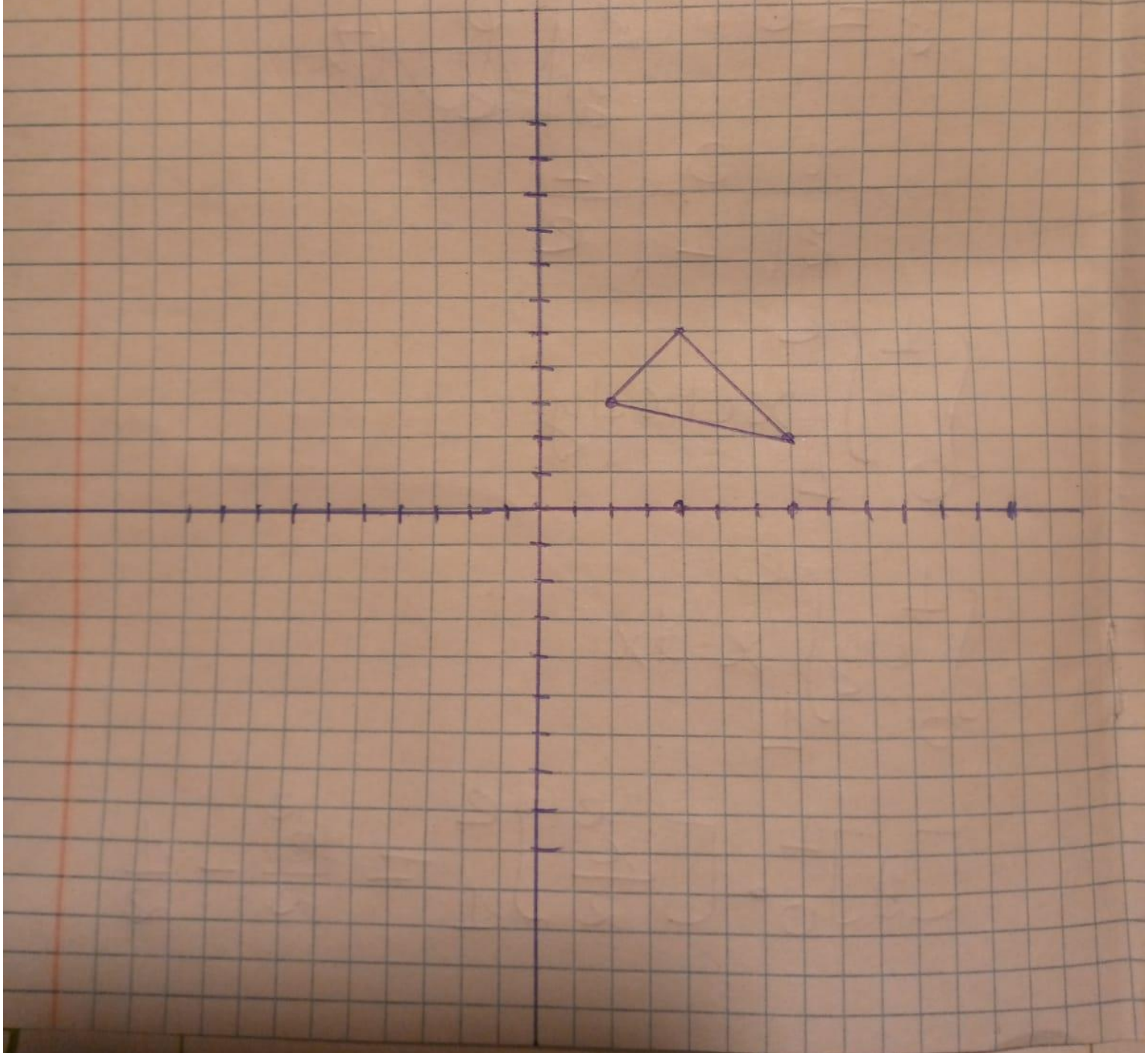
$$\left[\frac{y^3}{3}\right]_{-1}^{1} \cdot \left[\frac{x^3}{3}\right]_{0}^{1}$$

$$= \left(\frac{1}{3}+\frac{1}{3}\right)\cdot\left(\frac{1}{3}\right)$$

$$= \frac{2}{3}\cdot\frac{1}{3} = \frac{2}{9}$$

4) $\iint_T x\,dx\,dy$

(2, 3) ; (7, 2) ; (4, 5)



$$\int_2^7 \int_2^3 x \, dx \, dy$$

$$\int_2^7 dy \int_2^3 x \, dx$$

$$= [y]_2^7 \cdot \left[\frac{x^2}{2}\right]_2^3$$

$$= 5\left(\frac{9}{2} - 2\right) = \frac{25}{2}$$