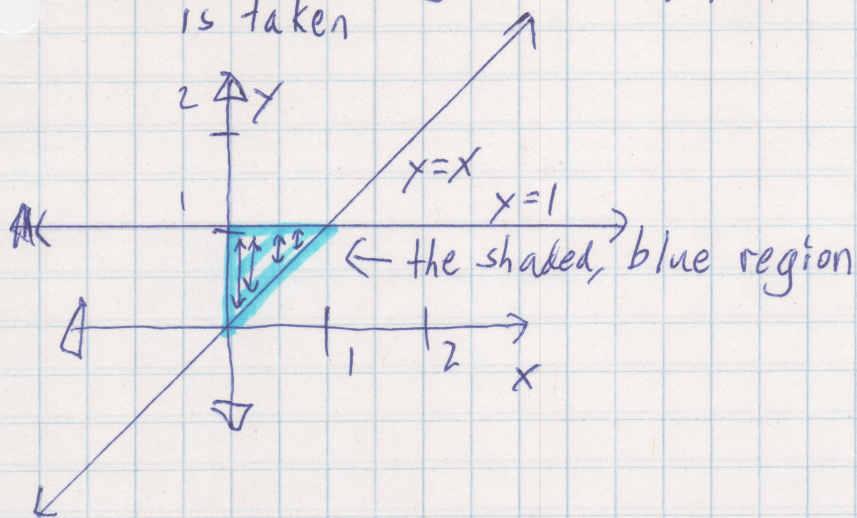
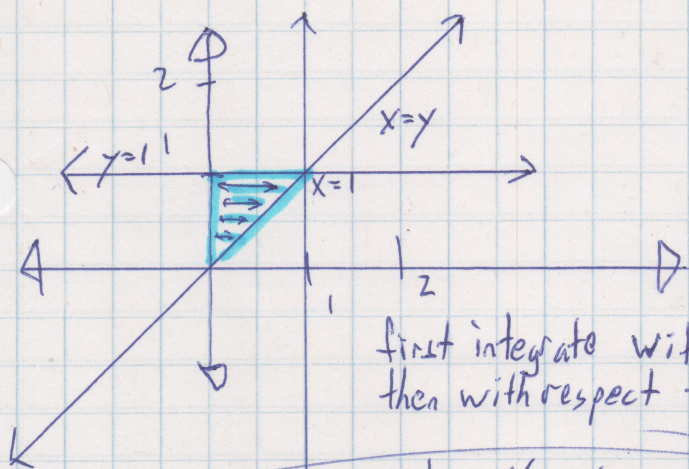


6 Given the integral $\int_0^1 \int_x^1 e^{x/y} dy dx$,

a) sketch the region of the xy -plane where the integral is taken



b) switch the order of integration



first integrate with respect to x from $x=0$ to $x=y$,
then with respect to y from $y=0$ to $y=1$

$$\int_0^1 \int_0^y e^{x/y} dx dy$$

c) compute the double integral

$$\begin{aligned} \int_0^1 \int_0^y e^{x/y} dx dy &= \int_0^1 ye^{x/y} \Big|_0^y dy = \int_0^1 ye^{1} - ye^0 dy \\ &= \int_0^1 (e-1)y dy = (e-1) \frac{y^2}{2} \Big|_0^1 = \frac{(e-1)}{2} - 0 \end{aligned}$$

$$\text{or } \frac{(e-1)}{2}$$