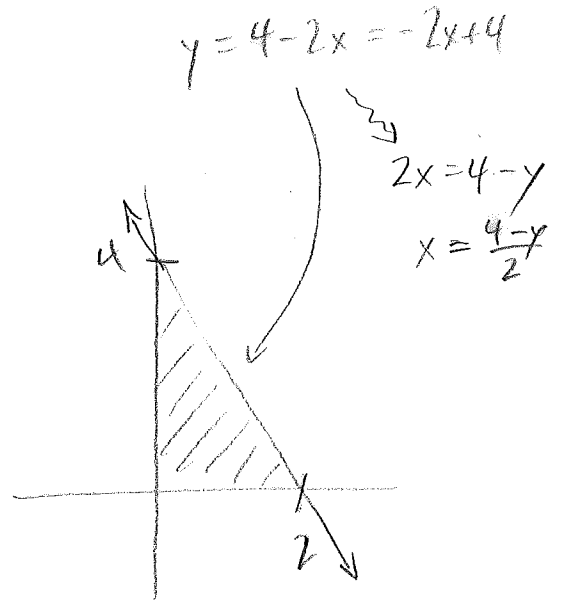
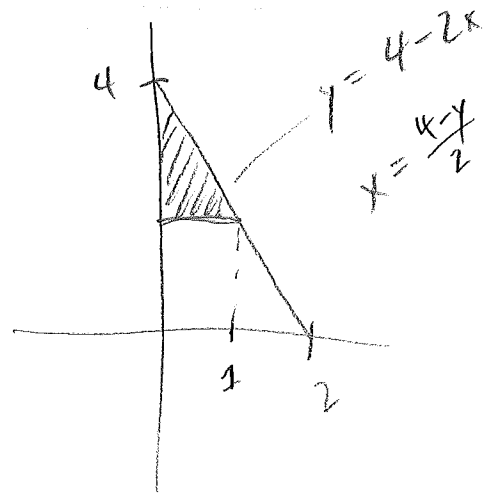


$$\begin{aligned} \textcircled{1} \text{(a)} \int_0^2 \int_0^{4-2x} dy dx &= \int_0^2 [y]_0^{4-2x} dx \\ &= \int_0^2 (4-2x) dx \\ &= [4x - x^2]_0^2 \\ &= 8 - 4 \\ &= 4 \end{aligned}$$



$$\begin{aligned} \int_0^4 \int_0^{\frac{4-y}{2}} dx dy &= \int_0^4 [x]_0^{\frac{4-y}{2}} dy \\ &= \int_0^4 \frac{4-y}{2} dy \\ &= \frac{1}{2} \int_0^4 (4-y) dy \\ &= \frac{1}{2} [4y - \frac{1}{2}y^2]_0^4 \\ &= \frac{1}{2} [16 - 8] \\ &= 4 \end{aligned}$$

$$\begin{aligned} \textcircled{1}(b) \int_0^1 \int_2^{4-2x} dy dx &= \int_0^1 [y]_2^{4-2x} dx \\ &= \int_0^1 [(4-2x)-2] dx \\ &= \int_0^1 (2-2x) dx \\ &= [2x-x^2]_0^1 \\ &= 1 \end{aligned}$$



$$\begin{aligned} \int_2^4 \int_0^{\frac{4-y}{2}} dx dy &= \int_2^4 [x]_0^{\frac{4-y}{2}} dy \\ &= \frac{1}{2} \int_2^4 (4-y) dy \\ &= \frac{1}{2} \left[ 4y - \frac{1}{2}y^2 \right]_2^4 \\ &= \frac{1}{2} [(16-8) - (8-2)] \\ &= \frac{1}{2}(2) \\ &= 1 \end{aligned}$$

(1) (c)  $\int_0^1 \int_x^{\sqrt{x}} dx dy$  This integral is not correct, and can't be done as given. My mistake!

$$\begin{aligned} (2) (a) \int_1^8 \int_0^2 x^2 y dy dx &= \int_1^8 \left[ \frac{1}{2} x^2 y^2 \right]_0^2 dx \\ &= \int_1^8 2x^2 dx \\ &= \frac{2}{3} x^3 \Big|_1^8 = \frac{1024}{3} - \frac{2}{3} = \frac{1022}{3} \end{aligned}$$

$$(b) \int_1^8 x^2 dx = \frac{1}{3} x^3 \Big|_1^8 = \frac{512}{3} - \frac{1}{3} = \frac{511}{3}$$

$$(c) \int_0^2 y dy = \frac{1}{2} y^2 \Big|_0^2 = 2$$

$$(3) \int_1^8 \int_0^2 x^2 y dy dx = \left( \int_1^8 x^2 dx \right) \left( \int_0^2 y dy \right)$$