Ex. Complementar

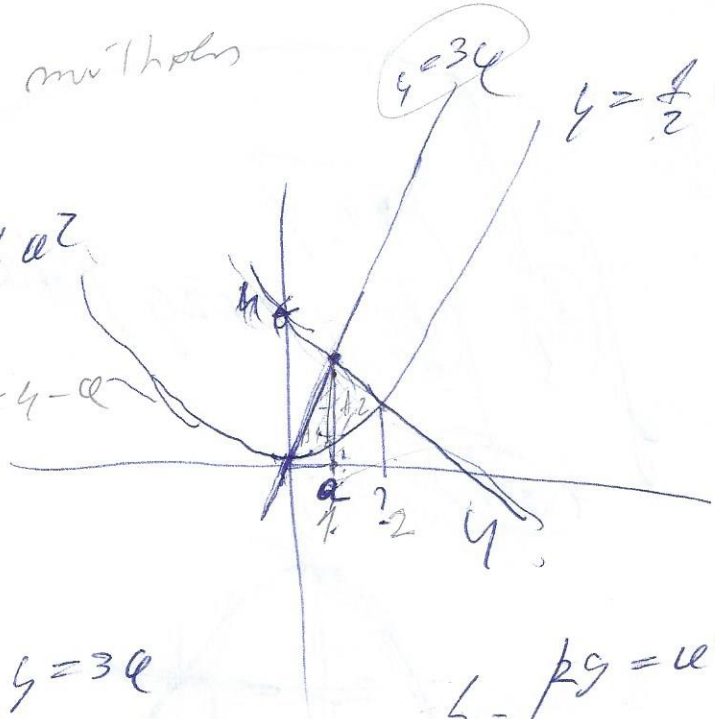
Integrais múltiplos

Ex 5

$2y = x^2 \Rightarrow y = \frac{1}{2}x^2$

$\begin{cases} y = 3x \\ x + y = 4 \Rightarrow y = 4 - x \end{cases}$

$y = -x + 4$



x	y
0	4
4	0

a) $\begin{cases} y = 3x \\ x + y = 4 \end{cases}$

$S = \begin{cases} 2y = x^2 \\ x + y = 4 \end{cases}$

$\begin{cases} x + 3x = 4 \end{cases} \Leftrightarrow$

$\begin{cases} y = 4 - x \end{cases} \Leftrightarrow$

$\begin{cases} x = 1 \\ y = 3 \end{cases} \Rightarrow (1,3)$

$\Leftrightarrow \begin{cases} 2(4-x) = x^2 \\ \dots \end{cases}$

$\int_0^1 dx \int_{\frac{1}{2}x^2}^{3x} 1\,dy + \int_1^2 dx \int_{\frac{1}{2}x^2}^{4-x} 1\,dy$

$\begin{cases} 8 - 2x = x^2 \\ y = 4 - 2 \Rightarrow y = 2 \end{cases}$

$(2,2) \begin{cases} x = 2 \\ y = 2 \end{cases}$

$\int_0^1 \left[y \right]_{\frac{1}{2}x^2}^{3x} dx = \int 3x - \frac{1}{2}x^2$

$\left[\frac{3x^2}{2} - \frac{1}{2}\frac{x^3}{3} \right]_0^1$

$\frac{2+6}{-2} \cdot \frac{8}{-2} = -4$

$\frac{2-6}{-2} = \frac{-4}{-2} = 2$

$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow$