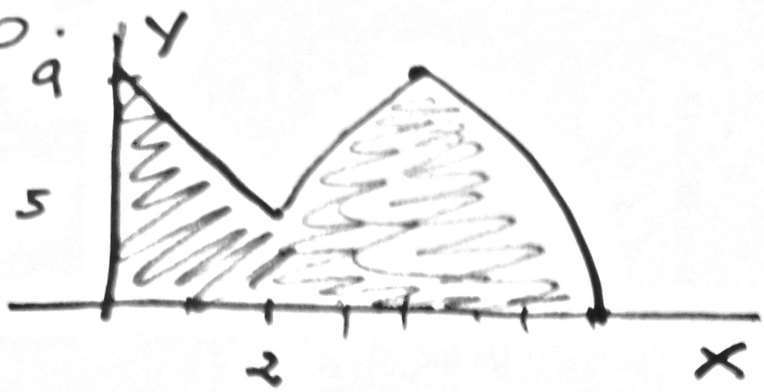
6.



$9-(x^2-8x+16)=9-x^2+8x-16=-x^2+8x-7$

$x_0=\frac{-b}{2a}=\frac{-8}{-2}=4$ $(4,9)$

Vértice

$a=-1<0$

$-x^2+8x-7=0$ $x=1$ $x=7$

$$\text{AREA}=\int_0^2(9-2x)\,dx+\int_2^7(-x^2+8x-7)\,dx=$$

$$=\left[9x-2x^2/2\right]_0^2+\left[-x^3/3+8\frac{x^2}{2}-7x\right]_2^7=$$

$$=14+100/3\ u^2$$

8) $f(x)=x^2+bx+c$

Pasa por $(0,2) \Rightarrow f(0)=2 \Rightarrow c=2$

mínimo $x=1 \Rightarrow f'(1)=0$

$f'(x)=2x+b$

$f'(1)=2+b=0 \quad b=-2$

$f(x)=x^2-2x+2$ $\quad V=(1,1)$ V

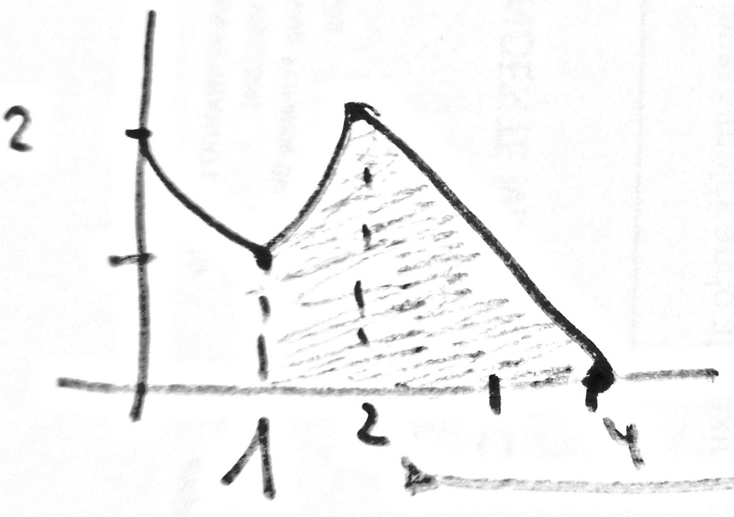
CORTE

$x^2-2x+2=-x+4$

$x^2-x-2=0$

$x=-1$

$\boxed{x=2}$



$$\text{AREA} = \int_1^2 (x^2-2x+2)\,dx + \int_2^4 (-x+4)\,dx$$

9) $f(x) = ax^3 + bx + c$

Min en $(3,0) \Rightarrow f'(3) = 0$

e pasa pol el $f(3) = 0$

e $\int_0^3 (ax^3 + bx + c)\,dx = \frac{27}{4}$

Xa temos as tres condiciõns:

$f(3) = 27a + 3b + c = 0$

$f'(x) = 3ax^2 + b$

$f'(3) = 27a + b = 0$

$\int_0^3 (ax^3 + bx + c)\,dx = \left.\frac{ax^4}{4} + \frac{bx^2}{2} + cx\right]_0^3 =$

$= \frac{81a}{4} + 9b + 3c - 0 = \frac{27}{4}.$

$$\begin{cases} 27a + b = 0 \\ 27a + 3b + c = 0 \\ \frac{81a}{4} + 9b + 3c = \frac{27}{4} \end{cases}$$

Resolver