

Problema 4.9

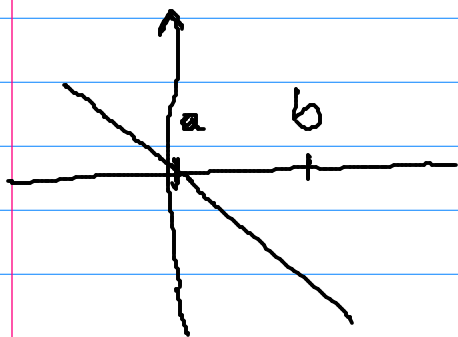
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Ejercicio 1

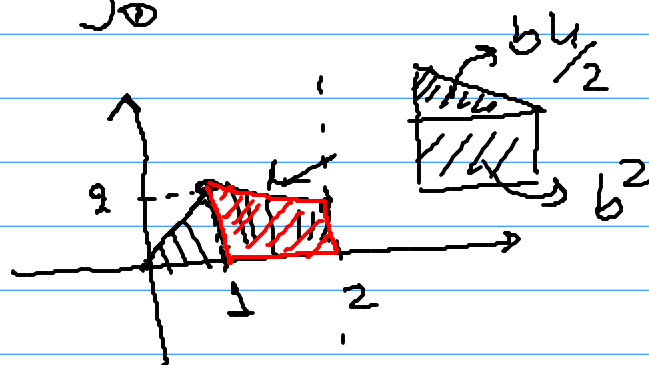
Sea $f: [0, 2] \rightarrow \mathbb{R}$, con $f(x) = \begin{cases} x & ; x \in [0, 1] \\ -x + \frac{9}{4} & ; x \in [1, 2] \end{cases}$

a) Graficar $f(x)$ ✓

b) Calcular $\int_1^2 f(x) dx$; $\int_0^2 f(x) dx$



$a > b$



$$\int_0^2 f(x) dx =$$

$$\int_1^2 f(x) dx = A_{\Delta}$$

Ejercicio 2

$$g: [0, 4] \rightarrow \mathbb{R}$$

$$g(x) = \begin{cases} -x & x \in [0, 2] \\ x-4 & x \in [2, 4] \end{cases}$$

$$\int_0^4 f(x) dx = ?$$

Ejercicio 3

$$h: [0, 3] \rightarrow \mathbb{R}$$

$$h(x) = \begin{cases} -x & ; x \in [0, 1] \\ x-2 & ; x \in [1, 3] \end{cases}$$

$$\int_0^3 f(x) dx = ?$$

Ejercicio 4

$$f(x) = \begin{cases} -2x+3 & ; x \in [0, 1] \\ -1 & ; x \in [1, 3] \\ x-4 & ; x \in [3, 5] \end{cases}$$

$$\text{Hallar } \int_1^5 f(x) dx = ?$$

$$\int \text{Sen}(x) dx = -\text{Cos}(x) + K$$

$$\frac{d}{dx} (-\text{Cos}(x) + K) = \text{Sen}(x)$$

Ejercicio 5

$$m(b-a) \leq \int_a^b f(x) dx \leq M(b-a)$$

$m = \min$ de f en $[a, b]$

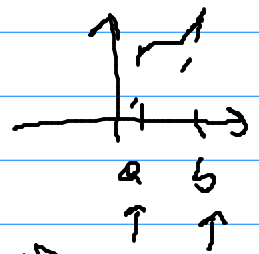
$M = \max$ de f en $[a, b]$

$$b > a$$

Demostrar:

a) Como $f(x) \geq 0$ en $[a, b] \Rightarrow$

$$\int_a^b f(x) dx \geq 0$$



Demostrar:

b) Como $f(x) \leq 0$ en $[a, b] \Rightarrow$

$$\int_a^b f(x) dx \leq 0$$