

$$\int_0^3 f(t) dt = \int_0^1 f(t) dt + \int_1^3 f(t) dt = 5$$

b × h

1 × 1

1

2 × 2

4

# Ejercicio 1 (a)

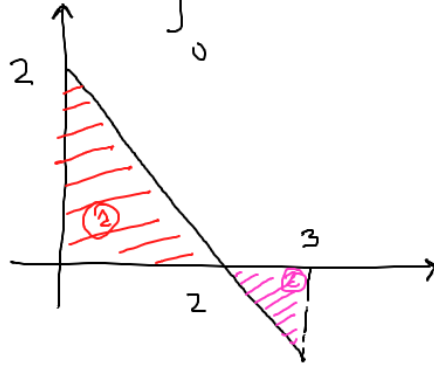
$$f(x) = 2 - x$$

$[0, 3]$

Variante de la parte a

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

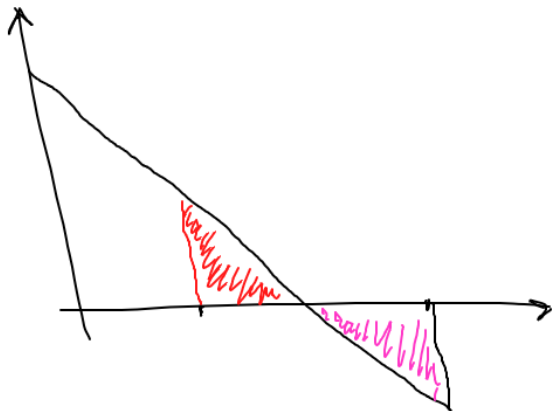
$$= \text{area 1} - \text{area 2} = \frac{2 \times 2}{2} - \frac{1 \times 1}{2} = 2 - \frac{1}{2} = \frac{3}{2}$$



area del triangulo  $\frac{b \times h}{2}$

a

[1,3]



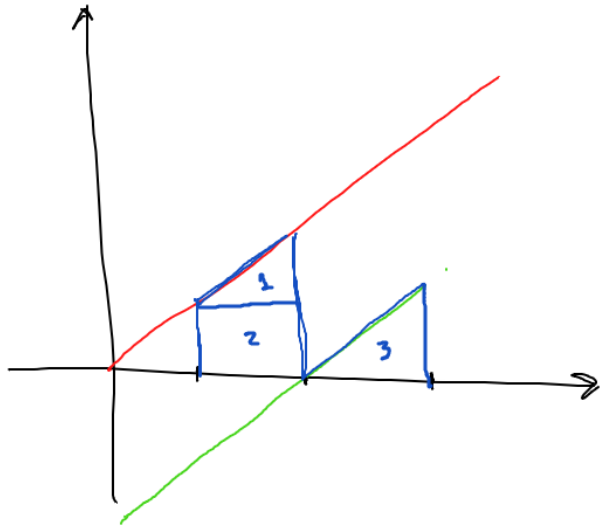
$$\int_1^3 f(x) dx = \underbrace{\int_1^2 f(x) dx}_{\frac{1}{2}} + \underbrace{\int_2^3 f(x) dx}_{-\frac{1}{2}} = 0$$

(d)

$f(x)$

$$= \begin{cases} x & \text{si } 1 \leq x < 2 \\ x-2 & \text{si } 2 < x \leq 3 \end{cases}$$

$$\begin{cases} x & \text{si } 1 \leq x < 2 \\ x-2 & \text{si } 2 < x \leq 3 \end{cases}$$



$$1 \quad \frac{1 \cdot 1}{2} = \frac{1}{2}$$

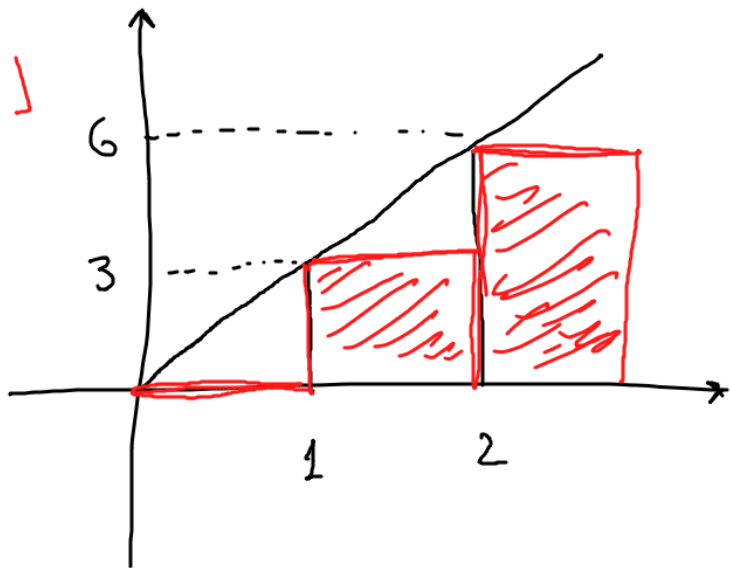
$$2 \quad 1 \cdot 1 = 1$$

$$3 \quad \frac{1 \cdot 1}{2} = \frac{1}{2}$$

$$\int_1^3 f(x) dx = \textcircled{1} + \textcircled{2} + \textcircled{3} = \frac{1}{2} + 1 + \frac{1}{2} = 2$$

$$\textcircled{f} f(x) = 3Lx$$

$Lx$



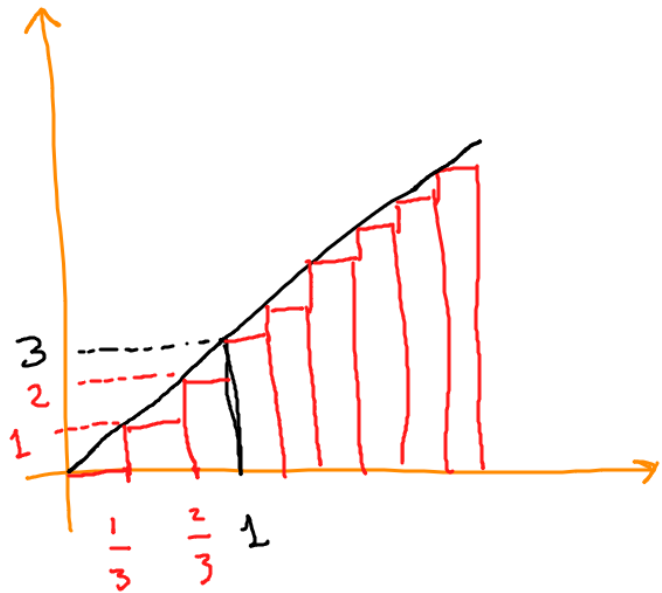
$$\int_1^3 f(x) dx = \underset{\text{"}}{\text{cuadrado}} + \underset{\text{"}}{\text{rectangulo}} = 9$$

3                      6

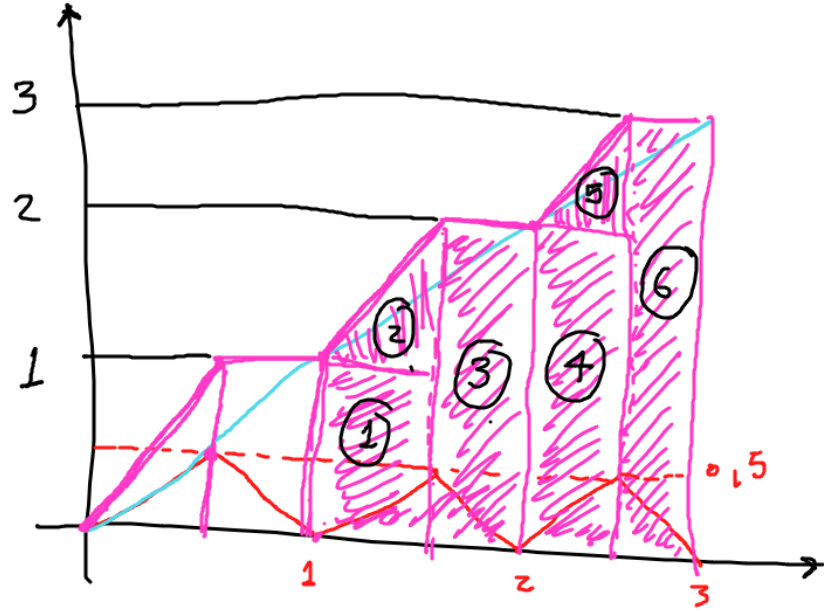
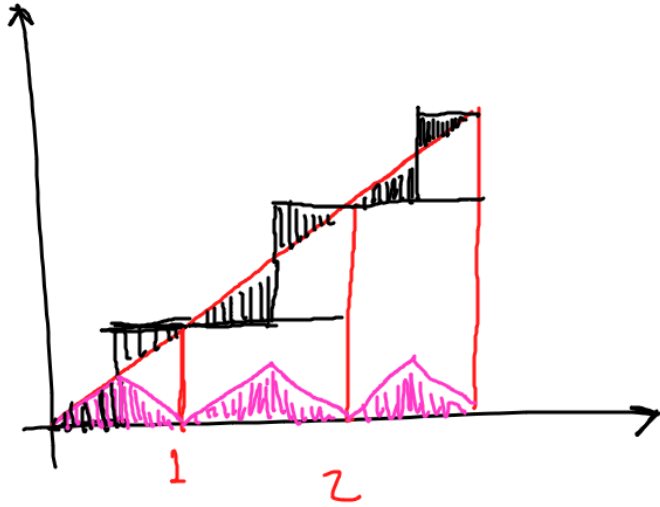
Variación parte anterior

$$f(x) = \lfloor 3x \rfloor$$

$$\int_0^3 3 \lfloor x \rfloor dx < \int_0^3 \lfloor 3x \rfloor dx$$



①  $f(x) = x + [x]$



$$\begin{aligned} & \textcircled{1} \quad \frac{1}{2} \cdot 1 + \textcircled{2} \quad \left(\frac{1}{2} \cdot 1\right) \cdot \frac{1}{2} + \textcircled{3} \quad 2 \cdot \frac{1}{2} + \textcircled{4} \quad 2 \cdot \frac{1}{2} + \textcircled{5} \quad \left(\frac{1}{2} \cdot 1\right) \cdot \frac{1}{2} + \textcircled{6} \quad \frac{1}{2} \cdot 3 \end{aligned}$$

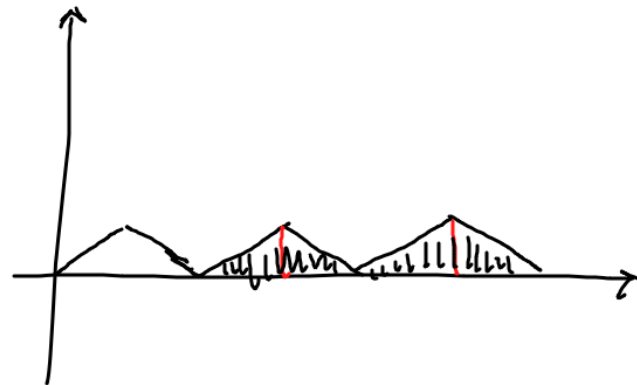
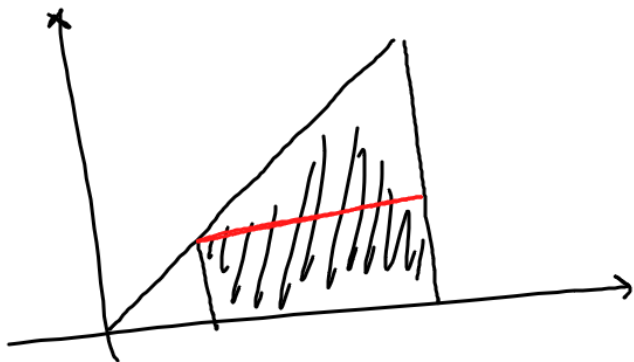
$$\int_1^3 f(x) dx = \frac{1}{2} + \frac{1}{4} + 1 + 1 + \frac{1}{4} + \frac{3}{2} = 3 + \frac{3}{2} = \frac{9}{2}$$



$$f(x) = x$$

$$g(x) = x + [x]$$

$$f(x) = [x]$$



$$\int_1^3 f(x) dx = 2 + \frac{2 \cdot 2}{2} = 4$$

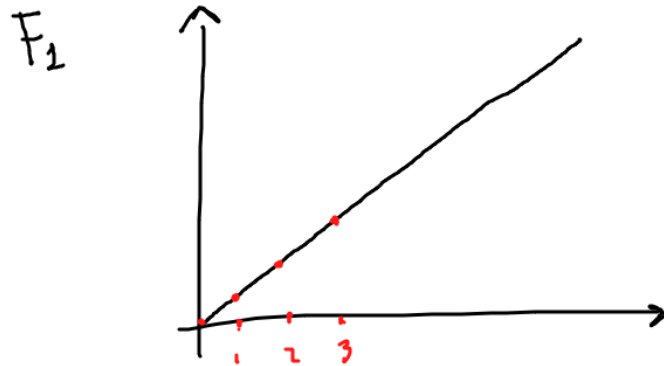
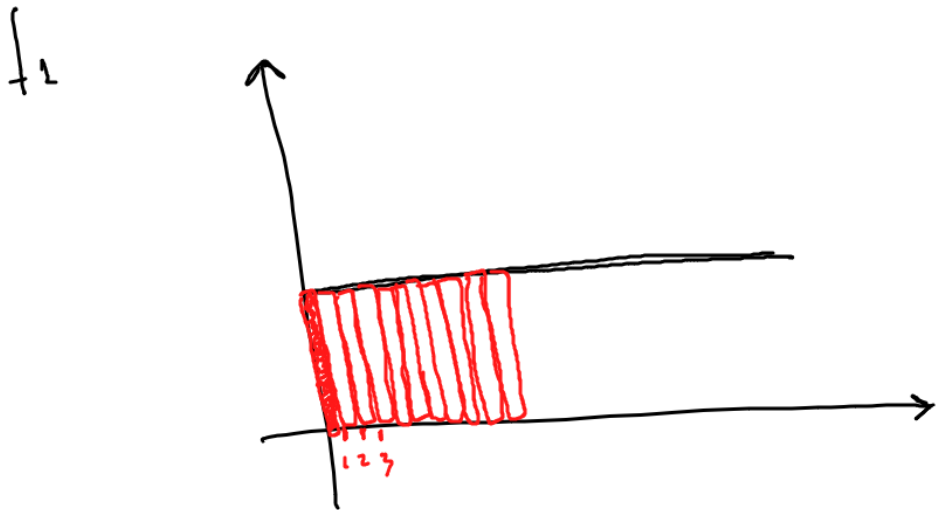
$$\Rightarrow \int_1^3 g(x) dx = 4 + \frac{1}{2} = \frac{9}{2}$$

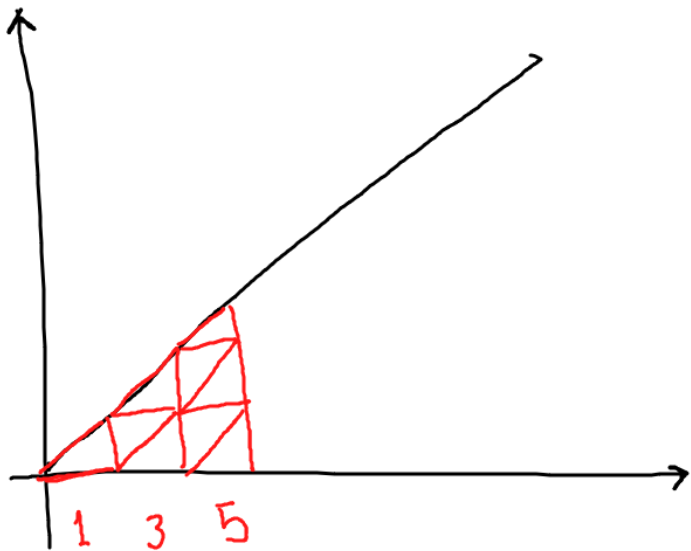
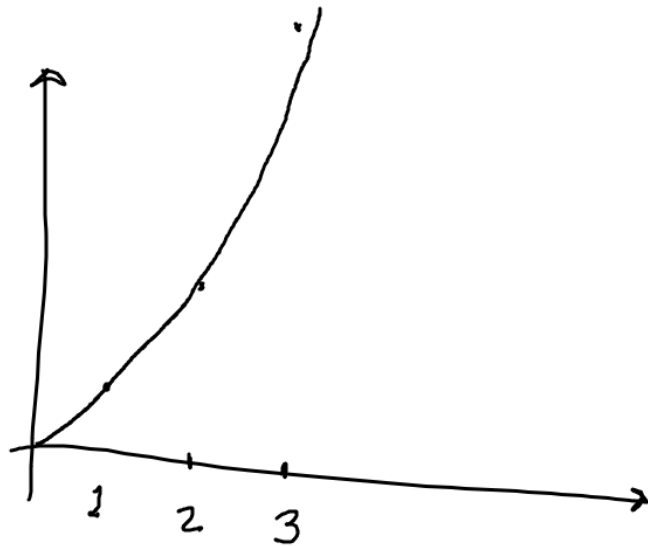
$$\int_1^3 f(x) dx = \left( \frac{1}{2} \cdot \frac{1}{2} \right) \frac{1}{2} \cdot 4 = \frac{1}{2}$$



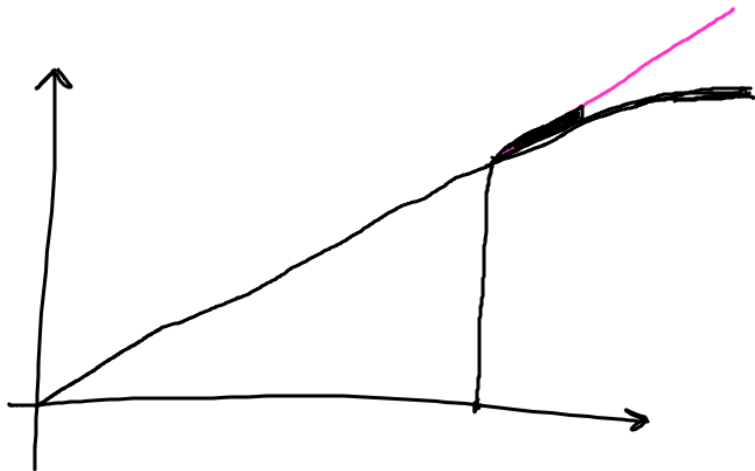
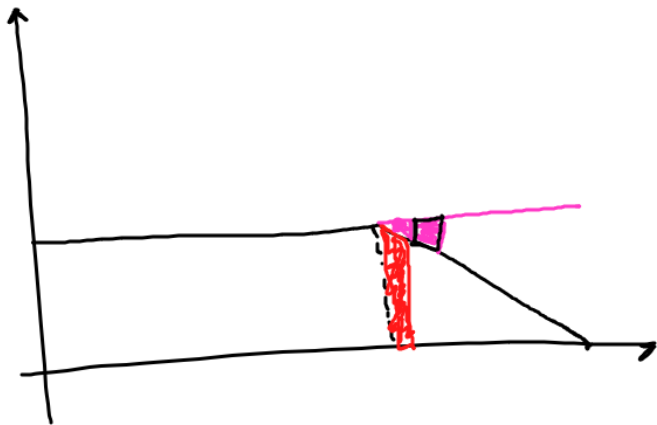
# Ejercicio 5

$$F_i(x) = \int_0^x f_i(t) dt$$



$f_2$  $F_2$ 

f5



# Ejercicio 6

$$f_1(t) = \max\{t, 2-t\} = \begin{cases} t & \text{si } t \geq 1 \\ 2-t & t < 1 \end{cases} \quad F_1(x) = \begin{cases} \frac{x^2}{2} \end{cases}$$

