

2) Calcul d'aire:

L'aire du domaine plan limité par $x=a$, $x=b$, $f(x)$, $y=...$

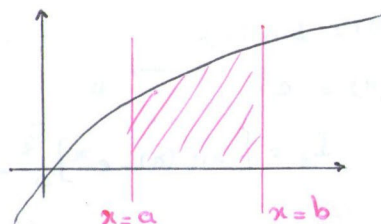
$$A = \int_a^b |f(x) - y| dx \quad (\text{u.a}) \quad \text{avec u.a} = (\text{cm})^2$$

les x
les y

Les Cas Possibles:

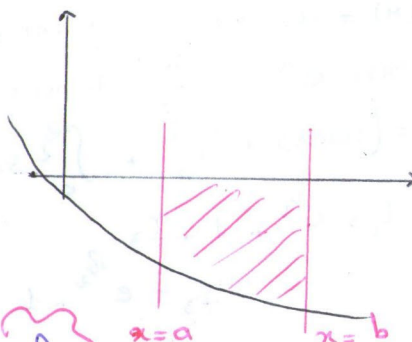
1^{er} Cas:

$$A = \int_a^b |f(x)| dx = \int_a^b f(x) dx$$



2^{ème} Cas:

$$A = - \int_a^b f(x) dx$$

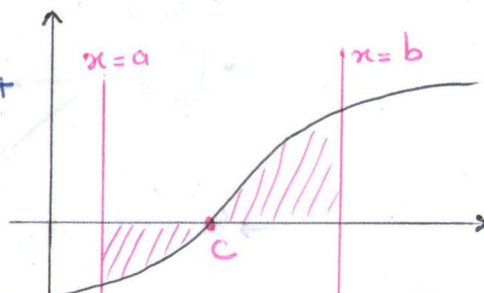


3^{ème} Cas:

Relation de Chasle

$$\int_a^b f = \int_a^c f + \int_c^b f$$

$$A = \int_a^b |f(x)| dx = - \int_a^c f(x) dx + \int_c^b f(x) dx$$

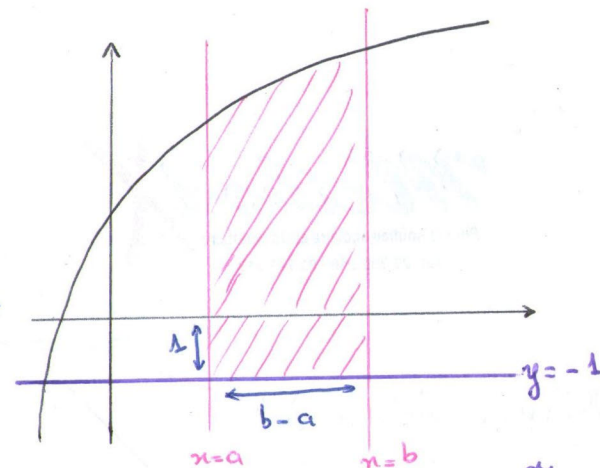


4^{ème} Cas:

$$A = \int_a^b |f(x) + 1| dx$$

$$= - (b-a) \times 1 + \int_a^b f(x) dx$$

rectangle.



5^{ème} Cas:

$$A = \int_a^b |f(x) - f^{-1}(x)| dx$$

$$= 2 \int_a^b |f(x) - x| dx$$

$$= 2 \int_a^b (f(x) - x) dx$$

