## **Metodos Computacionales** Taller 4 - Punto 4 19/09/2022

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Sea 
$$\epsilon(x) = \frac{f'''(\xi)}{4!}(x-a)(x-b)(x-\frac{a+b}{2})$$
 entonces: 
$$\int_a^b \epsilon(x)dx = \int_a^b \frac{f'''(\xi)}{4!}(x-a)(x-b)(x-\frac{a+b}{2})dx$$
 
$$\Rightarrow \frac{f'''(\xi)}{4!} \int_a^b (x-a)(x-b)(x-\frac{a+b}{2})dx$$
 
$$\Rightarrow \frac{1}{4}x(-2a(b-x)^2+(b-x)^2x+a^2(-2b+x))$$
 
$$\Rightarrow \frac{1}{4}b(-2a(b-b)^2+(b-b)^2b+a^2(-2b+b))-\frac{1}{4}a(-2a(b-a)^2+(b-a)^2a+a^2(-2b+a))$$
 
$$\Rightarrow \frac{1}{4}a^2b^2-\frac{1}{4}(a(-a(b-a)^2+a^2(-2b+a))$$
 
$$\Rightarrow \frac{1}{4}a^2b^2-\frac{1}{4}a(-ab^2+2a^2b-a^3-2ba^2+a^3)$$
 
$$\Rightarrow \frac{1}{4}a^2b^2-\frac{1}{4}a^2b^2$$