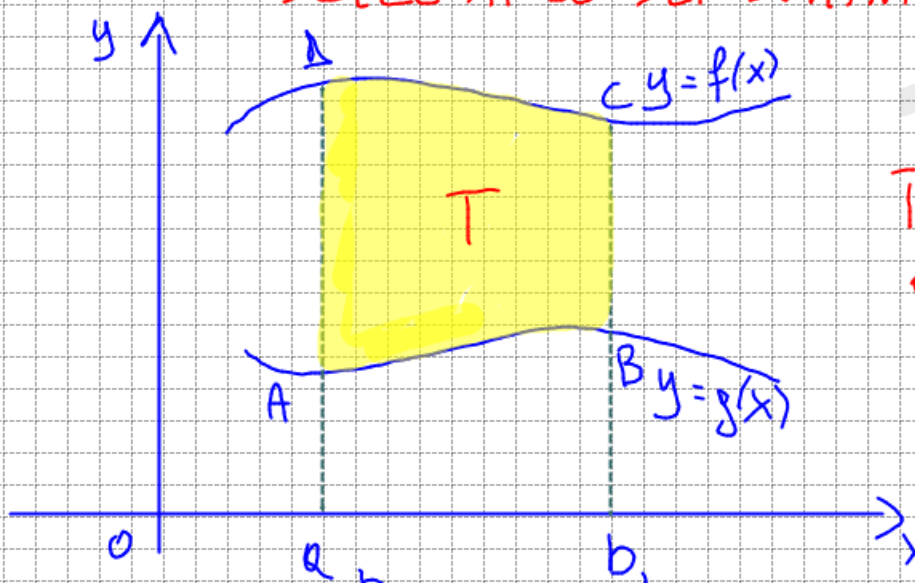
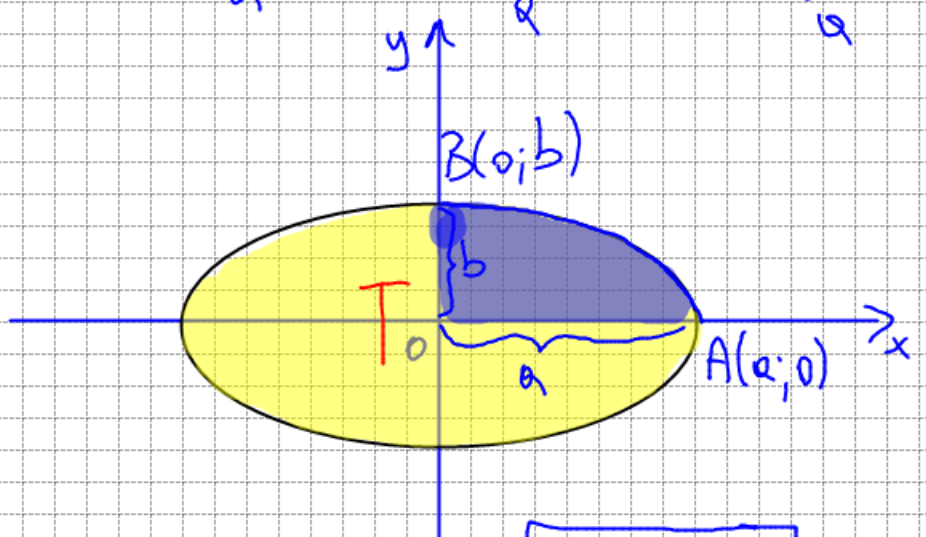
CALCOLO DELLE AREE DEI DOMINI PIANI



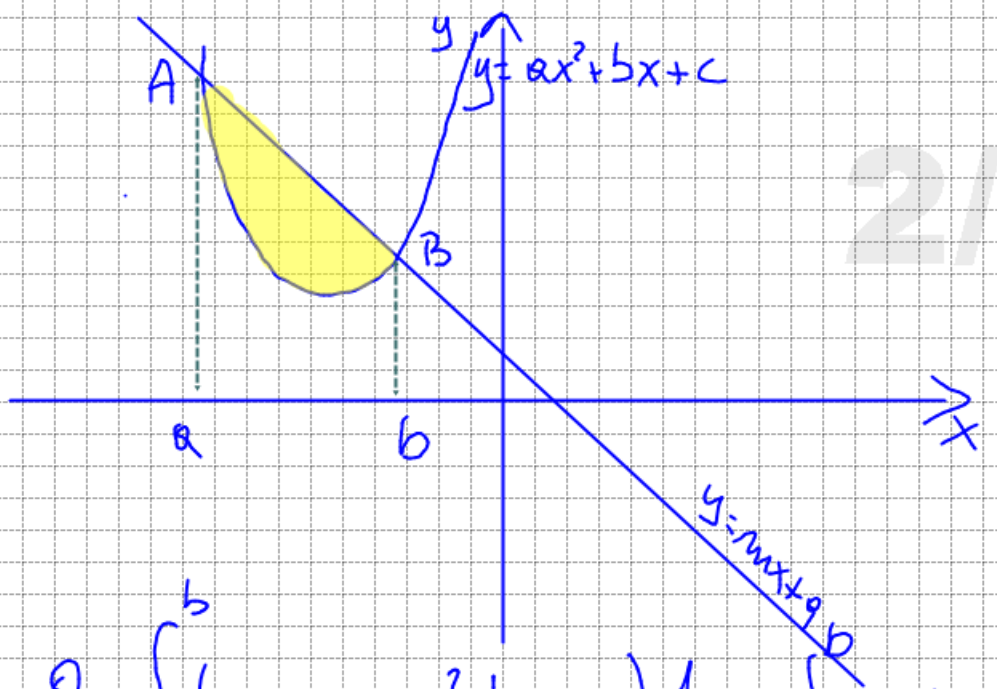
T = area regione di piano delimitata da $x=a$, $x=b$ e $y=f(x)$ $y=g(x)$

$$\mathcal{A}_{ABCD} = \int_a^b f(x)\,dx - \int_a^b g(x)\,dx = \int_a^b \left(f(x)-g(x)\right)dx .$$



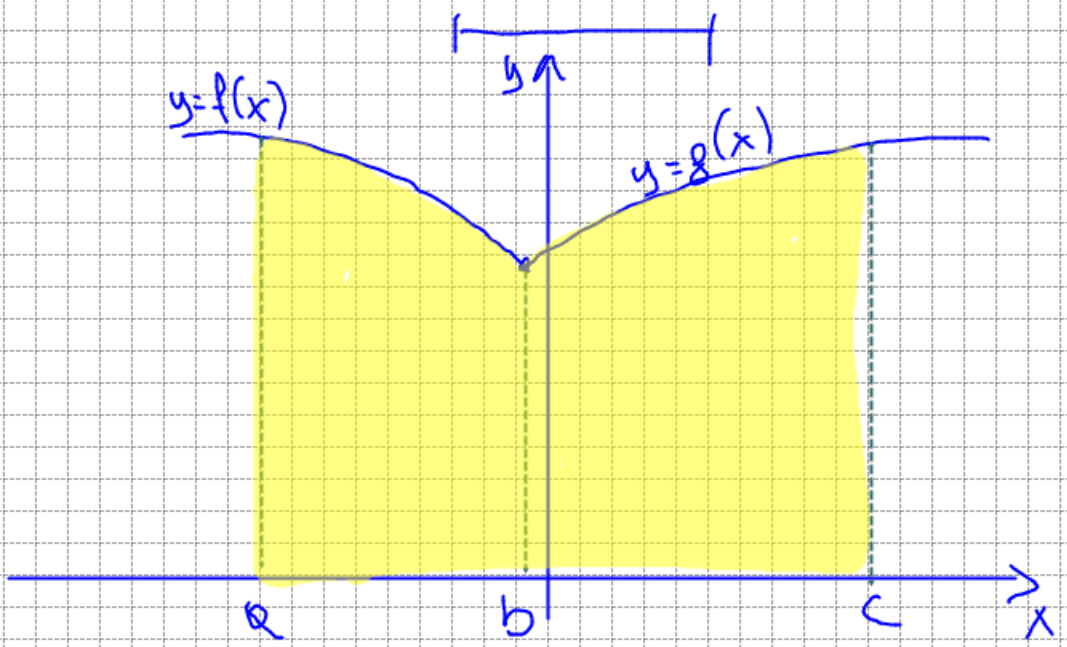
$$\frac{x^2}{a^2}+\frac{y^2}{b^2}=1 \qquad y=\pm\sqrt{\left(1-\frac{x^2}{a^2}\right)b^2} \Rightarrow y=\pm b\sqrt{1-\frac{x^2}{a^2}}$$

$$\mathcal{A}_{\mathcal{E}} = 4\int_0^a b\sqrt{1-\frac{x^2}{a^2}}\,dx = \pi a b$$



$$Q=\int_a^b (mx+q-ax^2-bx-c)\,dx=\int_a^b -ax^2\,dx+\int_a^b (m-b)x\,dx+$$

$$+\int_a^b (q-c)\,dx=\left[-a\frac{x^3}{3}+(m-b)\frac{x^2}{2}+(q-c)x\right]_a^b$$



$$Q=\int_a^b f(x)\,dx+\int_b^c g(x)\,dx.$$