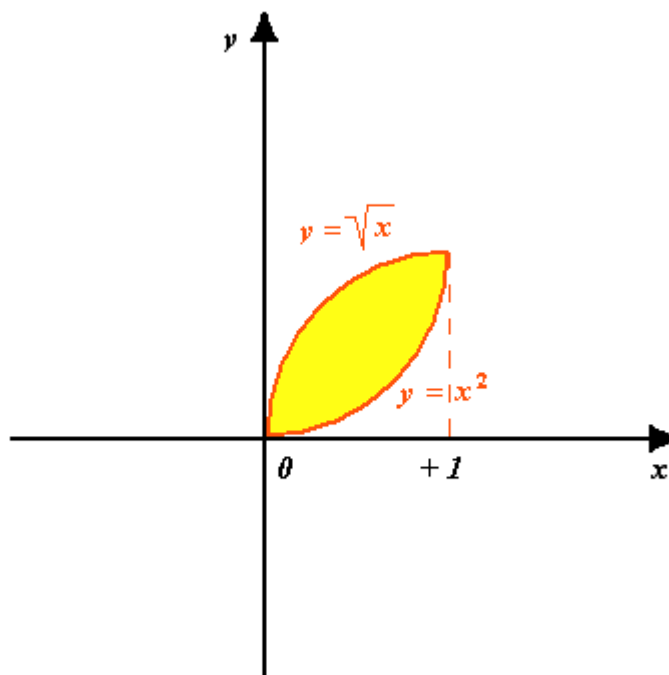


Calcolare l'integrale doppio

$$\iint_D (2y + x^2) dx dy$$

$$\text{con } D = \{ (x, y) \in \mathbb{R}^2 : x^2 \leq y, \quad x \geq y^2 \}$$



Considerando il dominio normale a x si ha :

$$\iint_D (2y + x^2) dx dy = \int_0^1 dx \int_{x^2}^{\sqrt{x}} (2y + x^2) dy = \int_0^1 dx [y^2 + x^2 y]_{x^2}^{\sqrt{x}} = \int_0^1 \left(x + x^{\frac{5}{2}} - x^4 - x^4 \right) dx =$$

$$\int_0^1 \left(x + x^{\frac{5}{2}} - 2x^4 \right) dx = \left[\frac{x^2}{2} + \frac{x^{\frac{7}{2}}}{\frac{7}{2}} - \frac{2}{5} x^5 \right]_0^1 = \frac{27}{70}$$