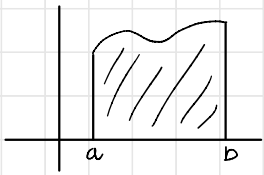
$\int_a^b f(x)\,dx$ = Area

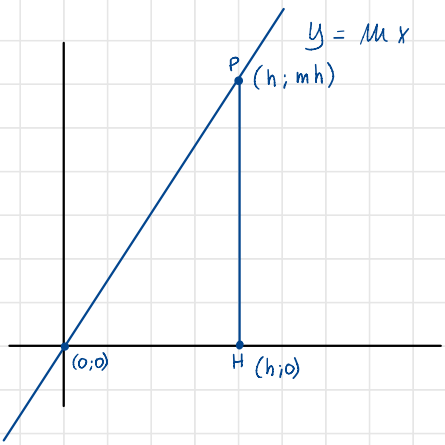
$a < b$

a = estremo inferiore

b = estremo superiore

$\int_a^b f(x)$ = Area trapezoide

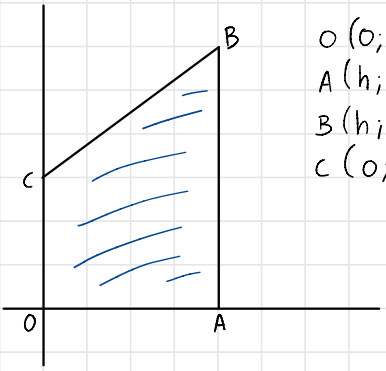




$A(OHP) = \frac{1}{2}\overline{OH}\cdot\overline{PH} = \frac{1}{2}\,h\,mh = \frac{1}{2}\,mh^2$

$$\int_0^h mx\,dx = m\int_0^h x\,dx = m\left[\frac{x^2}{2}\right]_0^h = \frac{1}{2}m\left[x^2\right]_0^h = \frac{1}{2}m\left(h^2-0^2\right) = \frac{1}{2}mh^2$$

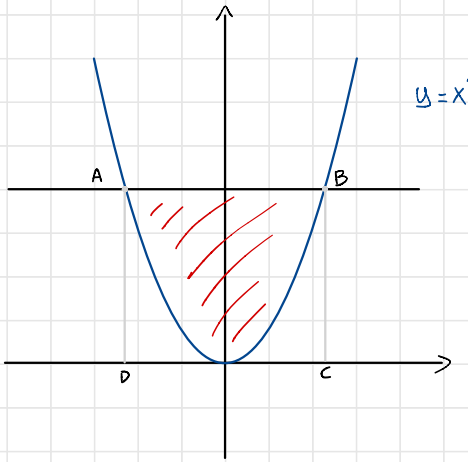
Area TRAPEZIO



O (0;0)
A (h;0)
B (h; mh+q)
C (0;q)

$$A(OABC) = \frac{(q+mh+q)h}{2} = qh + \frac{1}{2}mh^2$$

$$\int_0^h (mx+q)\,dx = \left[m\frac{x^2}{2} + qx\right]_0^h = \frac{mh^2}{2} + qh$$



$y = x^2$

$A = \frac{3}{2} A(\text{rett})$ $A = \text{Arett} - \text{Apar}$

A $(-a; a^2)$
B $(a; a^2)$
C $(a; 0)$
D $(-a; 0)$

$A = \frac{2}{3}(2a \cdot a^2) = \frac{4}{3}a^3$

MANCA

p1973 n°55

$$\int_1^2 \left(x^2 + \frac{1}{x^2}\right) dx = \left[\frac{1}{3}x^3 - \frac{1}{x}\right]_1^2 = F(2) - F(1)$$

$f(x) > 0 \ \forall x \in C.E$

MANCA

n°67 $\int_0^2 \frac{4x}{1+x^2}\, dx \rightarrow \int \frac{1}{f(x)} f'(x) = 2\int \frac{2x}{1+x^2}\, dx = 2\ln(x^2+1) + k$

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

p1973 n°51-56