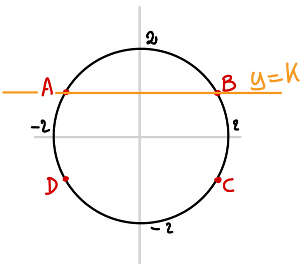
417 p 1754

$x^2+y^2=4$



$y = A(ABCD) \longrightarrow$ devo massimizzare

$-2 \le k \le 2 \longrightarrow$ visto che è SIMMETRICA $\longrightarrow 0 \le k \le 2$

$y = \overline{AB} \cdot \overline{AD}$

$\overline{AD} = 2k$

$A;B \quad \begin{cases} x^2+y^2=4 \\ y=k \end{cases} \qquad x^2+k^2=4 \qquad x^2=4-k^2 \quad x=\pm\sqrt{4-k^2}$

$B\left(\sqrt{4-k^2};\, k\right) \quad A\left(-\sqrt{4-k^2};\, k\right)$

$\overline{AB} = |x_A - x_B| = \left|-\sqrt{4-k^2} - \sqrt{4-k^2}\right| = 2\sqrt{4-k^2}$ $\qquad y = 2\sqrt{4-k^2}\cdot 2k$

$y = 4k\sqrt{4-k^2} \qquad y^* = k\sqrt{4-k^2} \qquad y^{*\prime} = \sqrt{4-k^2} + k \cdot \frac{1(-2k)}{2\sqrt{4-k^2}} = \frac{-2k^2+4}{\sqrt{4-k^2}} = +2\left(\frac{2-k^2}{\sqrt{4-k^2}}\right)$

$y^{*\prime}=0$ (cerco i punti stazionari) $\quad 2-k^2=0 \quad k=\pm\sqrt{2}$

$k=+\sqrt{2}$ (C.E)

$y^{*\prime}>0$

$0 \qquad \sqrt{2}$

$+ \quad | \quad -$

$\nearrow \quad \searrow$

$k=\sqrt{2}$ pt MASSIMA

$\overline{AB} = 2\sqrt{4-k^2} = 2\sqrt{2}$

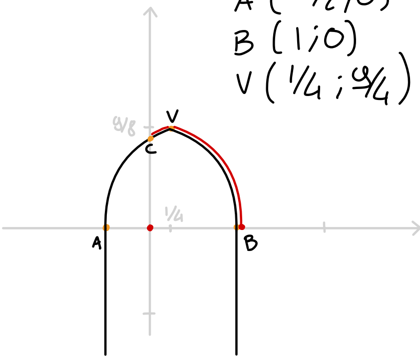
$\overline{CD} = 2k = 2\sqrt{2}$

Rettangolo a maggiore è un QUADRATO

426 p1755

$y = -2x^2+x+1$

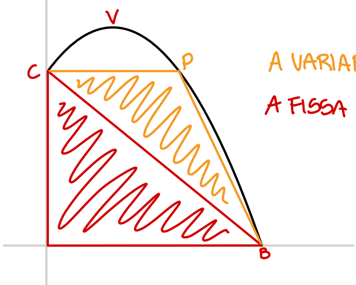
$C(0;1)$
$A(-1/2;0)$
$B(1;0)$
$V(1/4;9/4)$



$P \in \overset{\frown}{CB} \rightarrow$ limitazione ascissa del pto

$P(t; -2t^2+t+1) \quad 0 \le t \le 1$

$y = A(OCPB) \rightarrow$ massimizzazione



A VARIABILE

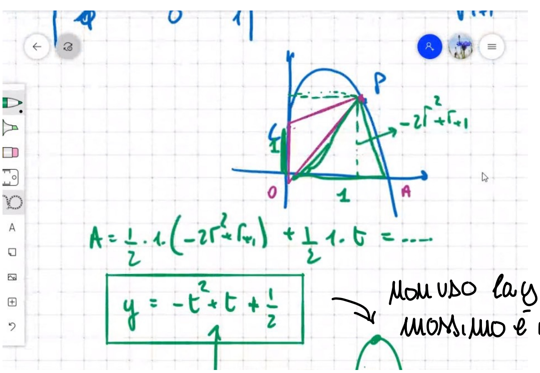
A FISSA

$y = A(OCPB)$

$= A(OCB) + A(PBC) = \frac{1}{2}\begin{vmatrix} x_A & y_A & 1 \\ x_B & y_B & 1 \\ x_C & y_C & 1 \end{vmatrix}$

→ A triangolo generale ($\overset{\triangle}{ABC}$)

manca altro metodo

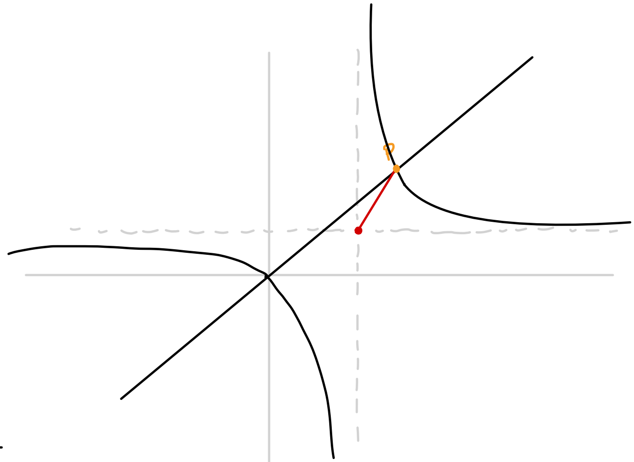


non uso lag', il massimo è il vertice

FINITE

n 456 p 1757

$$y = \frac{x}{x-2} \qquad C(2;1)$$



$$y = mx$$

m / y = $\overline{PC}$ min

$$\begin{cases} y = \dfrac{x}{x-2} \\ y = mx \end{cases}$$

$$mx = \frac{x}{x-2}$$

$$mx(x-2) = x$$

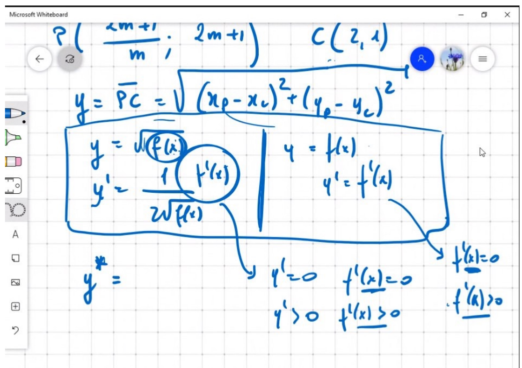
$$x(mx - 2m - 1) = 0 \quad \begin{cases} x = 0 \\ x = \dfrac{2m+1}{m} \end{cases}$$

$$P\left(\frac{2m+1}{m} ; 2m+1\right)$$

$$C(2;1)$$

$$y = \overline{PC} = \sqrt{(x_P - x_C)^2 (y_P - y_C)^2}$$

$$y = \sqrt{f(x)}$$



$$y^* = (x_P - x_C)^2 + (y_P - y_C)^2$$

$$y^* = \frac{1+4m^4}{m^2} \longrightarrow y'^* = \frac{16m^5 - 2m - 8m^5}{m^4} = \frac{16m^4 - 2 - 8m^4}{m^3} = \frac{8m^4-2}{m^3}$$

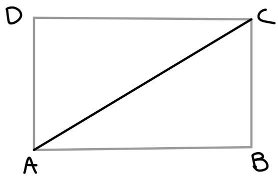
$$y^{*\prime} = 0 \longrightarrow \frac{8m^4-2}{m^3} = 0 \qquad 8m^4 - 2 = 0 \qquad m^4 = \frac{1}{4} \qquad m = \pm\frac{1}{\sqrt{2}}$$

$$y^{*\prime} > 0 \qquad \frac{4m^4-1}{m^3} > 0 \qquad \frac{(2m^2-1)\overbrace{(2m^2+1)}^{\text{sempre}>0}}{m^3} \longrightarrow$$

	$-1/\sqrt{2}$	0	$+1/\sqrt{2}$	
	+	−	−	+
	−	−	+	+
	−	+	−	+
	↘	↗	↘	↗

$$m = -\frac{1}{\sqrt{2}}$$

p 1759 n° 467 (leggere prima quello sotto)



hp $A = a^2$

$y = \overline{AC} \rightarrow$ minima

$$y = \sqrt{(\overline{AB}^2) + (\overline{CB}^2)}$$

$\overline{CB} = x$

$\overline{AB} \cdot \overline{CB} = a^2$

$\overline{CB} = x$

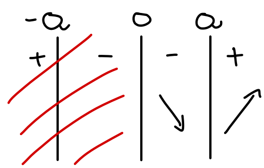
$\overline{AB} = \dfrac{a^2}{x}$

$$y = \sqrt{\frac{a^4}{x^2} + x^2} = \sqrt{\frac{a^4 + x^4}{x^2}}$$

$$y^* = \frac{a^4 + x^4}{x^2} \qquad y^{*\prime} = \frac{2}{x^3}(x^4 - a^4) \qquad y^{*\prime} = 0 \quad x^4 - a^4 = 0 \qquad x = \pm a$$

$y^{*\prime} > 0 \qquad (x^2 - a^2)\underbrace{(x^2 + a^2)}_{\text{sempre} > 0}$

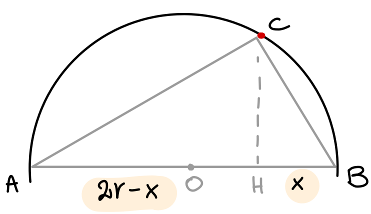
↳ $x < -a \lor x > a$



è una misura, è > 0

$x = a$

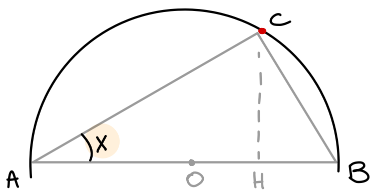
n° 487 p 1761



$y = \overline{CH} + \overline{HB} \rightarrow$ massima

$CH^2 = x(2r-x) \rightarrow$ Euclide

$y = \sqrt{x(2r-x)} + x$



$\overline{CB} = 2r\,\text{sen}\,x$

$\overline{AC} = 2r\cos x$

$\overline{CH} = AC\,\text{sen}\,x = 2r\cos x\,\text{sen}\,x = r\,\text{sen}\,2x$

$\overline{HB} = \overline{CB}\,\text{sen}\,x$

$= 2r\,\text{sen}\,x\,\text{sen}\,x = 2r\,\text{sen}^2 x$

$y = 2x\,\text{sen}^2 x + r\,\text{sen}\,2x$

$\text{sen}\,\frac{\alpha}{2} = \sqrt{\frac{1-\cos x}{2}}$

$\text{sen}\,\alpha = \sqrt{\frac{1-\cos 2x}{2}}$

$$y = 2r\left(\frac{1-\cos 2x}{2}\right) + r\,\text{sen}\,2x$$

$$= r\left(\text{sen}\,2x - \cos 2x + 1\right)$$

$$= r\sqrt{2}\left(\frac{1}{\sqrt{2}}\,\text{sen}\,2x - \frac{1}{\sqrt{2}}\cos 2x\right) + r$$

Angolo aggiunto

$$= r\sqrt{2}\,\text{sen}\left(2x - \pi/4\right) + r$$

$$y' = r\sqrt{2}\cos\left(2x - \frac{\pi}{4}\right)(2)$$

$\hookrightarrow \cos\left(2x - \frac{\pi}{4}\right) = 0$

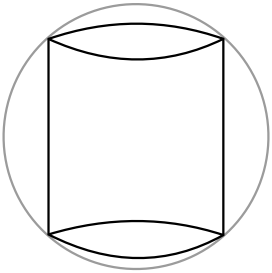
$2x - \frac{\pi}{4} = \frac{\pi}{2}$ $\quad x = \frac{3}{8}\pi$

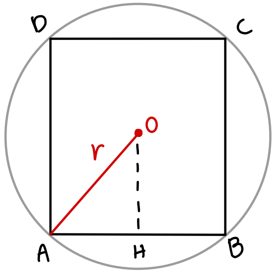
p1762 n°508

↳ da fare

p1764 n°522

ripasso GEOM SOLIDA ottimo

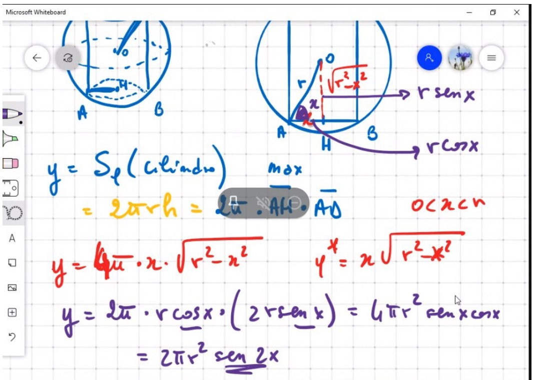




$y = S_p(\text{cilindro}) \to$ massima

$= (2\pi r)h = 2\pi(\overline{AH} \cdot \overline{AD}) \quad 0 < x < r$

$y = 4\pi x\sqrt{r^2 - x^2} \quad y^* =$



FINIRE