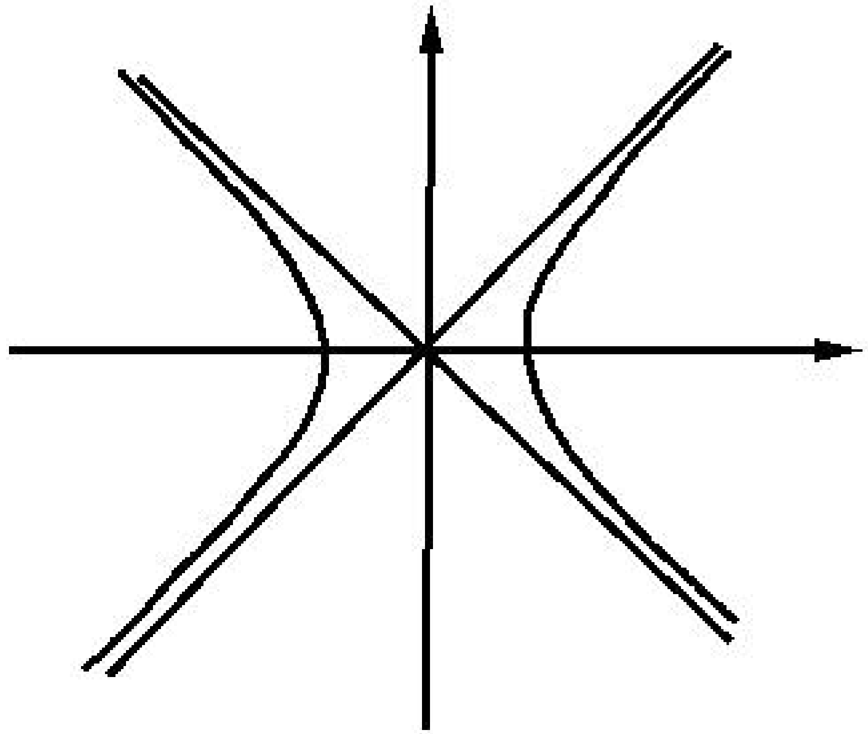


Iperbole equilatera:

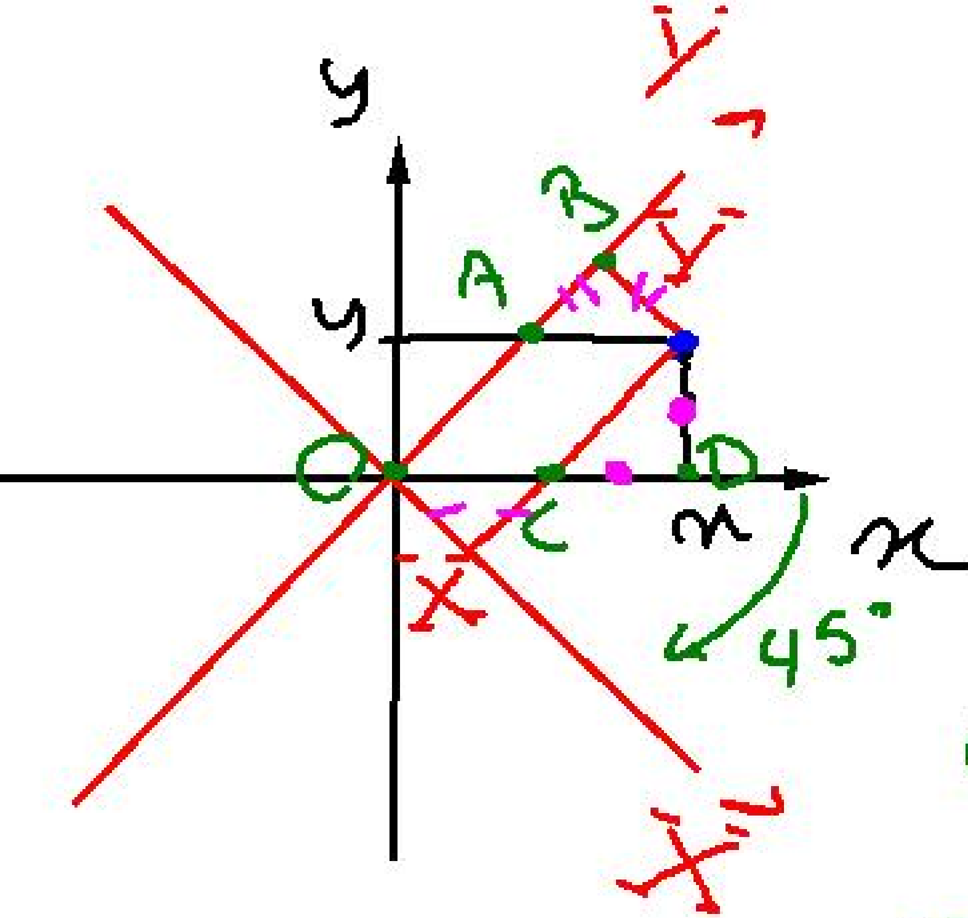
asintoti perpendicolari tra loro

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

$$y = \pm \frac{b}{a} x$$

$$\frac{b}{a} = -\left(-\frac{a}{b}\right) \Rightarrow a^2 = b^2$$

$$\Rightarrow \boxed{a = b}$$

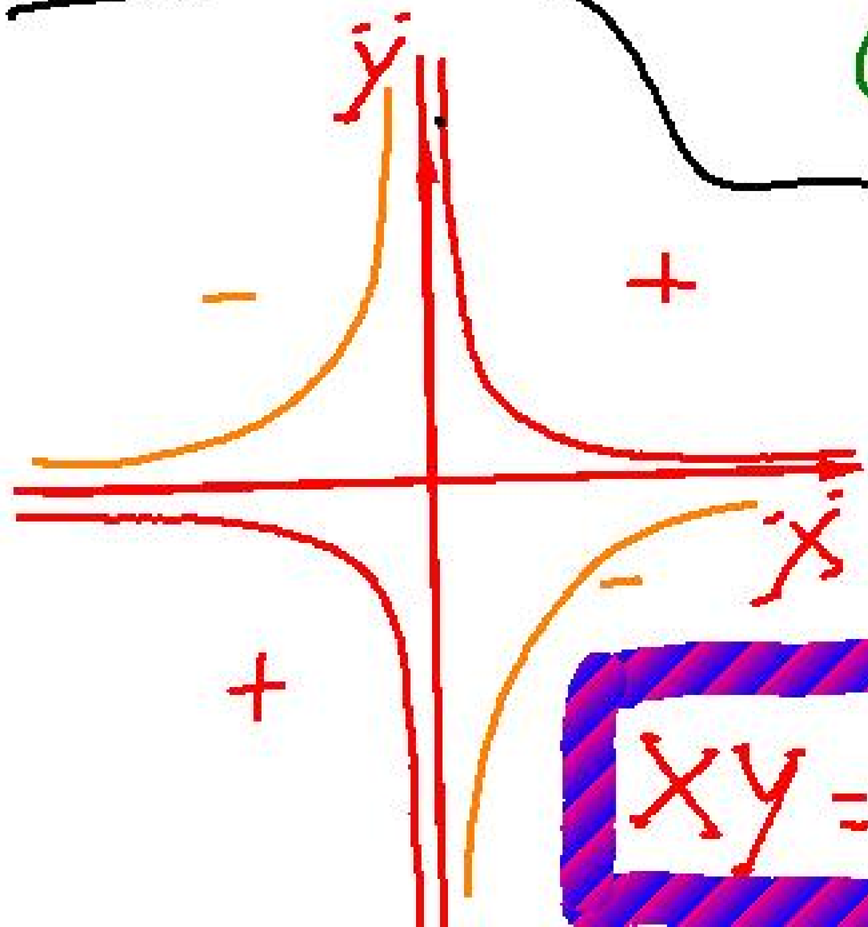


$$\begin{cases} x = \overline{OC} + \overline{CD} \\ \bar{Y} = \overline{OA} + \overline{AB} \end{cases}$$

$$\overline{OC} = \sqrt{2}\,\bar{X}$$
$$\overline{CD} = y$$
$$\overline{OA} = \sqrt{2}\,y$$
$$\overline{AB} = \bar{X}$$

$$\begin{cases} ① \; x = \sqrt{2}\,\bar{X} + y \\ ② \; \bar{Y} = \sqrt{2}\,y + \bar{X} \end{cases}$$

$$\begin{cases} ② \; y = -\frac{\sqrt{2}}{2}\bar{X} + \frac{\sqrt{2}}{2}\bar{Y} \\ ① \; x = \frac{\sqrt{2}}{2}\bar{X} + \frac{\sqrt{2}}{2}\bar{Y} \end{cases}$$



$$\frac{x^2}{a^2} - \frac{y^2}{a^2} = \pm 1 \qquad x^2 - y^2 = \pm a^2$$

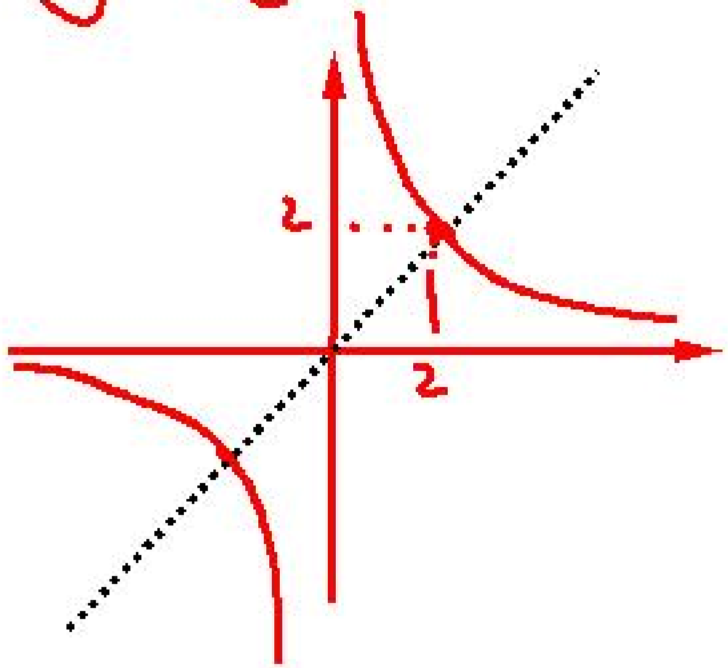
$$\frac{1}{2}\left[(\bar{X}+\bar{Y})^2 - (-\bar{X}+\bar{Y})^2\right] = \pm a^2 \longrightarrow 2\bar{X}\bar{Y} = \pm a^2$$

$$\boxed{\bar{X}\bar{Y} = \pm k}$$

$$k = \frac{a^2}{2}$$

$y = \frac{4}{x} \longrightarrow$ I e III quad

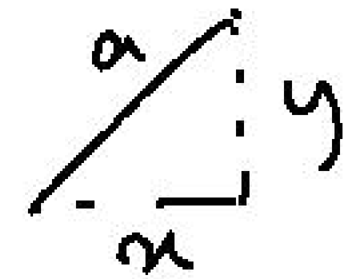
$k = \frac{a^2}{2}$



$a = 2\sqrt{2}$

$a = \sqrt{2k}$

Coord del vertice



$x = \frac{a}{\sqrt{2}} = \sqrt{k}$

$y = \frac{a}{\sqrt{2}} = \sqrt{k}$

$V\left(\pm\sqrt{k} ; \pm\sqrt{k}\right)$

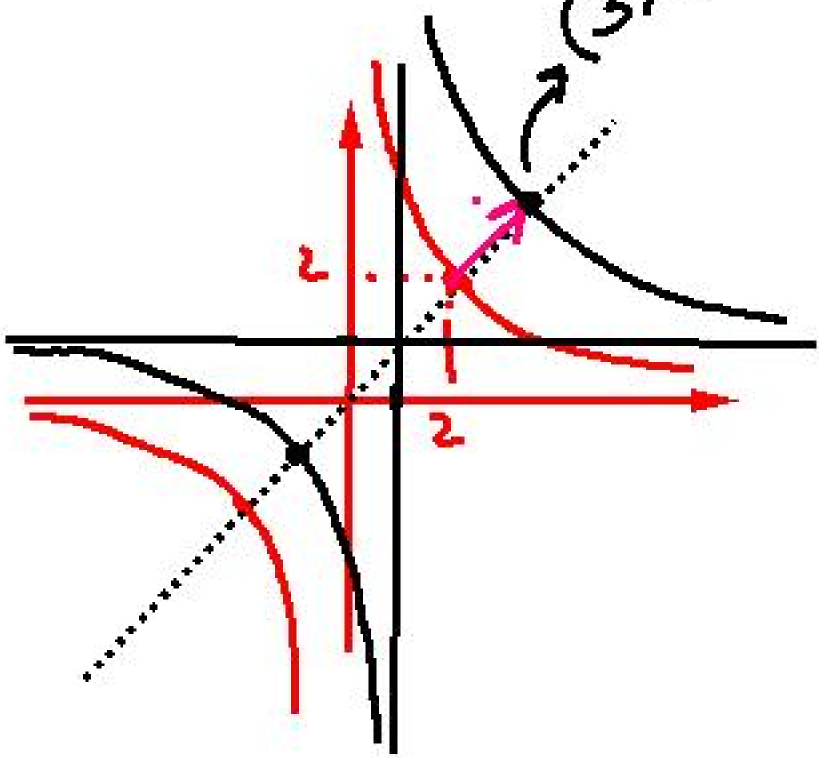
$$y = \frac{x+3}{x-1} = 1 + \frac{4}{x-1}$$

$$\begin{array}{r|l} x+3 & x-1 \\ \hline -(x-1) & 1 \\ \hline 4 & \end{array}$$

$$y - 1 = \frac{4}{x-1}$$

$$\vec{v}_T = (1,1)$$

$$\frac{6}{5} = \underbrace{1}_{Q} + \overbrace{\frac{1}{5}}^{R}$$



858.627

$$y = \frac{kx - 3}{(3-k)x + 2}$$

$$\begin{array}{r|l} kx - 3 & (3-k)x + 2 \\ \cline{2-2} kx + \frac{2k}{3-k} & \frac{k}{3-k} \\ \cline{1-1} = -3 - \frac{2k}{3-k} & \end{array}$$

$$-3 - \frac{2k}{3-k} = R$$

$$y = \frac{k}{3-k} + \frac{R}{(3-k)x + 2}$$

Sol: $k \neq 3, 9$

$$3 - k \neq 0$$

$$R \neq 0$$

$$-3 \neq \frac{2k}{3-k}$$

$$-9 + 3k \neq 2k$$

$$k \neq 9$$