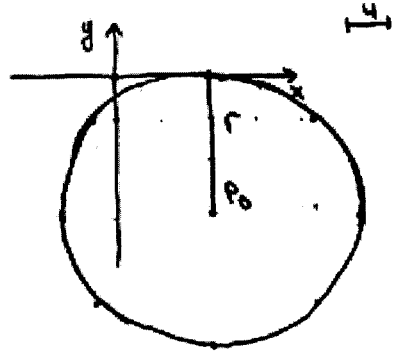
ESERCIZI LEZIONE 22

① $x^2+y^2-4x+7y+4=0 \quad P_0\left(2;-\frac{7}{2}\right)$



Sapendo che $c = x^2+y^2-r^2$

$r^2 = x^2+y^2-c$

Perché l'equazione data sia quella di una circonferenza, x^2+y^2-c deve essere una quantità maggiore di 0.

Verifica:

$r^2 = 4+\frac{49}{4}-4 > 0 \quad$ C.V.D.

$r = \frac{7}{2}$

Tangenti alla circonferenza parallele all'asse x: } MOTIVARE

$y=0$

$y=-7$

Tangente in $P_1\left(0;\frac{(-7+\sqrt{33})}{2}\right)$

$$\begin{cases} x = 0+t\left(\frac{-7+\sqrt{33}}{2}+\frac{7}{2}\right) \\ y = \frac{-7+\sqrt{33}}{2}-t(-2) \end{cases}$$

$$\begin{cases} x = \frac{\sqrt{33}}{2}t \\ y = \frac{-7+\sqrt{33}}{2}+2t \end{cases}$$

② $\frac{x^2}{9}+\frac{y^2}{4}=1$

Fuochi

$c^2=a^2-b^2$ $\quad F(\sqrt{5};0) \quad F'(-\sqrt{5};0)$

$c^2=9-4=5$

$c=\sqrt{5}$

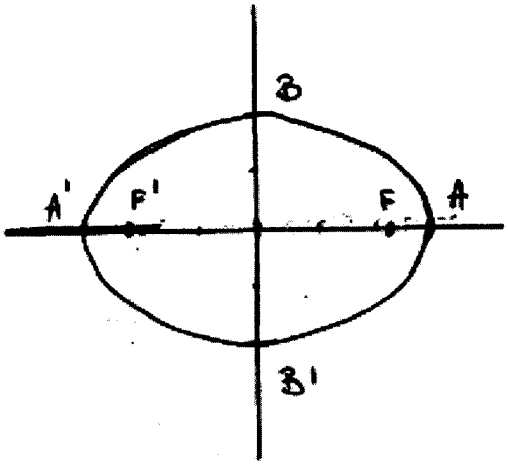
Vertici

$A(3;0) \quad A'(-3;0)$

$B(0;2) \quad B'(0;-2)$

Asse maggiore $=2a=6$

Asse minore $=2b=4$



$AA'=2a=6$

$BB'=2b=4$

③ $16x^2+9y^2=144$

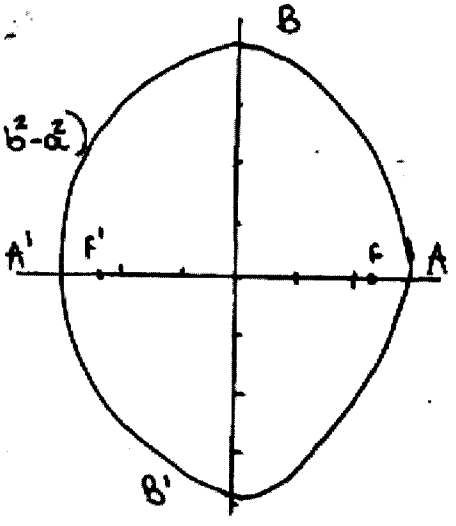
$\frac{x^2}{9}+\frac{y^2}{16}=1$

$c^2=16-9=7$ (essendo $b>a$, $c^2=b^2-a^2$)

$c=\sqrt{7}$

$F(\sqrt{7};0)$

$F'(-\sqrt{7};0)$



④ $A(4;0)$ $A'(-4;0)$

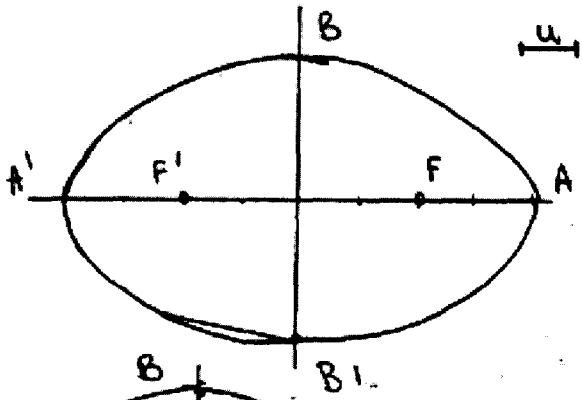
$F(2;0)$ $F'(-2;0)$

$4 = 16 - b^2$

$b^2 = 12$

$\frac{x^2}{16} + \frac{y^2}{12} = 1$

$e = \frac{c}{a} = \frac{1}{2}$

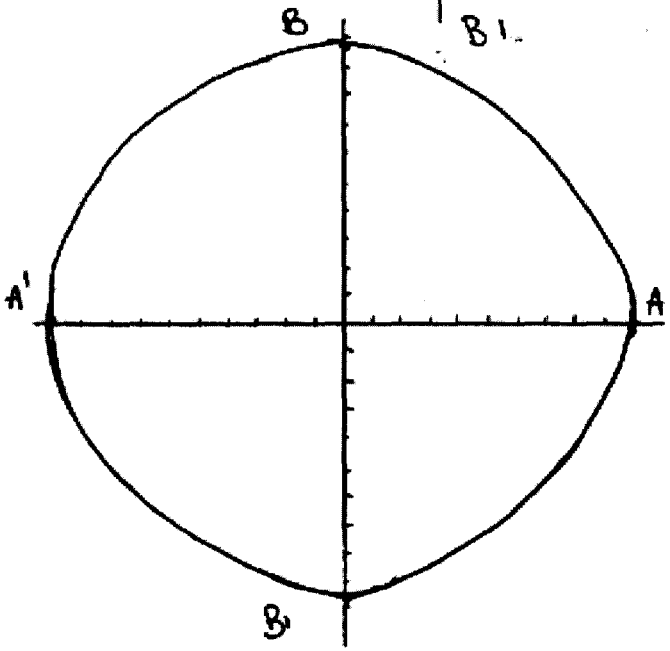


⑤ $e = \frac{1}{10} = \frac{c}{a}$

Posto $c = 1$
$a = 10$

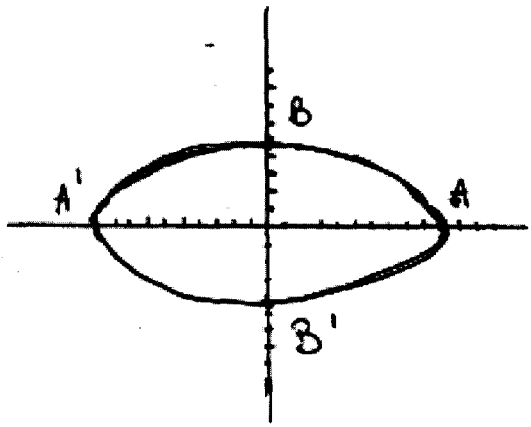
$b^2 = 100 - 1 = 99$

$b = 3\sqrt{11}$



$e = \frac{9}{10}$

$c = 9$
$a = 10$
$b^2 = 100 - 81 = 19$
$b = \sqrt{19}$



⑥ $2a = 300$ (in milioni di km)

$a = 150$

$\overline{FV} = 147$

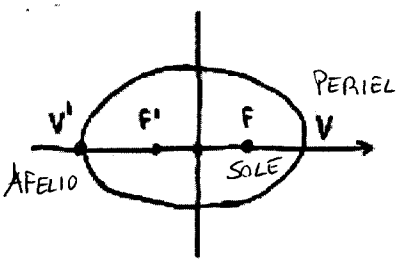
$\overline{V'F} = 183$

$c = 3$

$c^2 = a^2 - b^2$

$9 = 22500 - b^2$

$b^2 = 22491$



N.B. LA FIGURA NON TIENE CONTO DELE PROPORZIONI

$$\frac{x^2}{22500} + \frac{y^2}{22491} = 1$$

Aggiungere qualche parola di spiegazione