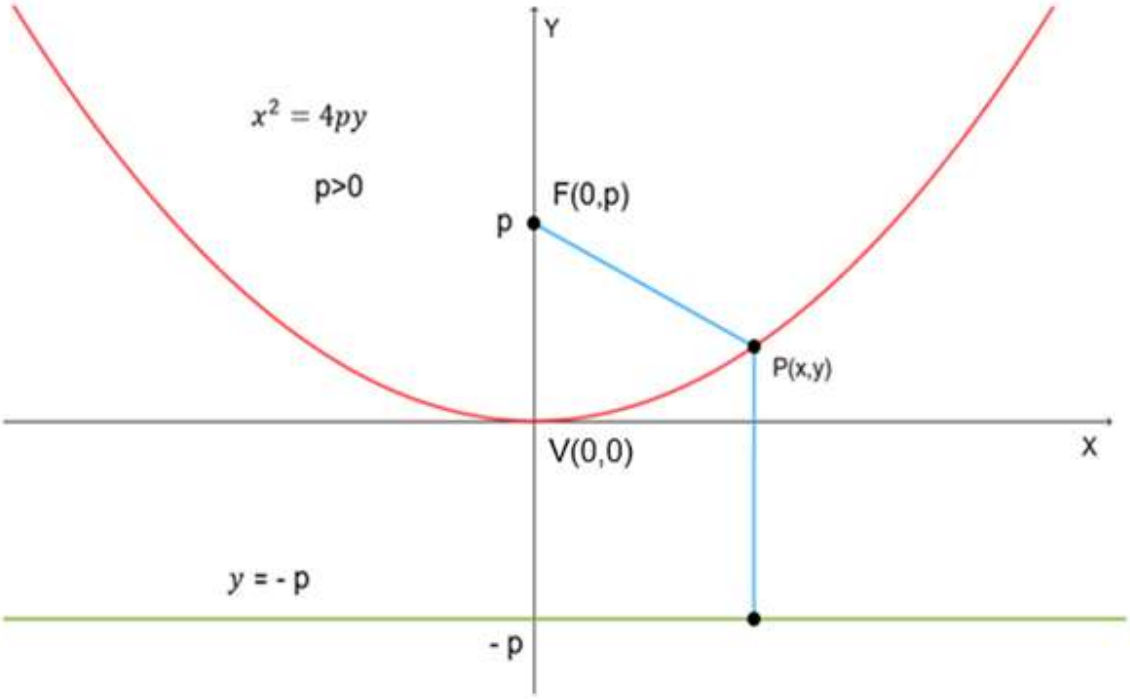
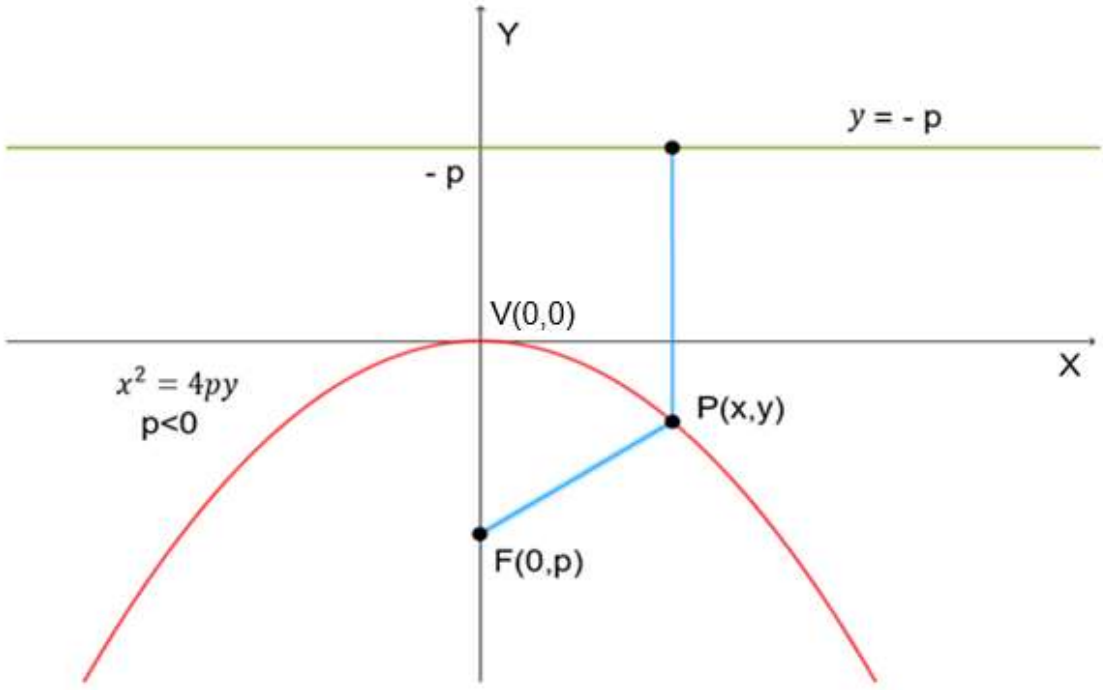
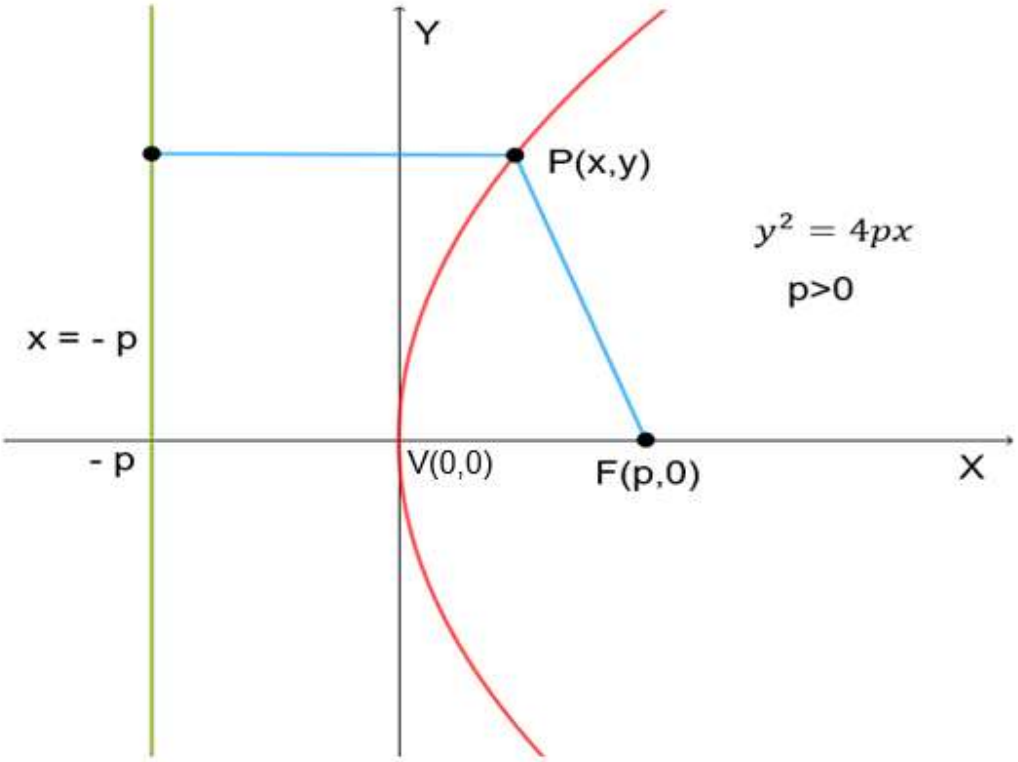
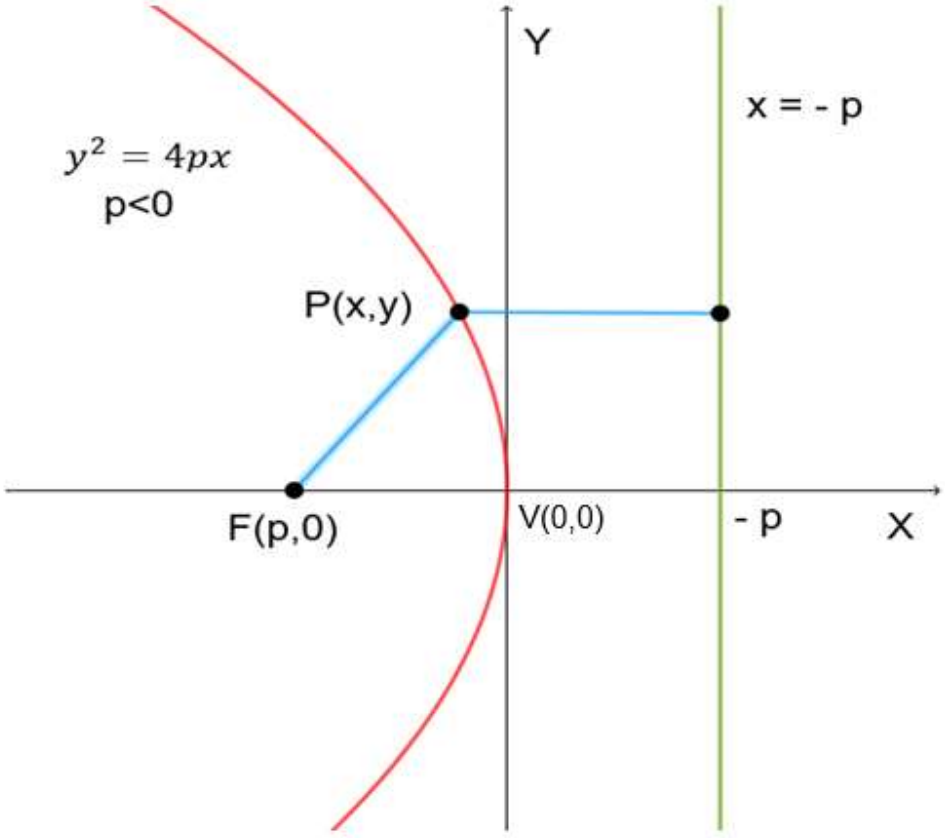
Cónicas. Representaciones gráficas.

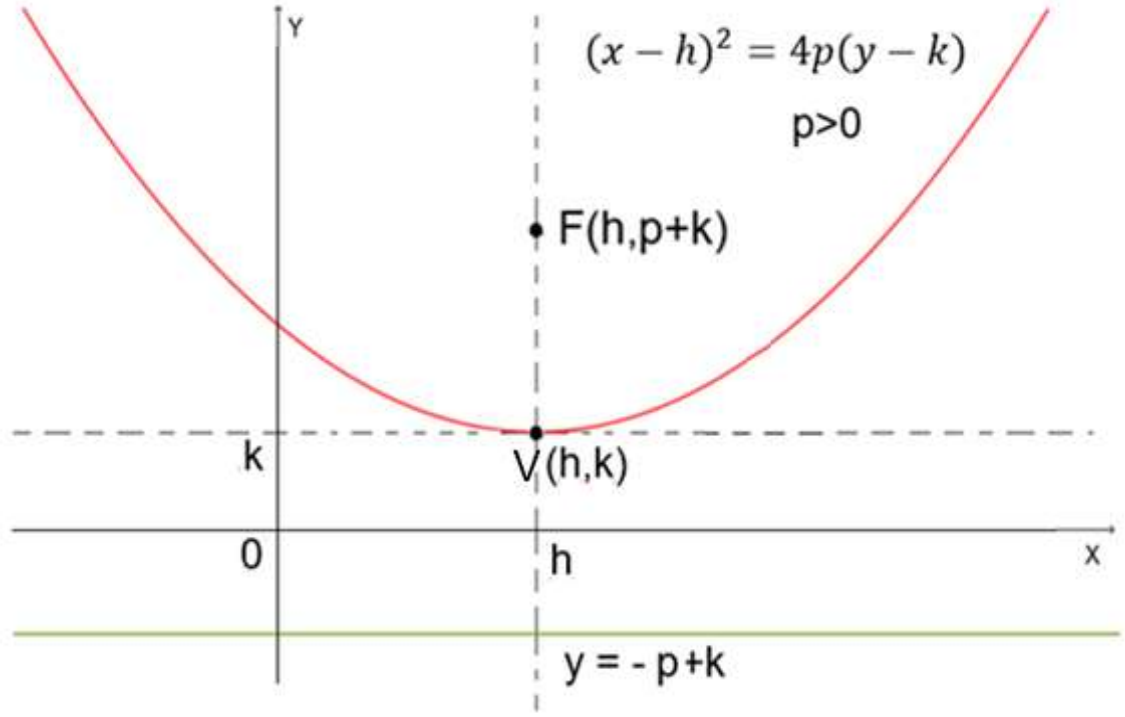
Parábola

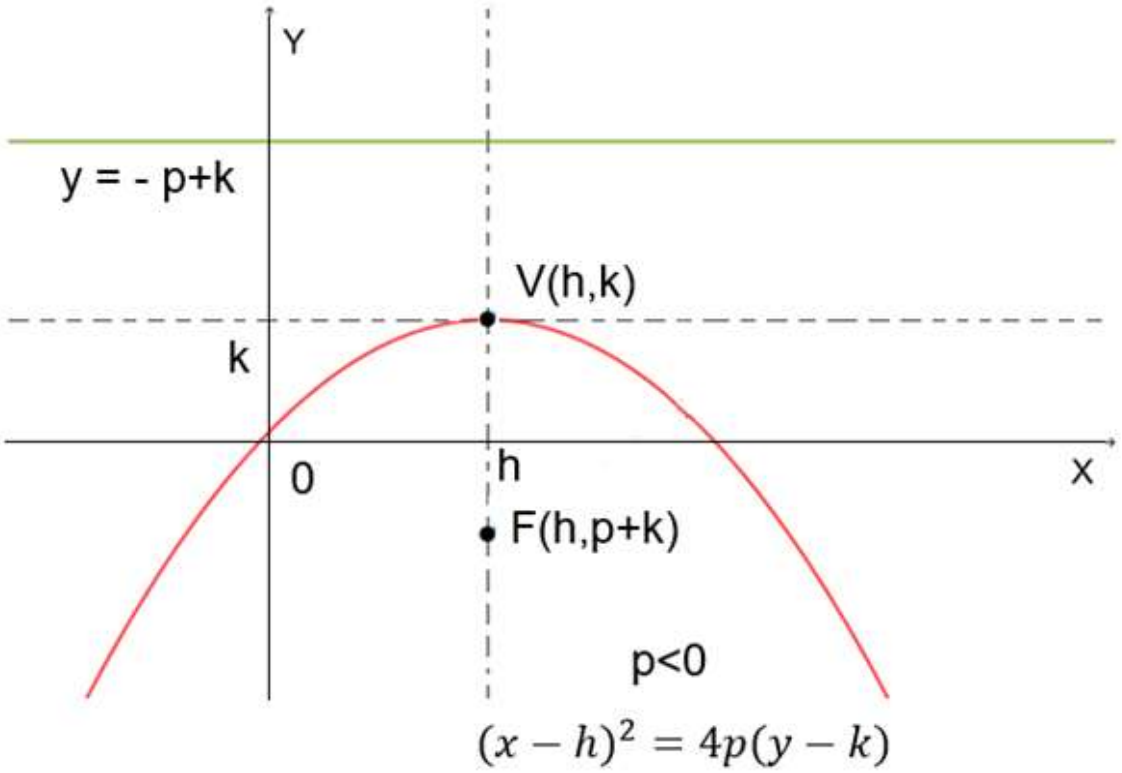


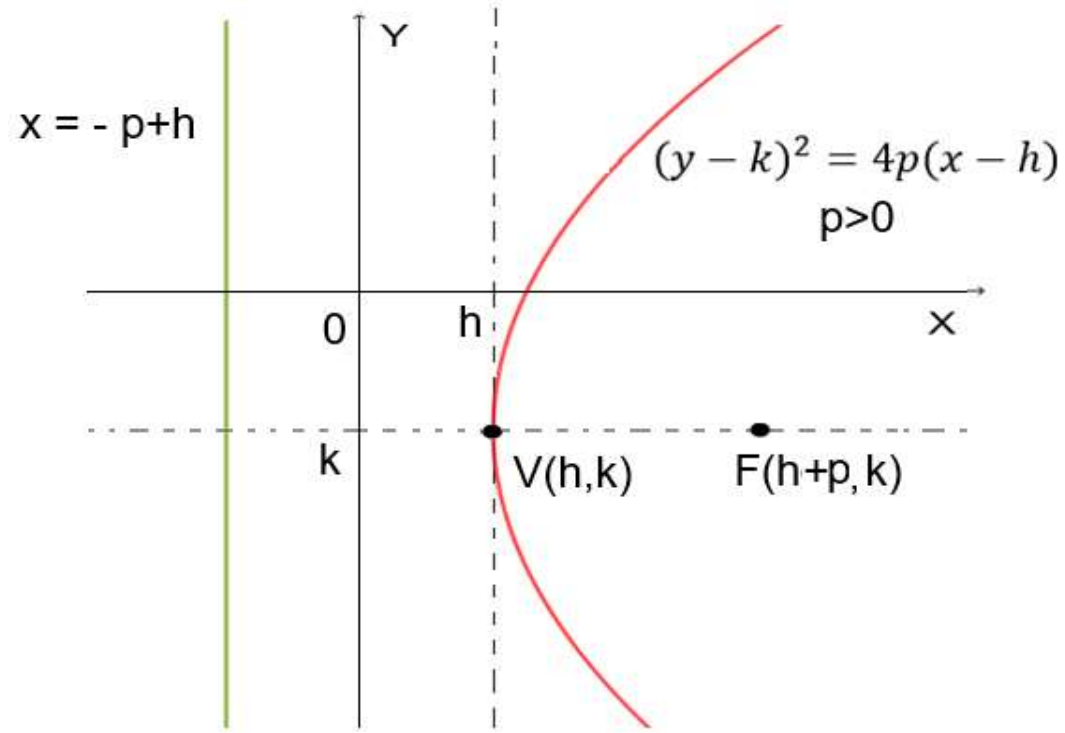


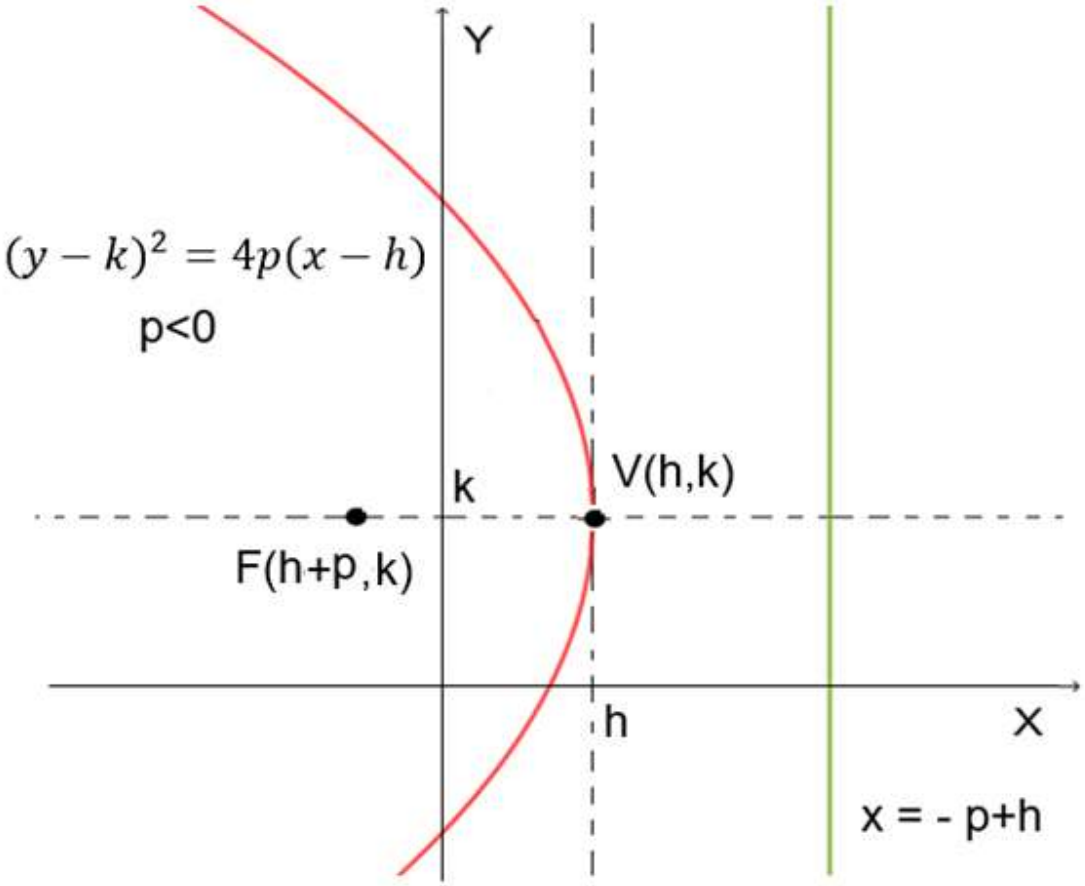

Y
P(x,y)
$y^2 = 4px$
p>0
x = - p
- p
V(0,0)
F(p,0)
X


Y
x = - p
$y^2 = 4px$
p<0
P(x,y)
F(p,0)
V(0,0)
- p
X

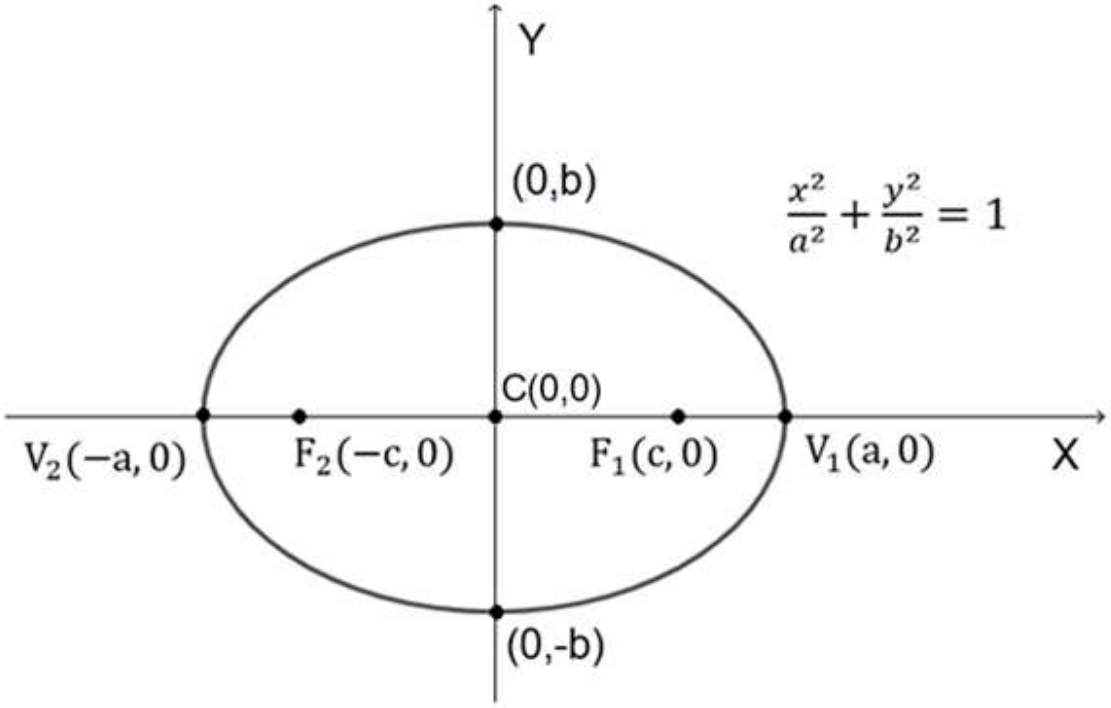

Y
$(x-h)^2 = 4p(y-k)$
p>0
F(h,p+k)
k
V(h,k)
0
h
x
y = - p+k

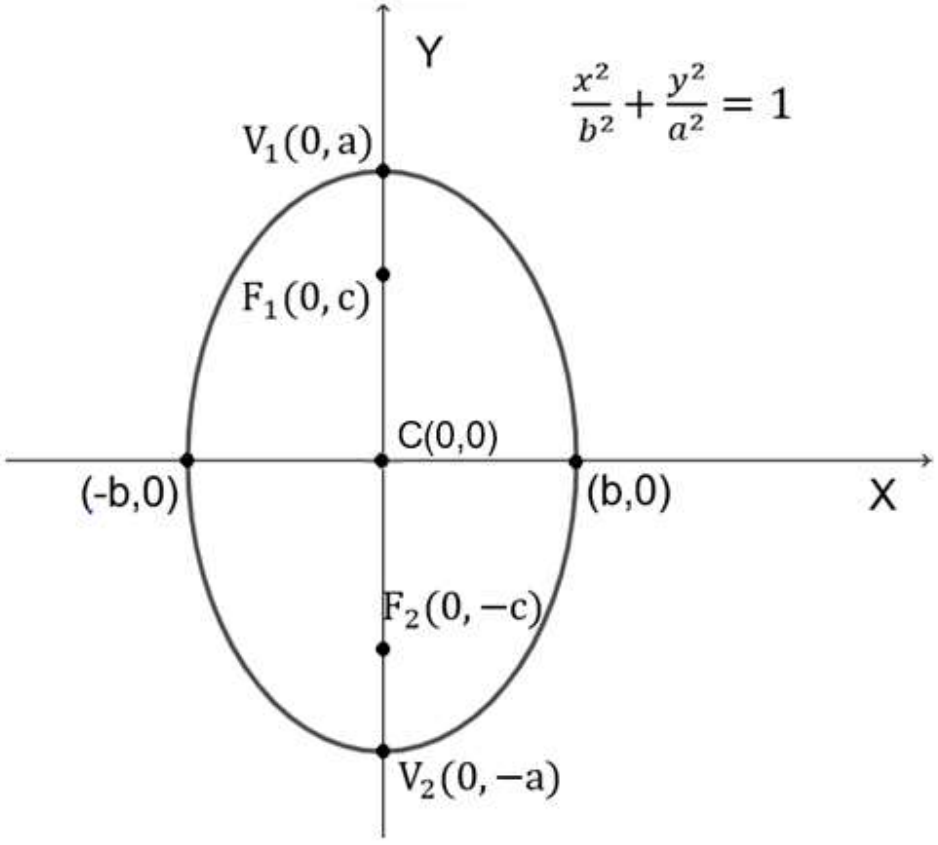

Y
y = - p+k
V(h,k)
k
0
h
x
F(h,p+k)
p<0
$(x-h)^2 = 4p(y-k)$

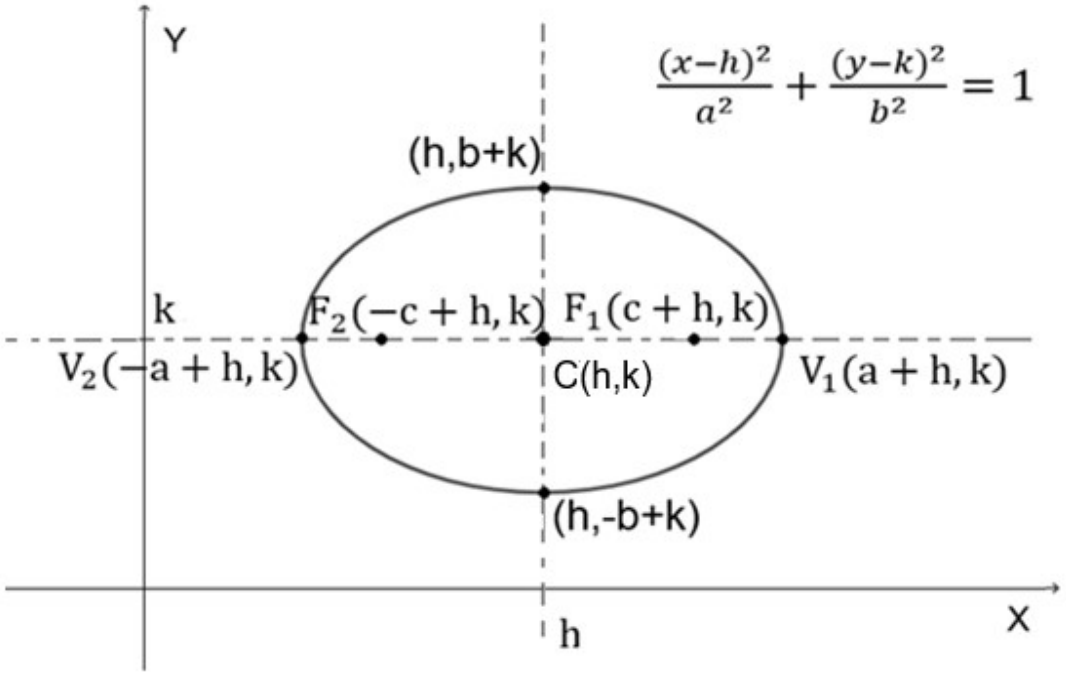

x = - p+h
Y
$(y-k)^2 = 4p(x-h)$
p>0
0
h
X
k
V(h,k)
F(h+p, k)

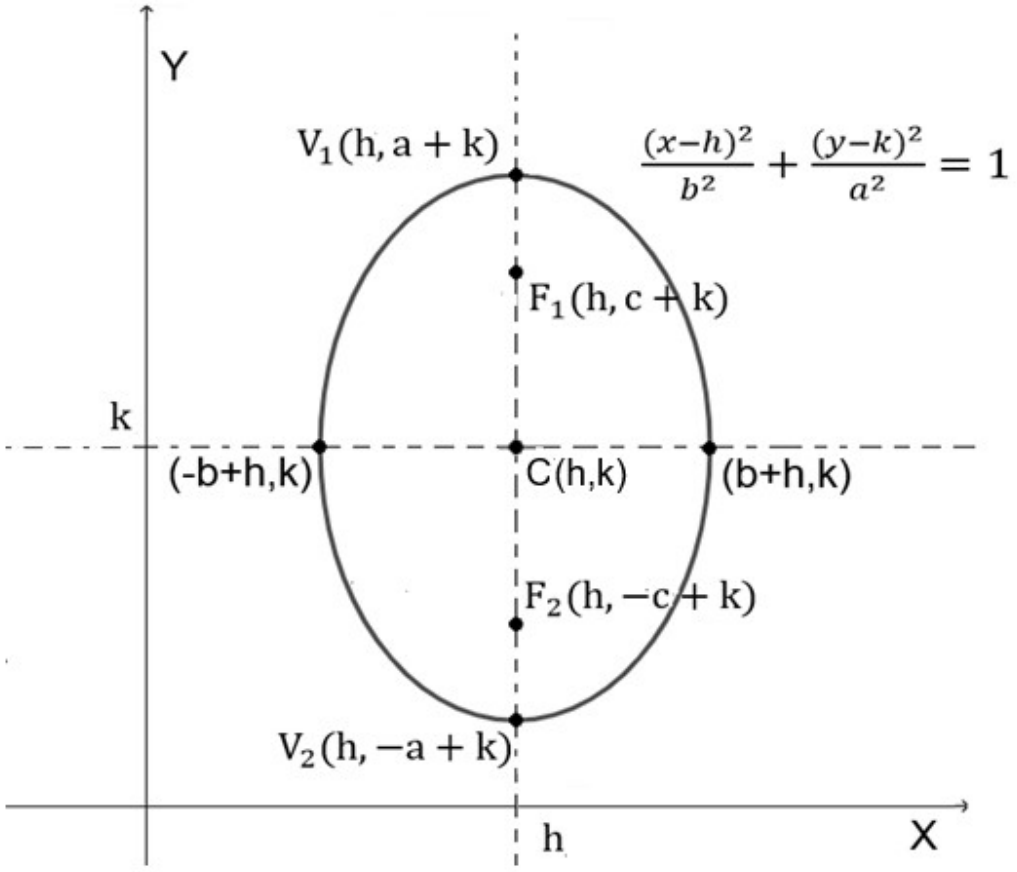

Y
$(y-k)^2 = 4p(x-h)$
p<0
k
V(h,k)
F(h+p,k)
h
X
x = - p+h

Elipse

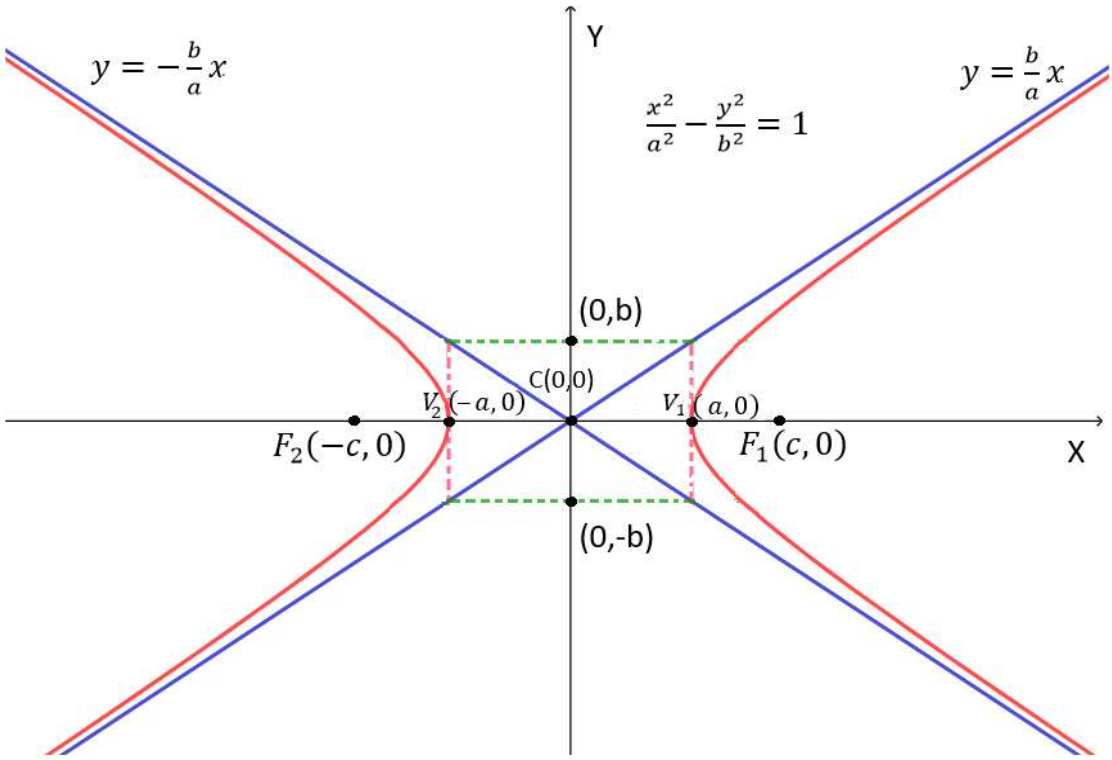

Y
(0,b)
$\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$
C(0,0)
$V_2(-a,0)$
$F_2(-c,0)$
$F_1(c,0)$
$V_1(a,0)$
X
(0,-b)

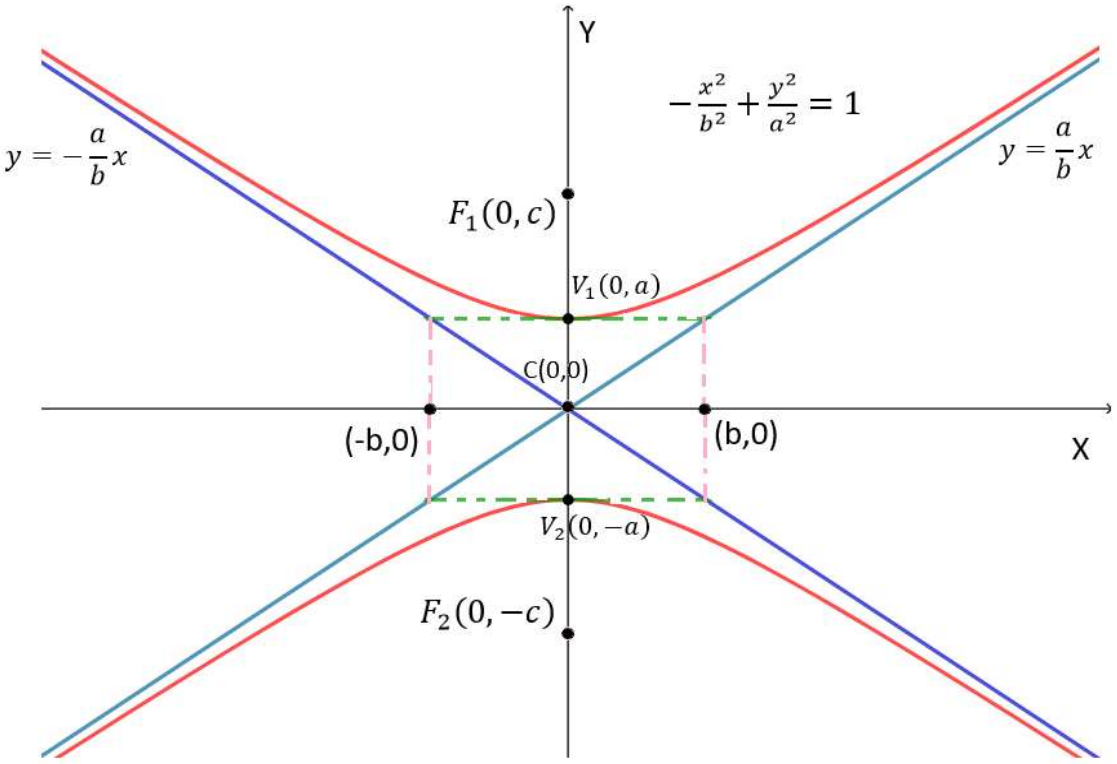

Y
$\frac{x^2}{b^2}+\frac{y^2}{a^2}=1$
$V_1(0,a)$
$F_1(0,c)$
C(0,0)
(-b,0)
(b,0)
X
$F_2(0,-c)$
$V_2(0,-a)$

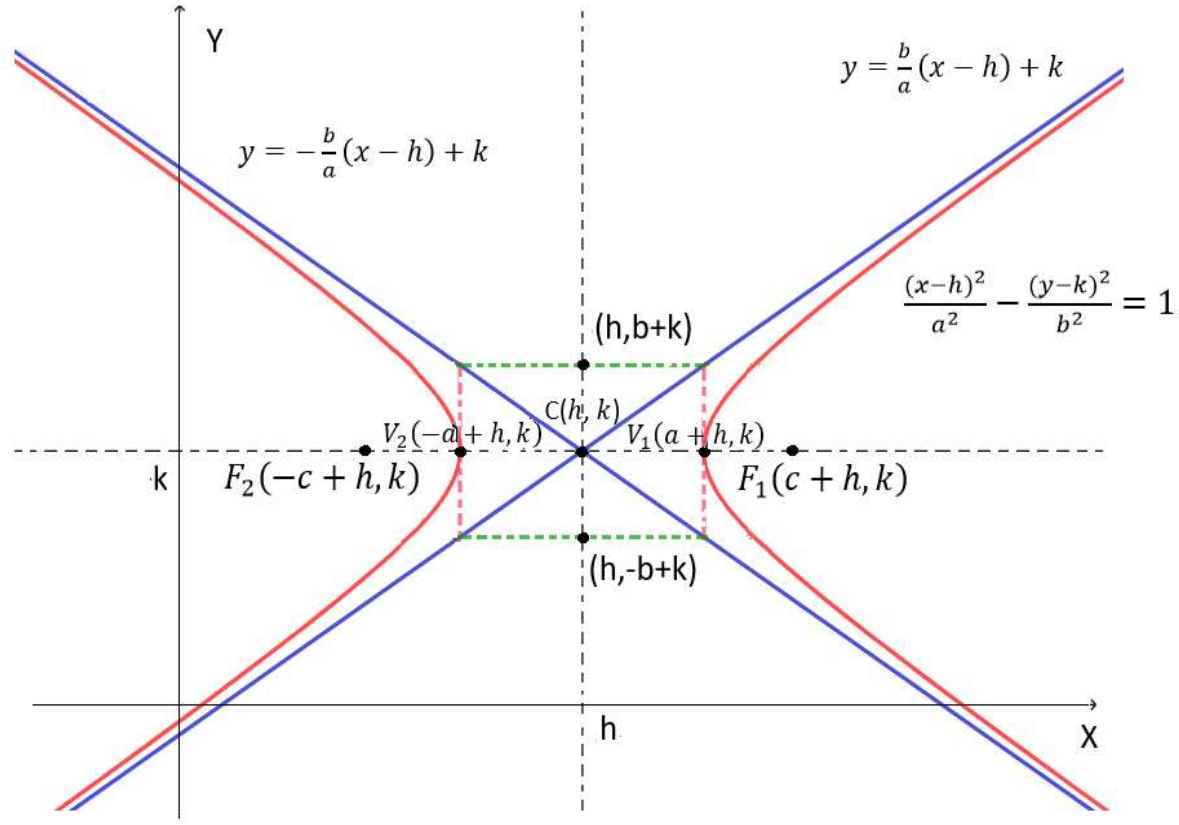

Y
$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$
(h,b+k)
k
$F_2(-c+h,k)$
$F_1(c+h,k)$
$V_2(-a+h,k)$
C(h,k)
$V_1(a+h,k)$
(h,-b+k)
h
X

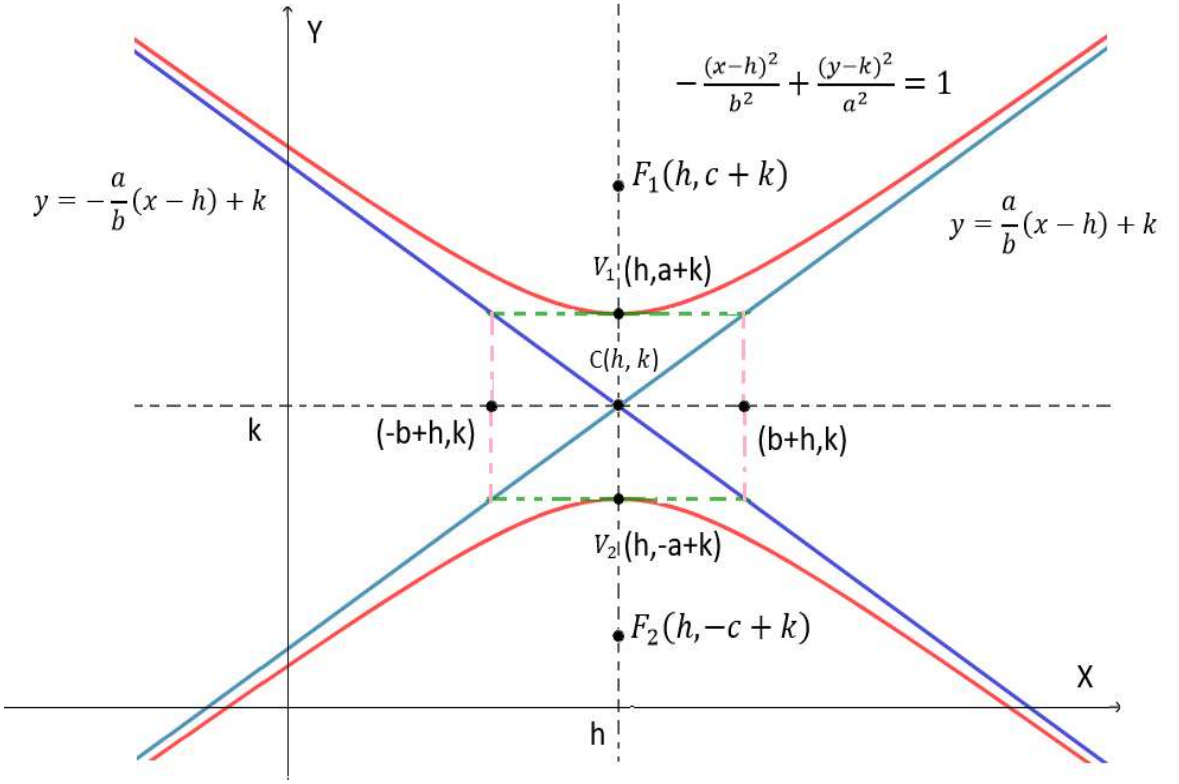

Y
$V_1(h,a+k)$
$\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$
$F_1(h,c+k)$
k
(-b+h,k)
C(h,k)
(b+h,k)
$F_2(h,-c+k)$
$V_2(h,-a+k)$
h
X

Hipérbola


$y = -\frac{b}{a}x$
$y = \frac{b}{a}x$
$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$
Y
(0,b)
C(0,0)
$V_2(-a,0)$
$V_1(a,0)$
$F_2(-c,0)$
$F_1(c,0)$
X
(0,-b)


$-\frac{x^2}{b^2} + \frac{y^2}{a^2} = 1$
Y
$y = -\frac{a}{b}x$
$y = \frac{a}{b}x$
$F_1(0,c)$
$V_1(0,a)$
C(0,0)
(-b,0)
(b,0)
X
$V_2(0,-a)$
$F_2(0,-c)$


Y
$y = \frac{b}{a}(x-h)+k$
$y = -\frac{b}{a}(x-h)+k$
$\frac{(x-h)^2}{a^2} - \frac{(y-k)^2}{b^2} = 1$
(h,b+k)
C(h, k)
$V_2(-a+h,k)$
$V_1(a+h,k)$
k
$F_2(-c+h,k)$
$F_1(c+h,k)$
(h,-b+k)
h
X


Y
$-\frac{(x-h)^2}{b^2} + \frac{(y-k)^2}{a^2} = 1$
$y = -\frac{a}{b}(x-h)+k$
$F_1(h,c+k)$
$y = \frac{a}{b}(x-h)+k$
V_1(h,a+k)
C(h, k)
k
(-b+h,k)
(b+h,k)
V_2(h,-a+k)
$F_2(h,-c+k)$
X
h