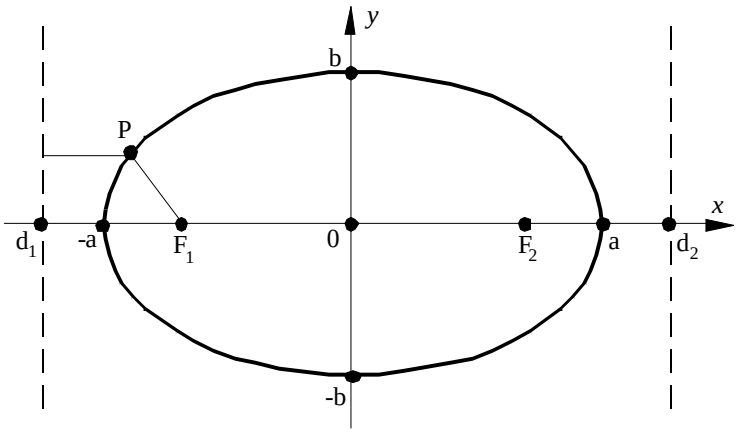
Properties of Conics in Standard Position



Ellipse

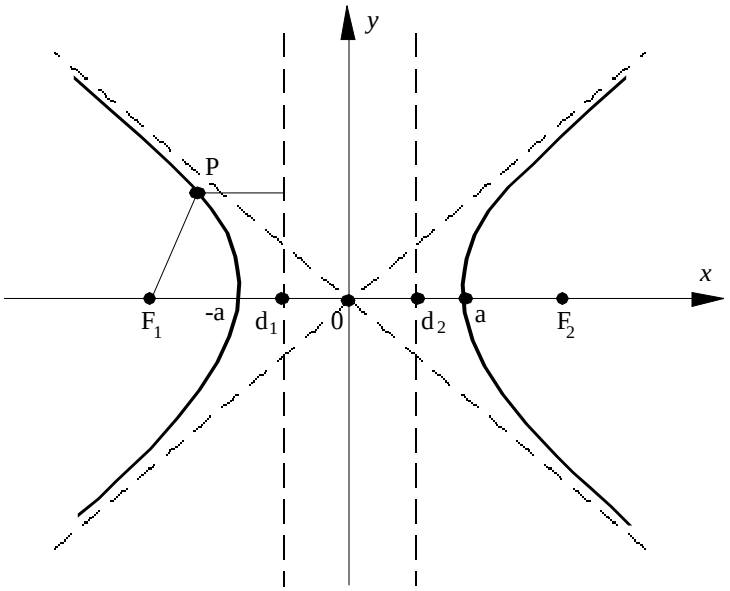
1 Equation: $\left(\frac{x}{a}\right)^2+\left(\frac{y}{b}\right)^2=1$

2 Definition: PF = ePd ($e < 1$)

3 Eccentricity: $\boldsymbol{e}=\sqrt{1-\left(\frac{b}{a}\right)^2}$

4 Foci: F = $\pm\boldsymbol{ae}$

5 Directrices: d = $\pm\frac{\boldsymbol{a}}{\boldsymbol{e}}$



Hyperbola

1 Equation: $\left(\frac{x}{a}\right)^2-\left(\frac{y}{b}\right)^2=1$

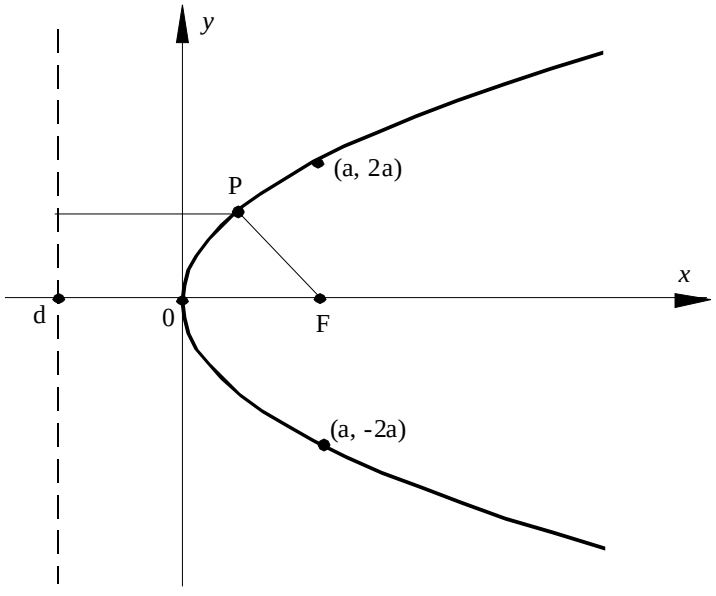
2 Definition: PF = ePd ($e > 1$)

3 Eccentricity: $\boldsymbol{e}=\sqrt{1+\left(\frac{b}{a}\right)^2}$

4 Foci: F = $\pm\boldsymbol{ae}$

5 Directrices: d = $\pm\frac{\boldsymbol{a}}{\boldsymbol{e}}$

6 Asymptotes: $\boldsymbol{y}=\pm\left(\frac{b}{a}\right)\boldsymbol{x}$



Parabola

1 Equation: $\boldsymbol{y}^2=4\boldsymbol{ax}$

2 Definition: PF = Pd

3 Eccentricity: e = 1

4 Focus: F = a

5 Directrix: d = -a