

**ELLIPSE**

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1 \quad a^2 = b^2 + c^2$$

Semi-major axis =  $a$

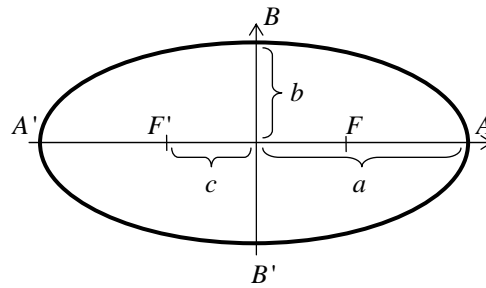
Semi-minor axis =  $b$

Semi focal distance =  $c$

Eccentricity  $e = \frac{c}{a}, e < 1$

Vertices  $A'(-a, 0), A(a, 0), B'(0, -b), B(0, b)$

Foci  $F'(-c, 0), F(c, 0)$



**HYPERBOLA**

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

Semi axis =  $a$

Semi focal distance =  $c$

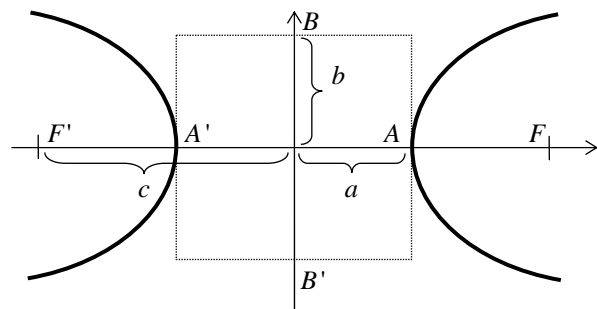
Eccentricity:  $e = \frac{c}{a}, e > 1$

Real vertices  $A'(-a, 0), A(a, 0)$

Imaginary vertices  $B'(0, -b), B(0, b)$

Foci:  $F'(-c, 0), F(c, 0)$

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



**PARABOLA**

$$y^2 = 2px$$

Vertex:  $V(0, 0)$

Directrix  $x = -\frac{p}{2}$

Focus  $F\left(\frac{p}{2}, 0\right)$

Vertex-focus distance =  $p/2$

Vertex-directrix distance =  $p/2$

