***The circle***

**If ,**

**The equations of circle are:**

**Let:**

**– the circle determined by**

**Then the equation of is:**

**if and only if**

**The intersection of a circle and a line:**

**The tangent to a circle having a given slope:**

**m – slope, R- radius**

**– tangent to 𝓒**

**The tangent to a circle in a given point**

**,**

**Intersection of 2 circles:**

***The ellipse***

**𝓔:**

**The tangent lines of an ellipse**

**The tangent of an ellipse in a given point,**

***The hyperbola***

**The equations of the asymptotes of a hyperbola:**

**The tangent to a hyperbola:**

**The tangent to a given point,**

**The intersection between a hyperbola and a line d**

***The parabola***

**Focus:**

**Director line:**

**Tangent line:**

**Tangent line passing through :**

**QUADRIC SURFACES**

**Ellipsoid:**

**Hyperboloid:**

**The ellipse cone:**

**The elliptic paraboloid:**

**The hyperbolic paraboloid:**

**The elliptic cylinder:**

**The Hyperbolic cylinder:**

**Parabolic cylinder:**

**A pair of 2 concurrent planes:**

**A pair of parallel planes:**

**The line:**

**The identical planes:**

**The point:**

**The empty set:**