CINEMATICA EN 3D

[HELICE CIRCULAR]

[HELICE CONICA]

[ESPIRAL CONICA DE PAPUS]

[CURVA DE VIVIANI]

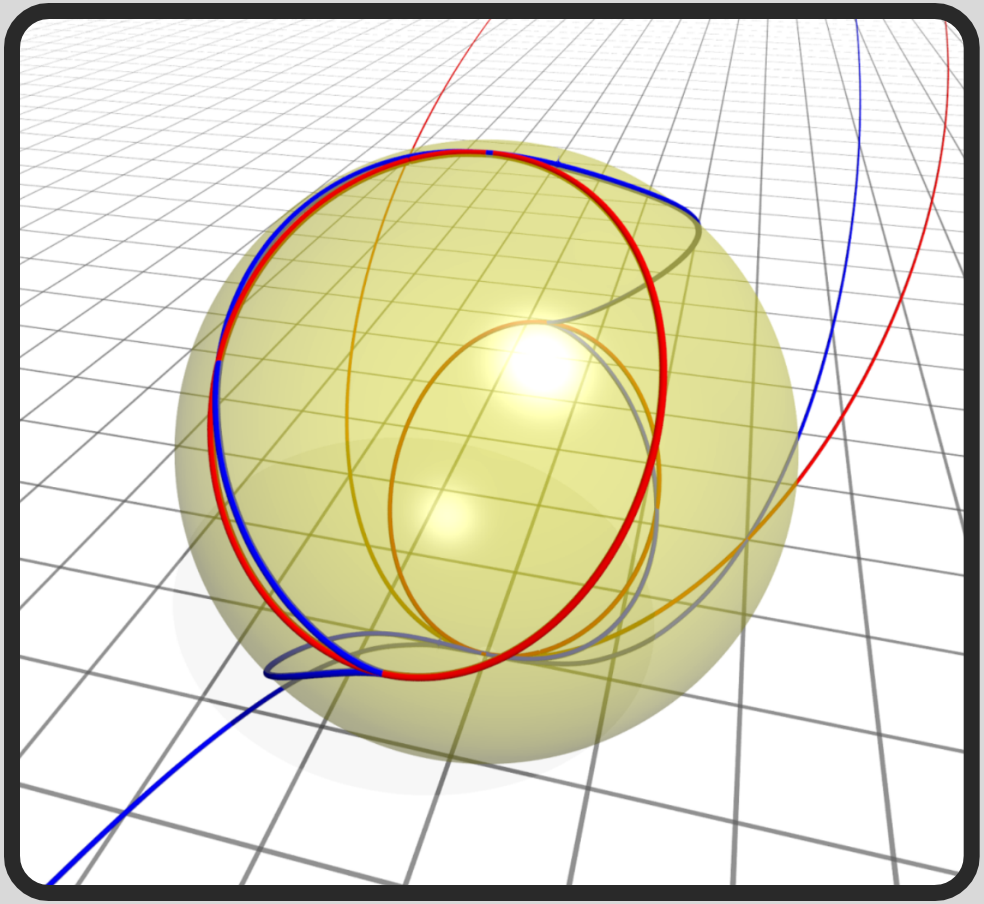
[HOROPTER0]

[HIPOPEDE DE EUDOXIO]

[CORONA SINUSOIDAL]

[CURVA DE ARQUITAS]

[CURVA BICILINDRICA]



SALIR

$a =$

$b =$

$\varepsilon =$

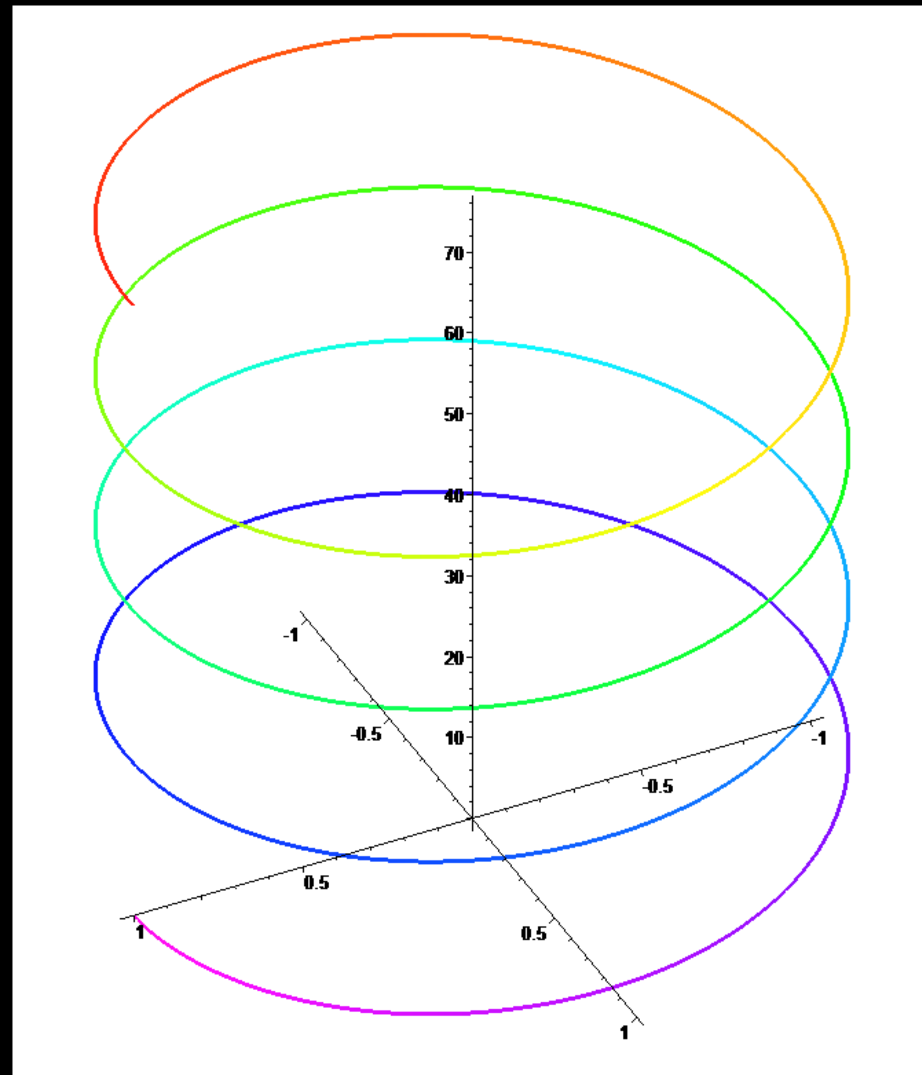
$\omega =$

GRAFICO

CALCULAR

VOLVER

SALIR



POSICION

VELOCIDAD

VELOCIDAD MEDIA

ACELERACION

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CURVATURA

RADIO DE CURVATURA

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SALIR

$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = acos(\omega t) \\ y(t) = \varepsilon acos(\omega t) \quad : \begin{cases} \varepsilon = 1 \\ \varepsilon = -1 \end{cases} \\ z(t) = bt \end{cases}$$

$$K = \frac{\left|r'(t) \times r''(t)\right|}{\left|r'(t)\right|^3} = \frac{|a|}{a^2 + b^2} = \frac{1}{\rho}$$

$$R_c = \rho = a + \frac{b^2}{|a|} = \frac{a^2 + b^2}{|a|} = \frac{c^2}{|a|}$$

$$T = \frac{\left(r'(t), r''(t), \frac{d^3\vec{r}(t)}{dt^3}(t)\right)}{\left[r'(t) \times r''(t)\right]^3} = \frac{b}{a^2 + b^2}$$

$$C_c = (x_c, y_c, z_c) = \begin{cases} x_c(t) = -\frac{b^2}{a} cos(\omega t) \\ y(t) = -\frac{b^2}{a} sin(\omega t) \\ z(t) = bt \end{cases}$$

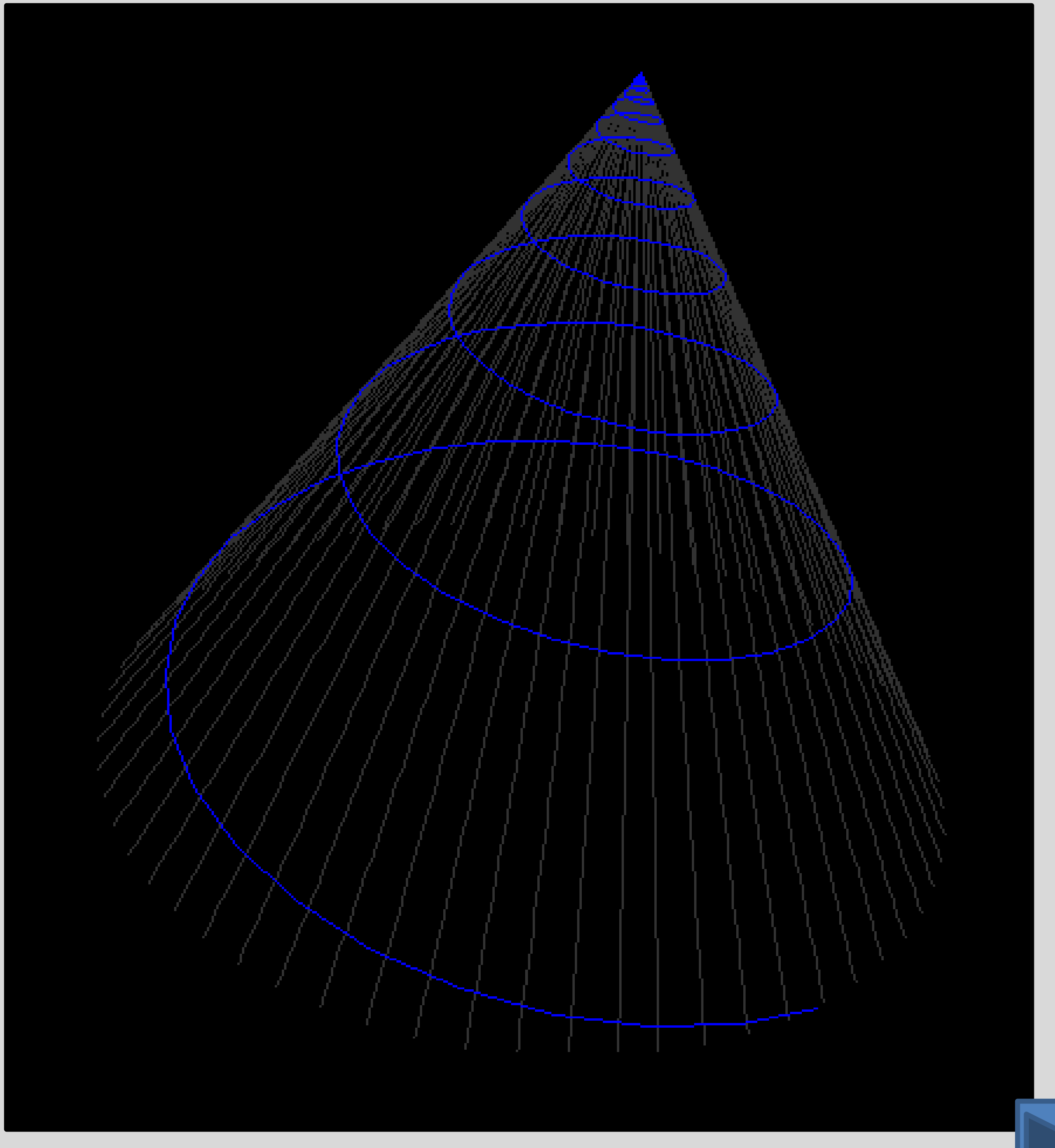
$$R_t = \varepsilon\left(b + \frac{a^2}{b}\right) = \varepsilon \frac{c^2}{b}$$

$$L(0, t_0) = \int_0^{t_0} \sqrt{\left[\frac{dx(t)}{dt}\right]^2 + \left[\frac{dy(t)}{dt}\right]^2 + \left[\frac{dz(t)}{dt}\right]^2} = t_0\sqrt{a^2 + b^2}$$

$a =$

$\alpha =$

$\beta =$



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VELOCIDAD

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CURVATURA

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$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = ae^{kt}cos(t) \\ \\ y(t) = ae^{kt}sin(t) \qquad : k = sin(\alpha)cot(\beta) \\ \\ z(t) = ae^{kt}cot(t) \end{cases}$$

$a =$

$\alpha =$

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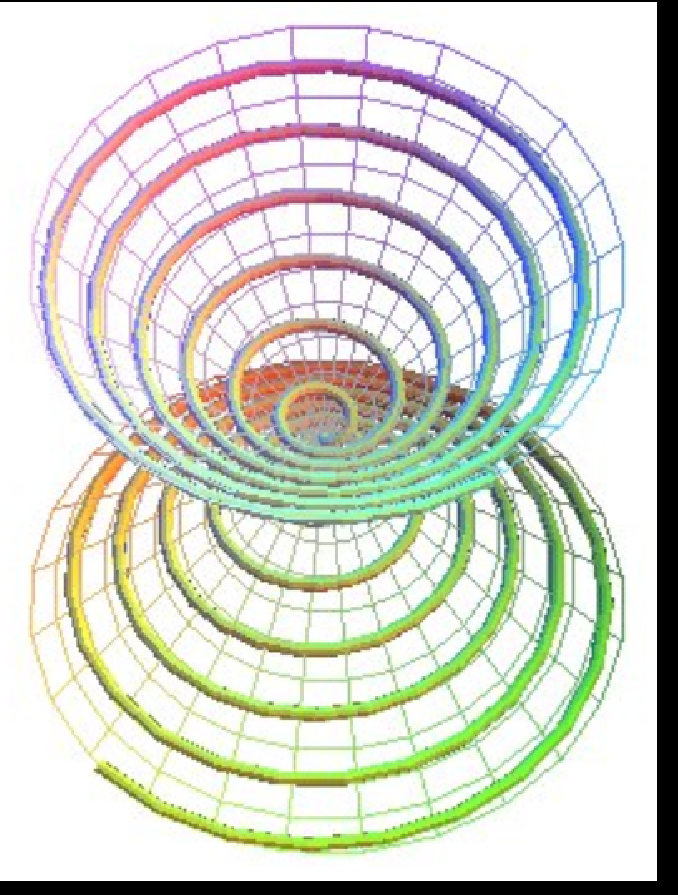

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CENTRO DE CURVATURA

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RADIO DE TORSION

LONGITUD DE ARCO

VOLVER | **MENU PRINCPAL** | **SALIR**

$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = a(sin\alpha)tcos(t) \\ \\ y(t) = a(sin\alpha)tsin(t) \\ \\ z(t) = a(cos\alpha)t \end{cases}$$

$a =$

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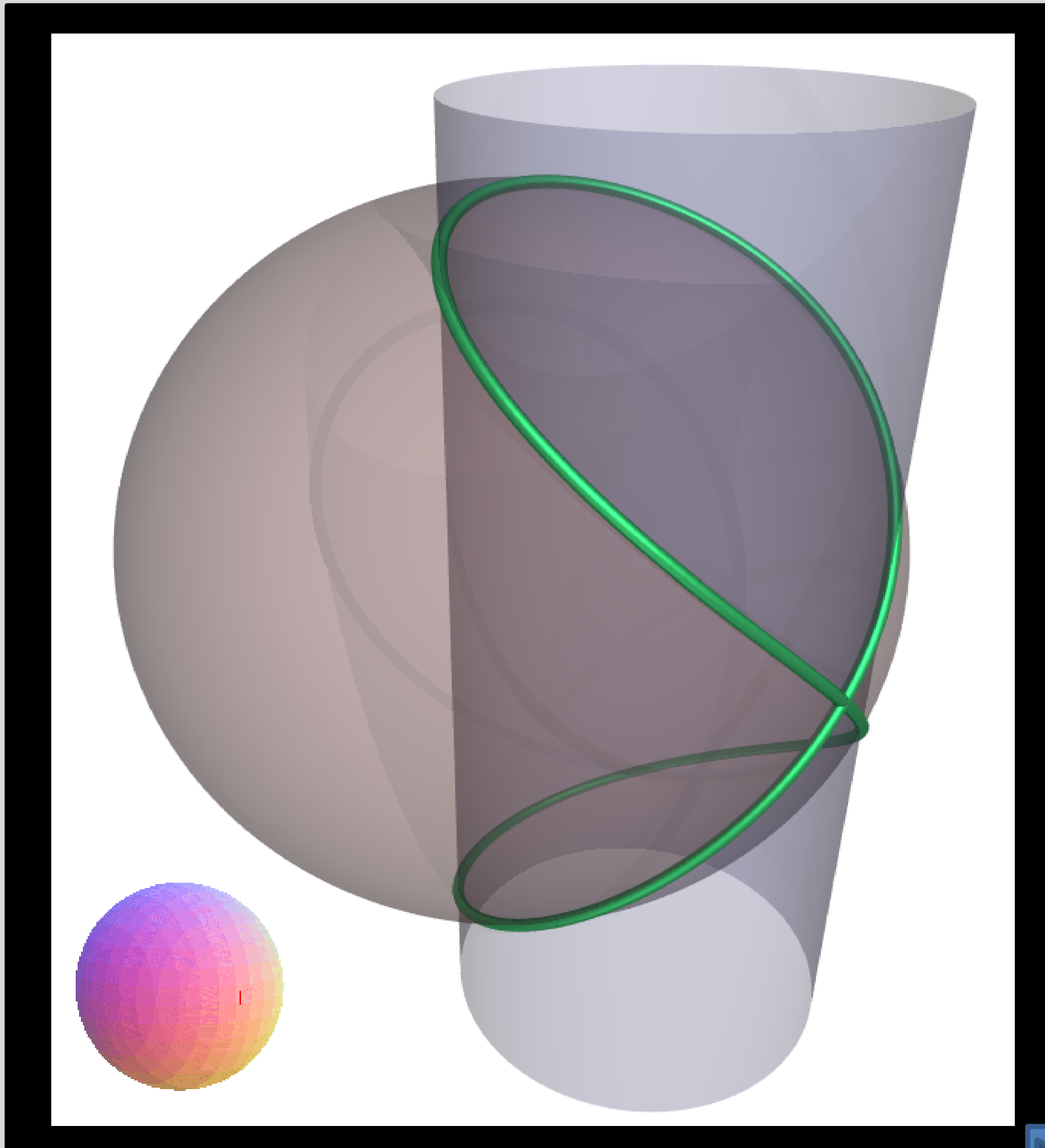

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CURVATURA

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TORSION

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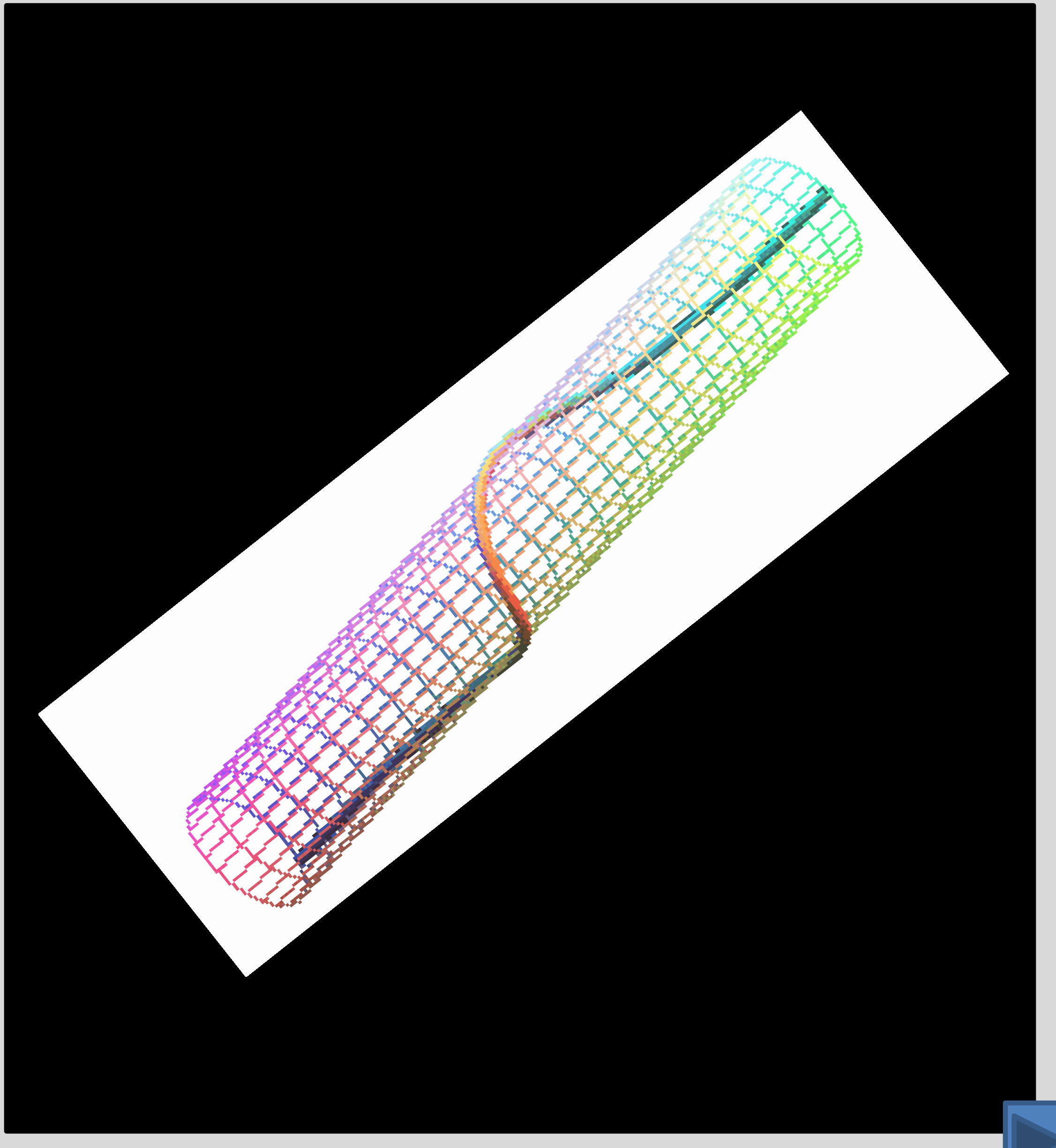
$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = a + acos(t) \\ y(t) = asin(t) \\ z(t) = 2asin\left(\frac{t}{2}\right) \end{cases}$$

$$R_c = \rho = 2a\frac{\left[1 + cos^2\left(\frac{t}{2}\right)\right]^{\frac{3}{2}}}{\sqrt{5 + 3cos^2\left(\frac{t}{2}\right)}}$$

$$R_t = a\left[cos\left(\frac{t}{2}\right) + \frac{5}{3}\left(cos\left(\frac{t}{2}\right)\right)^{-1}\right]$$

$a =$

$b =$



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VOLVER

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POSICION

VELOCIDAD

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CURVATURA

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CENTRO DE CURVATURA

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RADIO DE TORSION

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VOLVER

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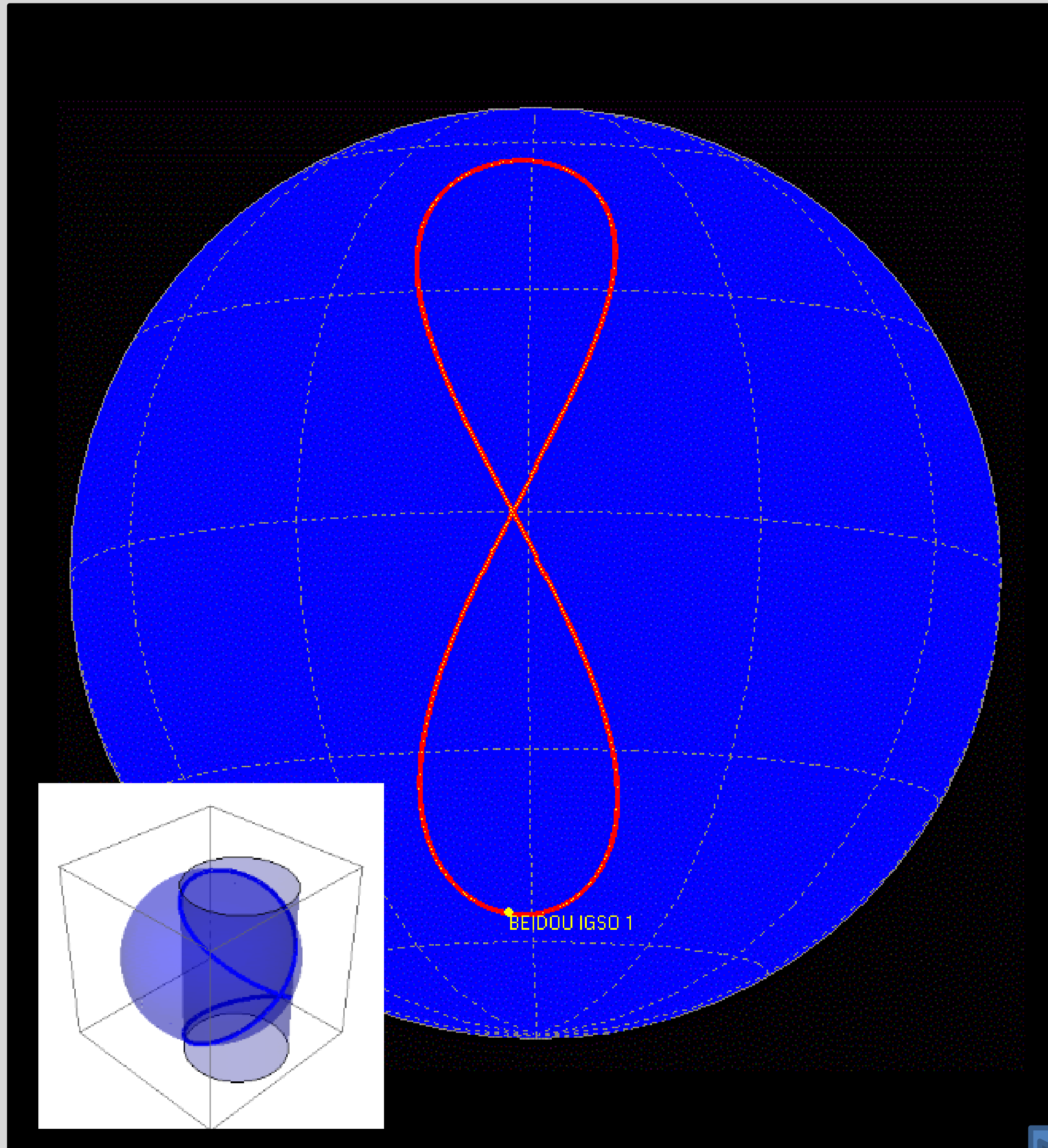
$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = a + acos(t) \\ y(t) = btan\left(\dfrac{t}{2}\right) \\ z(t) = asin(t) \end{cases}$$

$a =$

$b =$



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CALCULAR

VOLVER

SALIR

POSICION

VELOCIDAD

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CURVATURA

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CENTRO DE CURVATURA

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RADIO DE TORSION

LONGITUD DE ARCO

VOLVER

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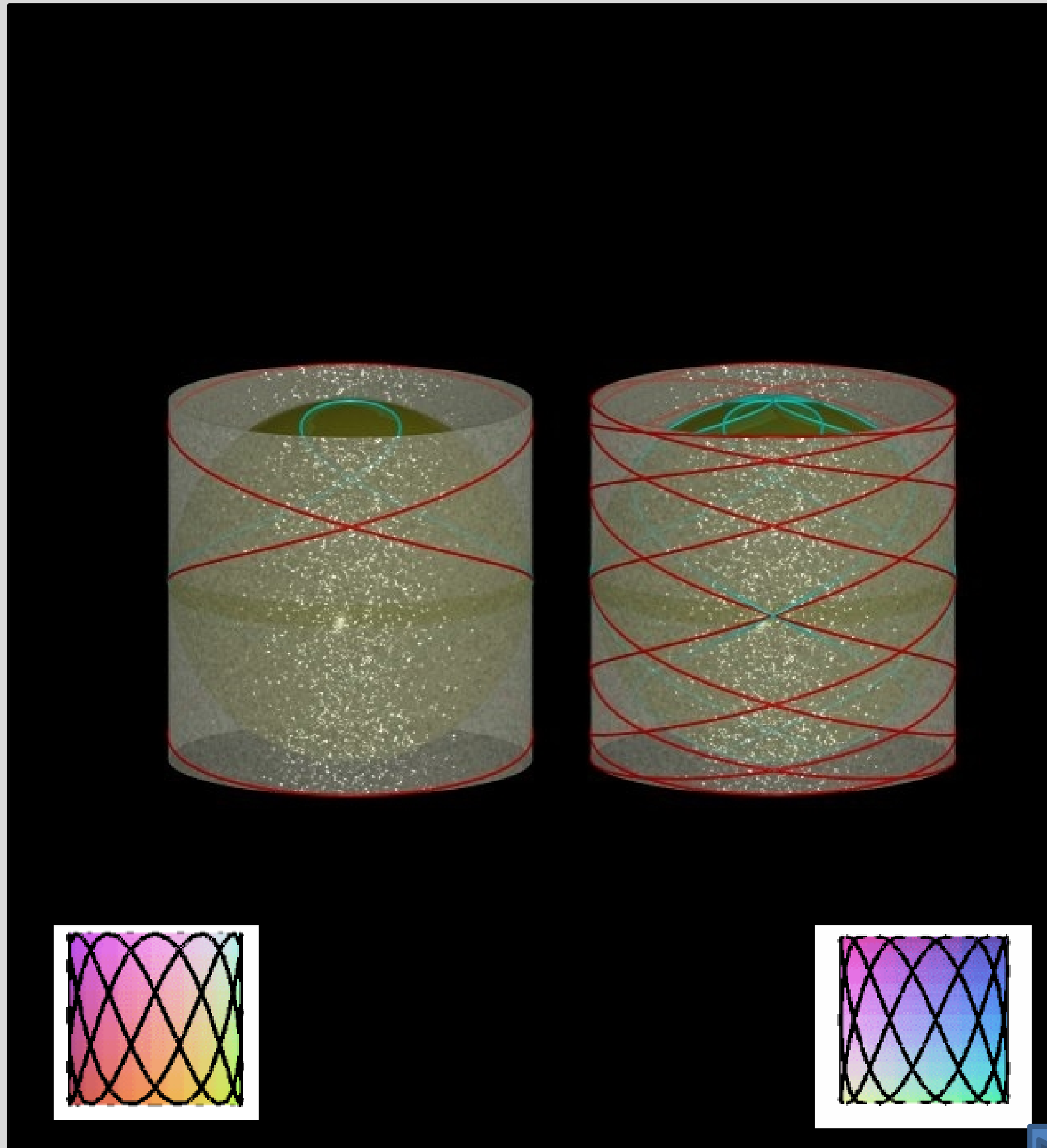
$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = a + (R-a)cos(t) \\ \\ y(t) = (R-a)sin(t) \\ \\ z(t) = 2\sqrt{a(R-a)}sin\left(\frac{t}{2}\right) \end{cases}$$

$a =$

$b =$

$n =$



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CALCULAR

VOLVER

SALIR

POSICION

VELOCIDAD

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ACELERACION

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CURVATURA

RADIO DE CURVATURA

CENTRO DE CURVATURA

TORSION

RADIO DE TORSION

LONGITUD DE ARCO

VOLVER

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SALIR

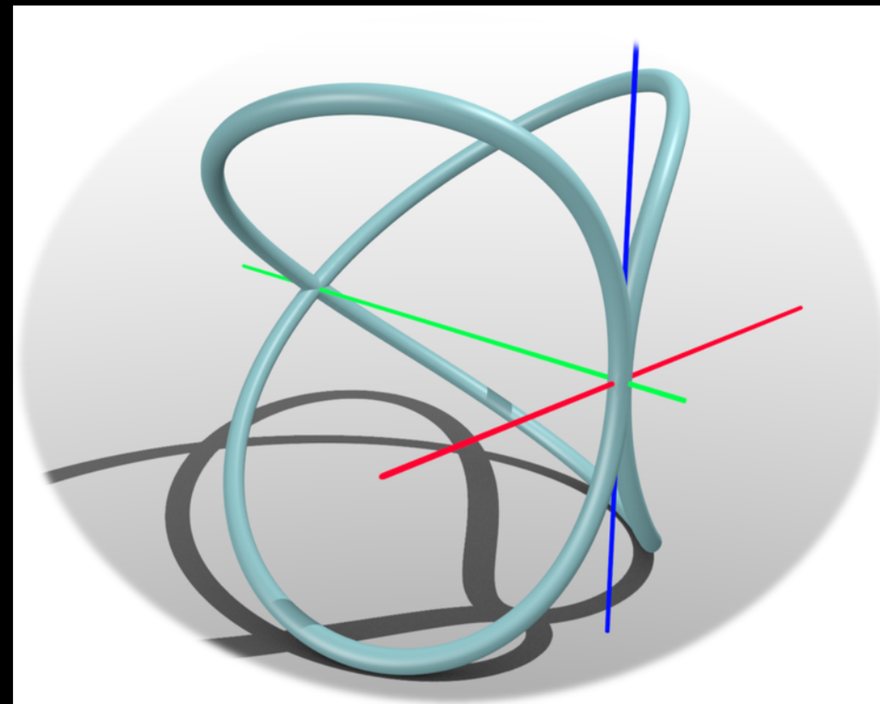
$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = acos(t) \\ y(t) = asin(t) \\ z(t) = bcos(nt) \quad : n > 0 \end{cases}$$

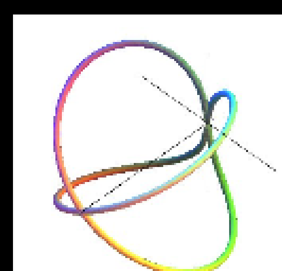
$$R_c = -a\frac{\left[1 + n^2 sin^2(nt)\right]^{\frac{3}{2}}}{\sqrt{1 + n^2 sin^2(nt) + n^4 cos^2(nt)}}$$

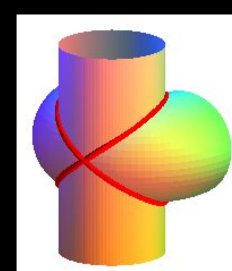
$$R_t = a\frac{1 + n^2 sin^2(nt) + n^4 cos^2(nt)}{n(n^2 - 1)sin(nt)}$$

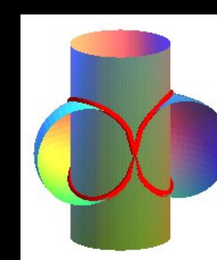
$a =$ ☐

$-\frac{\pi}{2} \leq t = \square \leq \frac{\pi}{2}$









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CALCULAR

VOLVER

SALIR

POSICION

VELOCIDAD

VELOCIDAD MEDIA

ACELERACION

ACELERACION MEDIA

CURVATURA

RADIO DE CURVATURA

CENTRO DE CURVATURA

TORSION

RADIO DE TORSION

LONGITUD DE ARCO

VOLVER

MENU PRINCPAL

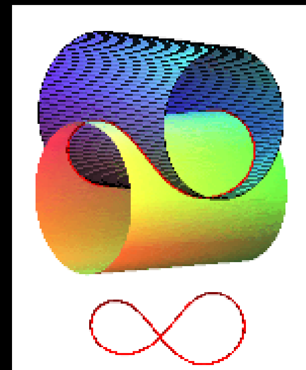
SALIR

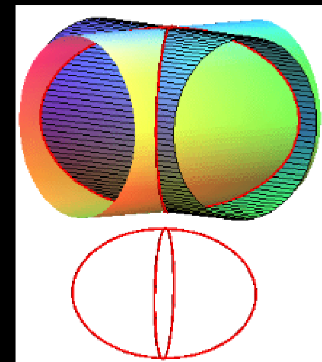
$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = acos^2(t) \\ y(t) = acos(t)sin(t) \\ z(t) = \pm a\sqrt{[1 - cos(t)]cos(t)} \\ -\frac{\pi}{2} \leq t \leq \frac{\pi}{2} \end{cases}$$

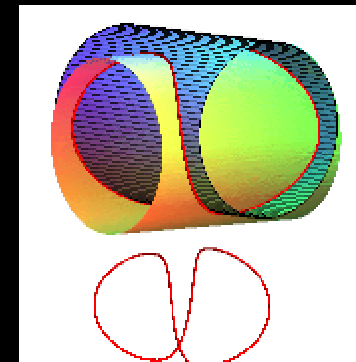
$a =$

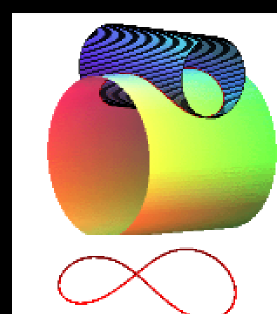
$b =$

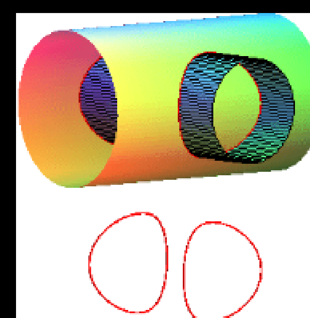
$c =$

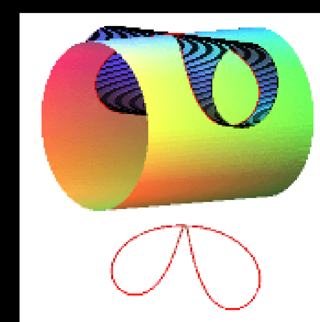












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CALCULAR

VOLVER

SALIR

POSICION

VELOCIDAD

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ACELERACION

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CURVATURA

RADIO DE CURVATURA

CENTRO DE CURVATURA

TORSION

RADIO DE TORSION

LONGITUD DE ARCO

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$$\vec{r}(t) = (x(t), y(t), z(t)) = \begin{cases} x(t) = acos(t) \\ \\ y(t) = \pm\sqrt{b^2 - \left[2c + asin(t)\right]^2} \\ \\ z(t) = c + asin(t) \end{cases}$$