

Determineu l'esfera de centre $A(6, 3, -4)$ i tangent a l'eix O_x

Solució:

La projecció del punt $A(6, 3, 4)$ sobre l'eix $O_x \equiv \begin{cases} y = 0 \\ z = 0 \end{cases}$ és:

$A'(6, 0, 0)$

El radi de l'esfera és:

$$r = \overline{AA'} = \sqrt{0^2 + 3^2 + (-4)^2} = 5$$

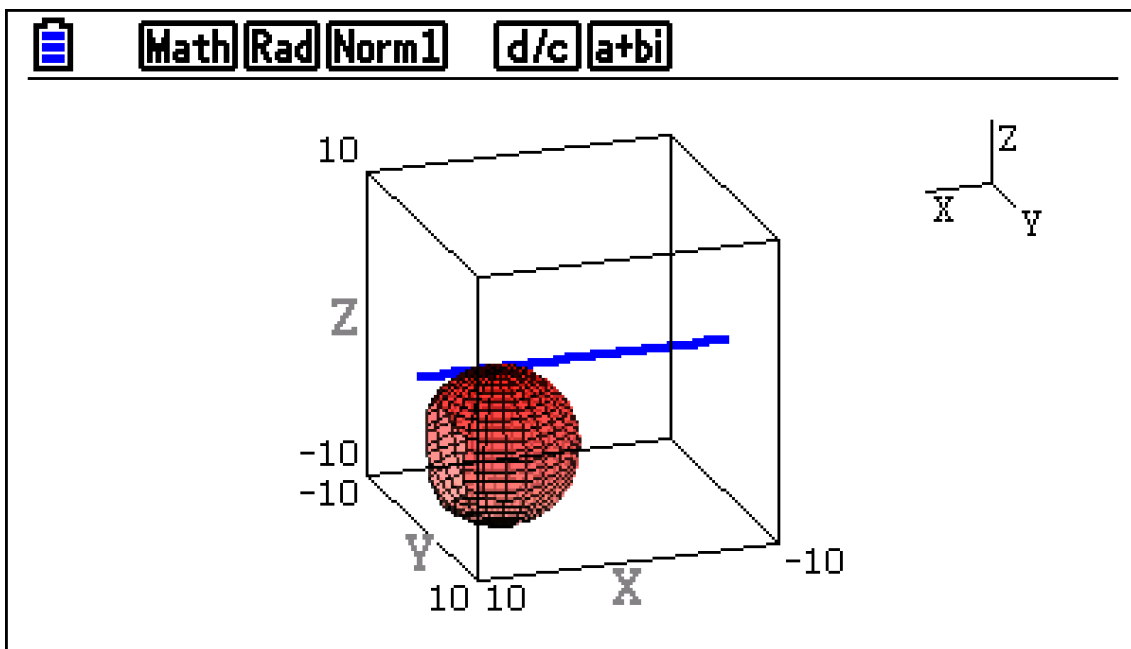
L'equació de l'esfera és:

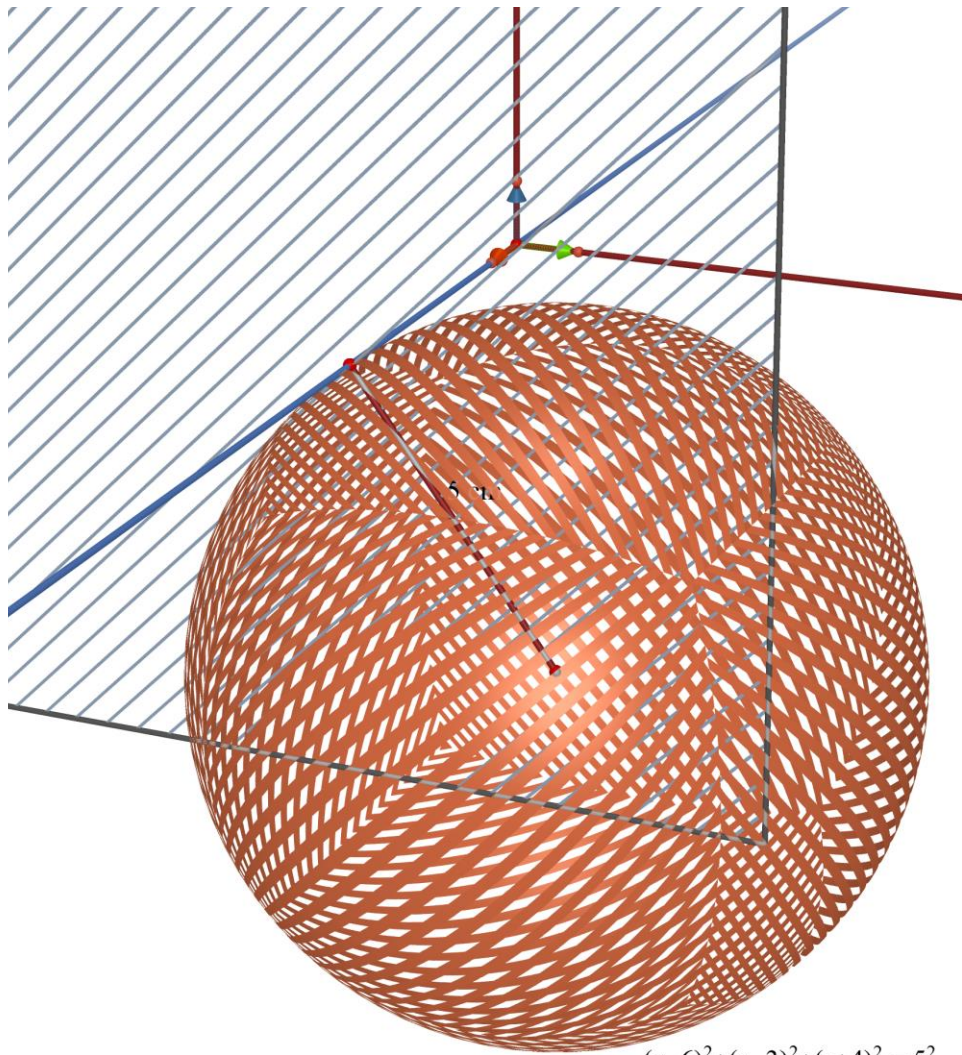
$$E \equiv (x - 6)^2 + (y - 3)^2 + (z + 4)^2 = 5^2$$

Obrim el *Menú Gráfico 3D*.

Definim i Representem l'esfera i l'eix O_x

<div style="border-bottom: 1px solid black; padding-bottom: 5px;"> Math Rad Norm1 d/c a+bi </div> <p style="font-size: small; color: blue;">Punto de paso (X_0, Y_0, Z_0) Vector dirección $[a, b, c]$</p> <table style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <td style="text-align: center; border-right: 1px solid black; border-bottom: 1px solid black;">X_0</td> <td style="text-align: center; border-right: 1px solid black; border-bottom: 1px solid black;">Y_0</td> <td style="text-align: center; border-bottom: 1px solid black;">Z_0</td> </tr> <tr> <td style="text-align: center;">[0</td> <td style="text-align: center;">[0</td> <td style="text-align: center;">[0]</td> </tr> <tr> <td style="text-align: center; border-right: 1px solid black; border-bottom: 1px solid black;">a</td> <td style="text-align: center; border-right: 1px solid black; border-bottom: 1px solid black;">b</td> <td style="text-align: center; border-bottom: 1px solid black;">c</td> </tr> <tr> <td style="text-align: center;">[1</td> <td style="text-align: center;">[0</td> <td style="text-align: center;">[0]</td> </tr> </table> <p style="text-align: right; font-size: x-small;">0</p> <div style="border-top: 1px solid black; padding-top: 5px; font-size: x-small;"> EXPRESS VECTOR P&V POINTS EDIT SET </div>	X_0	Y_0	Z_0	[0	[0	[0]	a	b	c	[1	[0	[0]	<div style="border-bottom: 1px solid black; padding-bottom: 5px;"> Math Rad Norm1 d/c a+bi </div> <p style="font-size: small; color: blue;">$(X-a)^2+(Y-b)^2+(Z-c)^2=r^2$</p> <table style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <td style="text-align: center; border-right: 1px solid black; border-bottom: 1px solid black;">a</td> <td style="text-align: center; border-right: 1px solid black; border-bottom: 1px solid black;">b</td> <td style="text-align: center; border-bottom: 1px solid black;">c</td> <td style="text-align: center; border-bottom: 1px solid black;">r</td> </tr> <tr> <td style="text-align: center;">[6</td> <td style="text-align: center;">[3</td> <td style="text-align: center;">[-4</td> <td style="text-align: center;">[5]</td> </tr> </table> <p style="text-align: right; font-size: x-small;">5</p> <div style="border-top: 1px solid black; padding-top: 5px; font-size: x-small;"> FACTOR EXPAND EDIT SET </div>	a	b	c	r	[6	[3	[-4	[5]
X_0	Y_0	Z_0																			
[0	[0	[0]																			
a	b	c																			
[1	[0	[0]																			
a	b	c	r																		
[6	[3	[-4	[5]																		





$$(x-6)^2 + (y-3)^2 + (z+4)^2 = 5^2$$