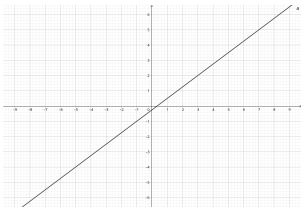
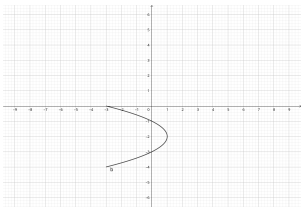
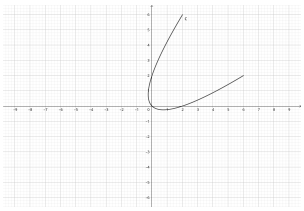
1. *a)*
   - $x = 3 - 4t \Rightarrow \star : \frac{-x+3}{4} = t$
   - $y = 2 - 3t \overset{\star}{\Rightarrow} y = 2 - 3(\frac{-x+3}{4}) \equiv y = \frac{3x}{4} - \frac{1}{4}$



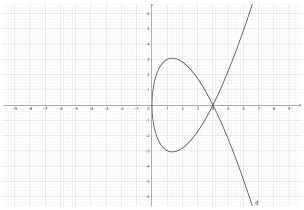
b)
   - $x = 1 - t^2$
   - $y = t - 2$
   - $-2 \leq t \leq 2$
   - No es función



c)
   - $x = t^2 + t$
   - $y = t^2 - t$
   - $-2 \leq t \leq 2$
   - No es función



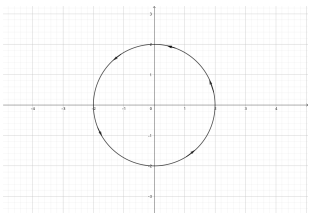
d)
   - $x = t^2$
   - $y = t^3 - 4t$
   - $-3 \leq t \leq 3$
   - No es función



2. *a)*
   - $r = 2$
   - $p = (0, 0)$
   - $x^2 + y^2 = 4$

$$\begin{cases} x(t) = 2 \cdot \cos(t) \\ y(t) = 2 \cdot \sin(t) \\ 0 \leq t < 2\pi \end{cases}$$

t	x	y
$\frac{\pi}{2}$	0	2
π	-2	0
$\frac{3\pi}{2}$	0	-2

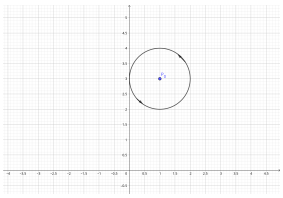


b)

- $r = 1$
- $p = (1, 3)$
- $(x-1)^2 + (y-3)^2 = 1$

$$\begin{cases} x(t) = 1 + \cos(t) \\ y(t) = 3 + \sin(t) \\ 0 \leq t < 2\pi \end{cases}$$

t	x	y
$\frac{\pi}{2}$	1	4
π	0	3
$\frac{3\pi}{2}$	1	2

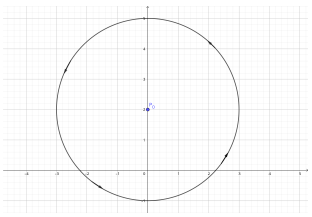


c)

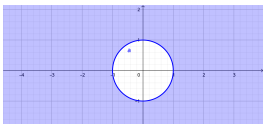
- $r = 3$
- $p = (0, 2)$
- $(x)^2 + (y-2)^2 = 9$

$$\begin{cases} x(t) = 3 \cdot \cos(t) \\ y(t) = 2 + 3\sin(t) \\ 0 \leq t < 2\pi \end{cases}$$

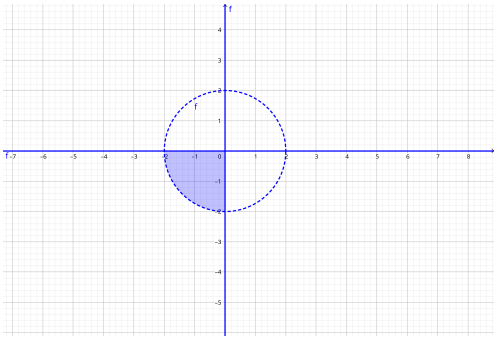
t	x	y
$\frac{\pi}{2}$	0	5
π	-3	2
$\frac{3\pi}{2}$	0	-1



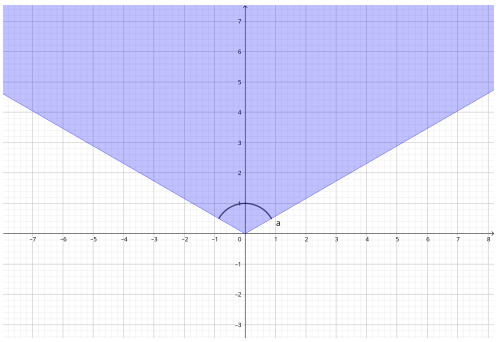
3. *a*)



b)



c)

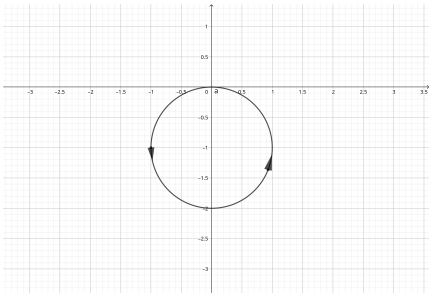


4. a)

- $\star : r = -2\sin(\theta)$
- $x = \cos(\theta) * r \overset{\star}{\Rightarrow} x = \cos(\theta) \cdot (-2\sin(\theta))$
- $x = \sin(\theta) * r \overset{\star}{\Rightarrow} y = -2\sin^2(\theta)$

$$\begin{cases} x(t) = -2 \cdot \cos(t)\sin(t) \\ y(t) = -2\sin^2(\theta) \\ 0 \leq t < \pi \end{cases}$$

t	x	y
$\frac{\pi}{4}$	-1	-1
$\frac{\pi}{2}$	0	-2
π	0	0
$\frac{3\pi}{4}$	1	-1



b)

- $\star : r = 1 - \cos(\theta)$
- $x = r \cdot \cos(\theta) \overset{\star}{\Rightarrow} x = \cos(\theta) - \cos^2(\theta)$
- $y = r \cdot \sin(\theta) \overset{\star}{\Rightarrow} y = \sin(\theta) - \sin(\theta) \cdot \cos(\theta)$

$r = \sqrt{x^2 + t^2} \overset{\star}{\Rightarrow}$

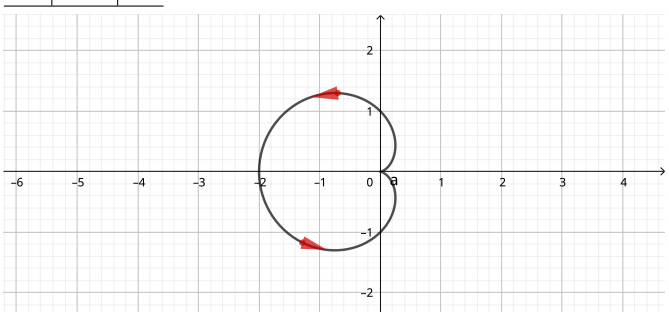
$\sqrt{x^2 + t^2} = 1 - \cos(\theta) \overset{\cos(\theta) = \frac{x}{\sqrt{x^2+y^2}}}{\equiv}$

$\sqrt{x^2 + t^2} = 1 - \frac{x}{\sqrt{x^2+y^2}} \equiv$

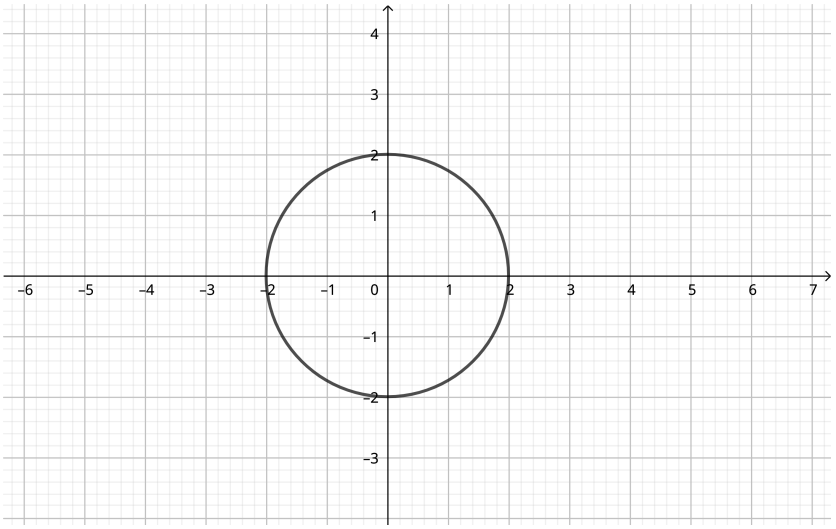
$x^2 + y^2 = \sqrt{x^2 + y^2} - x$

$$\begin{cases} x(\theta) = \cos(\theta) - \cos^2(\theta) \\ y(\theta) = \sin(\theta) - \sin(\theta) \cdot \cos(\theta) \\ 0 \leq \theta < 2\pi \end{cases}$$

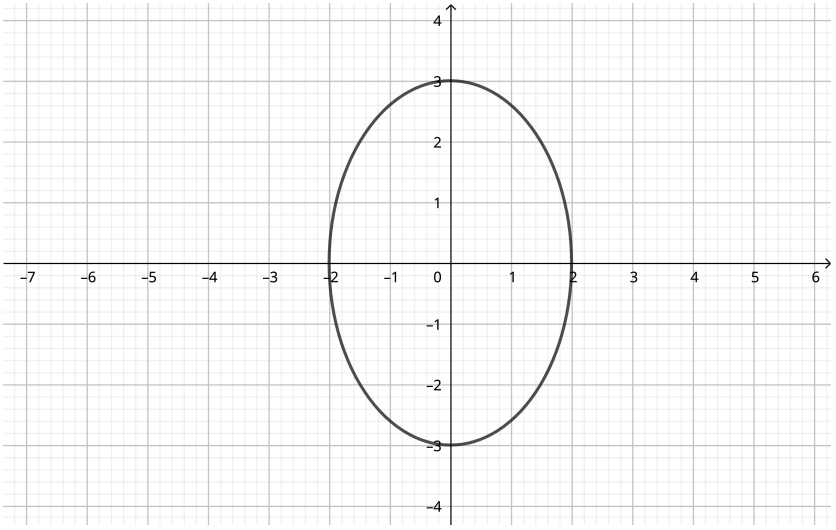
t	x	y
0	0	0
π	-2	0



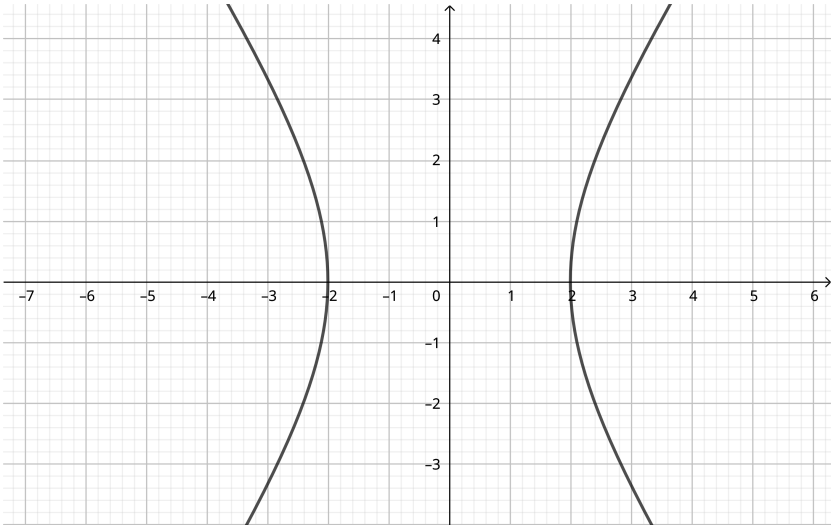
5. *a*) 1)


4
3
2
1
−6 −5 −4 −3 −2 −1 0 1 2 3 4 5 6 7
−1
−2
−3

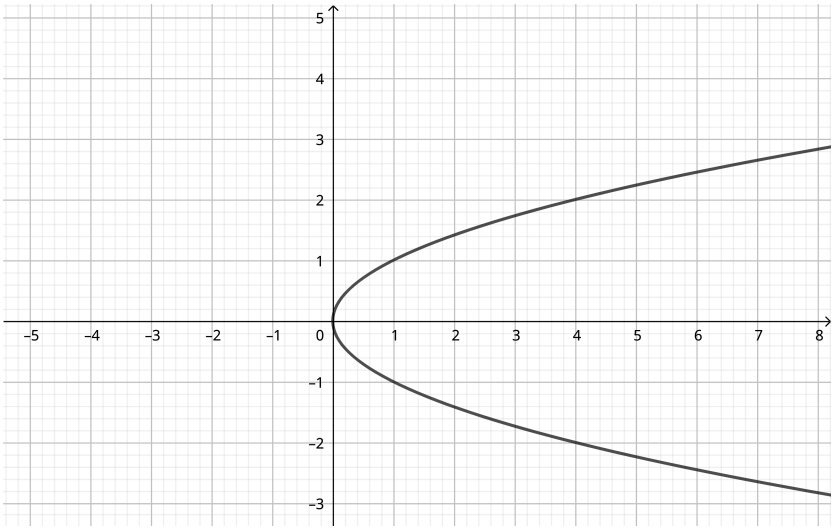
2)


4
3
2
1
−7 −6 −5 −4 −3 −2 −1 0 1 2 3 4 5 6
−1
−2
−3
−4

3)

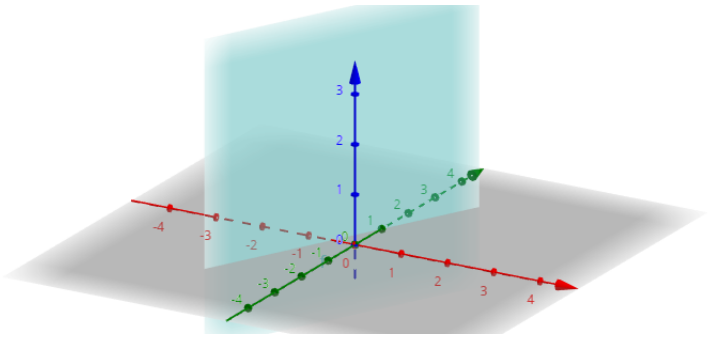

4
3
2
1
−7 −6 −5 −4 −3 −2 −1 0 1 2 3 4 5 6
−1
−2
−3

4)

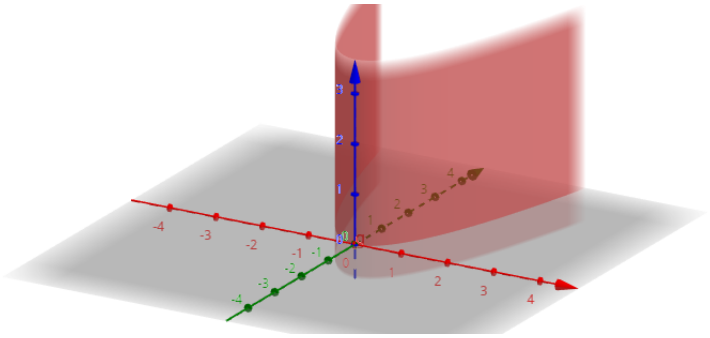


b) Son curvas de nivel, a mayor a mayor ancho, a mayor b mayor altura

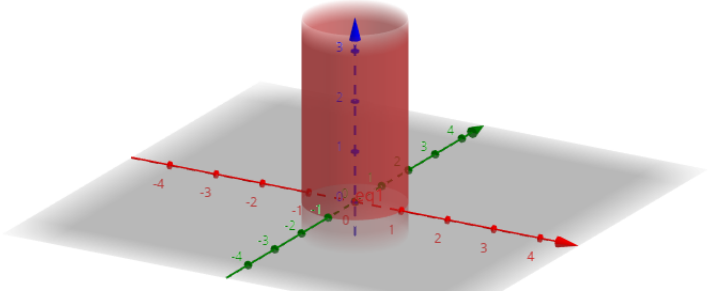
6. *a*)



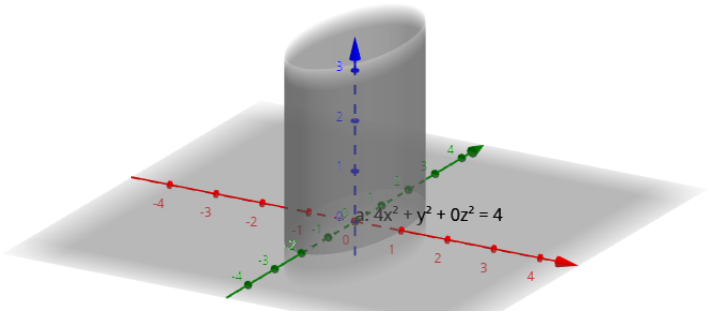
b)



c)



d)

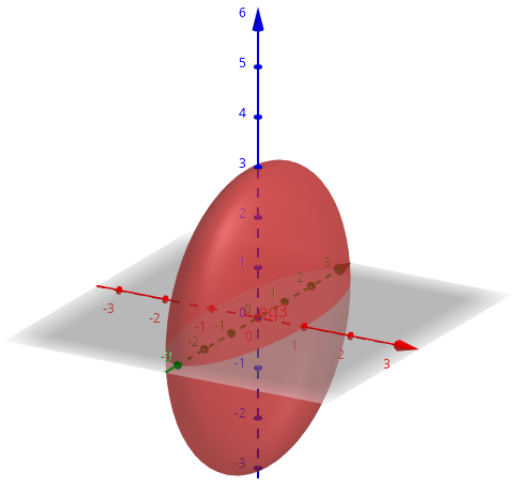


7. *a*) 1) $x^2 + \frac{y^2}{4} + \frac{z^2}{9} = 1$

- $\overset{z=-2}{\Rightarrow} x^2 + \frac{y^2}{9} + \frac{4}{9} = 1$ Una elipse
- $\overset{z=-1}{\Rightarrow} x^2 + \frac{y^2}{9} + \frac{1}{9} = 1$ Una elipse
- $\overset{z=0}{\Rightarrow} x^2 + \frac{y^2}{9} = 1$ Circulo
- $\overset{z=1}{\Rightarrow} x^2 + \frac{y^2}{9} + \frac{1}{9} = 1$ Una elipse
- $\overset{z=2}{\Rightarrow} x^2 + \frac{y^2}{9} + \frac{4}{9} = 1$ Una elipse

- $\overset{y=-2}{\Rightarrow} x^2 + \frac{4}{9} + \frac{z^2}{9} = 1$ Una elipse
- $\overset{y=-1}{\Rightarrow} x^2 + \frac{1}{9} + \frac{z^2}{9} = 1$ Una elipse
- $\overset{y=0}{\Rightarrow} x^2 + \frac{z^2}{9} = 1$ Circulo
- $\overset{y=1}{\Rightarrow} x^2 + \frac{1}{9} + \frac{z^2}{9} = 1$ Una elipse
- $\overset{y=2}{\Rightarrow} x^2 + \frac{4}{9} + \frac{z^2}{9} = 1$ Una elipse

- $\overset{x=-2}{\Rightarrow} 4 + \frac{y^2}{9} + \frac{z^2}{9} = 1$ Circulo
- $\overset{x=-1}{\Rightarrow} 1 + \frac{y^2}{9} + \frac{z^2}{9} = 1$ Circulo
- $\overset{x=0}{\Rightarrow} \frac{y^2}{9} + \frac{z^2}{9} = 1$ Circulo
- $\overset{x=1}{\Rightarrow} 1 + \frac{y^2}{9} + \frac{z^2}{9} = 1$ Circulo
- $\overset{x=2}{\Rightarrow} 4 + \frac{y^2}{9} + \frac{z^2}{9} = 1$ Circulo

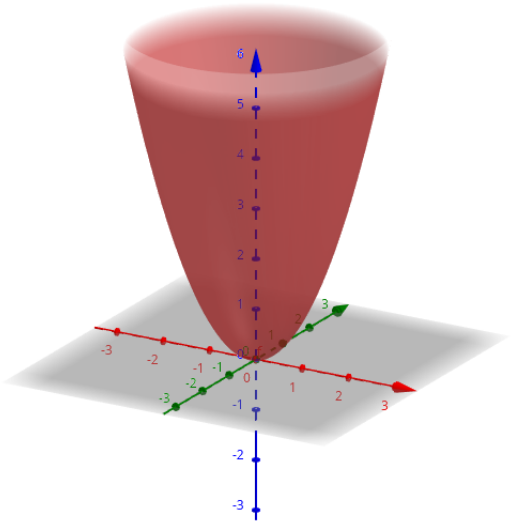


2) $z = x^2 + y^2$

- $\overset{z=0}{\Rightarrow} x^2 + y^2 = 0$ un punto
- $\overset{z=1}{\Rightarrow} x^2 + y^2 = 1$ Un circulo con centro en (0,0) y radio 1
- $\overset{z=2}{\Rightarrow} x^2 + y^2 = 2$ Un circulo con centro en (0,0) y radio $\sqrt{(2)}$

- $\overset{y=-2}{\Rightarrow} x^2 + 4 = z$ Una parabola
- $\overset{y=-1}{\Rightarrow} x^2 + 1 = z$ Una parabola
- $\overset{y=0}{\Rightarrow} x^2 + 0 = z$ Una parabola
- $\overset{y=1}{\Rightarrow} x^2 + 1 = z$ Una parabola
- $\overset{y=2}{\Rightarrow} x^2 + 4 = z$ Una parabola

- $\overset{x=-2}{\Rightarrow} 4 + y^2 = z$ Una parabola
- $\overset{x=-1}{\Rightarrow} 1 + y^2 = z$ Una parabola
- $\overset{x=0}{\Rightarrow} 0 + y^2 = z$ Una parabola
- $\overset{x=1}{\Rightarrow} 1 + y^2 = z$ Una parabola
- $\overset{x=2}{\Rightarrow} 4 + y^2 = z$ Una parabola



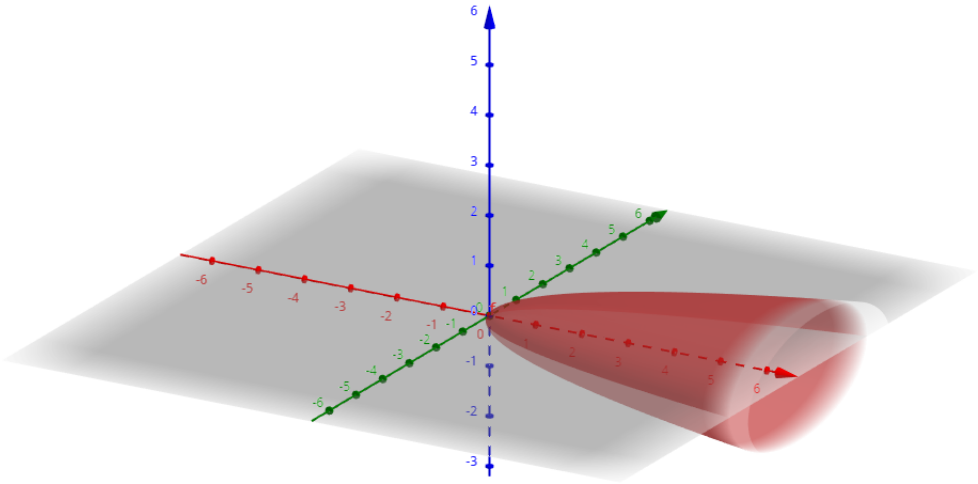
3) $x = y^2 + 4z^2$

- $\overset{z=-2}{\Rightarrow} x = y^2 + 16$ Una parabola
- $\overset{z=-1}{\Rightarrow} x = y^2 + 4$ Una parabola
- $\overset{z=0}{\Rightarrow} x = y^2 +$ Una parabola
- $\overset{z=1}{\Rightarrow} x = y^2 + 4$ Una parabola
- $\overset{z=2}{\Rightarrow} x = y^2 + 16$ Una parabola

- $\overset{y=-2}{\Rightarrow} x = 4 + 4z^2$ Una parabola
- $\overset{y=-1}{\Rightarrow} x = 1 + 4z^2$ Una parabola
- $\overset{y=0}{\Rightarrow} x = 0 + 4z^2$ Una parabola
- $\overset{y=1}{\Rightarrow} x = 1 + 4z^2$ Una parabola
- $\overset{y=2}{\Rightarrow} x = 4 + 4z^2$ Una parabola

- $\overset{x=0}{\Rightarrow} x = y^2 + 4z^2$ Un punto

- $\overset{x=1}{\Rightarrow} 1 = y^2 + 4z^2$ Una elipse
- $\overset{x=2}{\Rightarrow} 2 = y^2 + 4z^2$ Una elipse

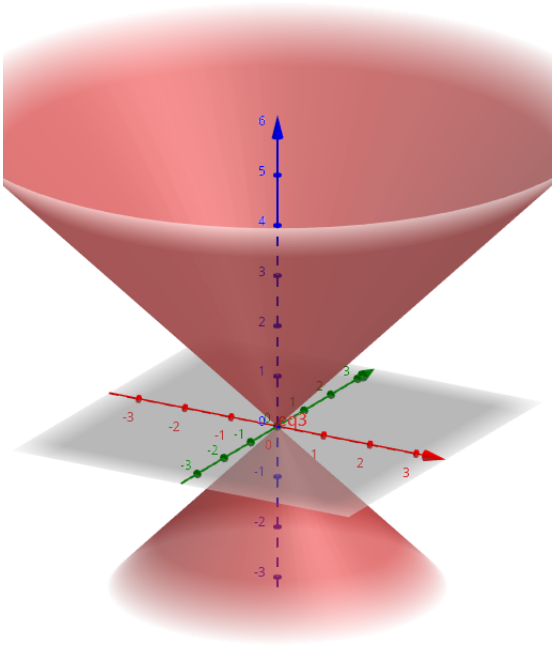


4) $z^2 = x^2 + y^2$

- $\overset{z=-2}{\Rightarrow} 4 = x^2 + y^2$ Un circulo con centro en (0,0) y radio $\sqrt{(2)}$
- $\overset{z=-1}{\Rightarrow} 1 = x^2 + y^2$ Un circulo con centro en (0,0) y radio 1
- $\overset{z=0}{\Rightarrow} 0 = x^2 + y^2$ Un punto
- $\overset{z=1}{\Rightarrow} 1 = x^2 + y^2$ Un circulo con centro en (0,0) y radio 1
- $\overset{z=2}{\Rightarrow} 4 = x^2 + y^2$ Un circulo con centro en (0,0) y radio $\sqrt{(2)}$

- $\overset{y=-2}{\Rightarrow} z^2 - x^2 = 4$ Hiperbola
- $\overset{y=-1}{\Rightarrow} z^2 - x^2 = 1$ Hiperbola
- $\overset{y=0}{\Rightarrow} z^2 - x^2 = 0$ Una X
- $\overset{y=1}{\Rightarrow} z^2 - x^2 = 1$ Hiperbola
- $\overset{y=2}{\Rightarrow} z^2 - x^2 = 4$ Hiperbola

- $\overset{x=-2}{\Rightarrow} z^2 - y^2 = 4$ Hiperbola
- $\overset{x=-1}{\Rightarrow} z^2 - y^2 = 1$ Hiperbola
- $\overset{x=0}{\Rightarrow} z^2 - y^2 = 0$ Una x
- $\overset{x=1}{\Rightarrow} z^2 - y^2 = 1$ Hiperbola
- $\overset{x=2}{\Rightarrow} z^2 - y^2 = 4$ Hiperbola

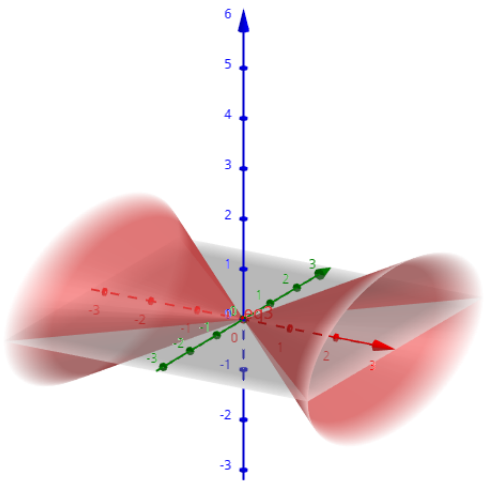


5) $x^2 = y^2 + 4z^2$

- $\overset{z=-2}{\Rightarrow} x^2 = y^2 + 16$ Hiperbola
- $\overset{z=-1}{\Rightarrow} x^2 = y^2 + 4$ Hiperbola
- $\overset{z=0}{\Rightarrow} x^2 = y^2$ Un punto
- $\overset{z=1}{\Rightarrow} x^2 = y^2 + 4$ Hiperbola
- $\overset{z=2}{\Rightarrow} x^2 = y^2 + 16$ Hiperbola

- $\overset{y=-2}{\Rightarrow} x^2 = 4 + 4z^2$ Hiperbola
- $\overset{y=-1}{\Rightarrow} x^2 = 1 + 4z^2$ Hiperbola
- $\overset{y=0}{\Rightarrow} x^2 = 4z^2$ Una X
- $\overset{y=1}{\Rightarrow} x^2 = 1 + 4z^2$ Hiperbola
- $\overset{y=2}{\Rightarrow} x^2 = 4 + 4z^2$ Hiperbola

- $\overset{x=-2}{\Rightarrow} 4 = y^2 + 4z^2$ Un elipse
- $\overset{x=-1}{\Rightarrow} 1 = y^2 + 4z^2$ Un elipse
- $\overset{x=0}{\Rightarrow} 0 = y^2 + 4z^2$ Un punto
- $\overset{x=1}{\Rightarrow} 1 = y^2 + 4z^2$ Un elipse
- $\overset{x=2}{\Rightarrow} 4 = y^2 + 4z^2$ Un elipse

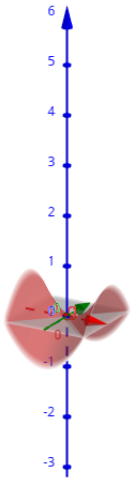


6) $z = x^2 - y^2$

- $\overset{z=-2}{\Rightarrow} -2 = x^2 - y^2$ Hiperbola
- $\overset{z=-1}{\Rightarrow} -1 = x^2 - y^2$ Hiperbola
- $\overset{z=0}{\Rightarrow} y^2 = x^2$ Ejes de 45°
- $\overset{z=1}{\Rightarrow} 1 = x^2 - y^2$ Hiperbola
- $\overset{z=2}{\Rightarrow} 2 = x^2 - y^2$ Hiperbola

- $\overset{y=-2}{\Rightarrow} z = x^2 - 4$ Parabola
- $\overset{y=-1}{\Rightarrow} z = x^2 - 1$ Parabola
- $\overset{y=0}{\Rightarrow} z = x^2 - 0$ Parabola
- $\overset{y=1}{\Rightarrow} z = x^2 - 1$ Parabola
- $\overset{y=2}{\Rightarrow} z = x^2 - 4$ Parabola

- $\overset{x=-2}{\Rightarrow} z = 4 - y^2$ Parabola
- $\overset{x=-1}{\Rightarrow} z = 1 - y^2$ Parabola
- $\overset{x=0}{\Rightarrow} z = 0 - y^2$ Parabola
- $\overset{x=1}{\Rightarrow} z = 1 - y^2$ Parabola
- $\overset{x=2}{\Rightarrow} z = 4 - y^2$ Parabola

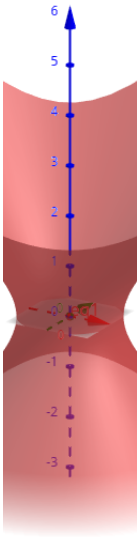


7) $x^2 + y^2 - z^2 = 1$

- $\overset{z=-2}{\Rightarrow} x^2 + y^2 - 4 = 1$ Circulo
- $\overset{z=-1}{\Rightarrow} x^2 + y^2 - 1 = 1$ Circulo
- $\overset{z=0}{\Rightarrow} x^2 + y^2 - 0 = 1$ Circulo
- $\overset{z=1}{\Rightarrow} x^2 + y^2 - 1 = 1$ Circulo
- $\overset{z=2}{\Rightarrow} x^2 + y^2 - 4 = 1$ Circulo

- $\overset{y=-2}{\Rightarrow} x^2 + 4 - z^2 = 1$ Hiperbola
- $\overset{y=-1}{\Rightarrow} x^2 + 1 - z^2 = 1$ Hiperbola
- $\overset{y=0}{\Rightarrow} x^2 + 0 - z^2 = 1$ Hiperbola
- $\overset{y=1}{\Rightarrow} x^2 + 1 - z^2 = 1$ Hiperbola
- $\overset{y=2}{\Rightarrow} x^2 + 4 - z^2 = 1$ Hiperbola

- $\overset{x=-2}{\Rightarrow} 4 + y^2 - z^2 = 1$ Hiperbola
- $\overset{x=-1}{\Rightarrow} 1 + y^2 - z^2 = 1$ Hiperbola
- $\overset{x=0}{\Rightarrow} 0 + y^2 - z^2 = 1$ Hiperbola
- $\overset{x=1}{\Rightarrow} 1 + y^2 - z^2 = 1$ Hiperbola
- $\overset{x=2}{\Rightarrow} 4 + y^2 - z^2 = 1$ Hiperbola

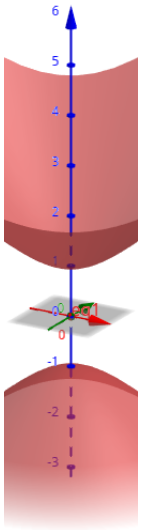


8) $-x^2 - y^2 + z^2 = 1$

- $\overset{z=-2}{\Rightarrow} -x^2 - y^2 + 4 = 1$ Circulo
- $\overset{z=-1}{\Rightarrow} -x^2 - y^2 + 2 = 1$ Circulo
- $\overset{z=0}{\Rightarrow} -x^2 - y^2 + 1 = 1$ Circulo
- $\overset{z=1}{\Rightarrow} -x^2 - y^2 + 2 = 1$ Circulo
- $\overset{z=2}{\Rightarrow} -x^2 - y^2 + 4 = 1$ Circulo

- $\overset{y=-2}{\Rightarrow} -x^2 - 4 + z^2 = 1$ Hiperbola
- $\overset{y=-1}{\Rightarrow} -x^2 - 2 + z^2 = 1$ Hiperbola
- $\overset{y=0}{\Rightarrow} -x^2 - 1 + z^2 = 1$ Hiperbola
- $\overset{y=1}{\Rightarrow} -x^2 - 2 + z^2 = 1$ Hiperbola
- $\overset{y=2}{\Rightarrow} -x^2 - 4 + z^2 = 1$ Hiperbola

- $\overset{x=-2}{\Rightarrow} -4 - y^2 + z^2 = 1$ Hiperbola
- $\overset{x=-1}{\Rightarrow} -2 - y^2 + z^2 = 1$ Hiperbola
- $\overset{x=0}{\Rightarrow} -1 - y^2 + z^2 = 1$ Hiperbola
- $\overset{x=1}{\Rightarrow} -2 - y^2 + z^2 = 1$ Hiperbola
- $\overset{x=2}{\Rightarrow} -4 - y^2 + z^2 = 1$ Hiperbola

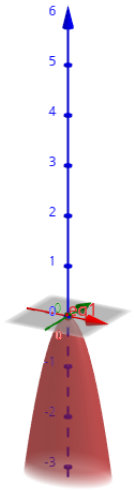


9) $4x^2 + 9y^2 + z = 0$

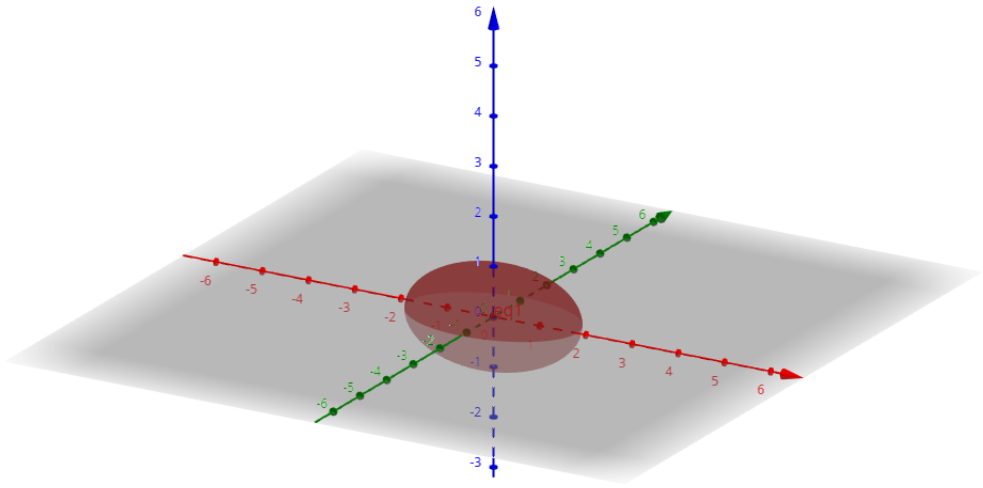
- $\overset{z=-2}{\Rightarrow} 4x^2 + 9y^2 + (-2) = 0$ Elipse
- $\overset{z=-1}{\Rightarrow} 4x^2 + 9y^2 + (-1) = 0$ Elipse
- $\overset{z=0}{\Rightarrow} 4x^2 + 9y^2 = 0$ Elipse
- $\overset{z=1}{\Rightarrow} 4x^2 + 9y^2 + 1 = 0$ Elipse
- $\overset{z=2}{\Rightarrow} 4x^2 + 9y^2 + 2 = 0$ Elipse

- $\overset{y=-2}{\Rightarrow} 4x^2 + 18 + z = 0$ Parabola
- $\overset{y=-1}{\Rightarrow} 4x^2 + 9 + z = 0$ Parabola
- $\overset{y=0}{\Rightarrow} 4x^2 + +z = 0$ Parabola
- $\overset{y=1}{\Rightarrow} 4x^2 + 9 + z = 0$ Parabola
- $\overset{y=2}{\Rightarrow} 4x^2 + 18 + z = 0$ Parabola

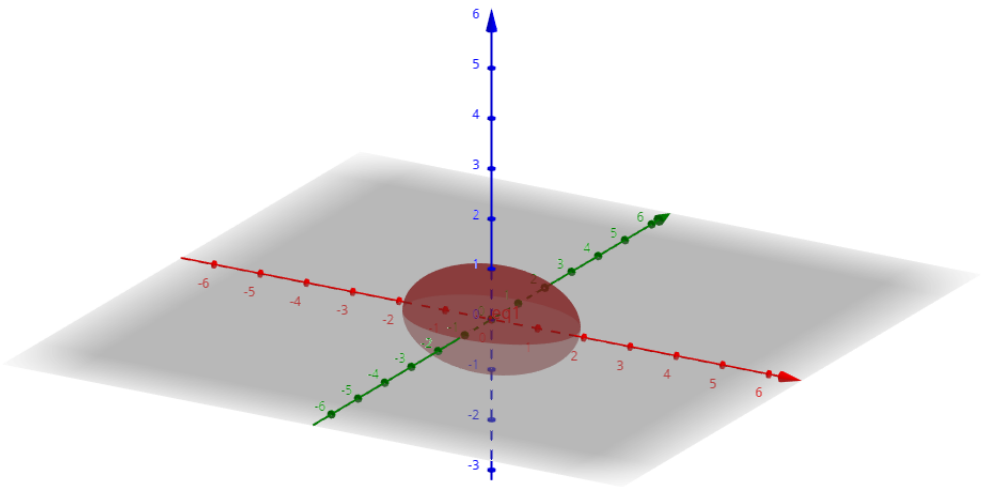
- $\overset{x=-2}{\Rightarrow} 16 + 9y^2 + z = 0$ Parabola
- $\overset{x=-1}{\Rightarrow} 4 + 9y^2 + z = 0$ Parabola
- $\overset{x=0}{\Rightarrow} 9y^2 + z = 0$ Parabola
- $\overset{x=1}{\Rightarrow} 4 + 9y^2 + z = 0$ Parabola
- $\overset{x=2}{\Rightarrow} 16 + 9y^2 + z = 0$ Parabola



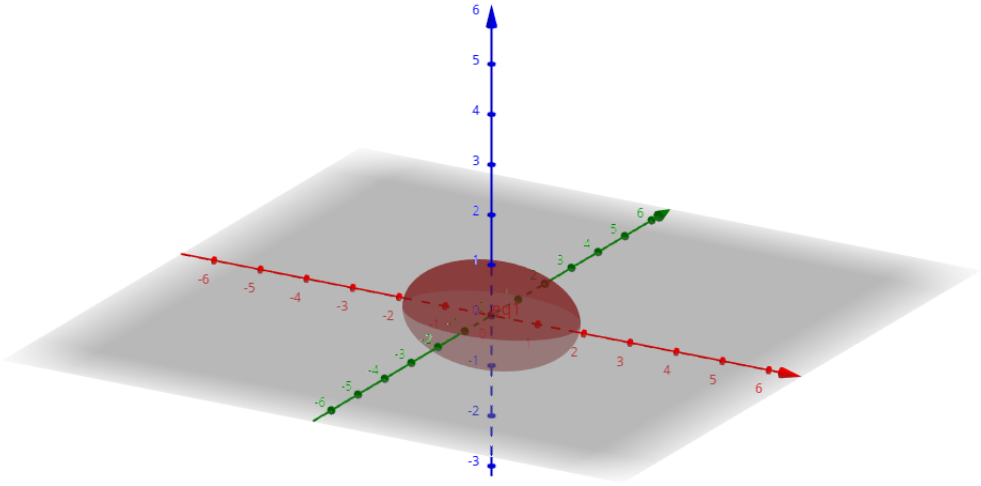
b) 1) $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$



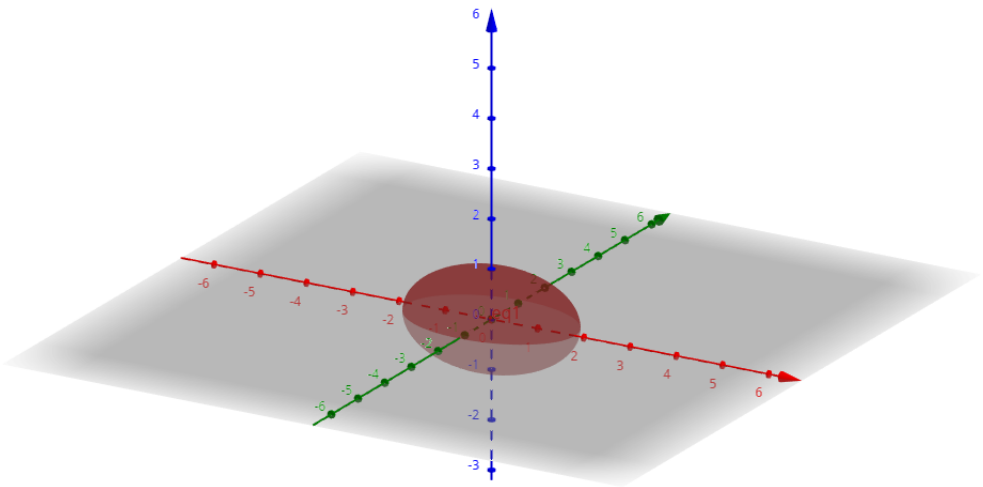
2) $z = \frac{x^2}{a^2} + \frac{y^2}{b^2}$



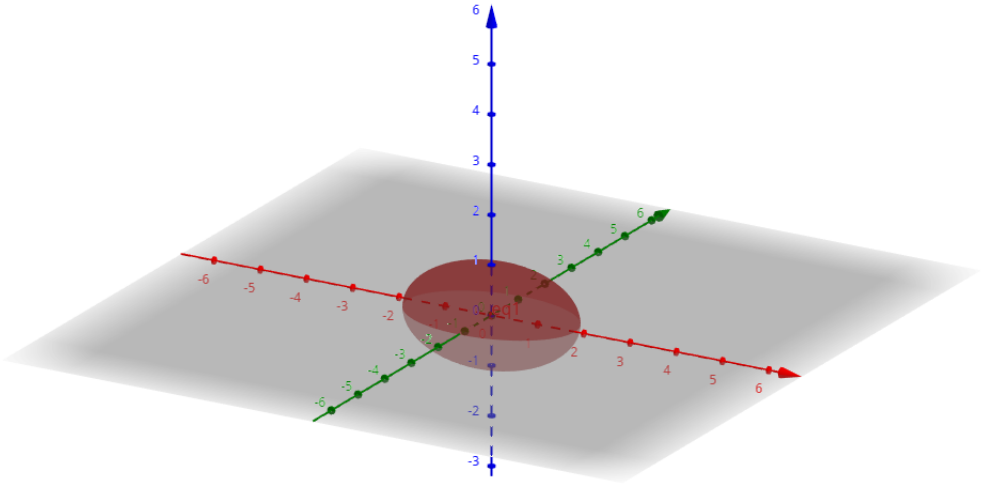
3) $z^2 = \frac{x^2}{a^2} + \frac{y^2}{b^2}$



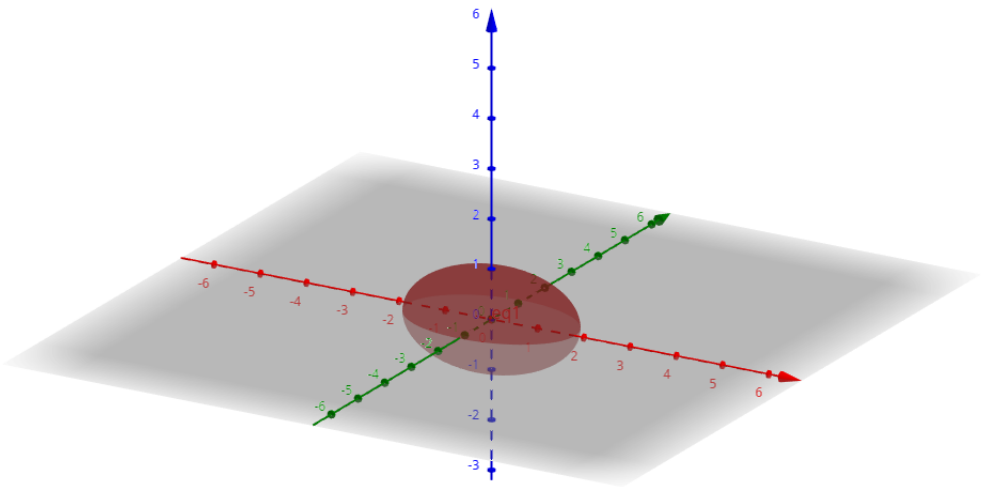
4) $z = \frac{x^2}{a^2} - \frac{y^2}{b^2}$



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

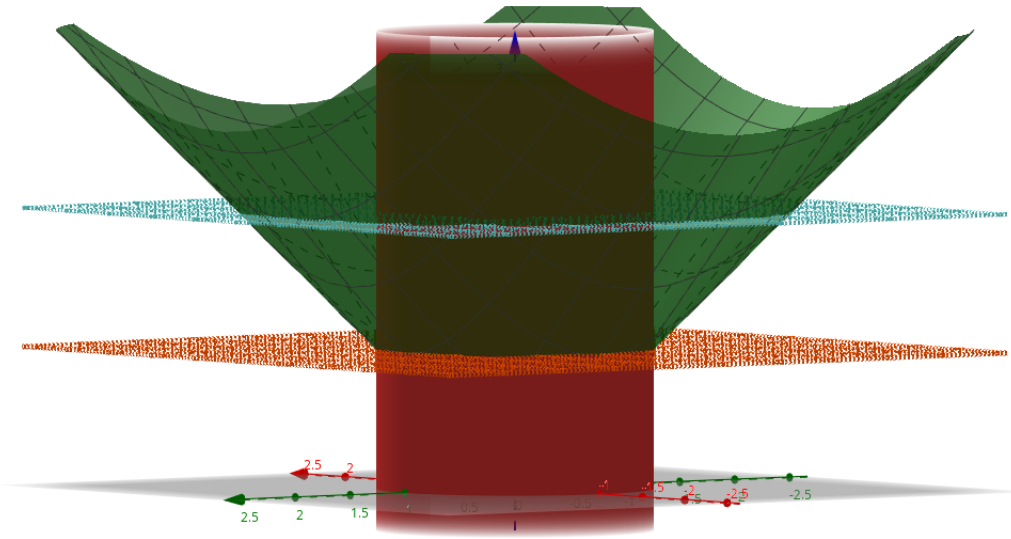


6) $-\frac{x^2}{a^2} - \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$



8. $x^2 + y^2 = 1$ Un cilindro con centro en (0,0,0)

   $z = \sqrt{(x^2 + y^2)}$ z es la distancia entre x e y, un paraboloide



9. *a)* $r(t) = (\sqrt{4 - t^2}, 5t + 1, \ln(t + 1))$
   - $f(t) = \sqrt{4 - t^2}$
     $\Leftrightarrow 4 - t^2 \geq 0 \Leftrightarrow 4 \geq t^2 \Leftrightarrow \sqrt{4} \geq |t| \Leftrightarrow 2 \geq |t| \Leftrightarrow -2 \leq t \leq 2$
     $\Rightarrow f : [-2, 2] \to \Re$
   - $g(t) = 5t + 1 \Rightarrow f : \Re \to \Re$
   - $h(t) = \ln(t + 1)$
     $\Leftrightarrow t + 1 > 0 \Leftrightarrow t > -1$

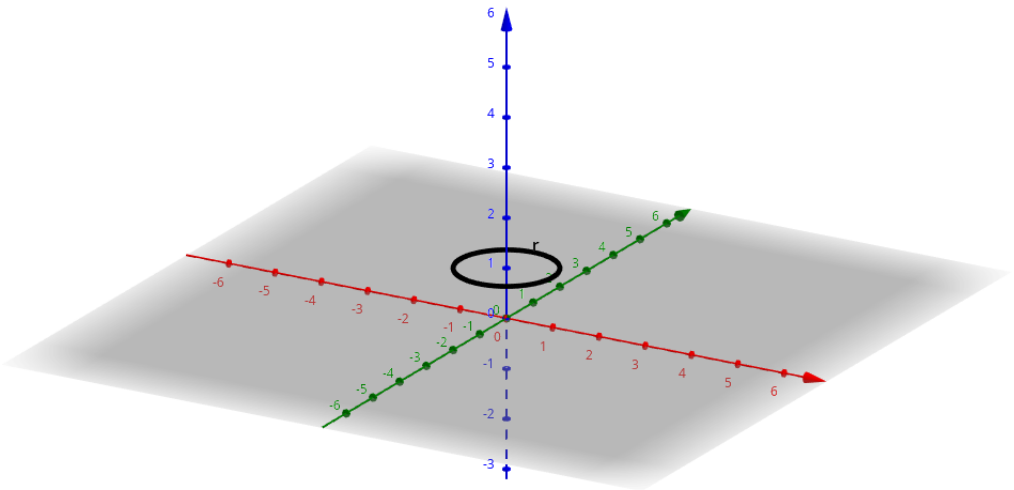
$\Rightarrow h : ([-1, \infty+) \to \Re$

b) $r(t) = (4t, \frac{3t}{t-2}, e^t)$

- $f(t) = 4t \Rightarrow f : \Re \to \Re$
- $g(t) = \frac{3t}{t-2} \Rightarrow f : \Re - \{2\} \to \Re$
- $h(t) = e^t \Rightarrow \Re \to \Re$

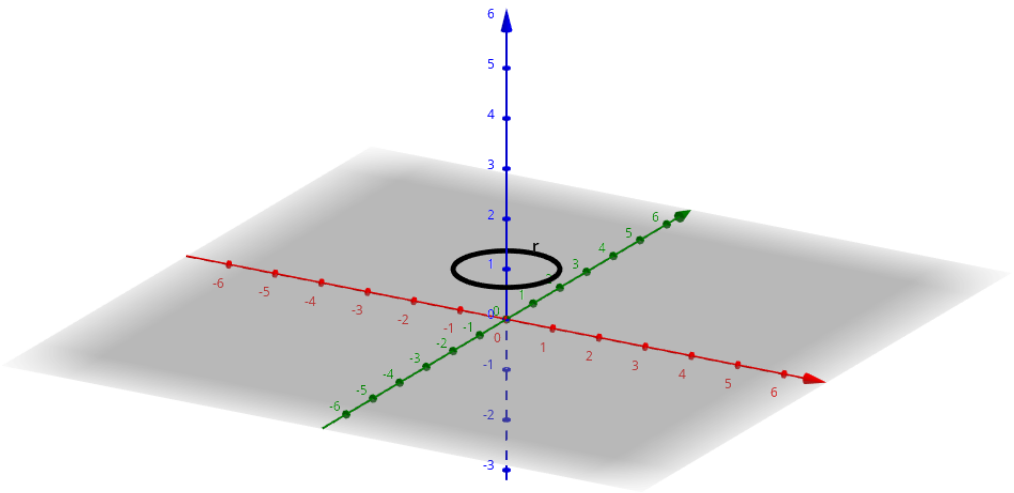
10. *a)* $r(t) = (\cos(t), \sin(t), 1)$

- $f(t) = \cos(t) \Rightarrow f : \Re \to [-1, 1]$
- $g(t) = \sin(t) \Rightarrow f : \Re \to [-1, 1]$
- $h(t) = \cos(t) \Rightarrow f : \Re \to 1$



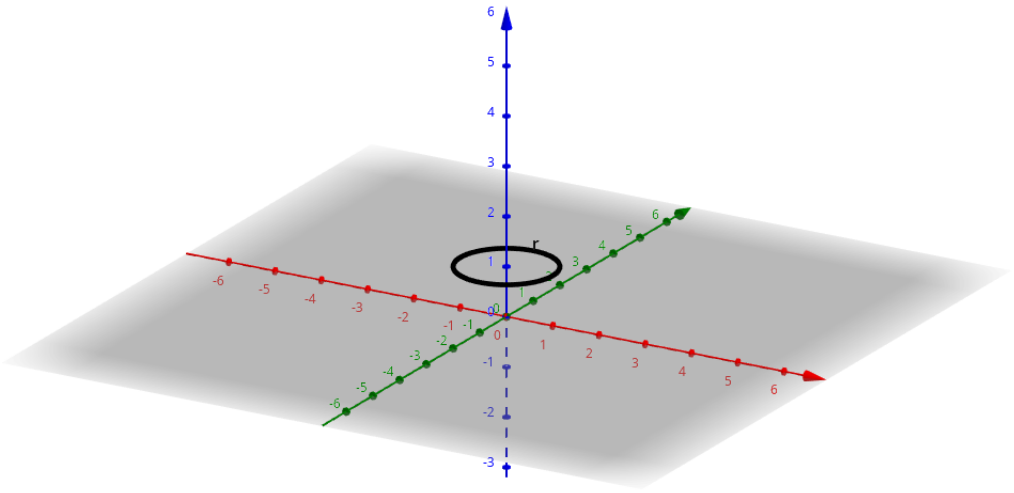
b) $r(t) = (t, t^2, t - t^2)$

- $f(t) = t \Rightarrow f : \Re \to [-1, 1]$
- $g(t) = t^2 \Rightarrow f : \Re \to [0, \infty+]$
- $h(t) = t - t^2 \Rightarrow f : \Re \to [\infty-, \frac{1}{4}]$

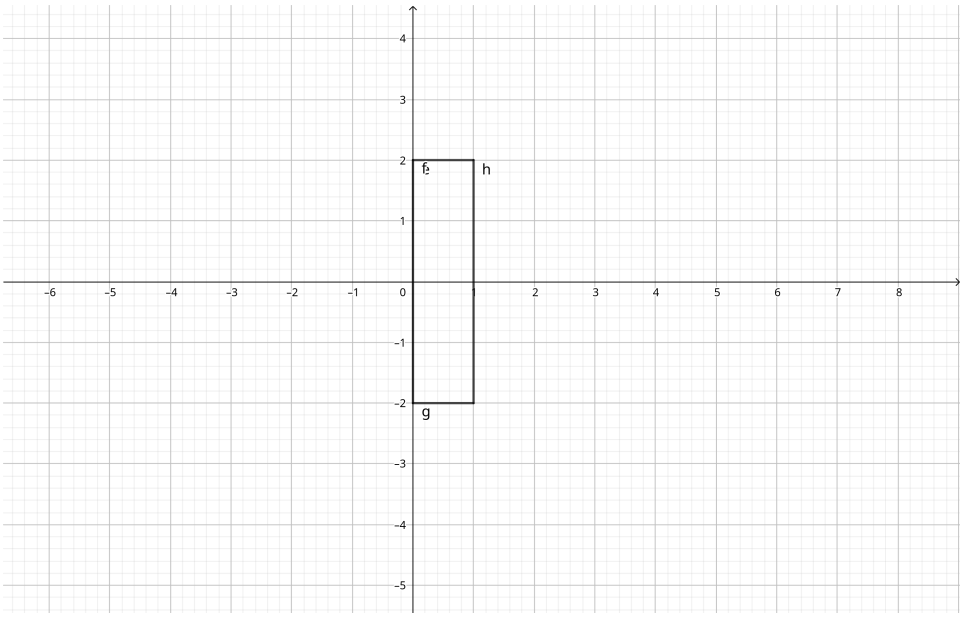


c) $r(t) = (t^2 + t, t^2 - t, (t^2 - t)^2)$

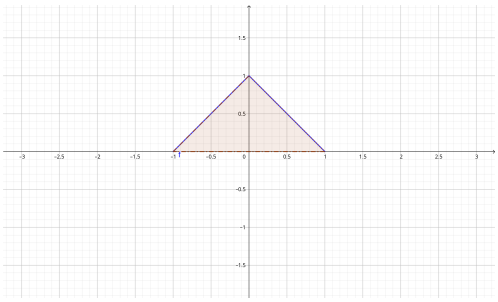
- $f(t) = t^2 + t \Rightarrow f : \Re \to [-\frac{1}{4}, \infty+]$
- $g(t) = t^2 - t \Rightarrow f : \Re \to [-\frac{1}{4}, \infty+]$
- $h(t) = (t^2 - t)^2 \Rightarrow f : \Re \to [0, \infty+]$



11. *a)* $r(t) = \begin{cases} t(0;-4) + (0;2)t \in [0,1] \\ (t-1)(1;0) + (0;2)t \in (1,2) \\ (t-2)(1;0) + (0;-2)t \in [2,3) \\ (t-3)(0;-4) + (1;2)t \in [2,3] \end{cases}$

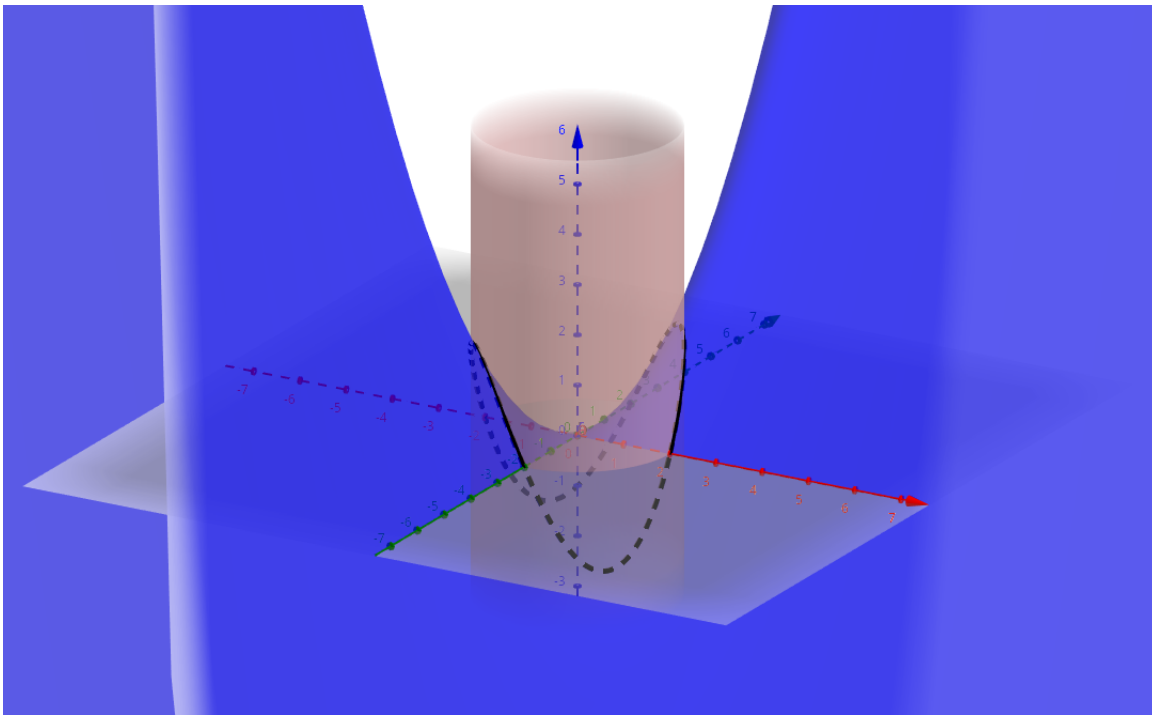


b) $r(t) = \begin{cases} t(-2;0) + (1;0)t \in [0,1] \\ (t-1)(1;1) + (-1;0)t \in (1,2) \\ (t-2)(1;-1) + (0;1)t \in [2,3] \end{cases}$



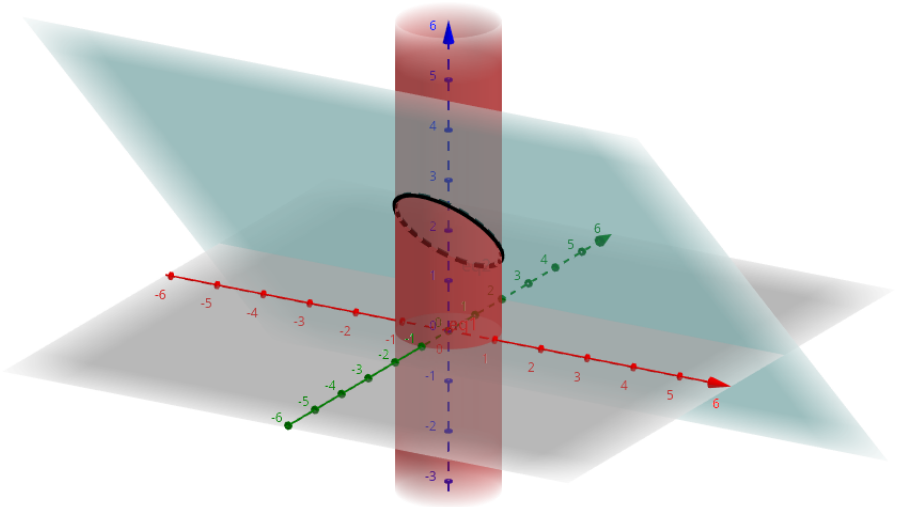
12. *a)* $x^2 + y^2 = 4 \wedge z = x \cdot y$

$$r(t) = \begin{cases} x = 2\cos(t) \\ y = 2\sin(t) \\ z = 2\cos(t) \\ 0 \leq t \leq 2\pi \end{cases}$$



b) $x^2 + y^2 = 1 \wedge y + z = 2$

$$r(t) = \begin{cases} x = \cos(t) \\ y = \sin(t) \\ z = 2 - \sin(t) \\ 0 \leq t \leq 4\pi \end{cases}$$



c) $z = \sqrt{x^2 + y^2} \wedge z = 1 + y$

$1 + y = \sqrt{x^2 + y^2}$

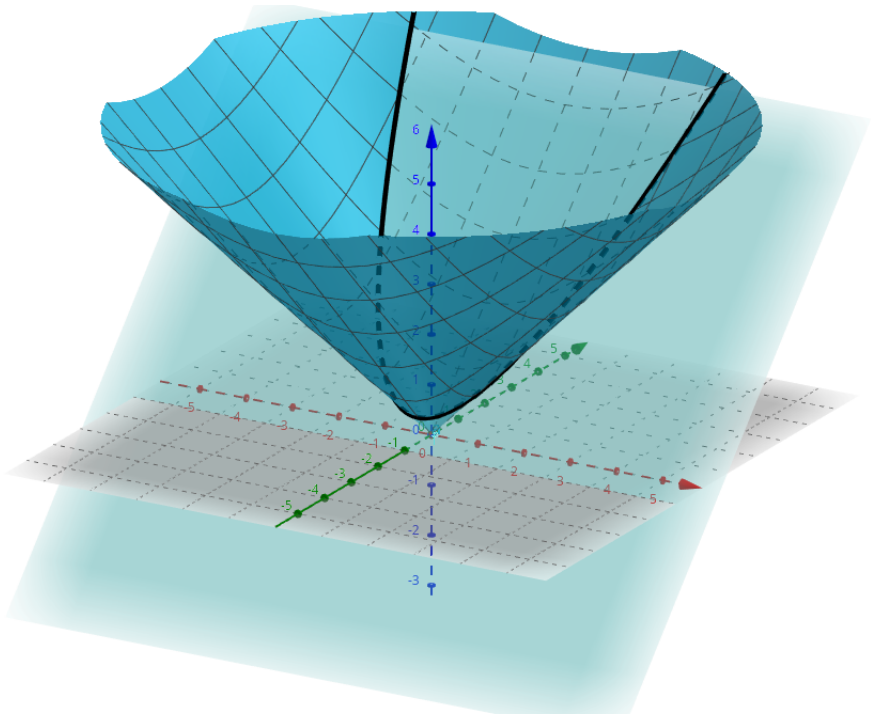
$(1 + y)^2 = |x^2 + y^2|$

$y^2 + 2y + 1 = |x^2 + y^2|$

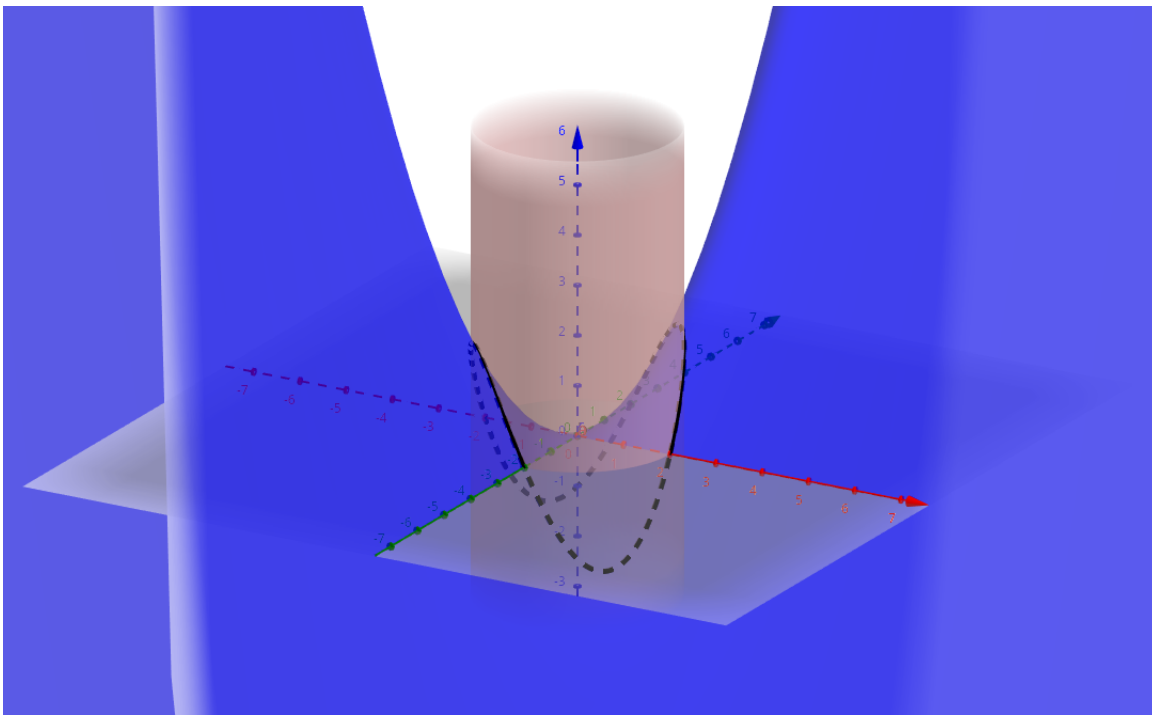
$y^2 + 2y + 1 = x^2 + y^2$

$y = \frac{x^2 - 1}{2}$

$$r(t) = \begin{cases} x = t \\ y = \frac{t^2-1}{2} \\ z = \frac{t^2-1}{2} + 1 \end{cases}$$



13. *a)* $f(x,y) = \sqrt{2x-y}$
$\Leftrightarrow 2x - y \geq 0 \Leftrightarrow x \geq \frac{y}{2}$



b) $x^2 + y^2 = 1 \wedge y + z = 2$

c) $z = \sqrt{x^2+y^2} \wedge z = 1 + y$