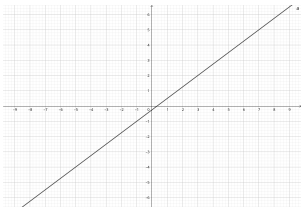
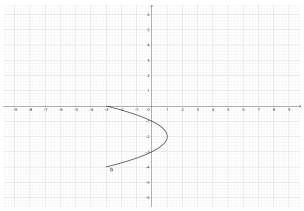
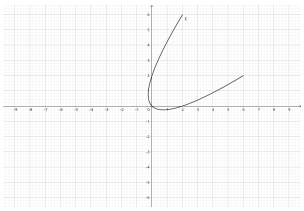
1. *a)*
   - $x = 3 - 4t \Rightarrow \star : \frac{-x+3}{4} = t$
   - $y = 2 - 3t \overset{\star}{\Rightarrow} y = 2 - 3(\frac{-x+3}{4}) \equiv y = \frac{3x}{4} - \frac{1}{4}$



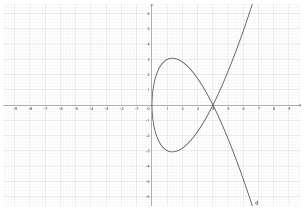
b)
   - $x = 1 - t^2$
   - $y = t - 2$
   - $-2 \leq t \leq 2$
   - No es función



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



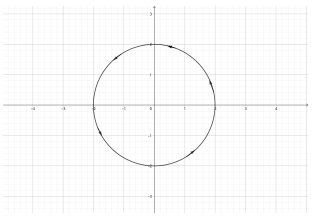
d)
   - $x = t^2$
   - $y = t^3 - 4t$
   - $-3 \leq t \leq 3$
   - No es función



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

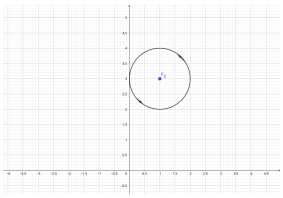


b)

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

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

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

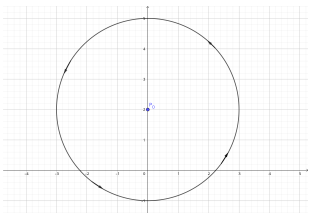


c)

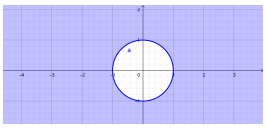
- $r = 3$
- $p = (0, 2)$
- $(x)^2 + (y-2)^2 = 9$

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

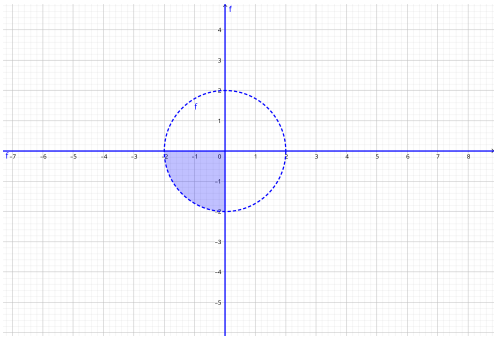
t	x	y
$\frac{\pi}{2}$	0	5
π	-3	2
$\frac{3\pi}{2}$	0	-1



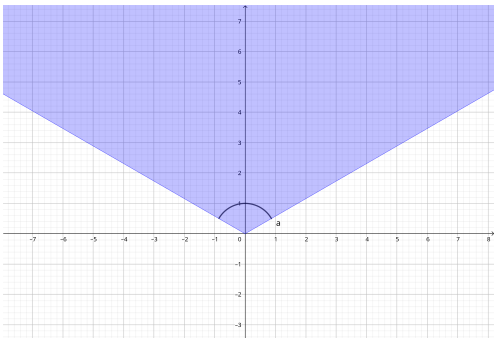
3. *a*)



b)



c)

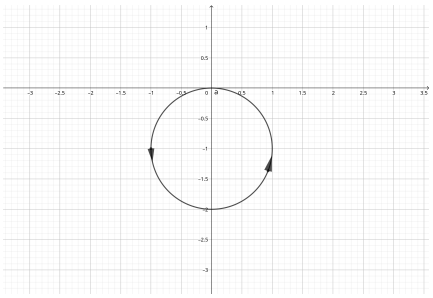


4. a)

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

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

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



b)

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

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

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

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

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

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

t	x	y
0	0	0
π	-2	0