⊞ SVG

⊟ svg Examples

Library to 2D and 3D plot in svg format

$B := \begin{bmatrix} -7 & 5 \\ -6 & 4 \end{bmatrix}$ Box for plots $\begin{bmatrix} x_{min} & x_{max} \\ y_{min} & y_{max} \end{bmatrix}$

$W := \begin{bmatrix} 800 \\ 600 \end{bmatrix}$ Image size in pixels

$title := \begin{bmatrix} -6 & 3 & \text{"Example"} \end{bmatrix}$

Working functions

$f(x) := 4 - \sqrt{x^2 + 1}$

$g(t) := \begin{bmatrix} t \cdot \cos(t) & t \cdot \sin(t) \end{bmatrix}$

$h(t) := \begin{bmatrix} 2 \cdot \cos(t) - 2 & \sin(t) - 3 \end{bmatrix}$

$M_g := pMesh\left(\text{"g"}, \begin{bmatrix} -2 \cdot \pi & 2 \cdot \pi \end{bmatrix}, 100\right)$

$M_h := pMesh\left(\text{"h"}, \begin{bmatrix} 0 & 1.5 \cdot \pi \end{bmatrix}, 100\right)$

```
sPlot(sA, "viewBox", [800 600])                                          = 1
sPlot(sA, "xyBox", B)
sPlot(sA, "title", title)
sPlot(sA, "polyline", "f")
sPlot(sA, "polyline", M_g, "red", "solid", 6, 0)
sPlot(sA, "polygon", M_h, "green", "solid", 8, "lightgreen")
sPlot(sA, "write", 0)
```

First define iewBox as the size of the window for the image in pixeles, and then the other statements.

$\boxed{fwrite\left(sA_2, \text{"sA.svg"}\right) = 1}$

Creates a svg file which can be uploades into a web navigator or here, in a inage region:

Issue

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SMath plot region

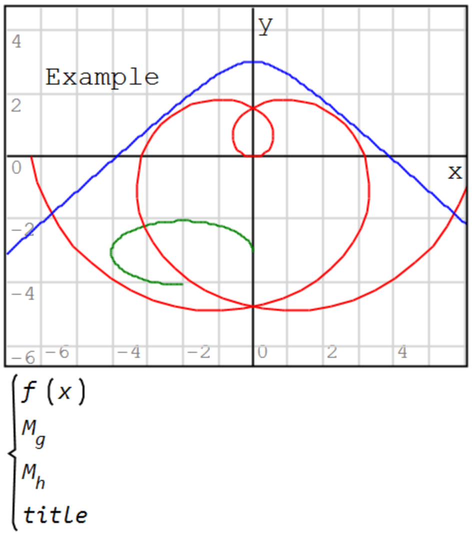
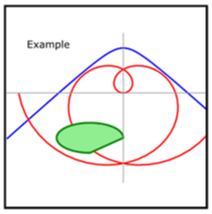
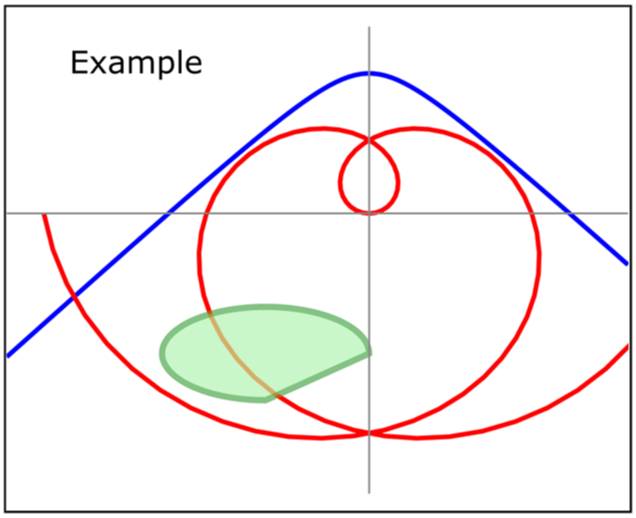


Image region



"sA.svg"

Resizing the image



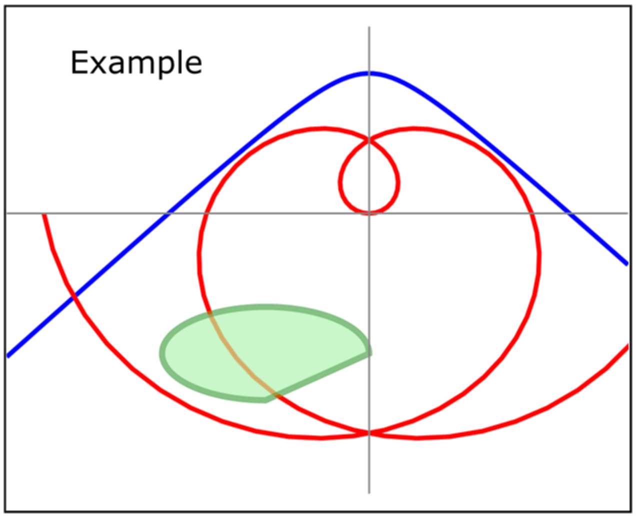
"sB.svg"

Now we can manipulate the plots. Can change the opacity of the ellipse, add a rectangle and paint it with a gradient.

```
sB := sA                                  = 1
sPlot(sB, 3, "opacity=".7"")
sPlot(sB, "write", 0)
```

$fwrite\left(sB_2, \text{"sB.svg"}\right) = 1$

Notice that the three graphics and the text were generated by calculations in smath and what you get from the sPlot commands are the instructions to generate an SVG file. SVG files do not contain a drawing itself, but the instructions to do it, including filters and geometrical trasnformations.



"sB.svg"

Filter from red to yellow

```
id="lg" x1="0" x2="0" y1="0" y2="1">
<stop stop-color="yellow" />
<stop offset="1" stop-color="red" />
```

```
lg := " fill="url(#lg)" "
```

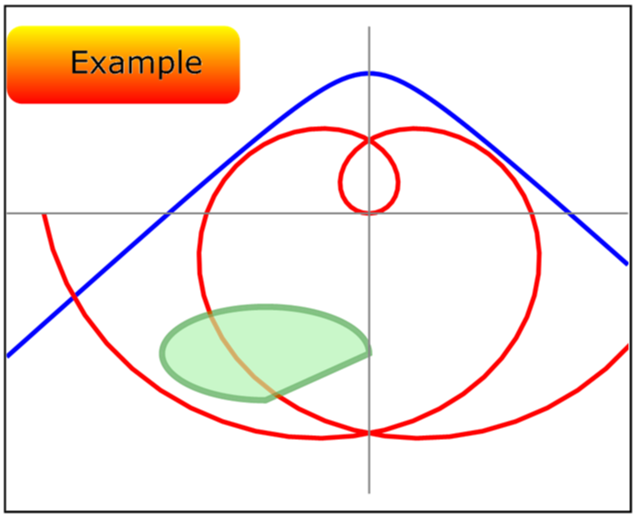
Rounded rectangle in the svg window

```
"<rect id="Trace10"
width="300" height="100" rx="20" ry="20" />"
```

```
rect := "rect"
```

```
sC := sB                                              = 1
sPlot(sC, "trace", description(rect))
sPlot(sC, "linearGradient", description(lg))
sPlot(sC, 10, lg)
sPlot(sC, "write", 0)
```

```
fwrite(sC_2, "sC.svg") = 1
```



"sC.svg"

Alvaro