6

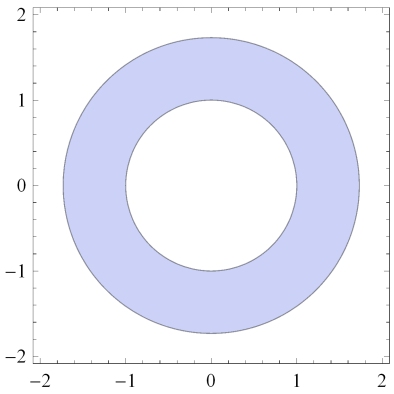
OTRAS REPRESENTACIONES EN EL PLANO

6.1. Regiones en el Plano

▼ Función RegionPlot

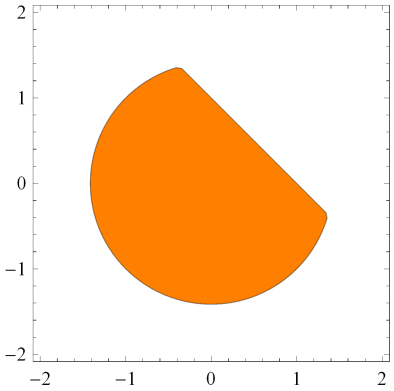
⋆ RegionPlot [Desigualdad , {x,xmin,xmáx} , {y,ymin,ymáx}]

```
RegionPlot[1 < x^2 + y^2 < 3, {x, -2, 2}, {y, -2, 2}]
```



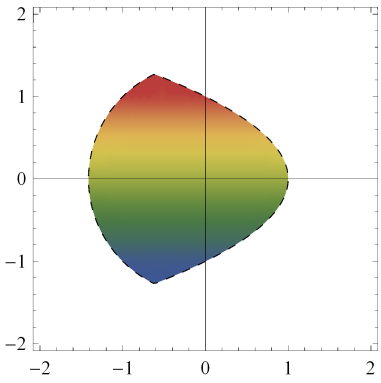
⋆ Region limitada por varias desigualdades

```
RegionPlot[x^2 + y^2 < 2 && x + y < 1, {x, -2, 2}, {y, -2, 2}, PlotStyle → Orange]
```



⋆ Algunas Opciones de Region Plot

```
RegionPlot[x^2 + y^2 < 2 && x + y^2 < 1, {x, -2, 2}, {y, -2, 2},
 Axes → True, BoundaryStyle → Dashed, ColorFunction → "DarkRainbow"]
```



6.2. Poligonales y Plolígonos

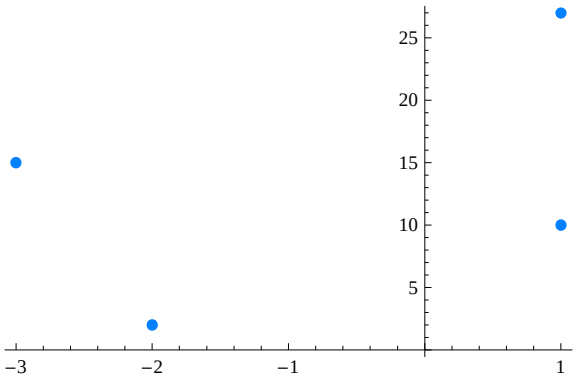
▼ Poligonales con la función ListPlot

Basta con definir cada uno de los puntos que queremos unir

```
puntos = {{1, 27}, {-2, 2}, {-3, 15}, {1, 10}};
```

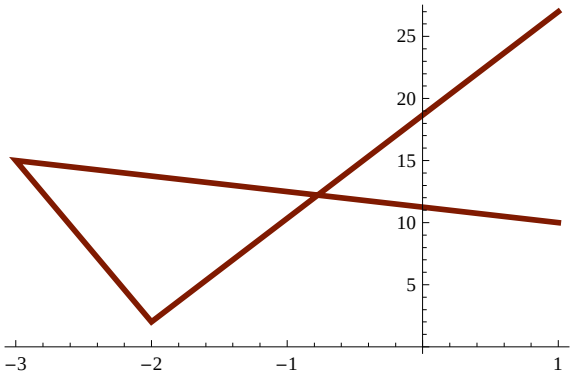
★ **Con: LisPlot[puntos, PlotStyle → *color*, PlotStyle → PointSize [*n*]] Dibujamos los puntos en el color y el grosor indicados**

```
g1 = ListPlot[puntos, PlotStyle → {PointSize[0.02], RGBColor[0, 0.5, 1]}]
```



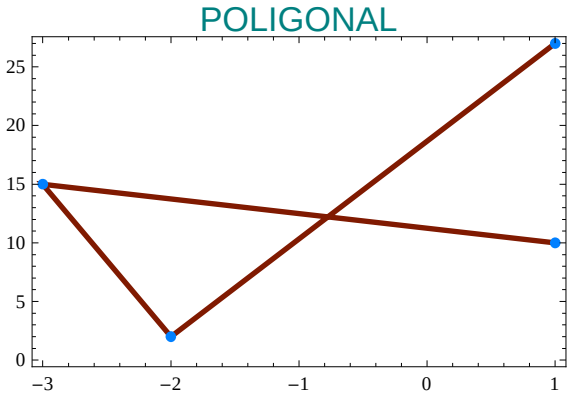
★ **Con: Joined → True y PlotStyle → {Thickness[*n*],RGBColor[1, 0.5, 0]}, Trazamos la poligonal que une los puntos con el color y grosor indicados**

```
g2 = ListPlot[puntos, Joined → True, PlotStyle → {Thickness[0.01], RGBColor[0.5, 0.1, 0]}]
```



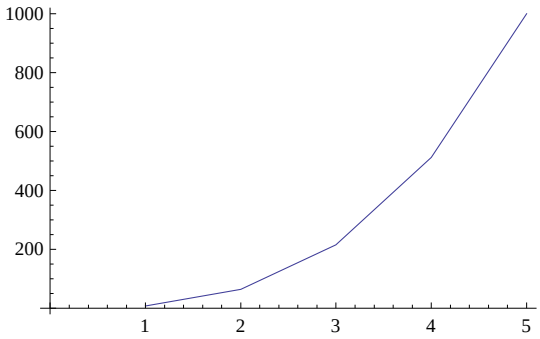
★ **Con AxesLabel → *nombre*, Damos nombre a los ejes. PlotRange → {{xmin, xmax},{ymin, ymax}, Dibujamos la función en el rango de la ordenada que se le indique**

```
Show[g2, g1, PlotRange → {0, 27}, PlotLabel → "POLIGONAL", Axes → False, Frame → True]
```

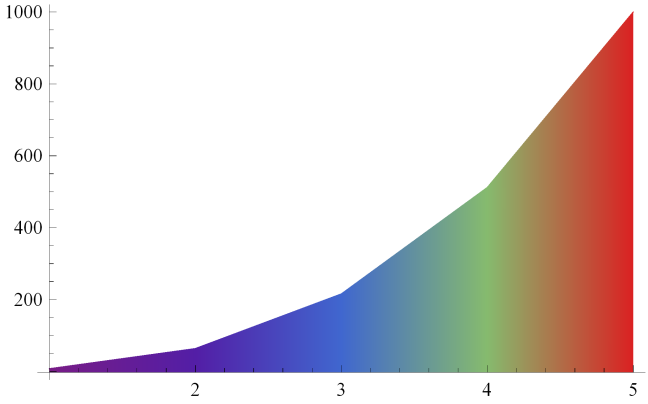


▼ Función ListLinePlot

```
ListLinePlot[Table[(i^3), {i, 2, 10, 2}]]
```

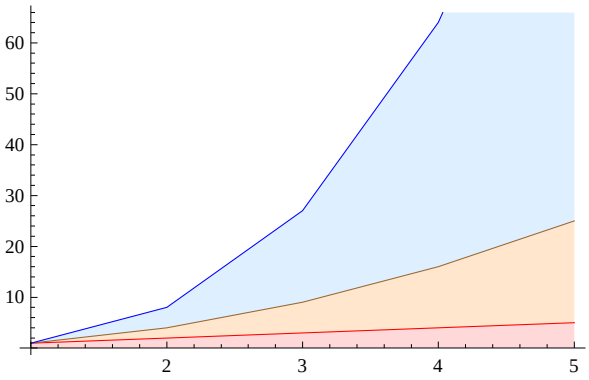



```
ListLinePlot[Table[(i^3), {i, 2, 10, 2}],
 ColorFunction → "Rainbow", Filling → Axis, AxesOrigin → {1, -2}]
```




```
datos = {Table[(i), {i, 1, 5}], Table[(i^2), {i, 1, 5}], Table[(i^3), {i, 1, 5}]};

ListLinePlot[datos,
 Filling → {1 → {Axis, LightRed}, 2 → {{1}, LightOrange}, 3 → {{2}, LightBlue}},
 PlotStyle → {Red, Brown, Blue}, AxesOrigin → {1, 0}]
```



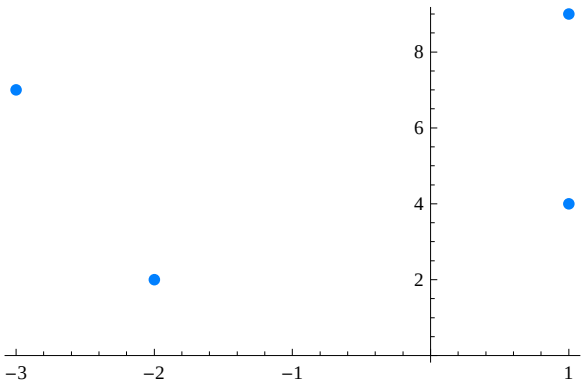
▼ Poligonales con la función Graphics[Line[Puntos]]

Definimos los puntos que queremos unir

```
puntos = {{1, 9}, {-2, 2}, {-3, 7}, {1, 4}};
```

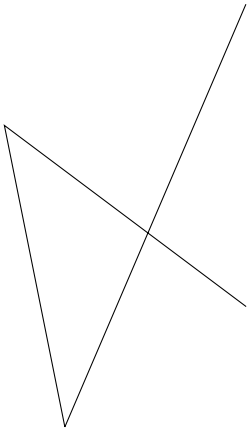
★ Dibujamos los puntos: ListPlot[puntos]

```
g1 = ListPlot[puntos, PlotStyle → {PointSize[0.02], RGBColor[0, 0.5, 1]}]
```



★ Dibujamos la Poligonal: Graphics[Line[puntos]]

```
Graphics[Line[puntos]]
```



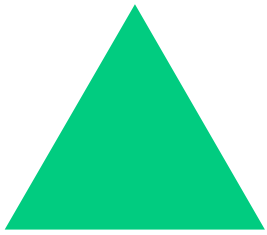
▼ Polígonos

★ Definimos los vértices del polígono

```
p = Polygon[{{1, 0}, {0, Sqrt[3]}, {-1, 0}}];
```

★ Polígono limitado por un conjunto de puntos: Graphics[Polygon[p]]

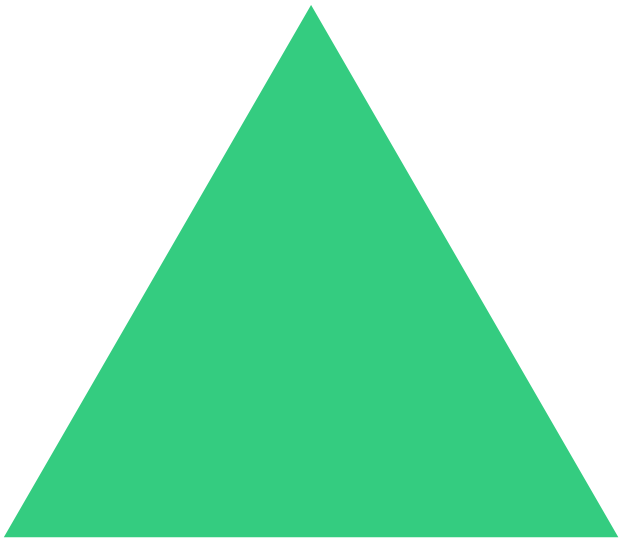
```
Graphics[{RGBColor[0.2, 0.8, 0.5], Polygon[{{1, 0}, {0, Sqrt[3]}, {-1, 0}}]}]
```

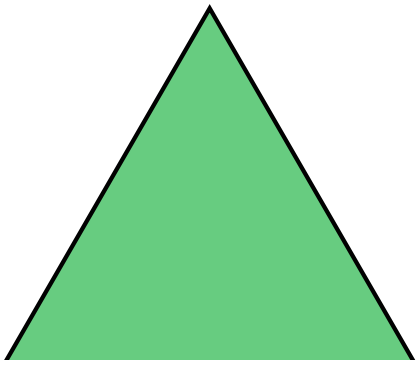


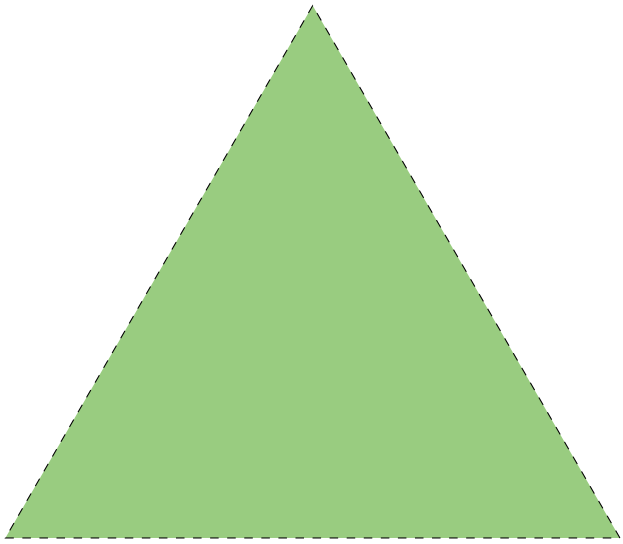
```
Graphics[{RGBColor[0, 0.5, 0.8], Polygon[{{0, 0}, {1, 1}, {0, 1}, {1, 0}}]}]
```

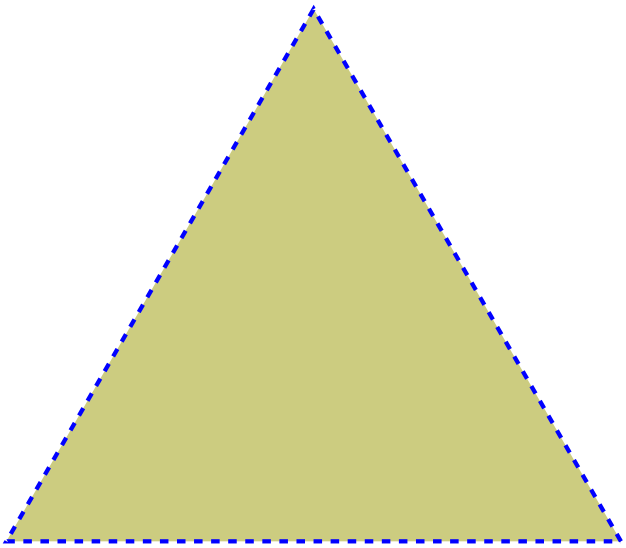
```
p = Polygon[{{1, 0}, {0, Sqrt[3]}, {-1, 0}}];
```

```
{Graphics[{RGBColor[0.2, 0.8, 0.5], p}],
 Graphics[{EdgeForm[Thick], RGBColor[0.4, 0.8, 0.5], p}],
 Graphics[{EdgeForm[Dashed], RGBColor[0.6, 0.8, 0.5], p}],
 Graphics[{EdgeForm[Directive[Thick, Dashed, Blue]], RGBColor[0.8, 0.8, 0.5], p}]}
```

{  ,

 ,



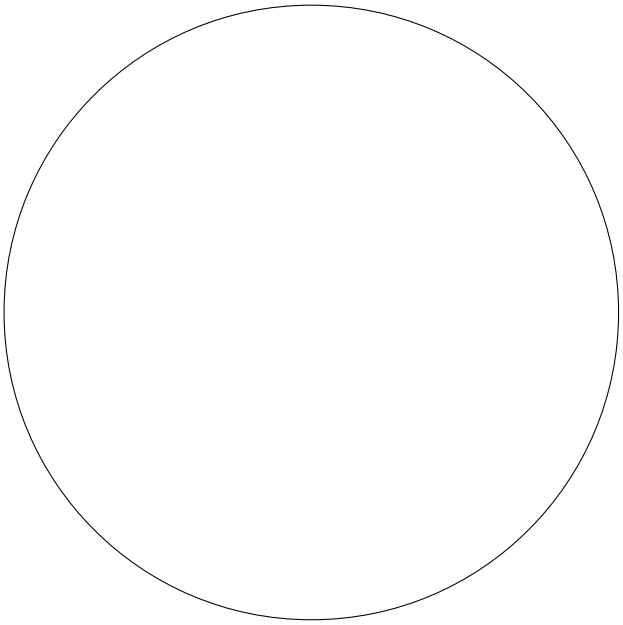


6.3. Figuras predefinidas en 2D

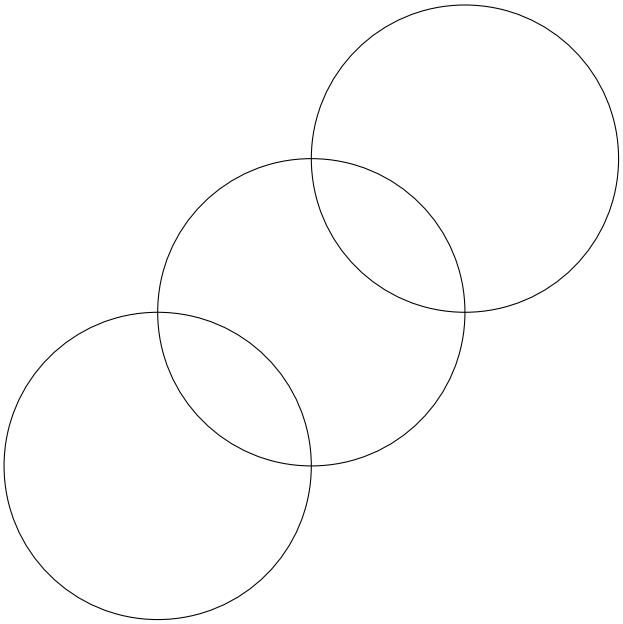
▼ Circunferencias

★ **Función Graphics[{Circle[{a,b},r]**

```
Graphics[Circle[]]
```

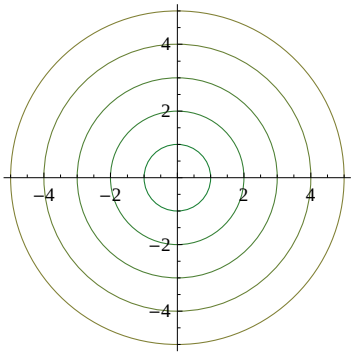


```
Graphics[{Circle[{0, 0}, 1], Circle[{1, 1}, 1], Circle[{2, 2}, 1]}]
```



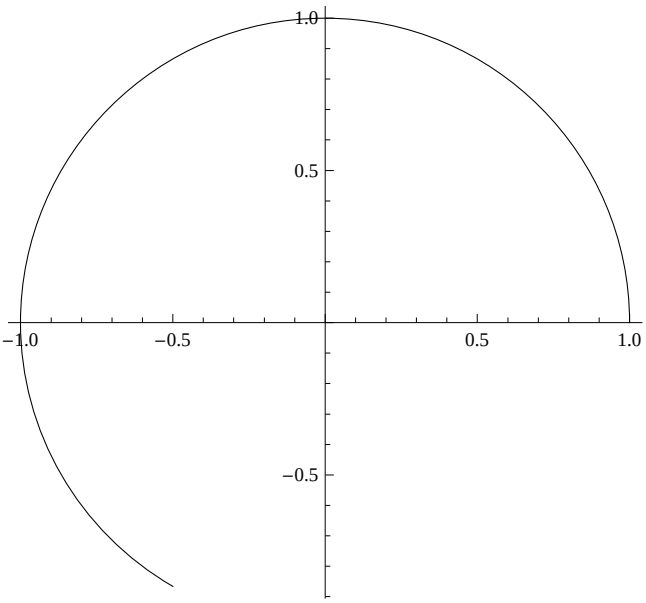
★ Algunas Opciones

```
Graphics[Table[{RGBColor[r * 0.1, 0.5, 0.2], Circle[{0, 0}, r]}, {r, 1, 5}], Axes → True]
```

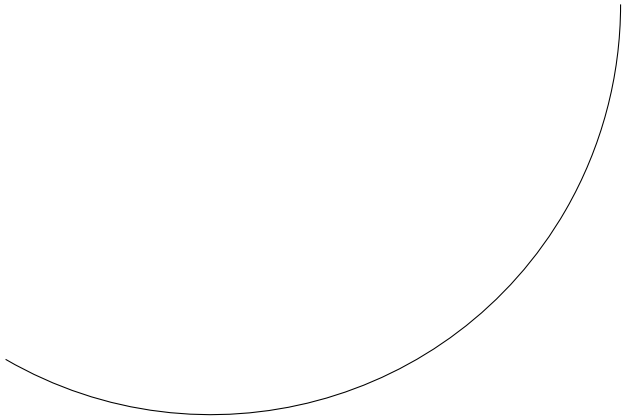


Arco circular

```
Graphics[Circle[{0, 0}, 1, {0, 4 Pi / 3}], Axes → True]
```



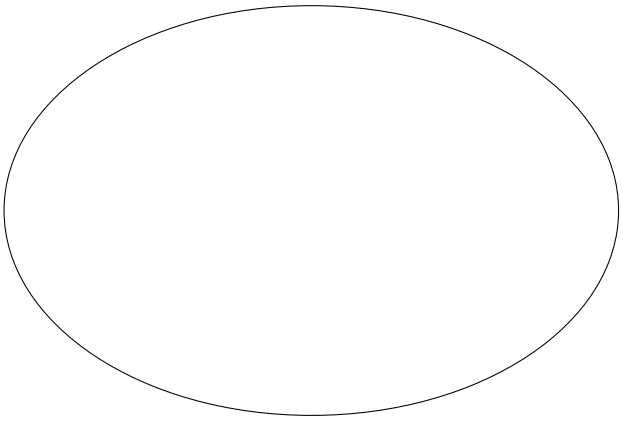

```
Graphics[Circle[{0, 0}, 1, {4 Pi / 3, 2 Pi}]]
```



▼ Elipses

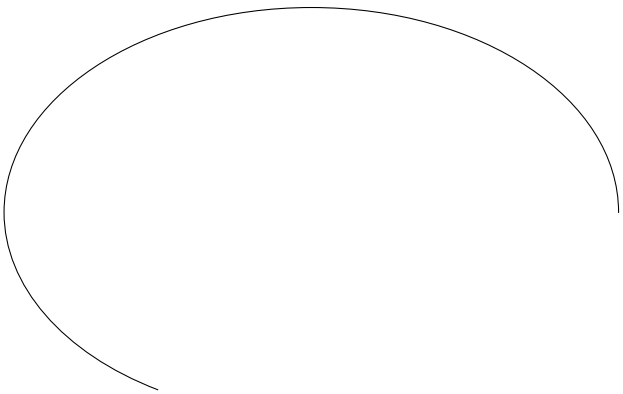
★ Una elipse de semiejes 3 y 2

```
Graphics[Circle[{0,0},{3,2}]]
```



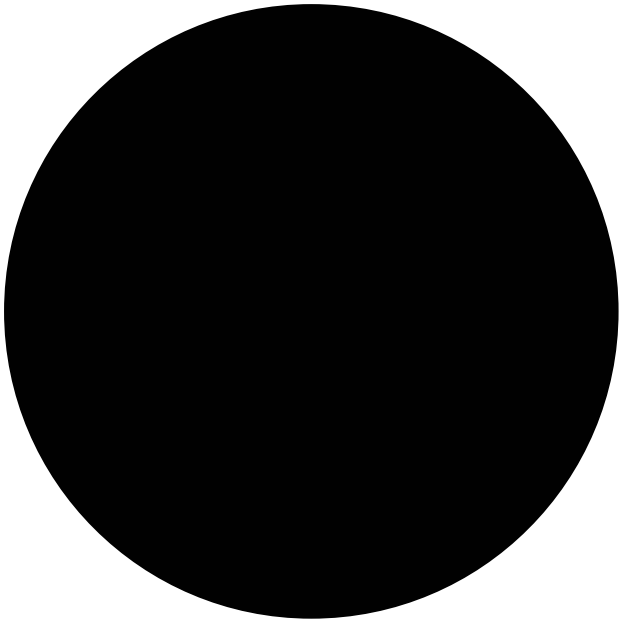
★ Un arco elíptico

```
Graphics[Circle[{0, 0}, {3, 2}, {0, 4 Pi / 3}]]
```



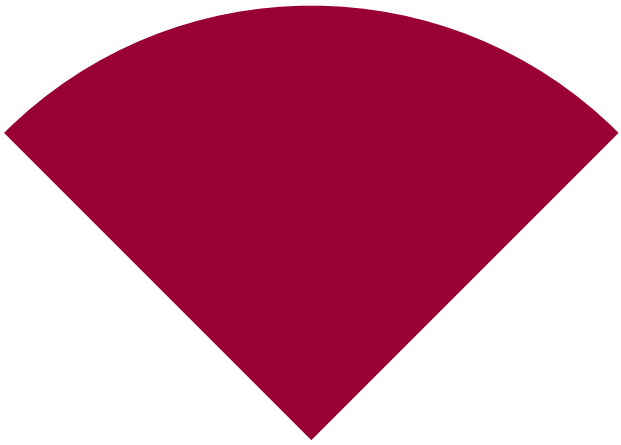
▼ Círculos (Discos)

```
Graphics[Disk[]]
```



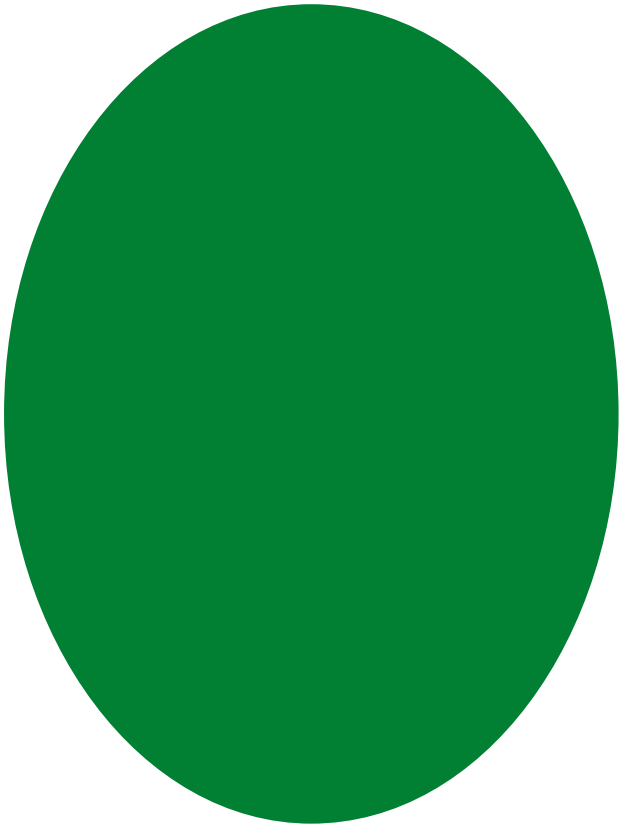
★ Sector circular

```
Graphics[{RGBColor[0.6, 0, 0.2], Disk[{0, 0}, 1, {Pi / 4, 3 Pi / 4}]}]
```



★ Una elipse

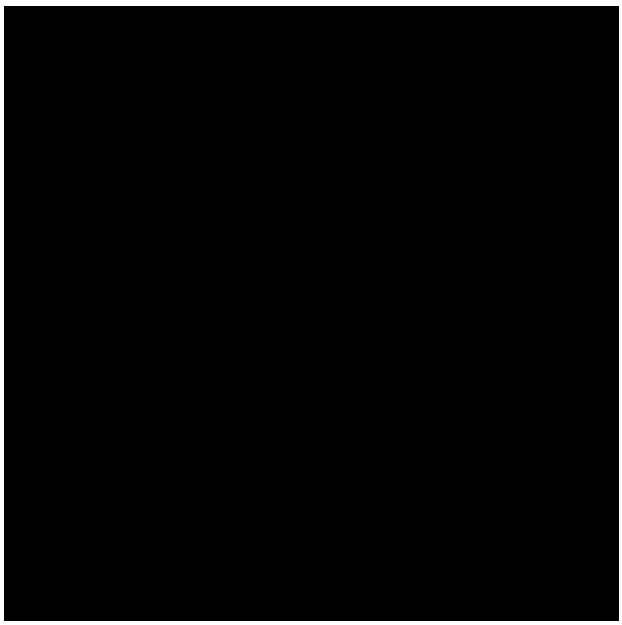
```
Graphics[{RGBColor[0, 0.5, 0.2], Disk[{0, 0}, {3, 4}]}]
```



▼ Rectángulos

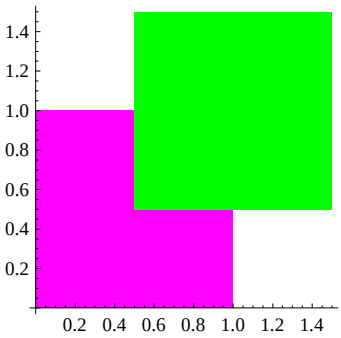
★ Función Graphics[Rectangle[]]

```
Graphics[Rectangle[]]
```

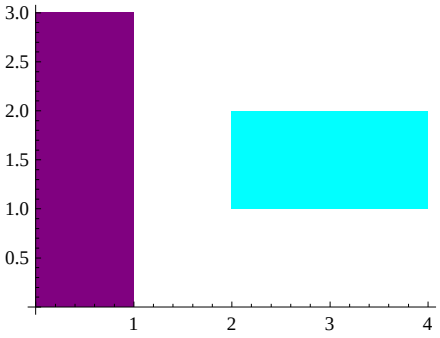


★ Algunas opciones de Graphics[Rectangle[]]

```
Graphics[{Magenta, Rectangle[{0, 0}], Green, Rectangle[{0.5, 0.5}]}, Axes → True]
```

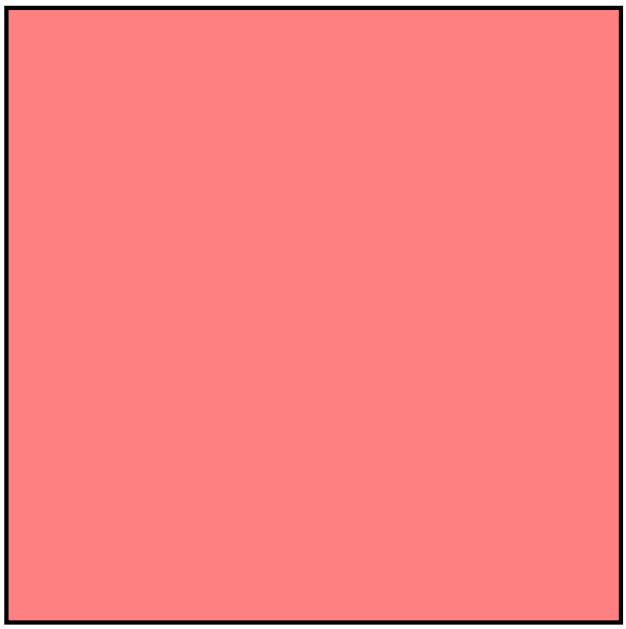



```
Graphics[{Purple, Rectangle[{0, 0}, {1, 3}], Cyan, Rectangle[{2, 1}, {4, 2}]}, Axes → True]
```

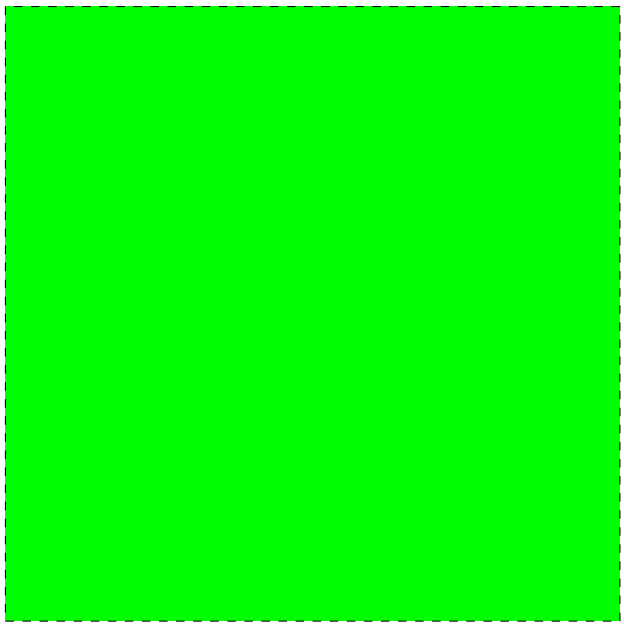



```
{Graphics[{Blue, Rectangle[]}], Graphics[{EdgeForm[Thick], Pink, Rectangle[]}],
 Graphics[{EdgeForm[Dashed], Green, Rectangle[]}],
 Graphics[{EdgeForm[Directive[Thick, Dashed, Blue]], Orange, Rectangle[]}]}
```

{  ,



,



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