

Introdução ao pgfplots

Emilio Eiji Kavamura

UFPR

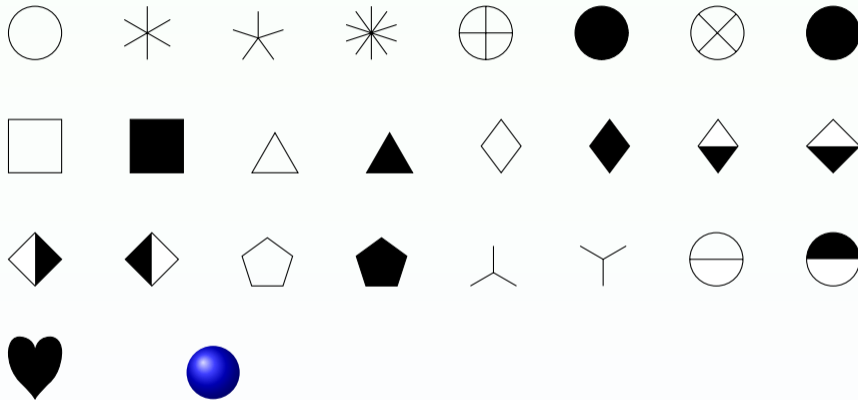
TUG 2021



1 Customização

2 Animação

- 1 Customização
 - Listas cíclicas
 - Point Meta Data
 - Legenda
 - Eixos
 - Barras de cores
 - Escala
 - Anotações
 - Miscelâneas

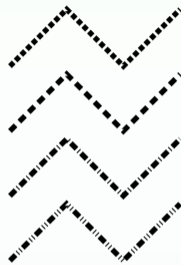


Fonte: Adaptado de Feuersänger (2021a, p. 189)



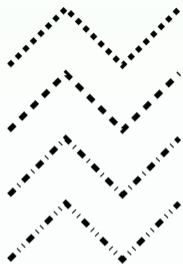
Customização

Estilo de linhas

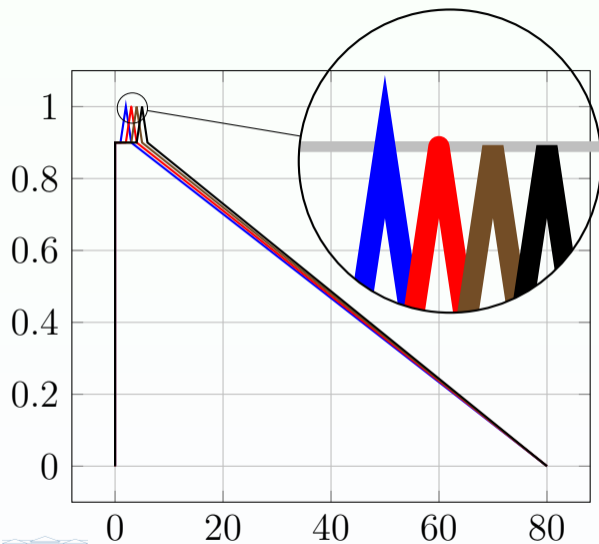


Fonte: Adaptado de Feuersänger (2021a, p. 190-1)

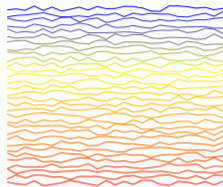
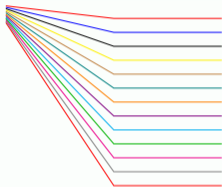




Fonte: Adaptado de Feuersänger (2021a, p. 190-1)



Fonte: Adaptado de Feuersänger (2021a, p. 191)

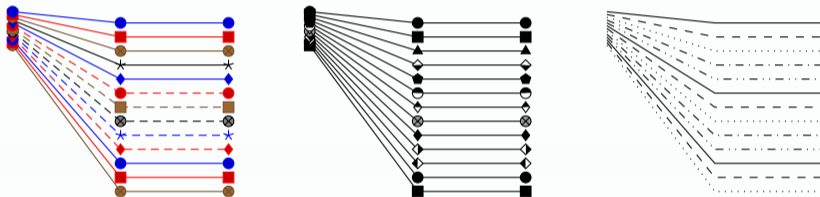


Fonte: Adaptado de Feuersänger (2021a, p. 191-215)

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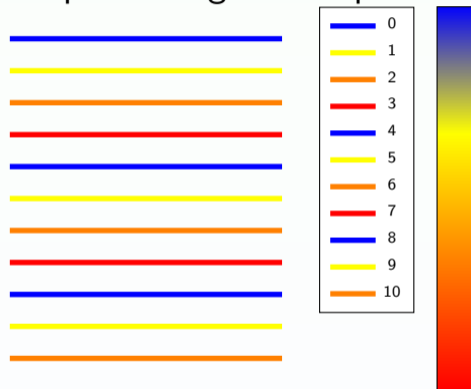
- 2  Animação

Permite utilizar listas de referências de cores, estilo de linhas e marcadores que são perorridas de ciclicamente.



Fonte: Adaptado de Feuersänger (2021a, p. 216, 218, 219)

As listas cíclicas de cores pode ser gerada a partir dos colormaps:



Fonte: Adaptado de Feuersänger (2021a, p. 225)

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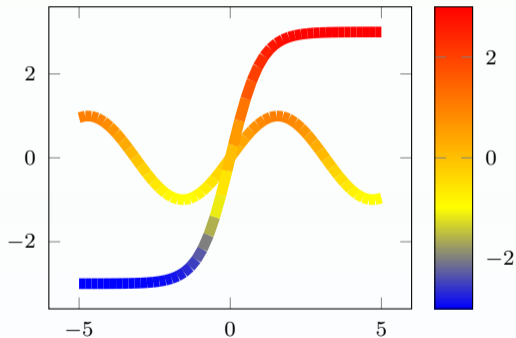
- 2 Animação

Point Meta Data = é a associação da posição de um ponto (2D ou 3D) com um scalar que é mapeado (interpolado ou paletizado) entre 0 e 1000.

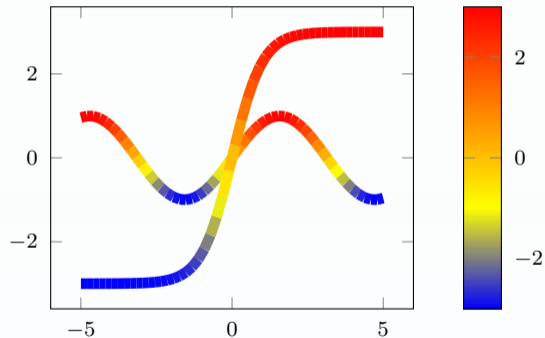
Esse valor pode ser associado com qualquer característica gráfica:

- cor,
- espessura de linha,
- tamanho do marcador,
- comprimento da seta,
- espessura da linha em uma malha,
- cor na superfície,
- opacidade, etc.

mapeamento global



mapeamento por traçado

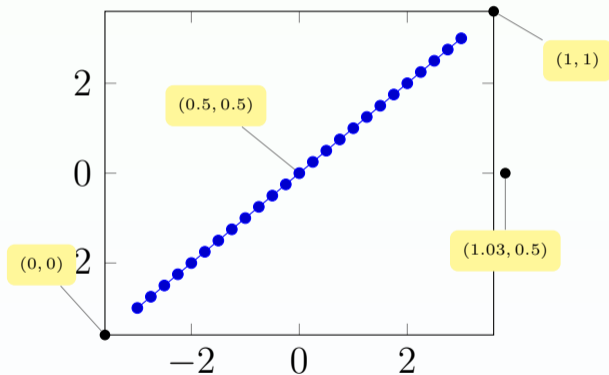


1 Customização

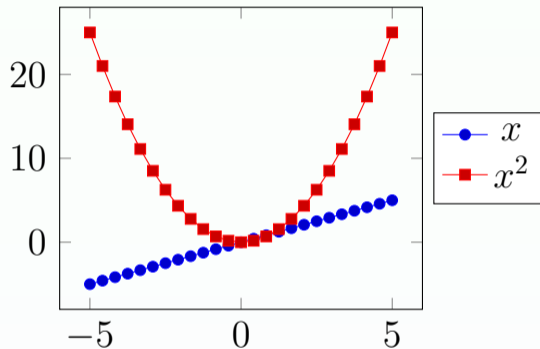
- Listas cíclicas
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2 Animação


Sistema de coordenadas para descrição dos eixos



Fonte: Adaptado de Feuersänger (2021a, p. 242)

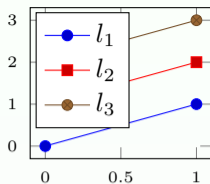


```
1 legend style={at={(1.03,0.5)},  
                anchor=west,},
```

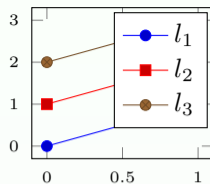
Fonte: Adaptado de Feuersänger (2021a, p. 243)


Legenda

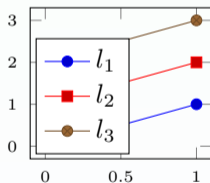
Posição da legenda no gráfico



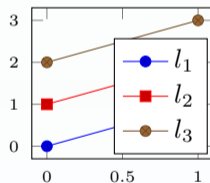
legend pos= north west



legend pos= north east

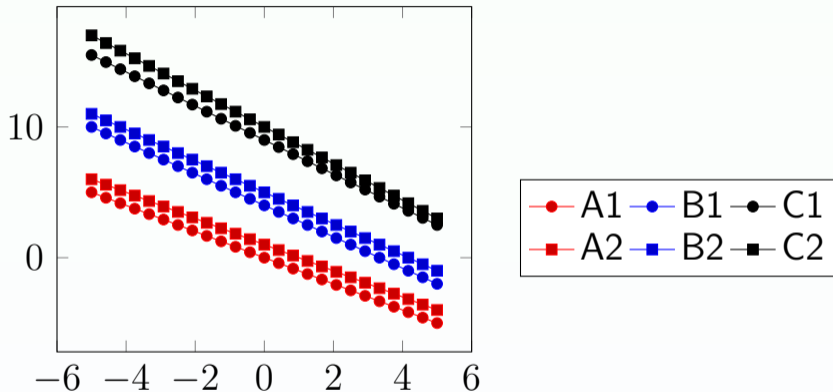


legend pos= south west

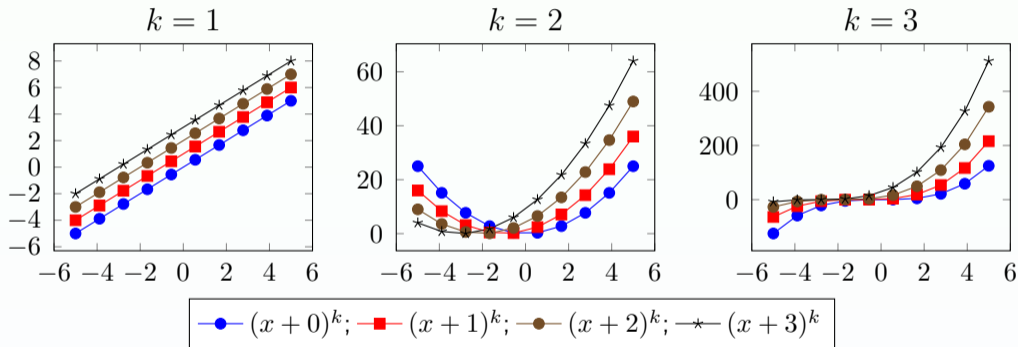


legend pos= south east

Fonte: Adaptado de Feuersänger (2021a, p. 260-3)



Fonte: Adaptado de Feuersänger (2021a, p. 266)

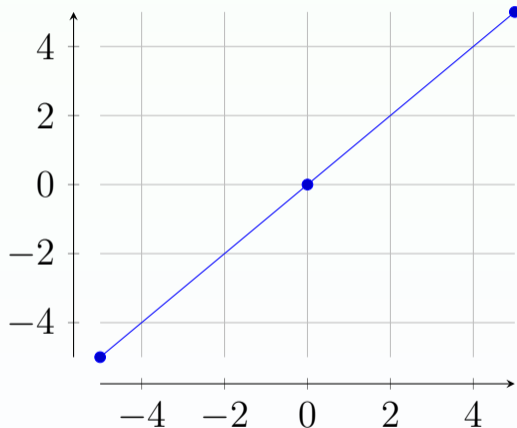


Fonte: Adaptado de Feuersänger (2021a, p. 270)

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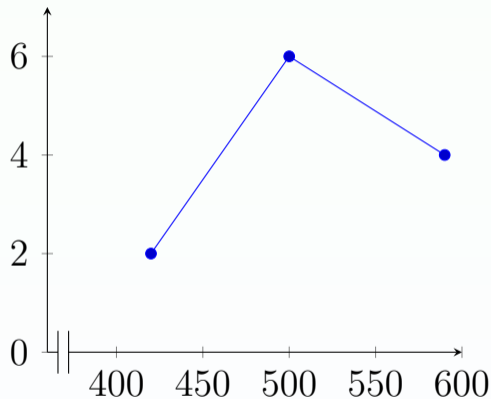
2 Animação



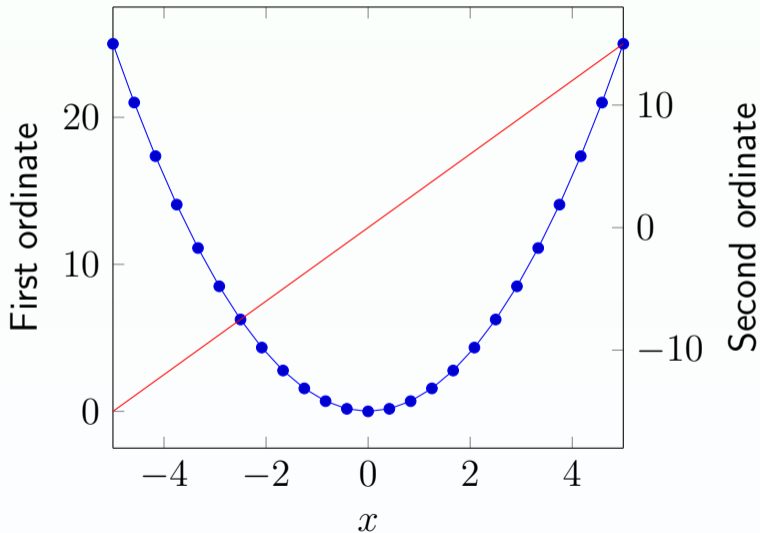
Fonte: Adaptado de Feuersänger (2021a, p. 277)

Eixos

Quebra do eixo



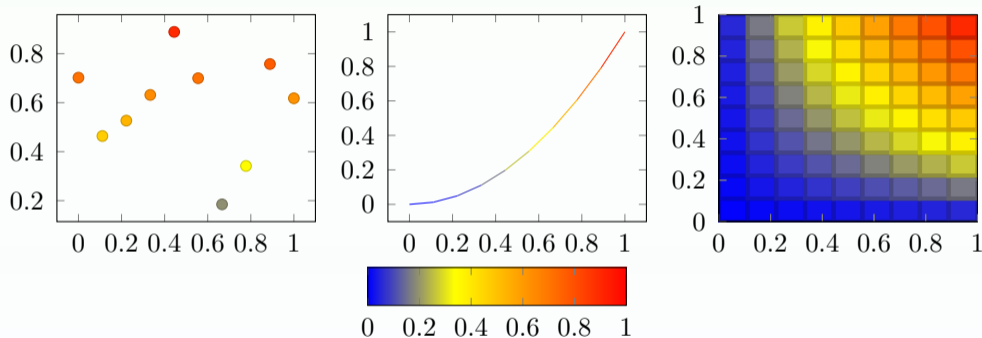
Fonte: Adaptado de Feuersänger (2021a, p. 280)



1 Customização

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2 Animação



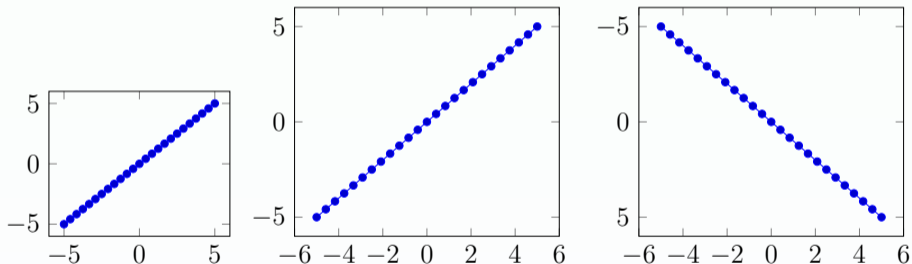
Fonte: Adaptado de Feuersänger (2021a, p. 294)

1 Customização

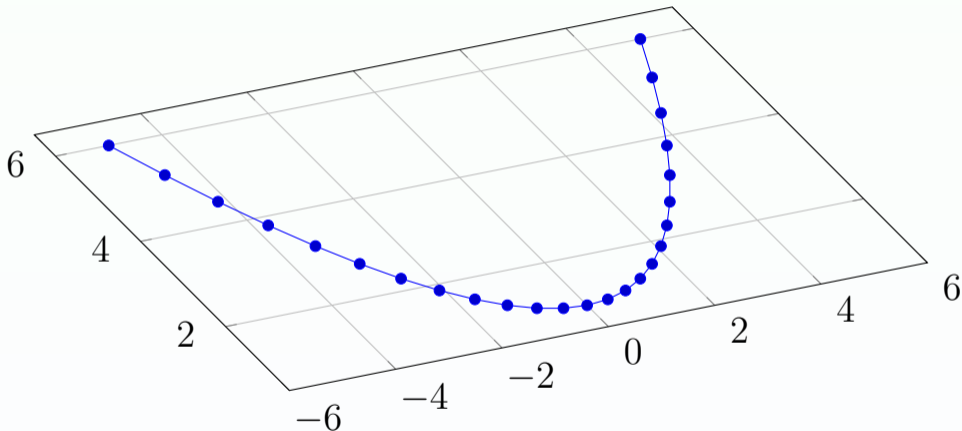
- Listas cíclicas
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- Legenda
- Eixos
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2 Animação

A alteração da escala não altera o tamanho dos textos ou das descrições dos eixos.



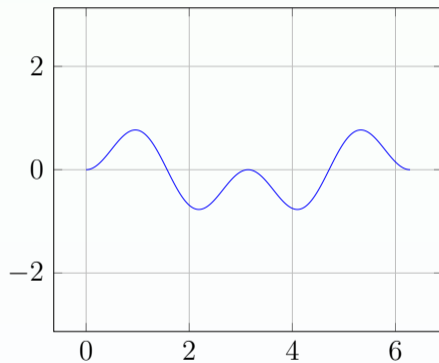
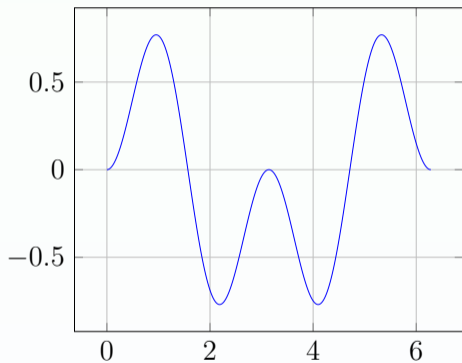
Fonte: Adaptado de Feuersänger (2021a, p. 295)



Fonte: Adaptado de Feuersänger (2021a, p. 298)

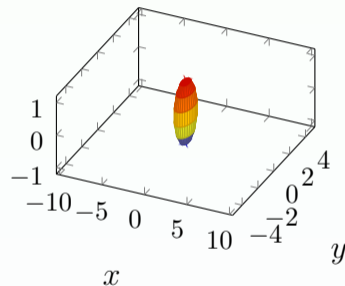
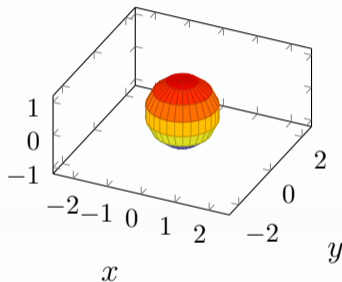
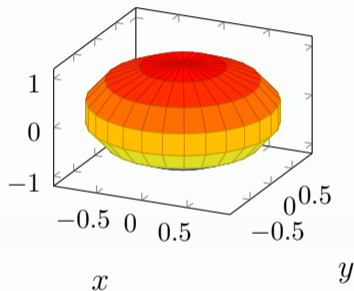
Escala

Escalas iguais

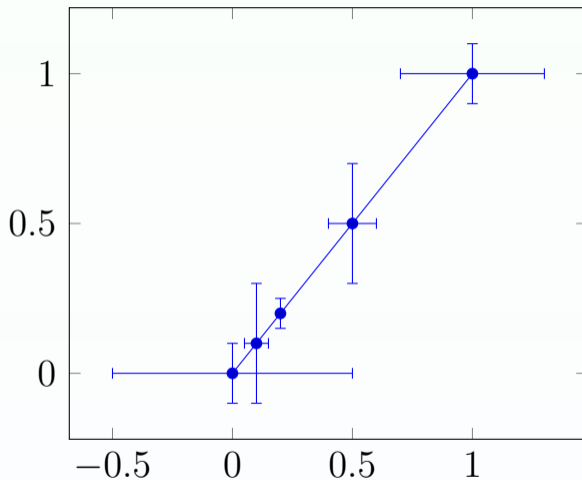


Fonte: Adaptado de Feuersänger (2021a, p. 300)





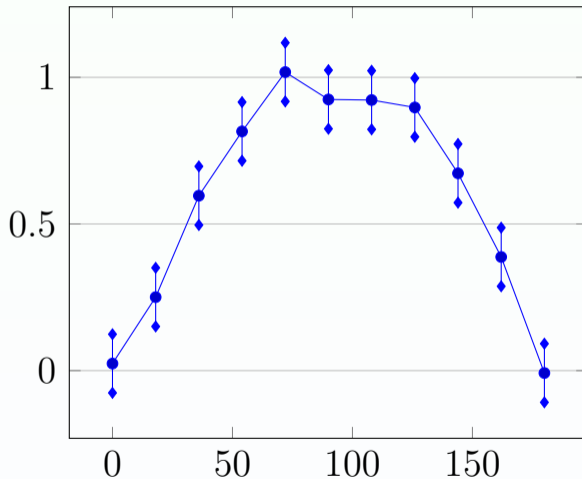
Fonte: Adaptado de Feuersänger (2021a, p. 303)



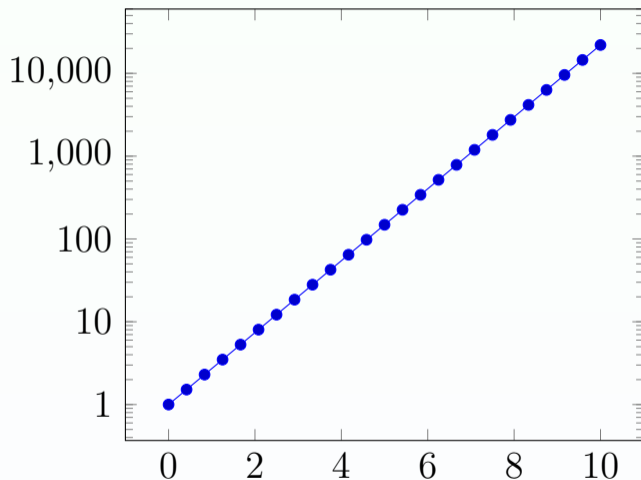
Fonte: Adaptado de Feuersänger (2021a, p. 319)

Barra de erros diversos marcadores

TUG2021

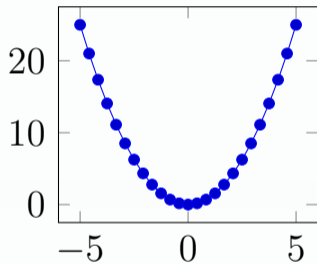


Fonte: Adaptado de Feuersänger (2021a, p. 321)

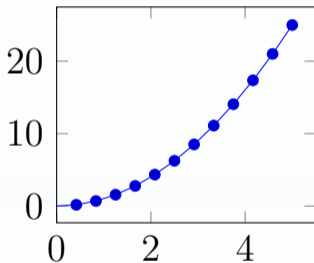


Fonte: Adaptado de Feuersänger (2021a, p. 326)

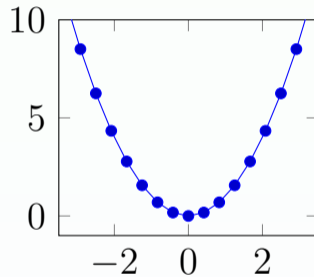
Auto Limits



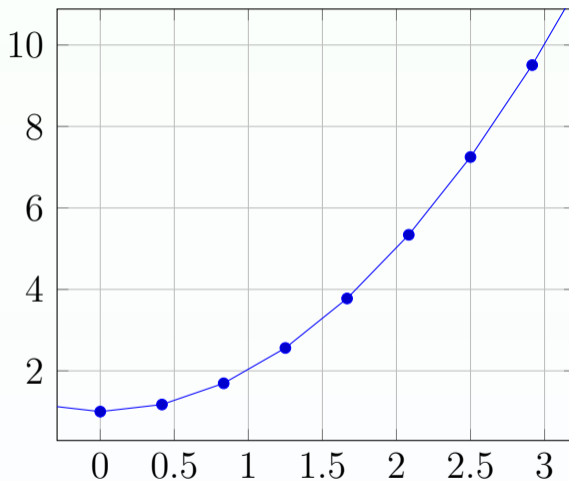
xmin=0



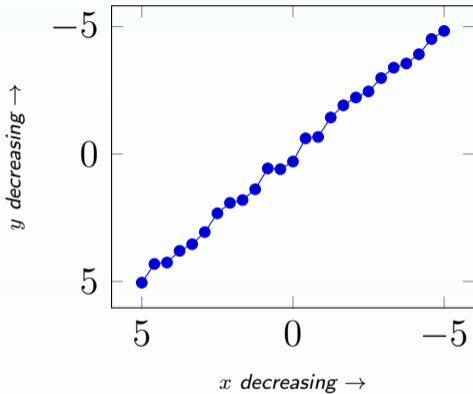
ymax=10



Fonte: Adaptado de Feuersänger (2021a, p. 330)



Fonte: Adaptado de Feuersänger (2021a, p. 330)

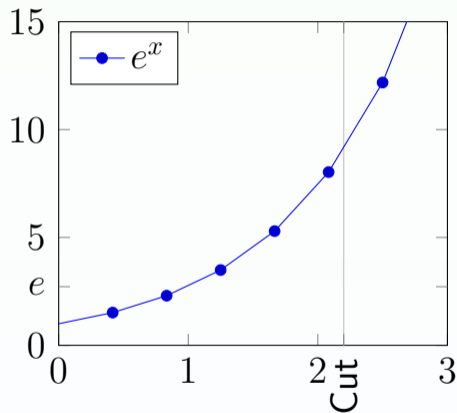
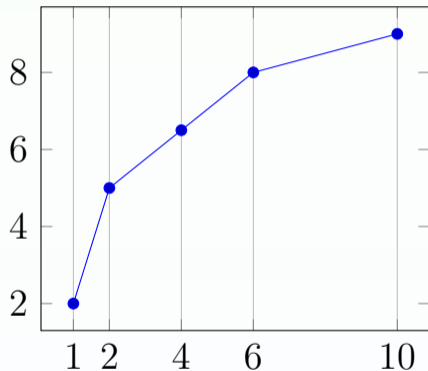


Fonte: Adaptado de Feuersänger (2021a, p. 331)

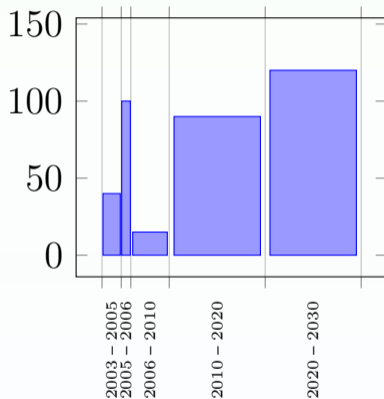


Grade nos dados e específicos

TUG2021

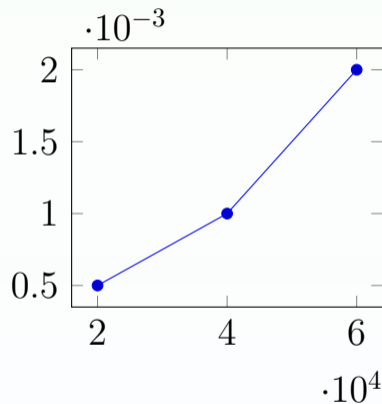
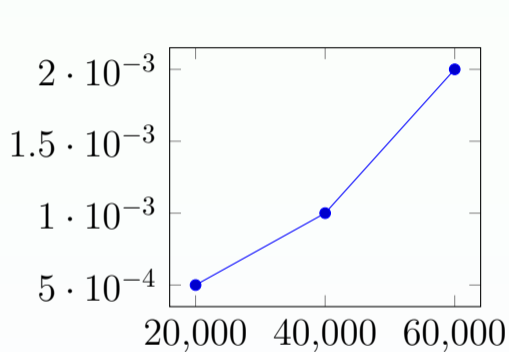


Fonte: Adaptado de Feuersänger (2021a, p. 338, 340)

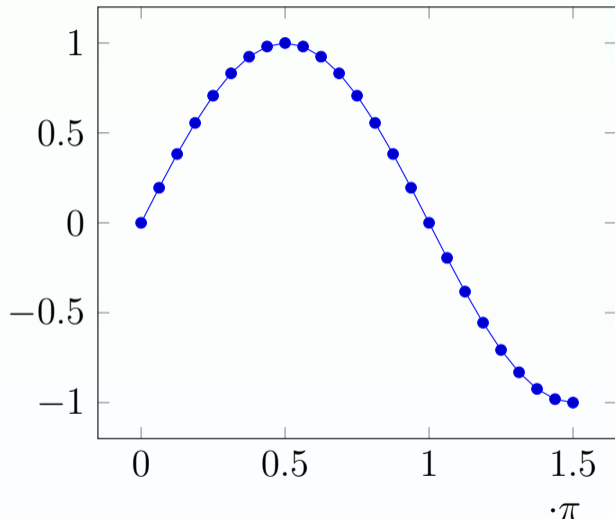


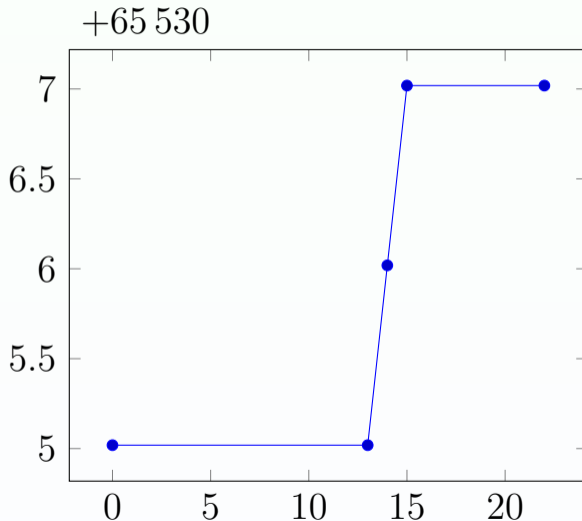
Fonte: Adaptado de Feuersänger (2021a, p. 346)

Escala nos eixos Automaticamente



Fonte: Adaptado de Feuersänger (2021a, p. 349)

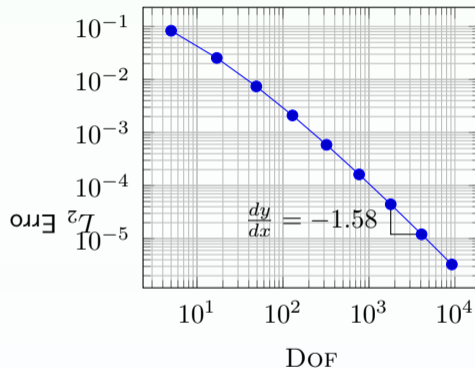
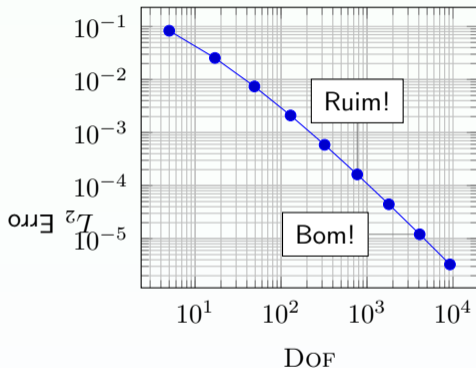




1 Customização

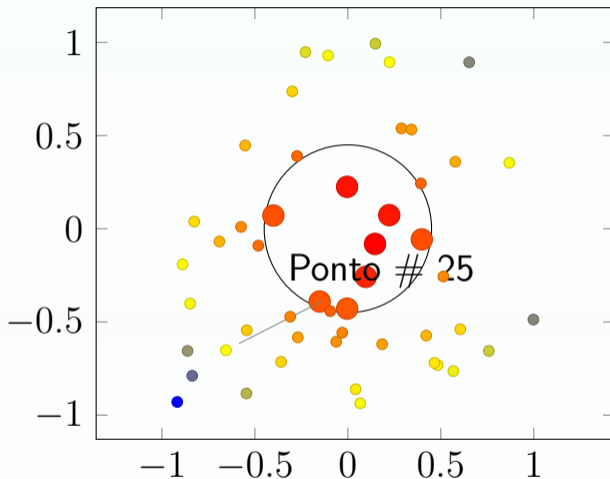
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2 Animação

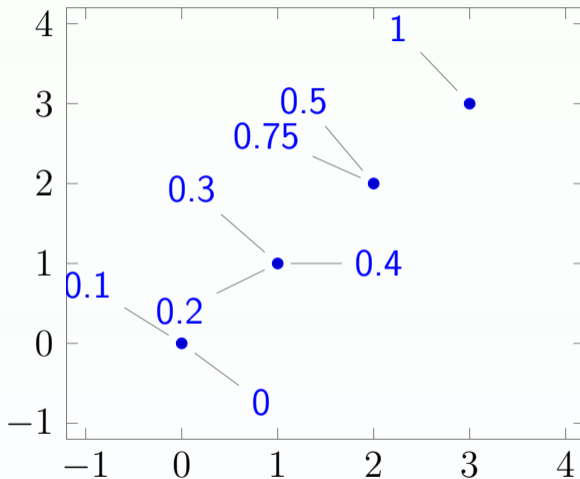


Fonte: Adaptado de Feuersänger (2021a, p. 356-7)





Fonte: Adaptado de Feuersänger (2021a, p. 360)



Fonte: Adaptado de Feuersänger (2021a, p. 361)

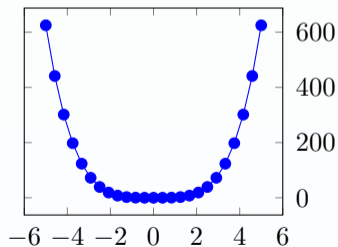
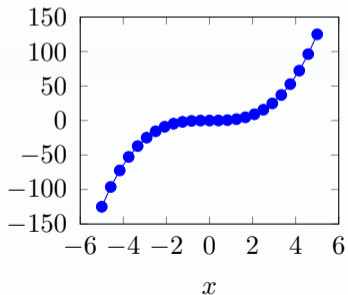
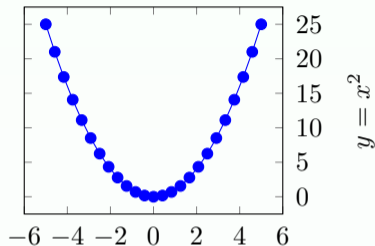
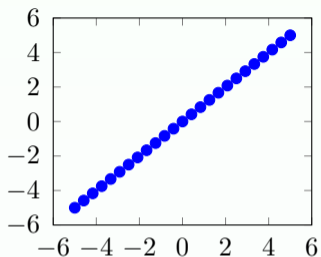
1 Customização

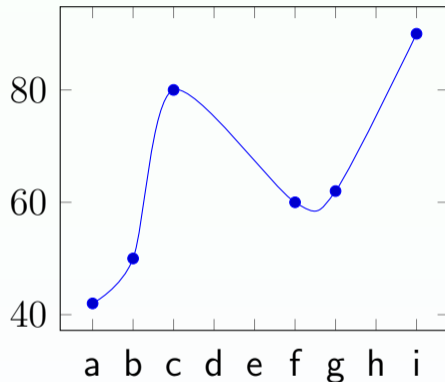
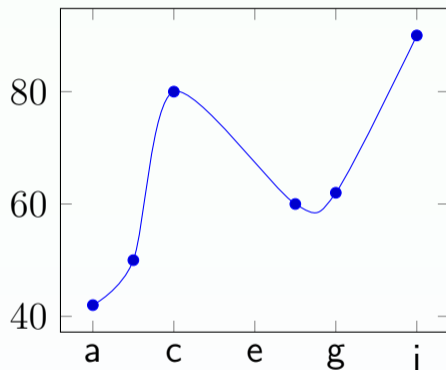
- Listas cíclicas
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2 Animação

Conjunto de formatações que podem ser aplicados em todos os elementos gráficos:

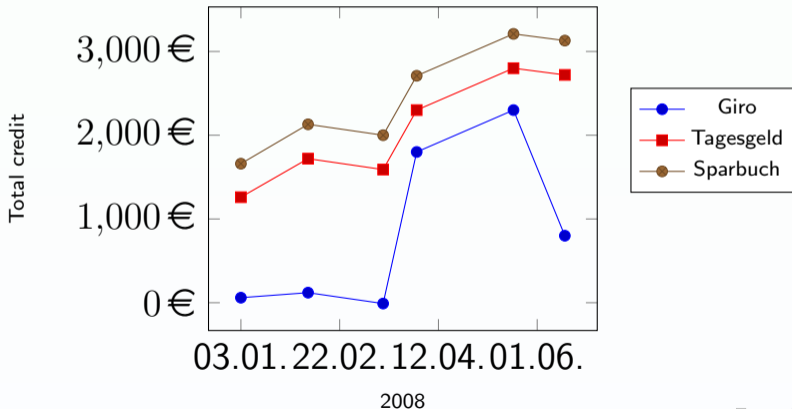






Fonte: Adaptado de Feuersänger (2021a, p. 389)

date	account1	account2	account3
2008-01-03	60	1200	400
2008-02-06	120	1600	410
2008-03-15	-10	1600	410
2008-04-01	1800	500	410
2008-05-20	2300	500	410
2008-06-15	800	1920	410



- Mudança de sistema de coordenadas
- Estatísticas
- Layers
- Regressões
- Bibliotecas
- importar/exportar
- Interface com outros softwares
- Comandos e ferramentas de nível básico

1 Customização

2 Animação

```
\begin{animateinline}[fragile][controls]{20}
2  \multiframe{41}{rXmax=0+0.2}{
   \begin{tikzpicture}
4   \begin{axis}[ axis lines=center,grid=both,
                 domain=0.001:\rXmax,
6                 xtick={0,1,...,8},
                 xmax=8.4, ymax=1.6, samples=501]
8
           \addplot [gray, dashed] {1};
10          \addplot [color=red] {1-exp(-x)*cos(3*deg(x))};

12         \end{axis}
        \end{tikzpicture}}
14 \end{animateinline}
```

Fonte: Adaptado de AlexG (2020)

ALEXG. **Animate pgfplot graph using animate package.** [S.l.: s.n.], abr. 2020. Disponível em: <https://tex.stackexchange.com/questions/563310/animate-pgfplot-graph-using-animate-package>. Acesso em: 5 ago. 2021.

FAUSKE, K. M. **TikZ and PGF examples.** [S.l.: s.n.], 2021. maintener: Stefan Kottwitz. Disponível em: <https://texample.net/tikz/examples/feature/plotting/>. Acesso em: 20 jul. 2021.

FEUERSÄNGER, C. **Manual for Package pgfplots: 2D/3D Plots in L A TEX, Version 1.18.1.** [S.l.: s.n.], 2021. Disponível em: <https://www.ctan.org/pkg/pgfplots>. Acesso em: 21 jul. 2021.

_____. **PGFPlots Gallery.** [S.l.: s.n.], 2021. Disponível em: <http://pgfplots.sourceforge.net/gallery.html>. Acesso em: 21 jul. 2021.

OWEN. **Plotting 3D bar plot in PGF.** [S.l.: s.n.], abr. 2020. Disponível em: <https://tex.stackexchange.com/users/191523/owen>. Acesso em: 1 ago. 2021.

SERGEJ. **Plotting matrix image data.** [S.l.: s.n.], jul. 2015. Disponível em: <https://tex.stackexchange.com/questions/255432/plotting-matrix-image-data>. Acesso em: 1 ago. 2021.

TANTAU, T.; WIBROW, M. et al. **The TikZ and PGF Packages: Manual for version 3.1.9a.** [S.l.: s.n.], 2021. Parts of this documentation have been written by other authors as indicated in these partsor chapters and in Section 1.5. Disponível em: <http://mirrors.ctan.org/graphics/pgf/base/doc/pgfmanual.pdf>. Acesso em: 20 jun. 2021.