

# Tests for pgfplots.sty

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December 30, 2009

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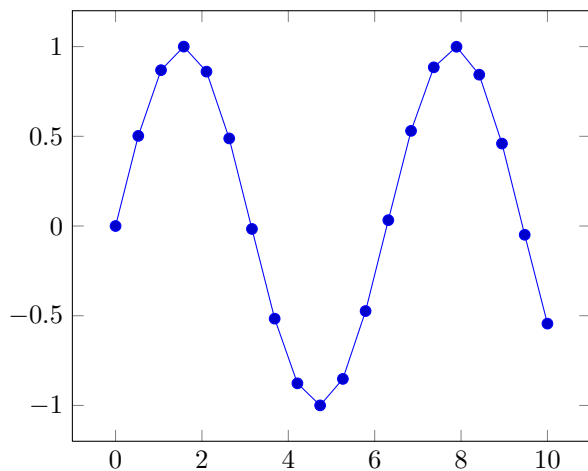
# Chapter 1

## pgfplotstest.file.tex

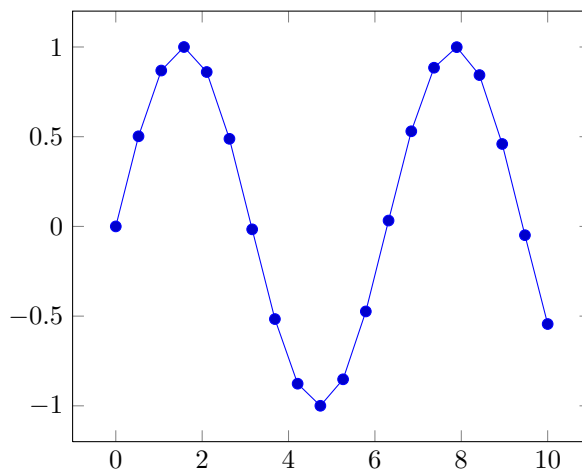
### 1.1 ‘plot file’ test

#### 1.1.1 A file in gnuplot format ‘num num i’

```
1 #Curve_0_of_1,_20_points
2 #x,y_type
3 0.00000_0.00000_ii
4 0.52632_0.50235_ii
5 1.05263_0.86873_ii
6 1.57895_0.99997_ii
7 2.10526_0.86054_ii
8 2.63158_0.48819_ii
9 3.15789_-0.01630_ii
10 3.68421_-0.51638_ii
11 4.21053_-0.87669_ii
12 4.73684_-0.99970_ii
13 5.26316_-0.85212_ii
14 5.78947_-0.47390_ii
15 6.31579_0.03260_ii
16 6.84211_0.53027_ii
17 7.36842_0.88441_ii
18 7.89474_0.99917_ii
19 8.42105_0.84348_ii
20 8.94737_0.45948_ii
21 9.47368_-0.04889_ii
22 10.00000_-0.54402_ii
```

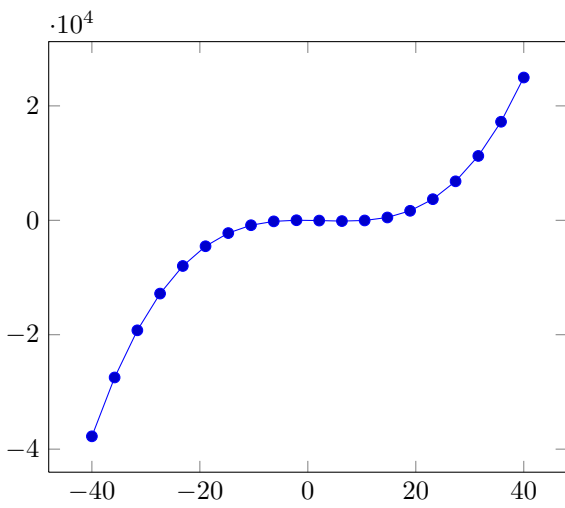


Same file loaded with ‘plot table’



#### 1.1.2 A file which differs slightly from gnuplot format

```
1 #Curve_0_of_1,_20_points
2 #_5***3_-4***2_-16***1
3 #x,y_type
4 -40.00000_-37760.00000_ii
5 -35.78947_-27472.03966_ii
6 -31.57895_-19229.39204_ii
7 -27.36842_-12808.11780_ii
8 -23.15789_-7984.27759_ii
9 -18.94737_-4533.93206_ii
10 -14.73684_-2233.14186_ii
11 -10.52632_-857.96763_ii
12 -6.31579_-184.47004_ii
13 -2.10526_11.29028_ii
14 2.10526_-46.74734_ii
15 6.31579_-134.64353_ii
16 10.52632_-28.45896_ii
17 14.73684_495.74574_ii
18 18.94737_1661.90990_ii
19 23.15789_3693.97288_ii
20 27.36842_6815.87403_ii
21 31.57895_11251.55270_ii
22 35.78947_17224.94824_ii
23 40.00000_24960.00000_ii
```

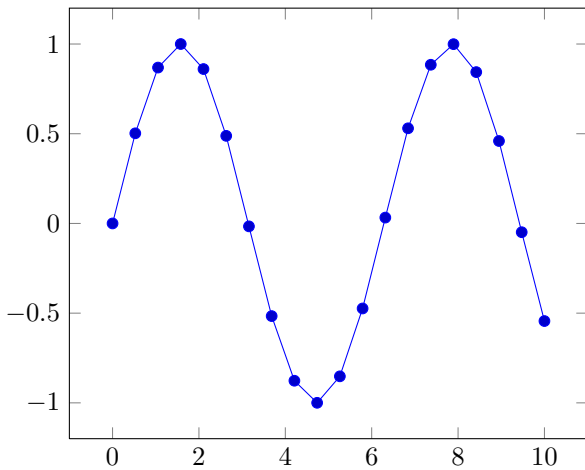


### 1.1.3 A file which starts with newlines

```

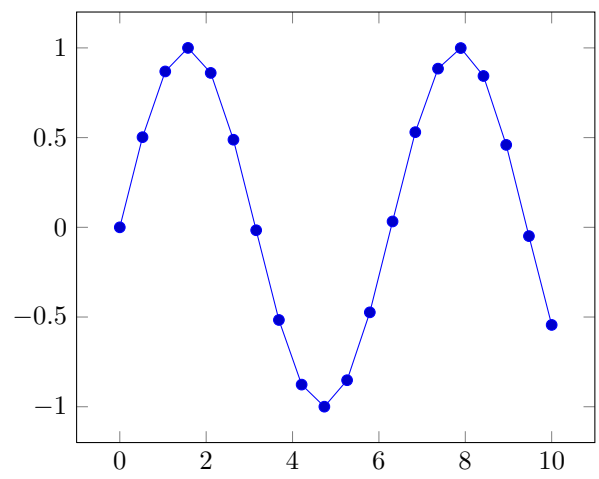
1
2 #Curve_0_of_1,_20_points
3 #x_y_type
4 0.00000_0.00000_i
5 0.52632_0.50235_i
6 1.05263_0.86873_i
7 1.57895_0.99997_i
8 2.10526_0.86054_i
9 2.63158_0.48819_i
10 3.15789_-0.01630_i
11 3.68421_-0.51638_i
12 4.21053_-0.87669_i
13 4.73684_-0.99970_i
14 5.26316_-0.85212_i
15 5.78947_-0.47390_i
16 6.31579_0.03260_i
17 6.84211_0.53027_i
18 7.36842_0.88441_i
19 7.89474_0.99917_i
20 8.42105_0.84348_i
21 8.94737_0.45948_i
22 9.47368_-0.04889_i
23 10.00000_-0.54402_i

```

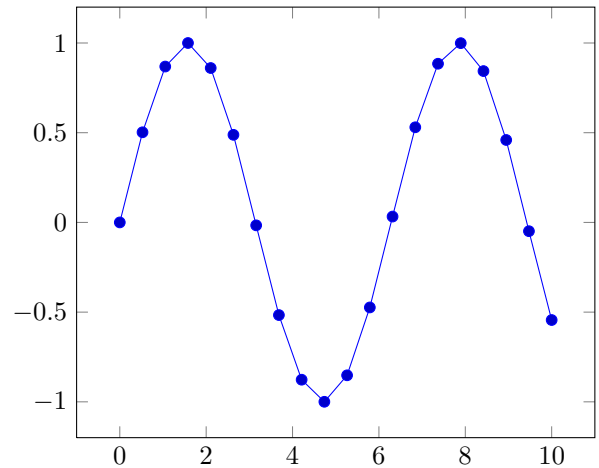


### Same file loaded with 'plot table'

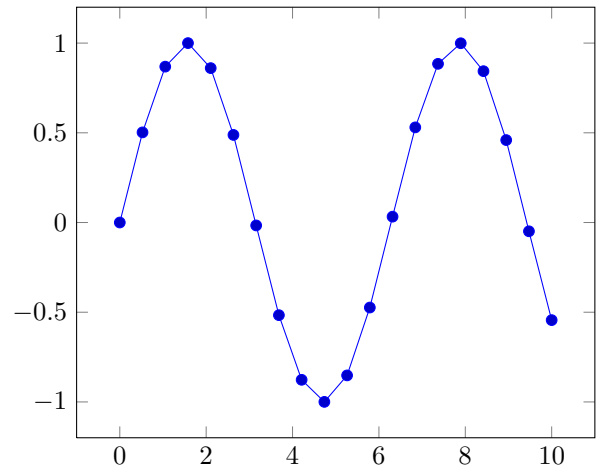
The first data point should have been identified as column name.



### Same file loaded with 'plot table from macro'

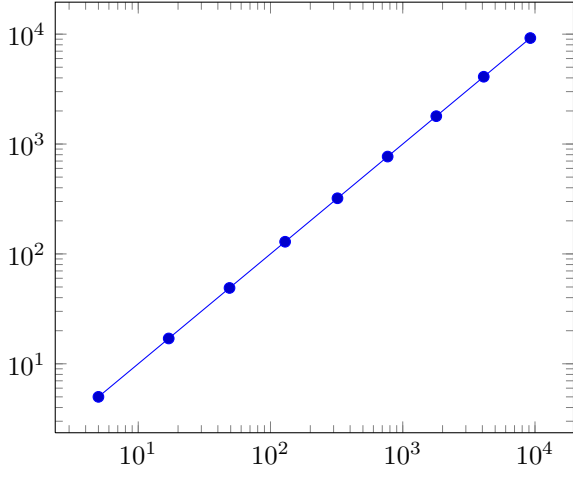


### testing space gobbling in 'plot file' command



testing plot file ‘skip first’ option to skip header

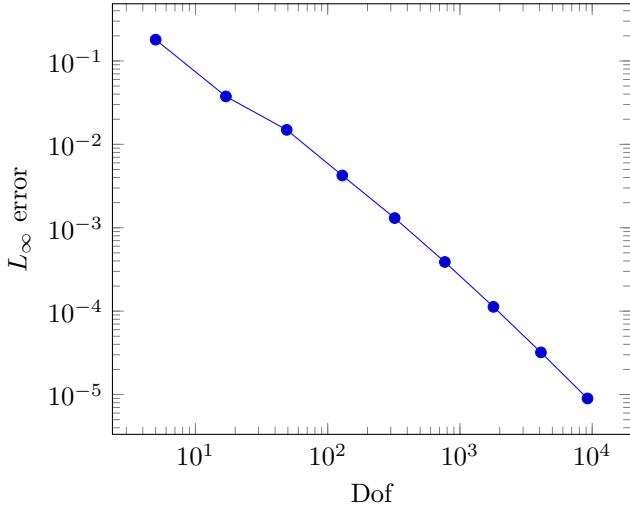
Read from file ‘pgfplotstest\_plot’



## 1.2 ‘plot table’ test

### 1.2.1 Plot by column ‘dof’ versus column ‘Lmax’

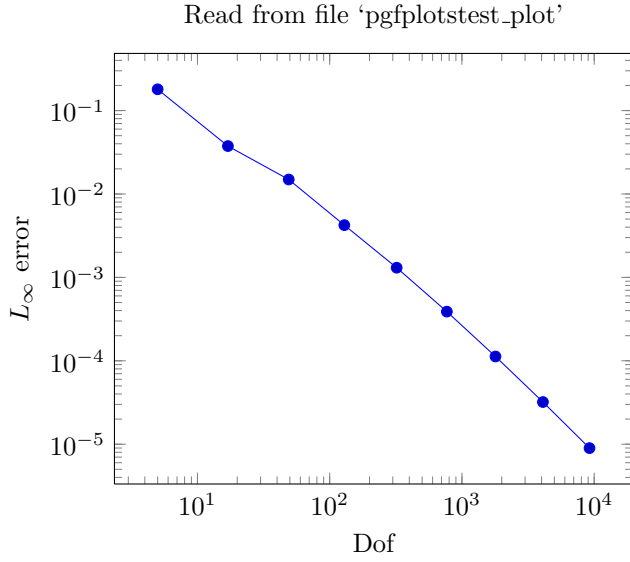
Read from file ‘pgfplotstest\_plot’



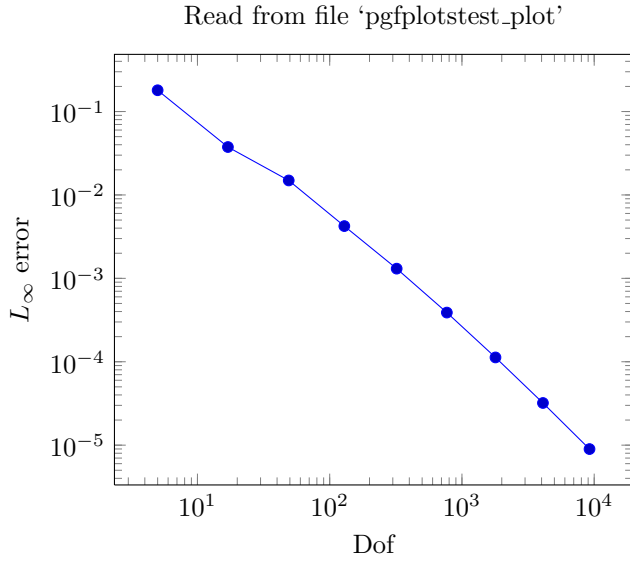
1	G	Basis	dof	I2	I2_abserror	A	Imax	Imax_releerror	cgiter	cgiter_err	maxlevel	eps
2	\$flags_int	int	int	int	sci:8	sci:8	sci:8	int	sci:8	int	std:8	
3	5	5	5	8.31160034e-02	1e-2	0.00000000e+00	1.80007647e-01	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
4	17	17	17	2.54685628e-02	0	0.00000000e+00	3.75580565e-02	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
5	49	49	49	7.40715288e-03	5e-3	0.00000000e+00	1.49212716e-02	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
6	129	129	129	2.10192154e-03	1e-1	0.00000000e+00	4.2330523e-03	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
7	321	321	321	5.87352989e-04	0	0.00000000e+00	1.30668515e-03	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
8	769	769	769	1.62269942e-04	1e-4	0.00000000e+00	3.88658098e-04	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
9	1793	1793	1793	4.44248889e-05	1e-5	0.00000000e+00	1.12651668e-04	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
10	4097	4097	4097	1.20714122e-05	0.5e-5	0.00000000e+00	3.20339285e-05	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00
11	9217	9217	9217	3.26101452e-06	0.7e-6	0.00000000e+00	8.97617707e-06	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00	0.00000000e+00

Table 1.1: pgfplotstest\_plot

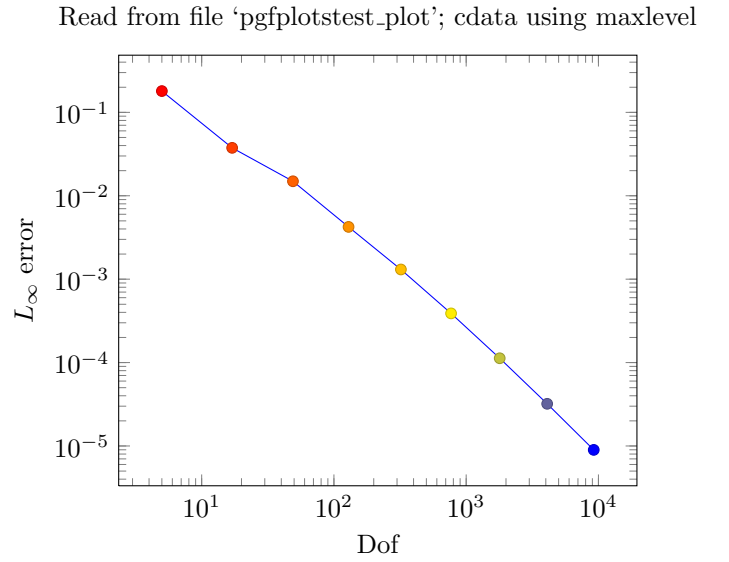
### 1.2.2 Plot by column 'dof' versus column 'LmaxXX', a col alias



### 1.2.3 Plot by column 'dof' versus column 'L/m=ax', a col alias



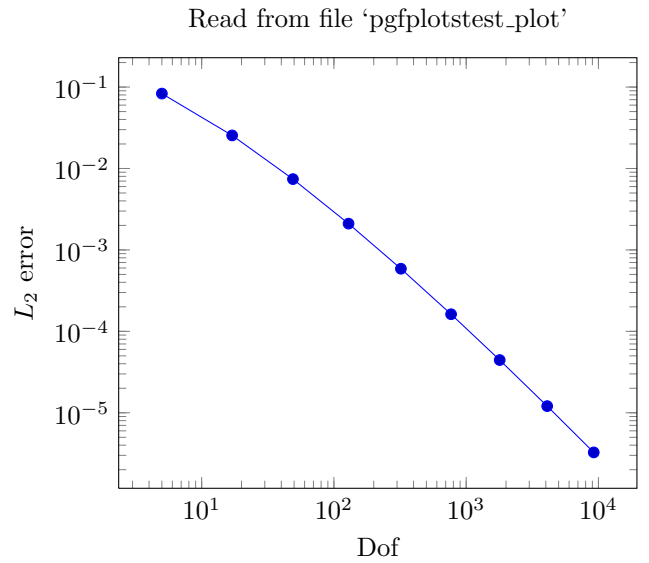
### 1.2.4 Plot by column 'dof' versus column 'L/m=ax', a col alias



### 1.2.5 showing the plot data with both, 'create on use' and col alias

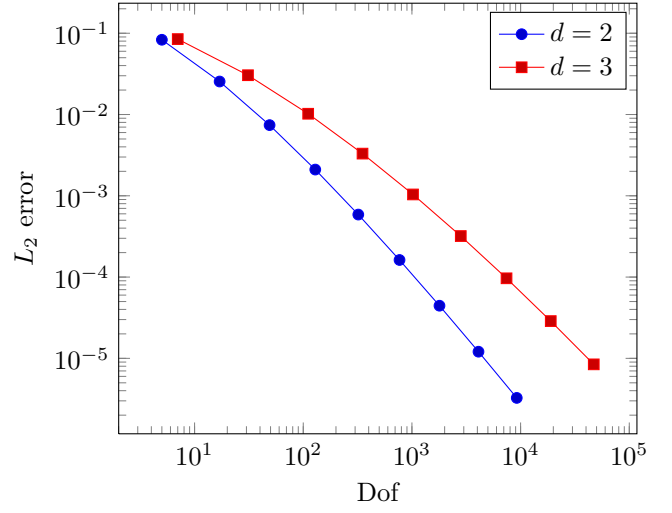
dof	L/m=ax	order
5	0.18	
17	$3.76 \cdot 10^{-2}$	2.26
49	$1.49 \cdot 10^{-2}$	1.33
129	$4.23 \cdot 10^{-3}$	1.82
321	$1.31 \cdot 10^{-3}$	1.7
769	$3.89 \cdot 10^{-4}$	1.75
1,793	$1.13 \cdot 10^{-4}$	1.79
4,097	$3.2 \cdot 10^{-5}$	1.81
9,217	$8.98 \cdot 10^{-6}$	1.84

### 1.2.6 Plot by column #2 versus column #3



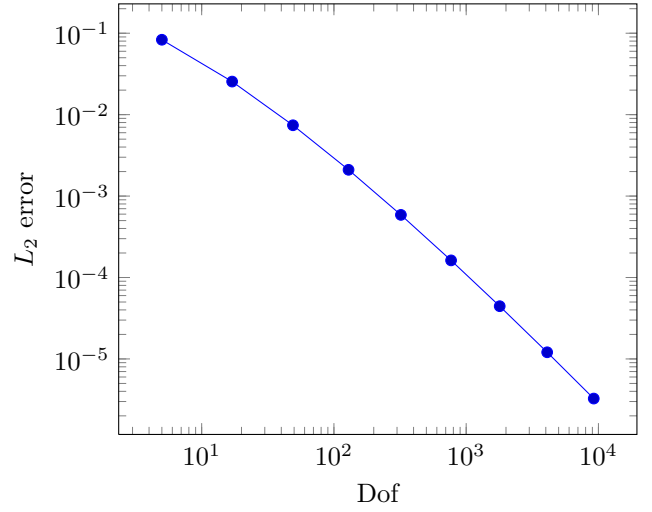
## 1.2.7 Plot by preloaded tables

Read from file 'pgfplotstest\_plot' and 'pgfplotstest\_plot3'



## 1.2.8 a table which has no column names

Read from file 'pgfplotstest\_plotnocolnames'



1	G	Basis	dof	L2	A	Lmax	cgiter	maxlevel	eps
2	\$flags_int	int	int	int	sci:8	sci:8	int	int	std:8
3	7	7	7	8.47178381e-02	0.00000000e+00	2.40709867e-01	2	2	2
4	31	31	31	3.04409349e-02	0.00000000e+00	7.83790314e-02	5	3	3
5	111	111	111	1.02214539e-02	0.00000000e+00	3.08129583e-02	12	4	4
6	351	351	351	3.30346265e-03	0.00000000e+00	1.04183980e-02	29	5	5
7	1023	1023	1023	1.03886535e-03	0.00000000e+00	3.27014492e-03	46	6	6
8	2815	2815	2815	3.19646457e-04	0.00000000e+00	9.82705632e-04	53	7	7
9	7423	7423	7423	9.65789766e-05	0.00000000e+00	2.98443097e-04	57	8	8
10	18943	18943	18943	2.87339125e-05	0.00000000e+00	8.86501125e-05	62	9	9
11	47103	47103	47103	8.43749881e-06	0.00000000e+00	2.62313540e-05	66	10	10

Table 1.2: pgfplotstest\_plot3

1	5	5	5	8.31160034e-02	0.00000000e+00	1.80007647e-01	2	2	-1
2	17	17	17	2.54685628e-02	0.00000000e+00	3.75580565e-02	5	3	-1
3	49	49	49	7.40715288e-03	0.00000000e+00	1.49212716e-02	11	4	-1
4	129	129	129	2.10192154e-03	0.00000000e+00	4.23330523e-03	26	5	-1
5	321	321	321	5.87352989e-04	0.00000000e+00	1.30668515e-03	43	6	-1
6	769	769	769	1.62269942e-04	0.00000000e+00	3.88658098e-04	49	7	-1
7	1793	1793	1793	4.44248889e-05	0.00000000e+00	1.12651668e-04	52	8	-1
8	4097	4097	4097	1.20714122e-05	0.00000000e+00	3.20339285e-05	56	9	-1
9	9217	9217	9217	3.26101452e-06	0.00000000e+00	8.97617707e-06	59	10	-1

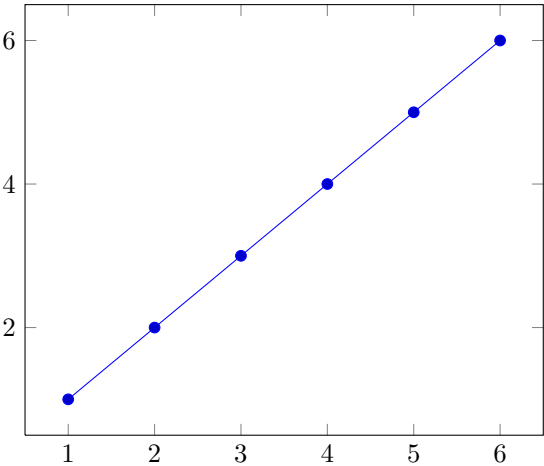
Table 1.3: plotdata/pgfplotstest-plotnocolnames

### 1.3 Table Column Separators

```
1 x,something,y
2 1,42,1
3 2,234,2
4 3,234,3
5 4,234,4
6 5,2342,5
7 6,32423,6
```

x	something	y
1	42	1
2	234	2
3	234	3
4	234	4
5	2,342	5
6	32,423	6

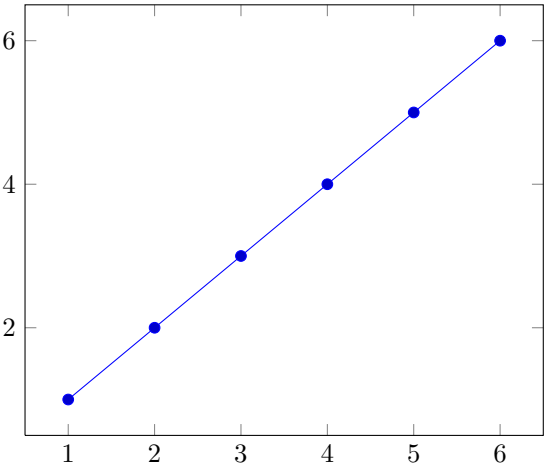
col sep=comma.



```
1 x;something;y
2 1;42;1
3 2;234;2
4 3;234;3
5 4;234;4
6 5;2342;5
7 6;32423;6
```

x	something	y
1	42	1
2	234	2
3	234	3
4	234	4
5	2,342	5
6	32,423	6

col sep=semicolon.

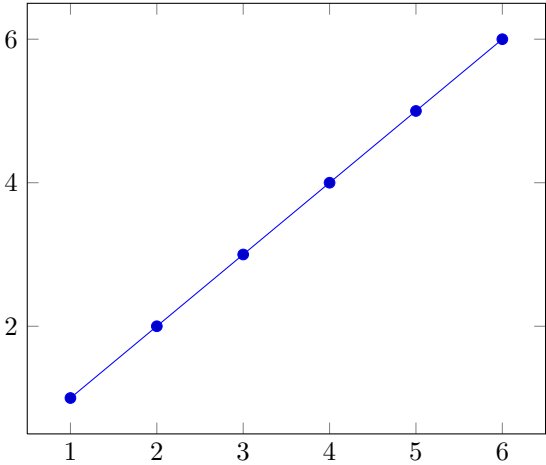


```
1 x:something:y
2 1:42:1
3 2:234:2
```

```
4 3:234:3
5 4:234:4
6 5:2342:5
7 6:32423:6
```

x	something	y
1	42	1
2	234	2
3	234	3
4	234	4
5	2,342	5
6	32,423	6

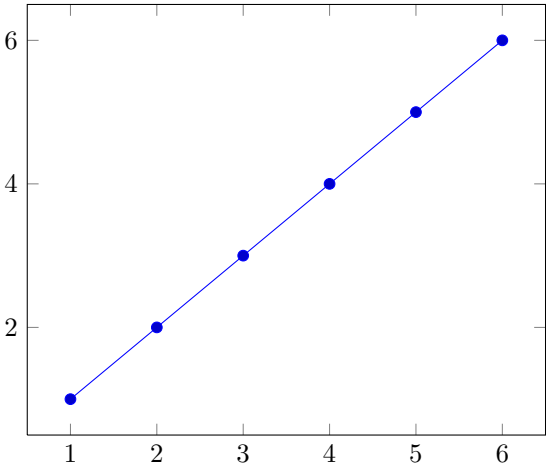
col sep=colon.



```
1 {x}{something}{y}
2 {1}{42}{1}
3 {2}{234}{2}
4 {3}{234}{3}
5 {4}{234}{4}
6 {5}{2342}{5}
7 {6}{32423}{6}
```

x	something	y
1	42	1
2	234	2
3	234	3
4	234	4
5	2,342	5
6	32,423	6

col sep=braces.

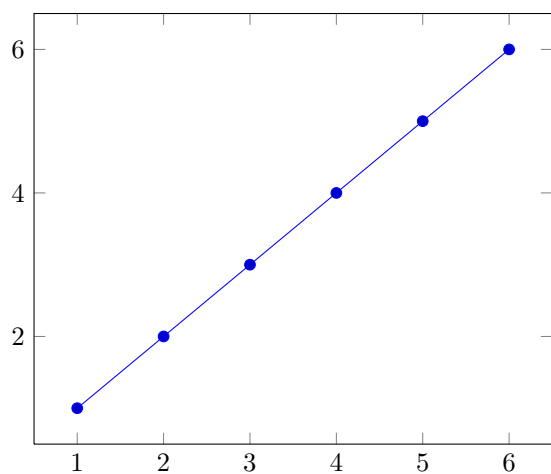


```
1 a_long_x_name.some_thing.y
2 1.42.1
3 2.234.2
4 3.234.3
5 4.234.4
6 5.2342.5
7 6.32423.6
```



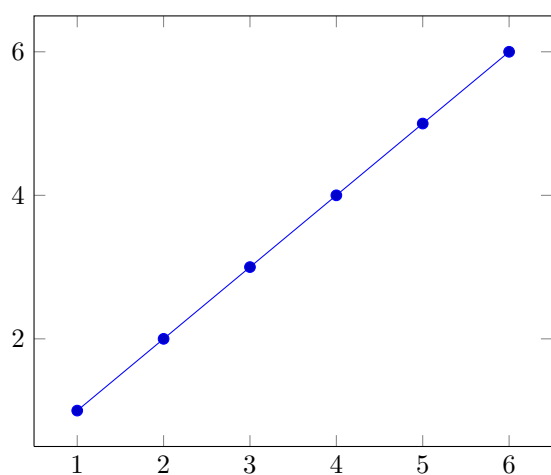
a long x name	some thing	y
1	42	1
2	234	2
3	234	3
4	234	4
5	2,342	5
6	32,423	6

col sep=tab.

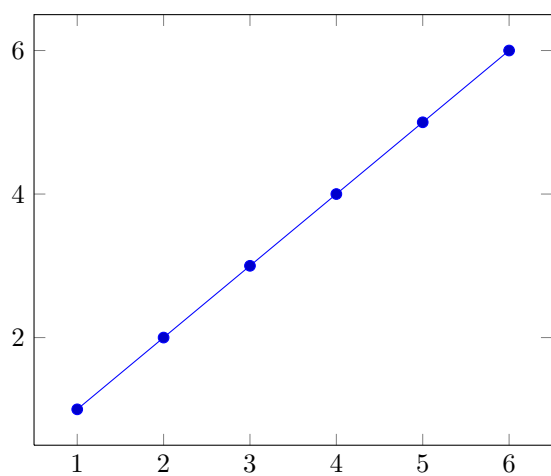


### 1.3.1 the same with active characters

col sep=semicolon.



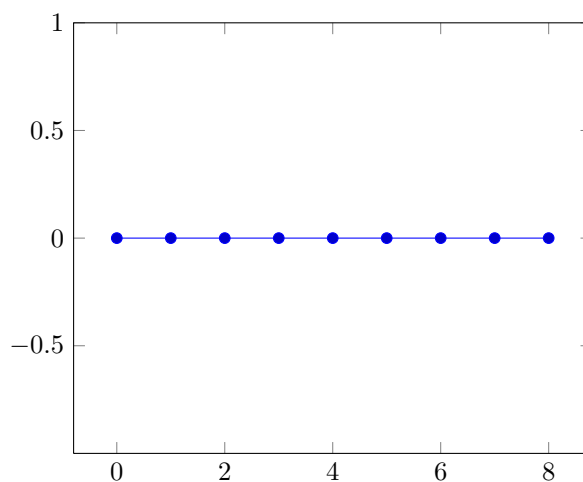
col sep=colon.



## 1.4 'plot file' sanity checking test

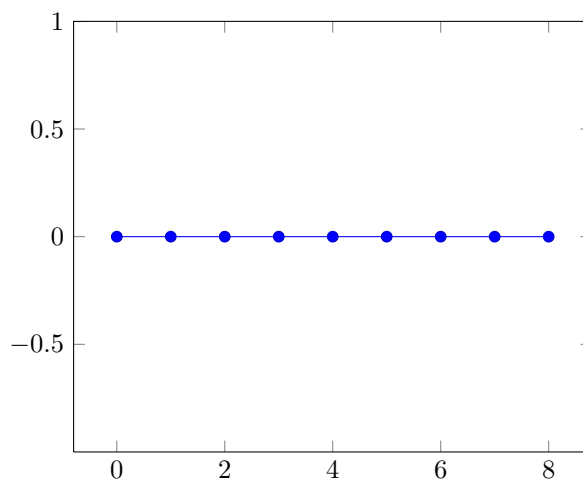
### 1.4.1 2d

The input file has just one column.



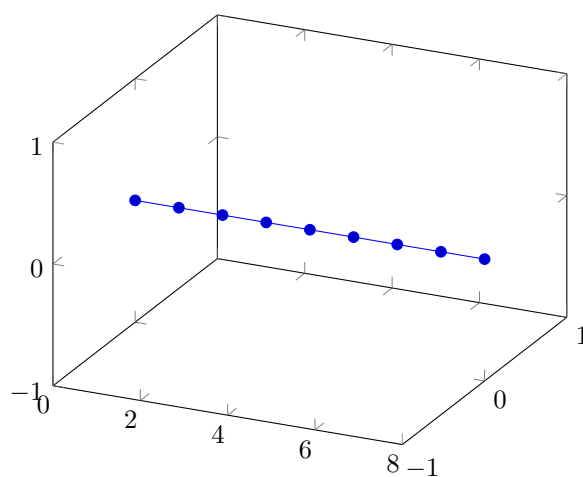
### 1.4.2 2d + meta

The input file has just one column.



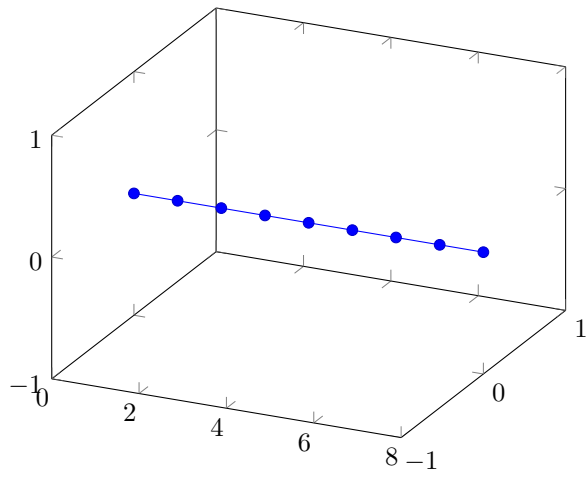
### 1.4.3 3d

The input file has just one column.



#### 1.4.4 3d + meta

The input file has just one column.



# Chapter 2

## pgfplotstest.colormap.tex

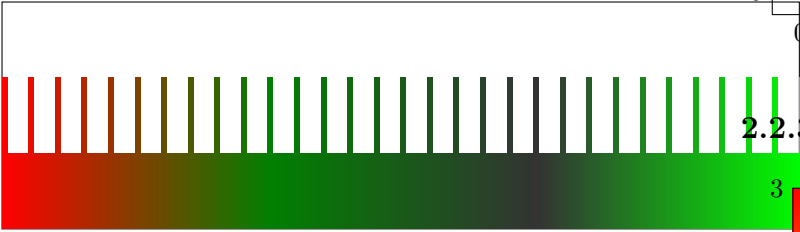
### 2.1 Basic level experiment

Experiment:

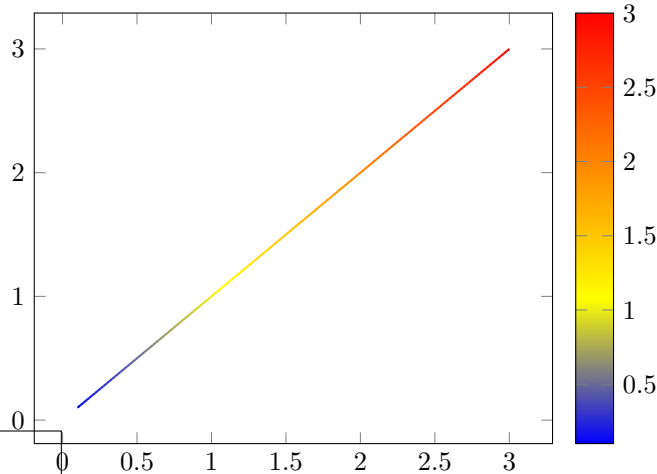
- Define a color map,
- convert it back to a shading; draw that shading,
- for a set of sample points, map them linearly into the color map and draw small “tick” lines over the shading.

The test PASSES IF AND ONLY IF: the shading and the “tick” lines have the same color.

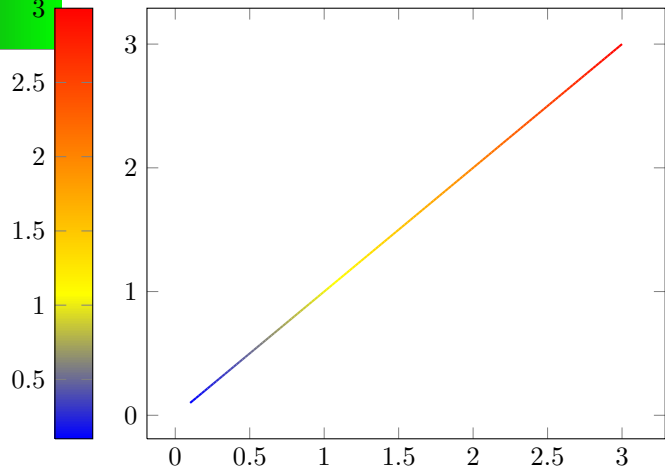
Color spec:    `rgb(0cm)=(1,0,0);`    `rgb(2cm)=(0,0.5,0);`  
`gray(4cm)=(0.2); color(6cm)=(green);`



### 2.2.2 colorbar right

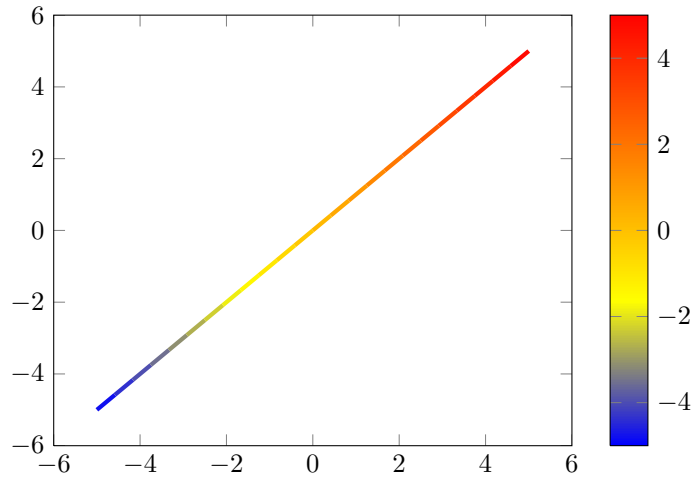


### 2.2.3 colorbar left

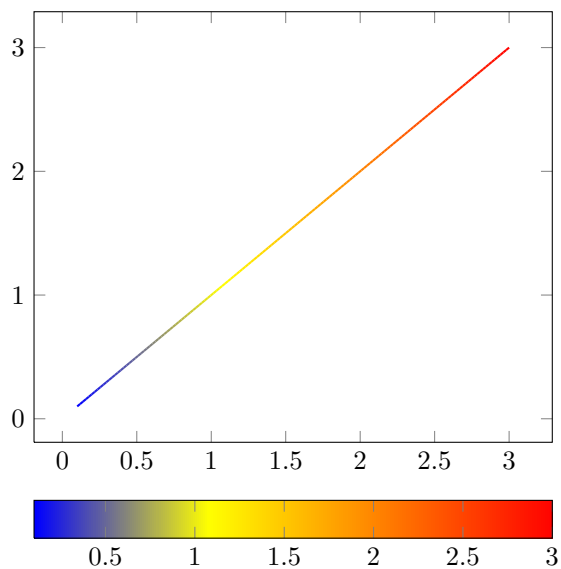


### 2.2 Colorbars

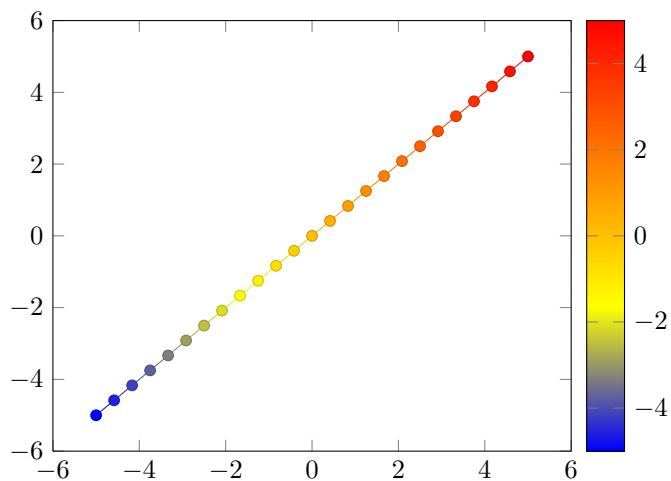
#### 2.2.1 default config



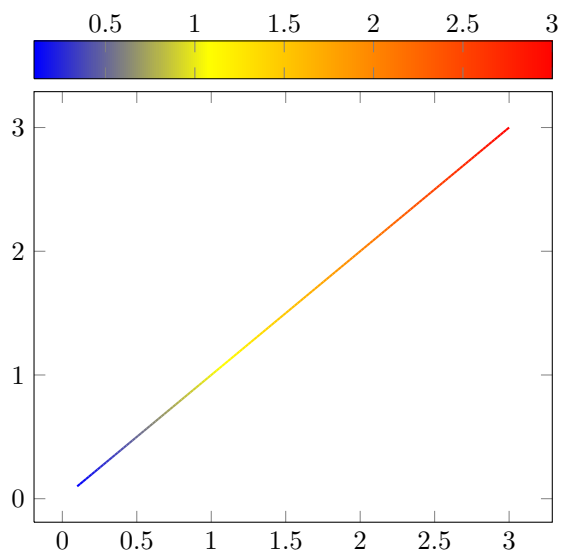
### 2.2.4 colorbar horizontal



### 2.2.7 Testing at=(1.03,0.5),anchor=west

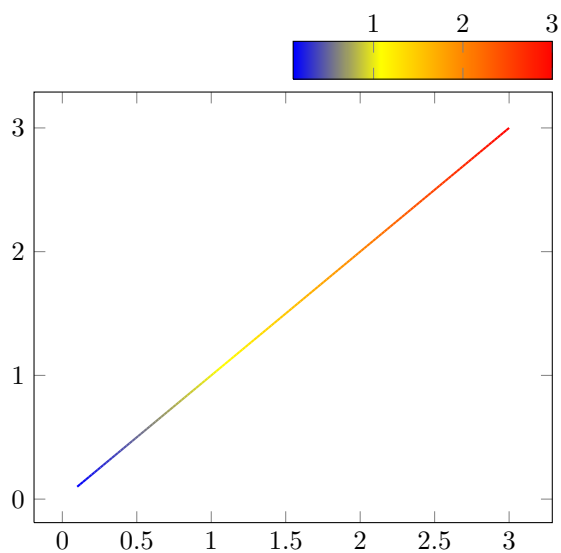


### 2.2.5 colorbar horizontal; top with customization



### 2.2.6 colorbar horizontal; top with even more customization

More Customization: "colorbar top"



# Chapter 3

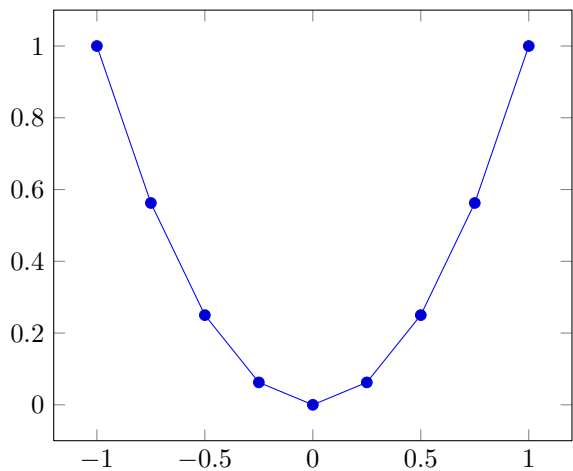
## pgfplotstest.marks.tex

3.1 Testing special treatment for no marks and only marks

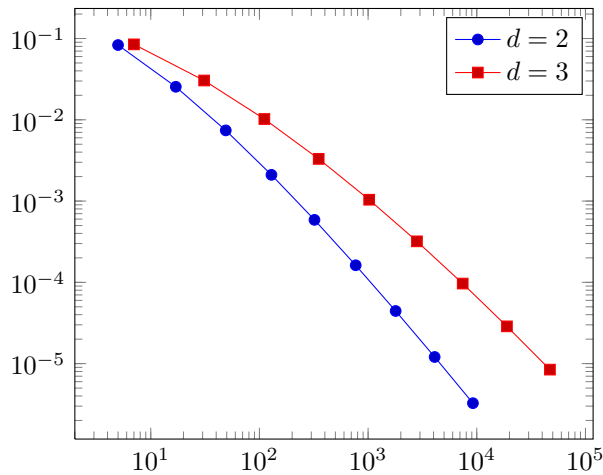
3.1.2 only marks

3.1.1 both, marks and lines

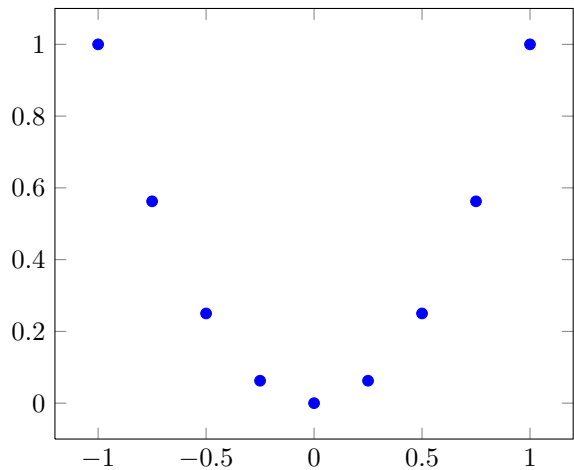
Normal plot



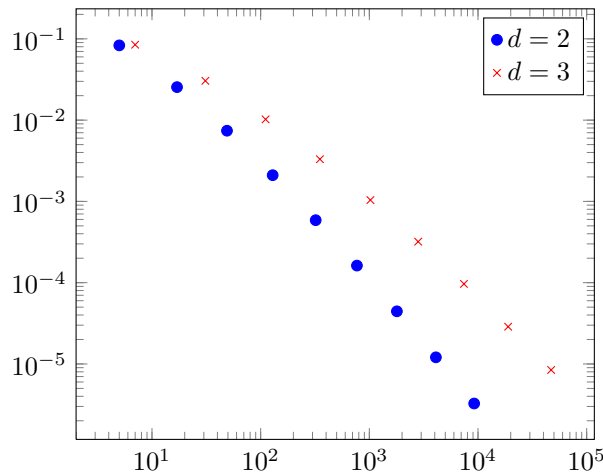
log plot



Normal plot

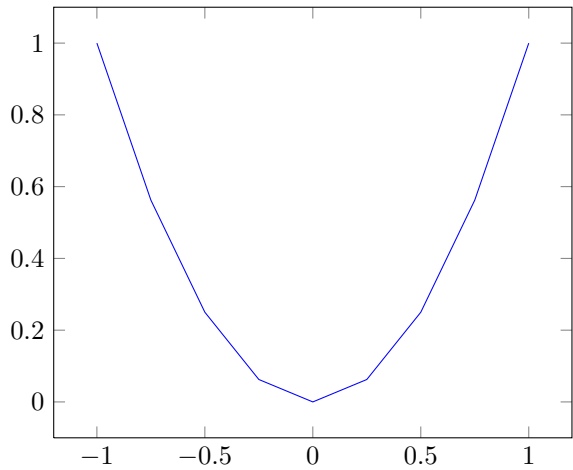


log plot

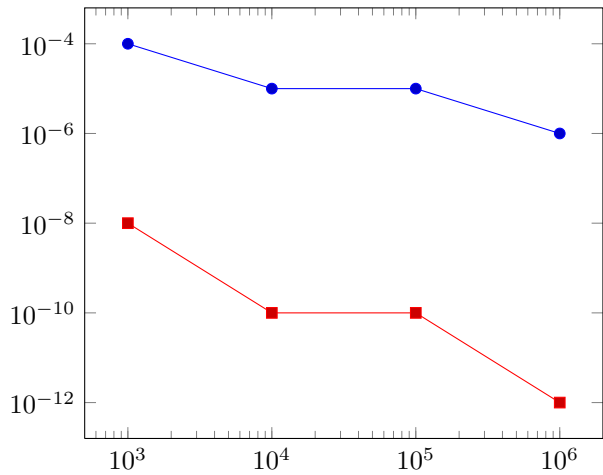


3.1.3 no marks

Normal plot

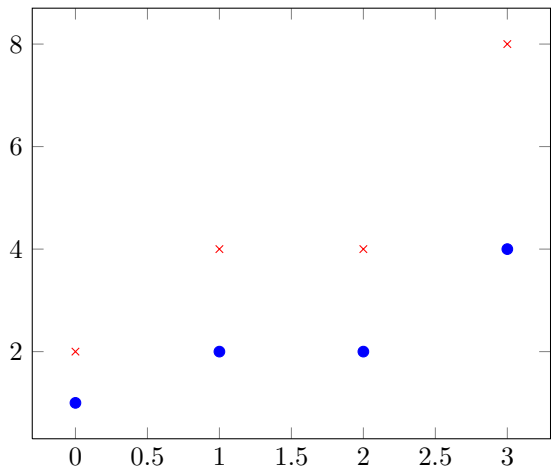


log plot



3.2.2 only marks

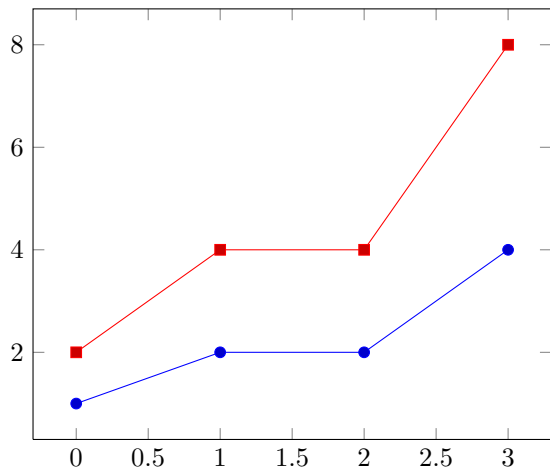
Normal plot



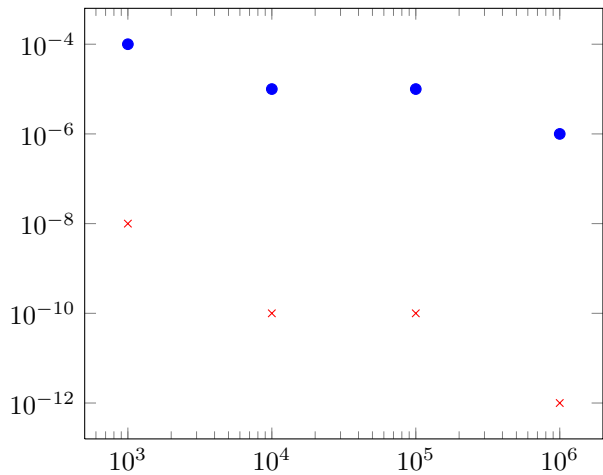
3.2 Testing special treatment for no marks and only marks for STACKED PLOTS

3.2.1 both, marks and lines

Normal plot

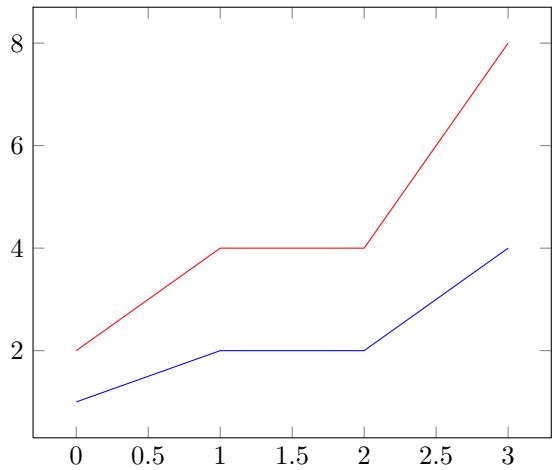


log plot

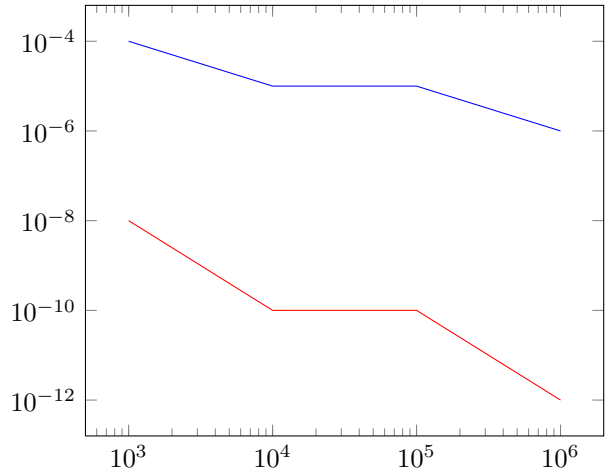


3.2.3 no marks

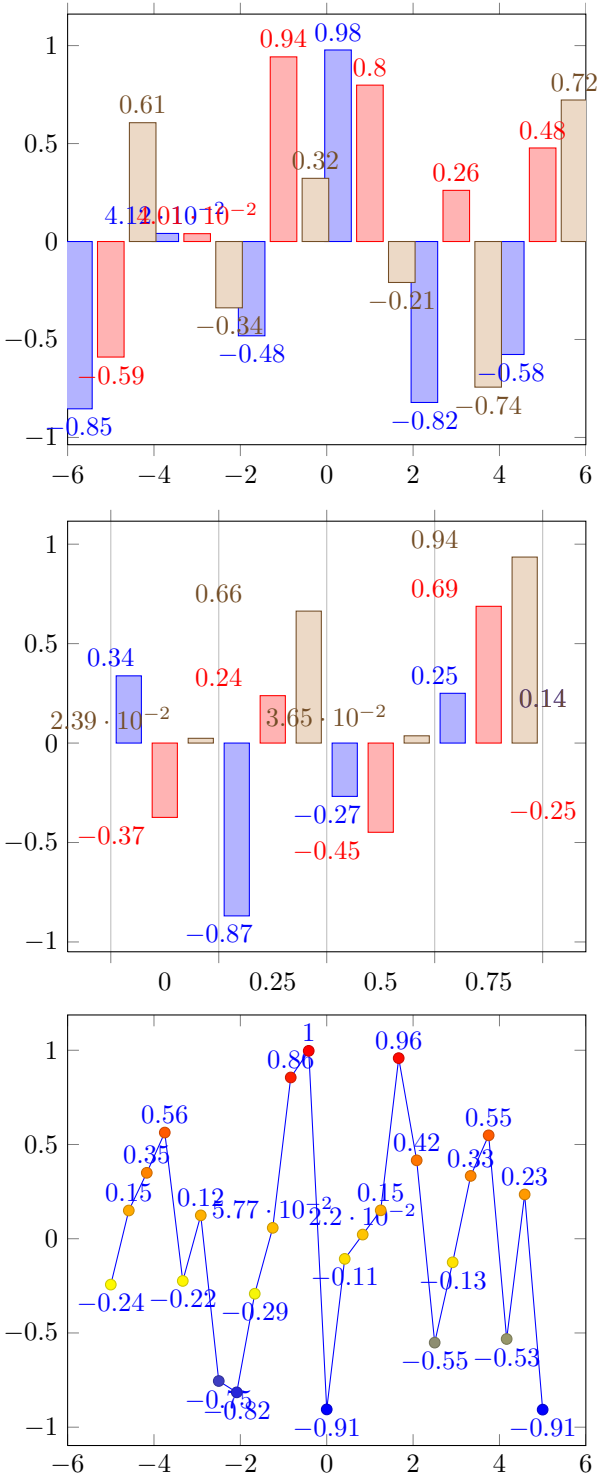
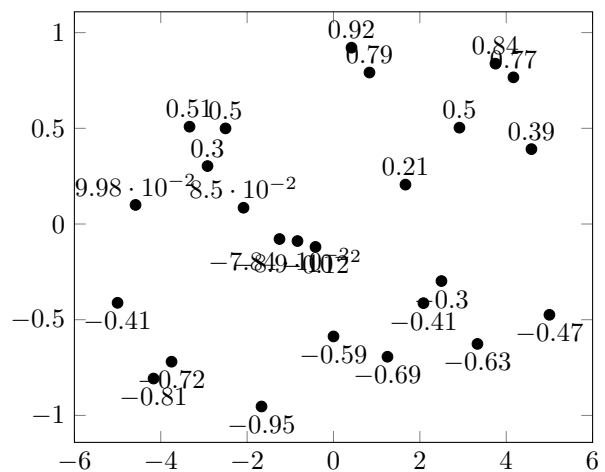
Normal plot



log plot



3.3 nodes near coords

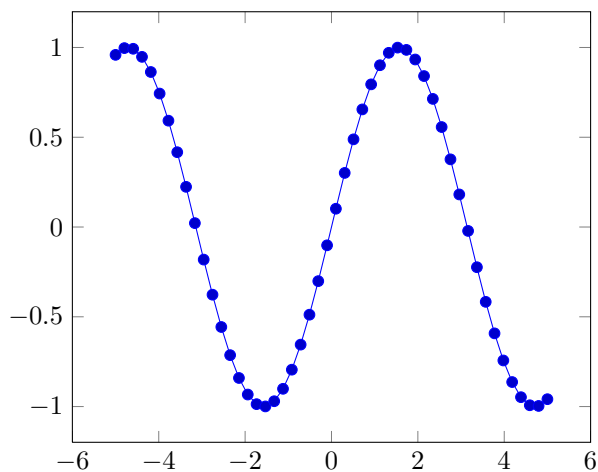


# Chapter 4

## pgfplotstest.function.tex

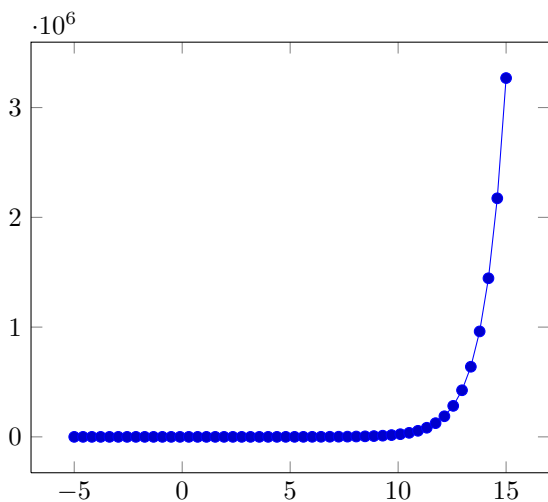
### 4.1 ‘plot function’ test

#### 4.1.1 $\sin(x)$

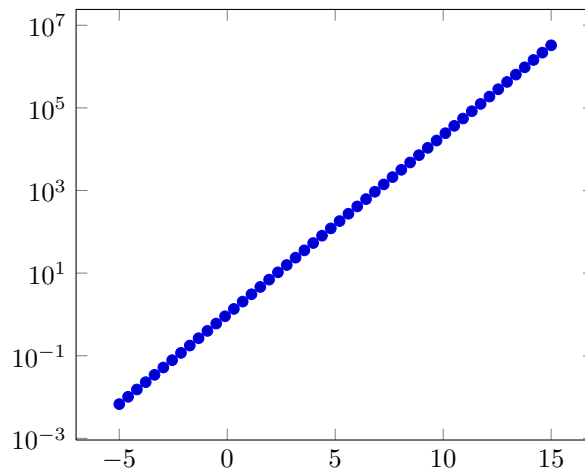


#### 4.1.2 $\exp(x)$

linear



semilogy

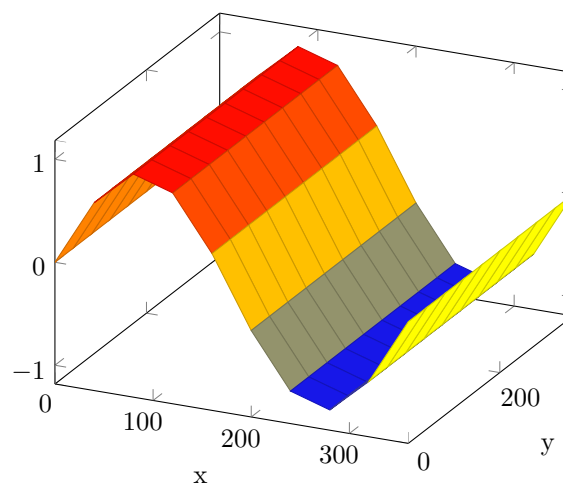


### 4.2 3D plots

#### 4.2.1 plot expression

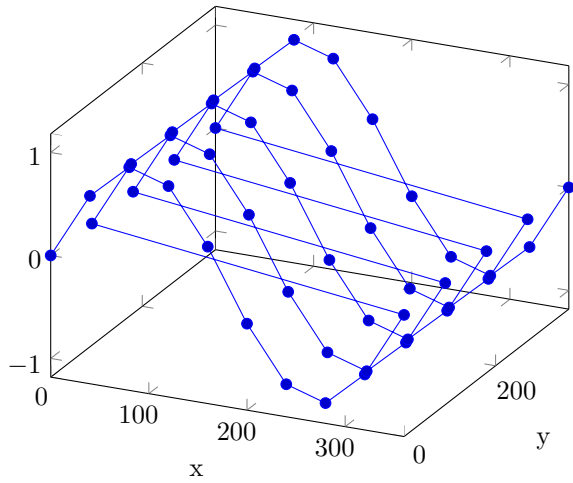
All plots use samples=10,/tikz/domain=0:360 as default!

default params

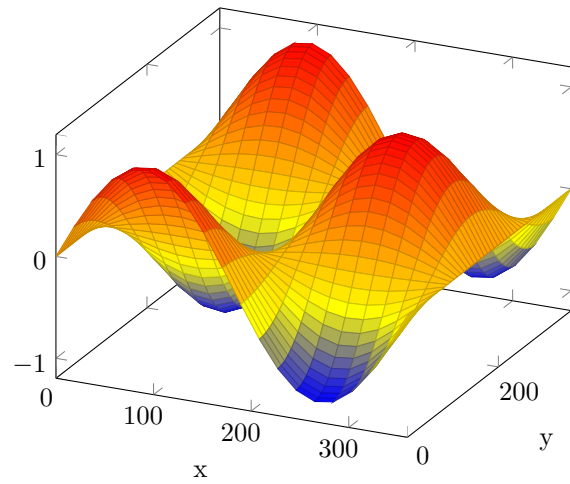




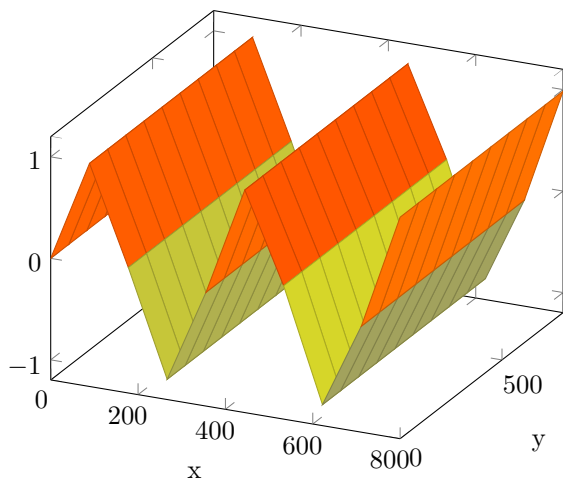
z buffer=none and fewer samples



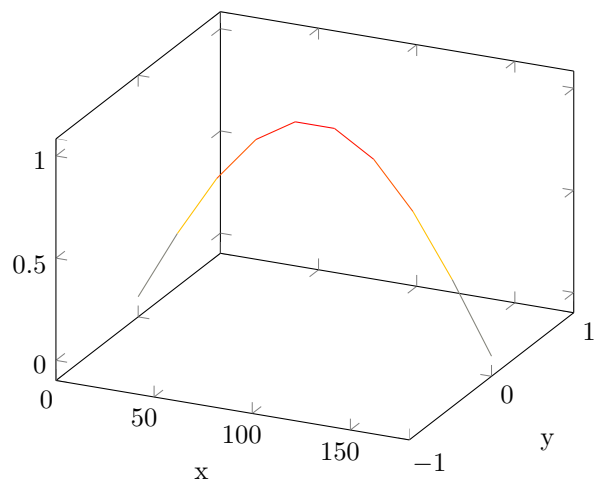
samples, samples y



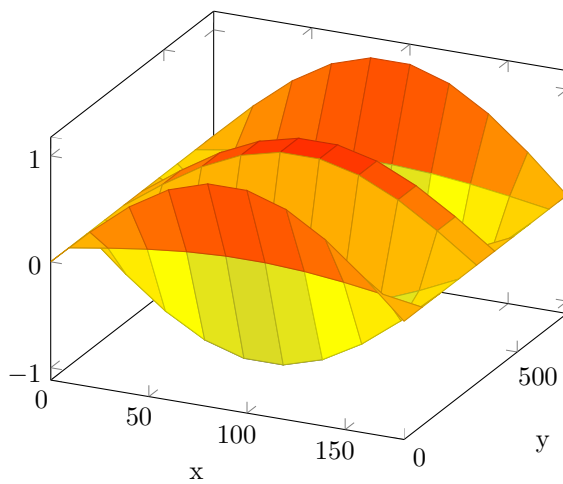
domain set



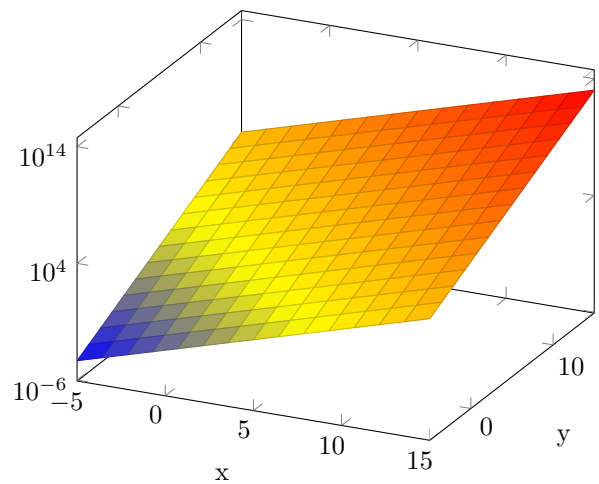
a line plot



domain, domain y



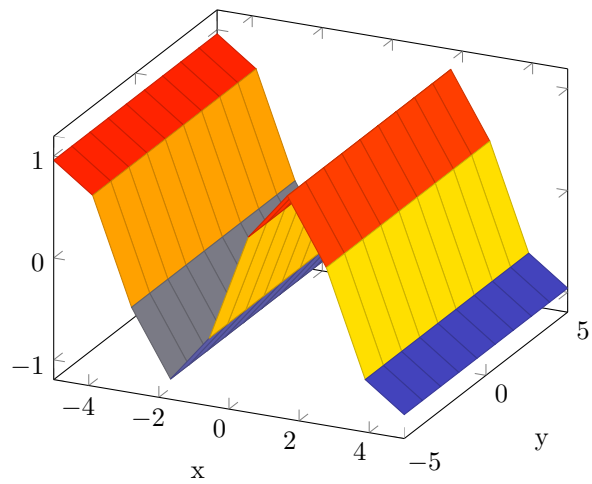
log in z ( $\exp(x+y)$ )



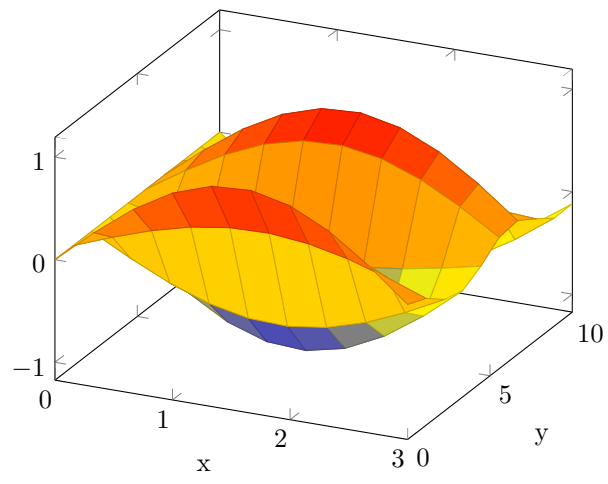
## 4.2.2 plot gnuplot

All plots use samples=10 as default!

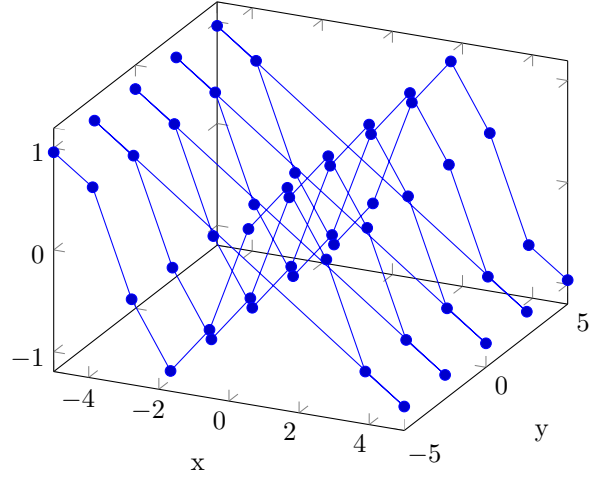
default params



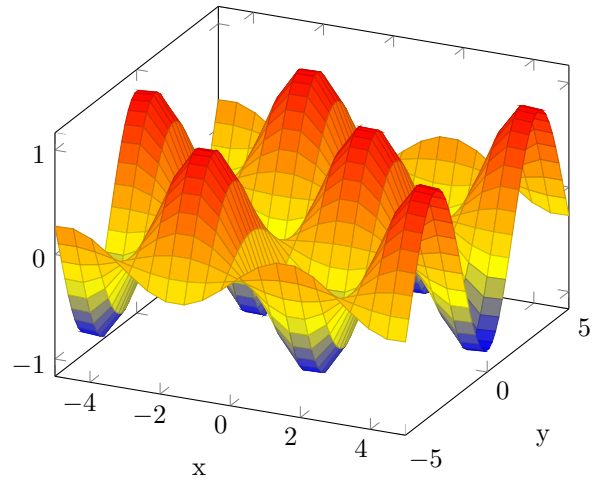
domain, domain y



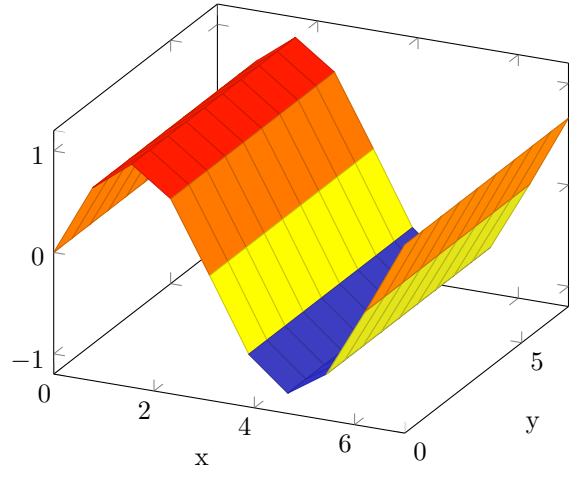
z buffer=none and fewer samples



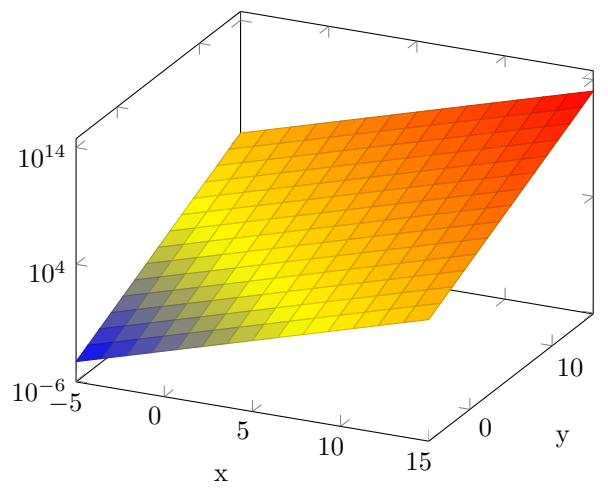
samples, samples y



domain set



log in z (exp(x+y))

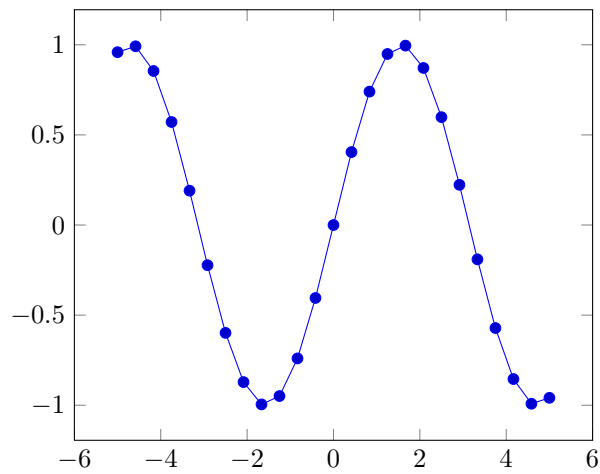


# Chapter 5

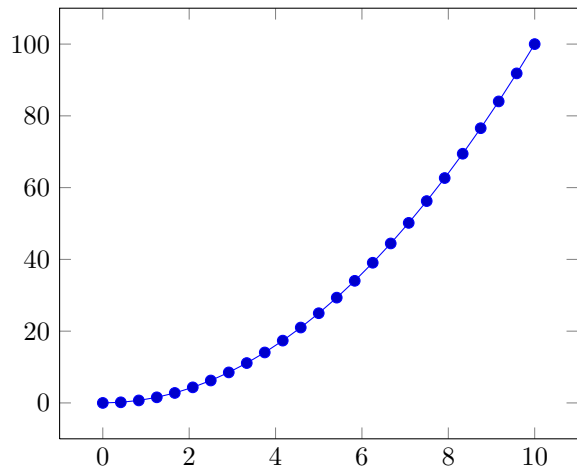
## pgfplotstest.expr.tex

### 5.1 ‘plot expression’ test

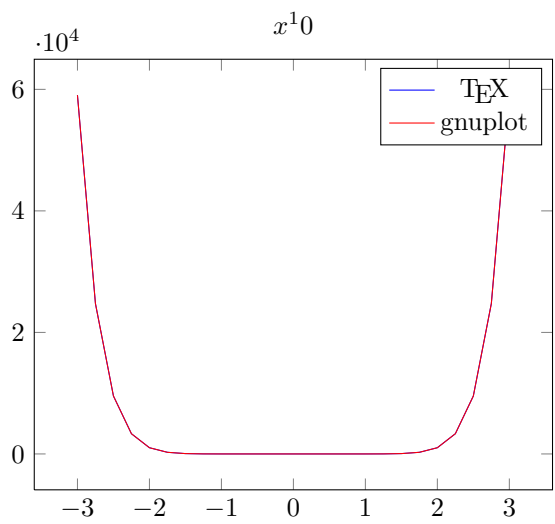
#### 5.1.1 $\sin(x)$



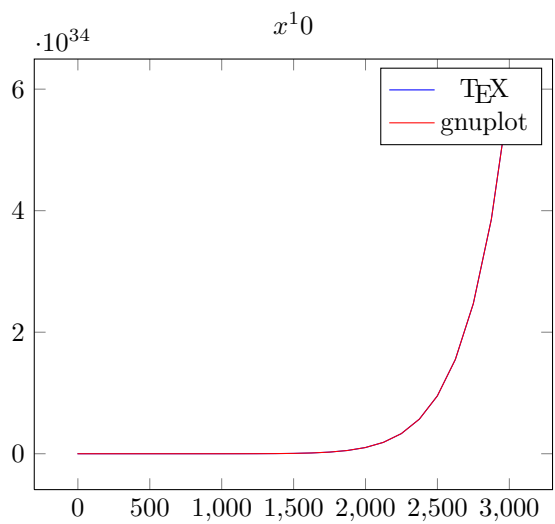
#### 5.1.2 $x^2$



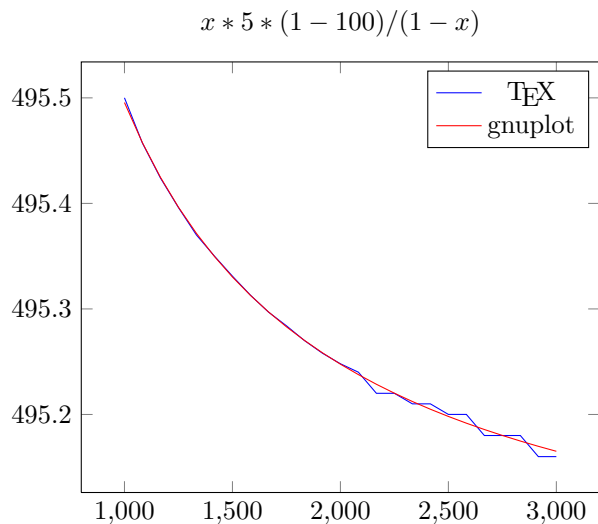
#### 5.1.3 $x^{10}$



#### 5.1.4 $x^{10}$

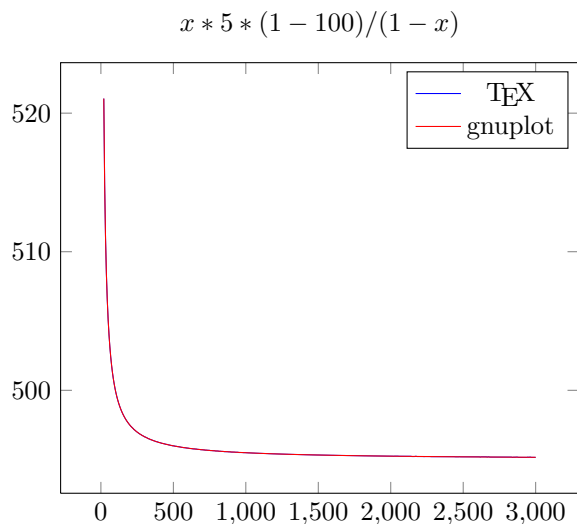


**5.1.5**  $x * 5 * (1 - 100)/(1 - x)$

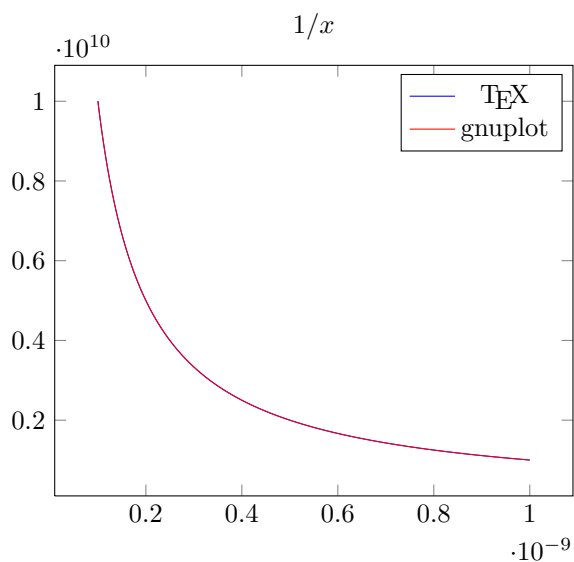


Das liegt an der relativen Genauigkeit und an der enge des datenbereichs:

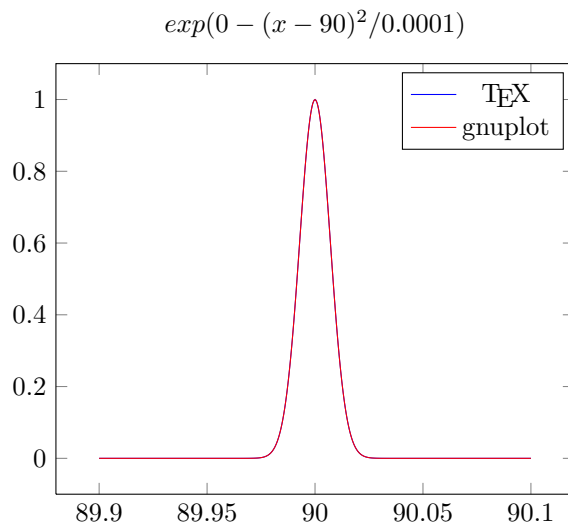
**5.1.6**  $x * 5 * (1 - 100)/(1 - x)$



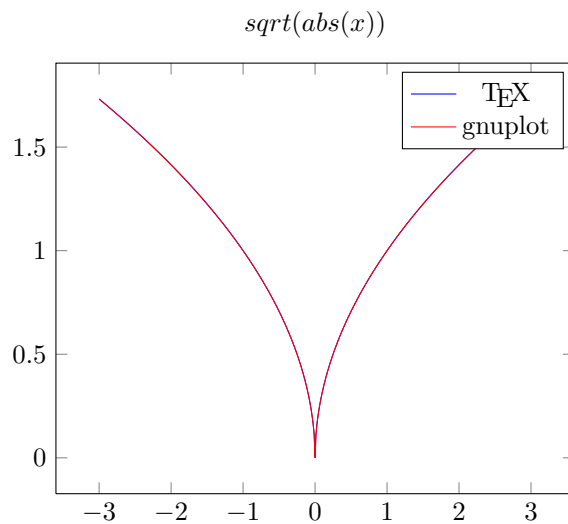
**5.1.7**  $1/x$



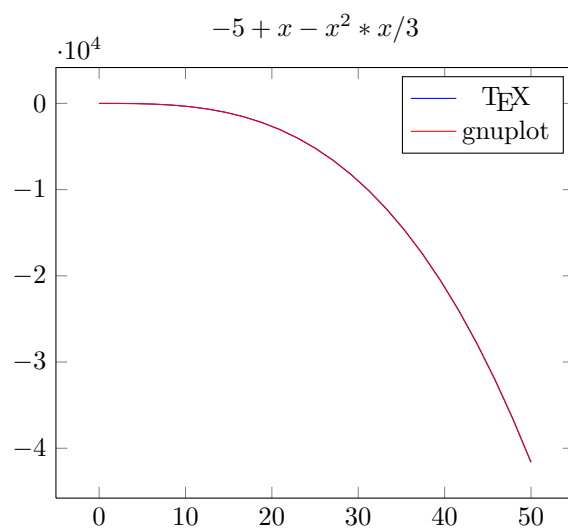
**5.1.8**  $exp(0 - (x - 90)^2/0.0001)$



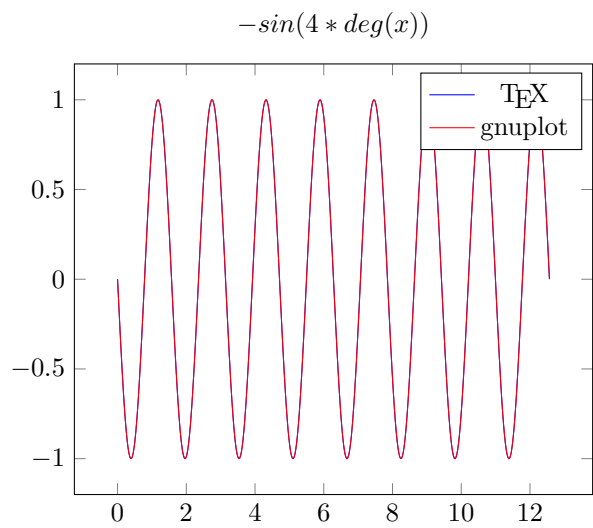
**5.1.9**  $sqrt(abs(x))$



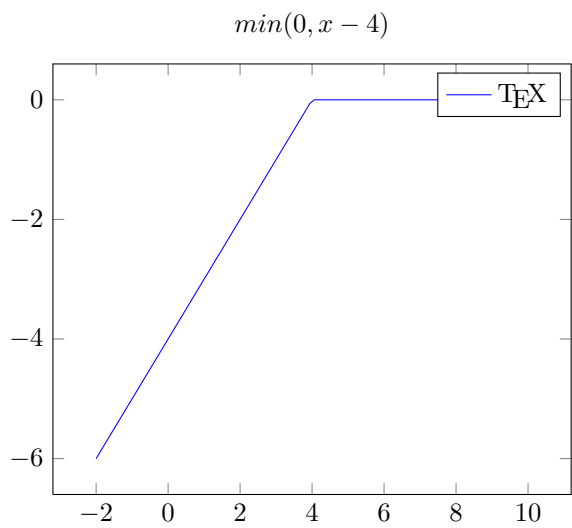
**5.1.10**  $-5 + x - x^2 * x/3$



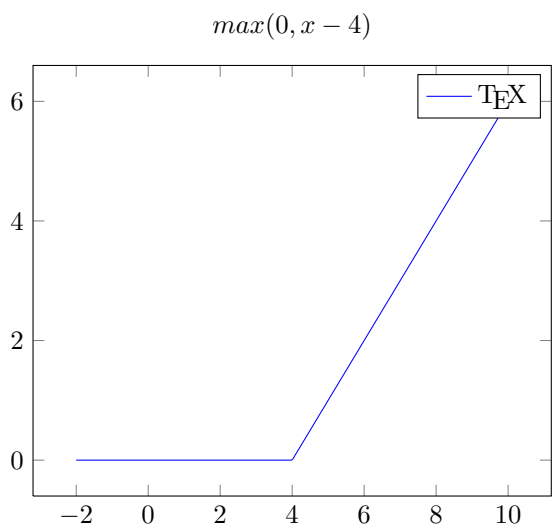
5.1.11  $-\sin(4 * \deg(x))$



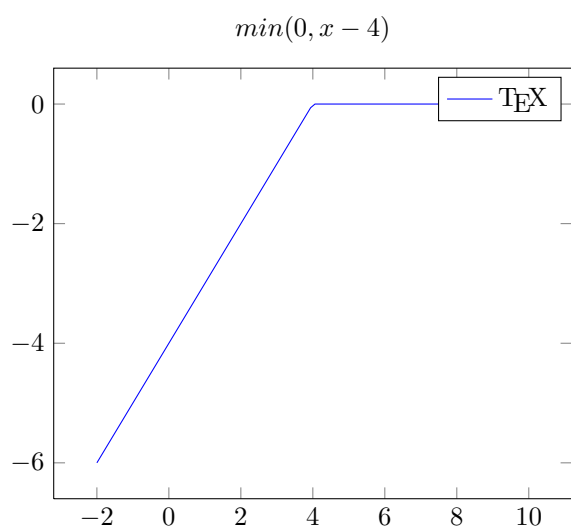
5.1.14  $\min(0, x - 4)$



5.1.12  $\max(0, x - 4)$



5.1.13  $\min(0, x - 4)$



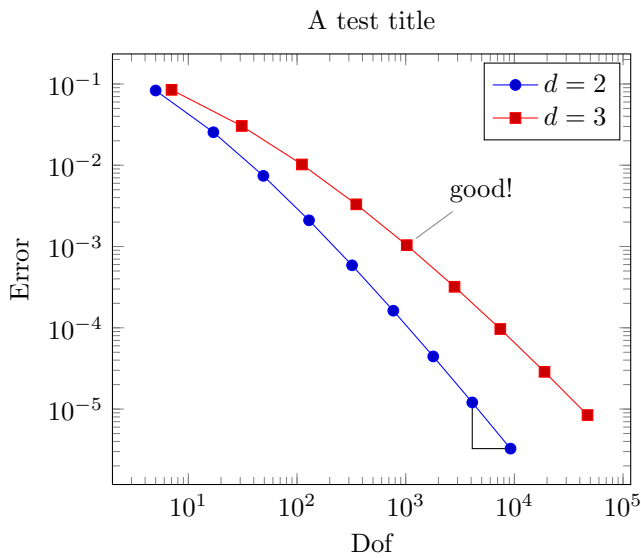
# Chapter 6

## pgfplotstest.axispath.tex

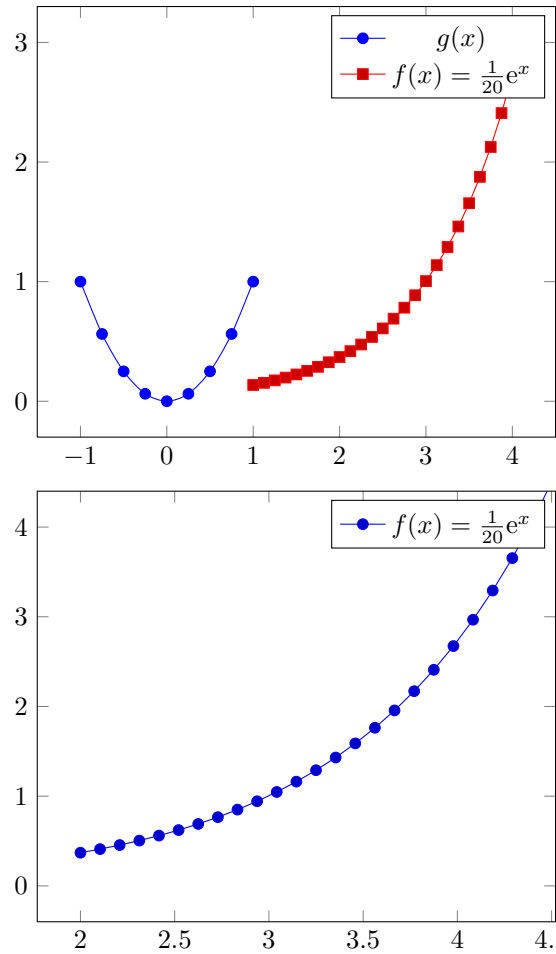
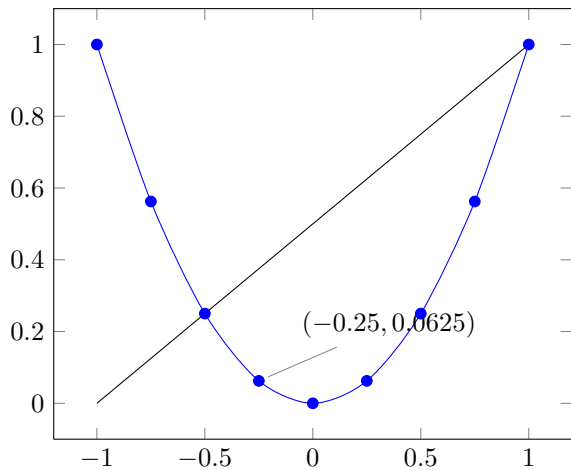
6.1 Testing path commands inside of axis

6.2 Checking plot expression

### 6.1.1 log plot



### 6.1.2 Linear plot

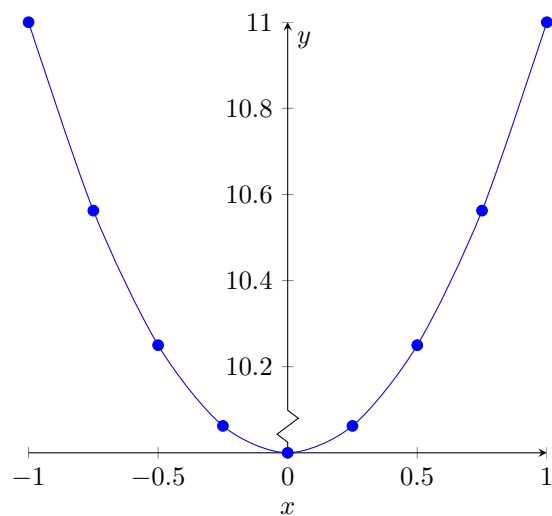
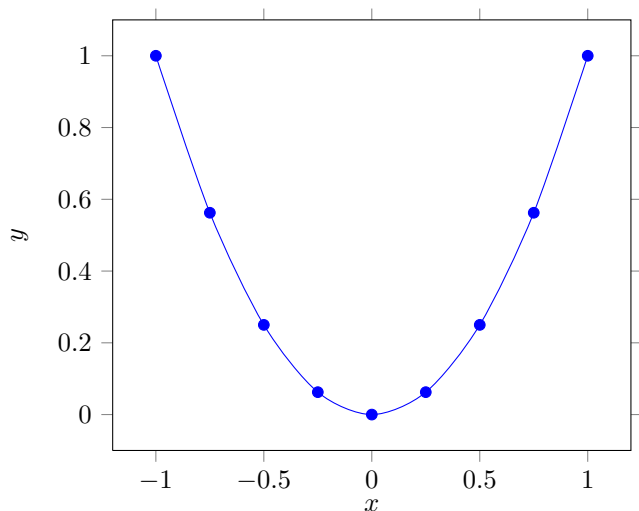


# Chapter 7

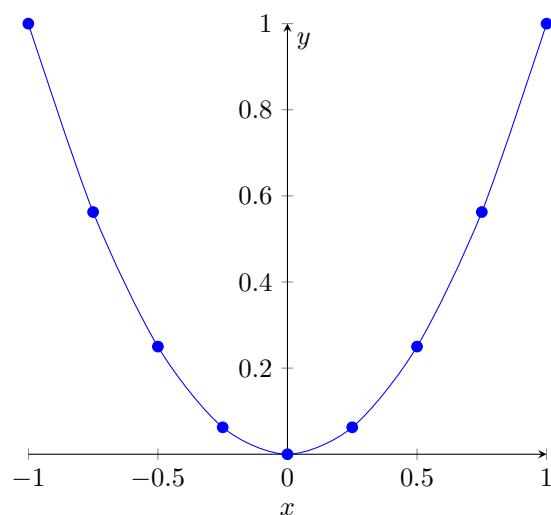
## pgfplotstest.axislines.tex

### 7.1 Axislines placement – centered axis lines

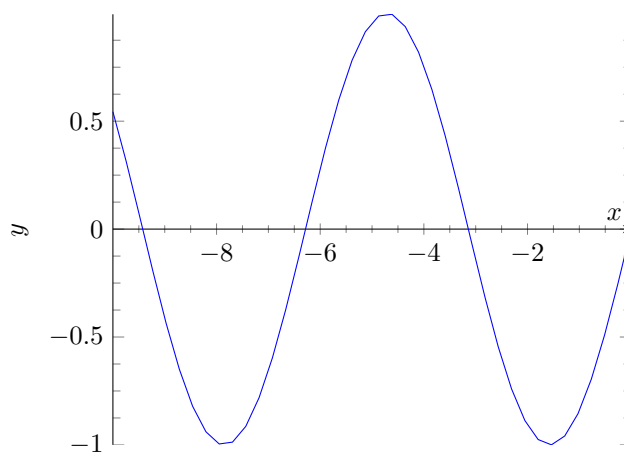
#### 7.1.1 tick align=outside



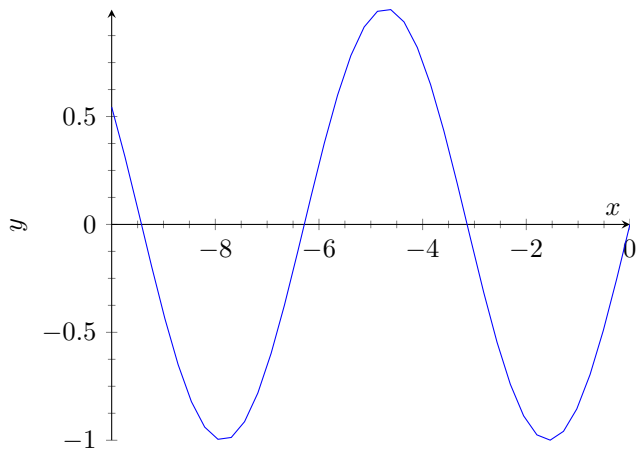
#### 7.1.2 centered axis lines – axis line=center, axis x line=bottom



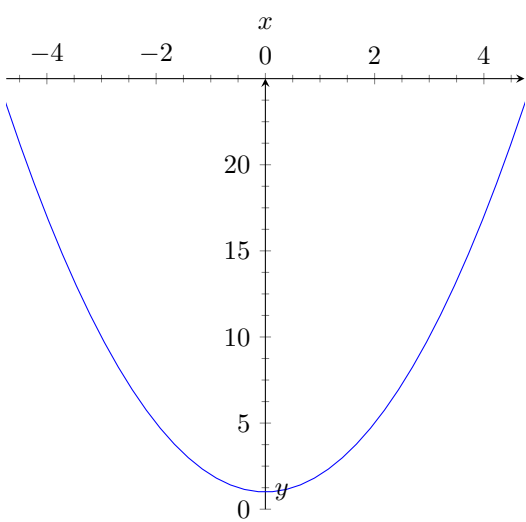
#### centered axis lines – axis x line=middle, axis y line=box



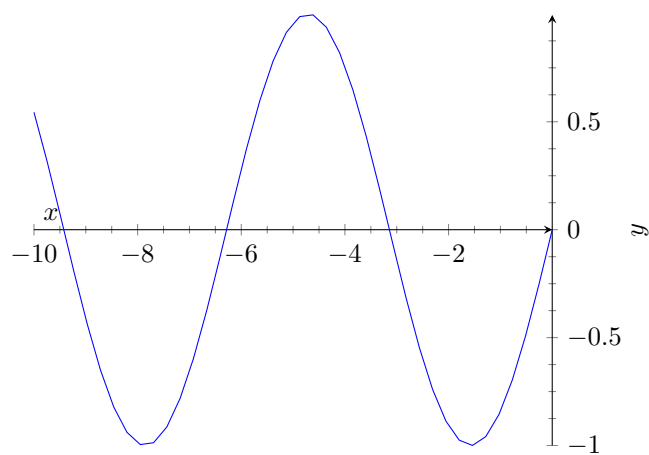
centered axis lines - axis x line=middle, axis y line=left



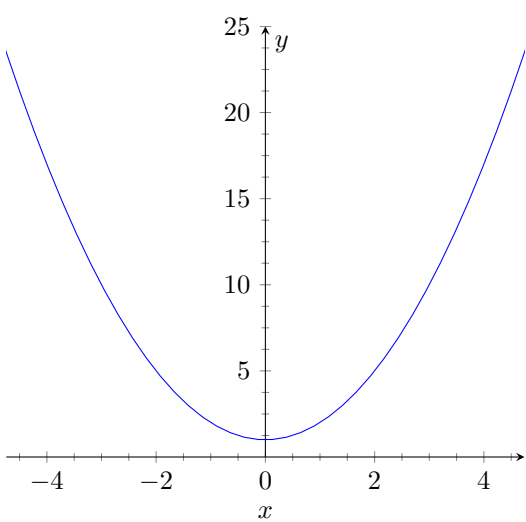
centered axis lines - axis x line=top, axis y line=center



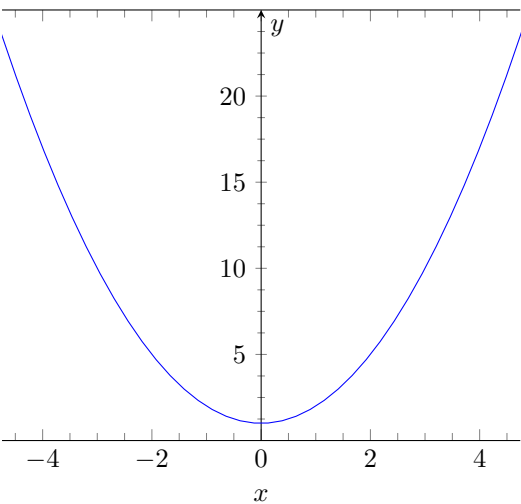
centered axis lines - axis x line=middle, axis y line=right



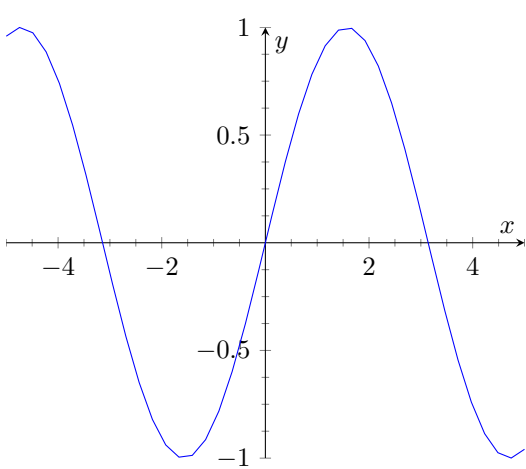
centered axis lines - axis x line=bottom, axis y line=center



centered axis lines - axis x line=box, axis y line=center



centered axis lines - axis x line=middle, axis y line=center



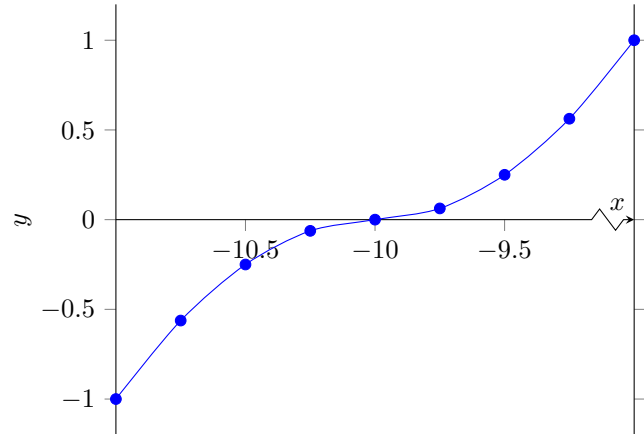
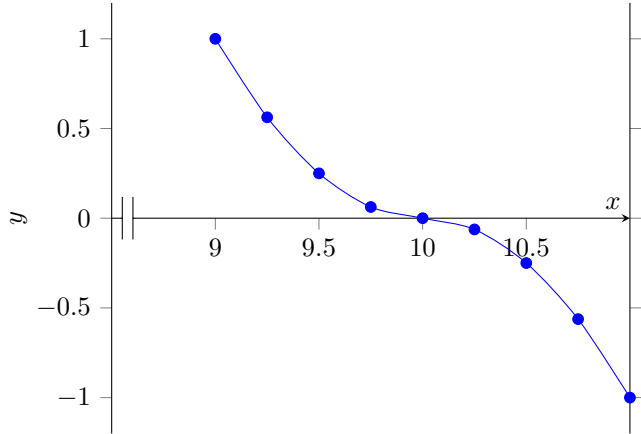


7.1.4

centered axis lines – axis [xy] line/ tick align/ x scont

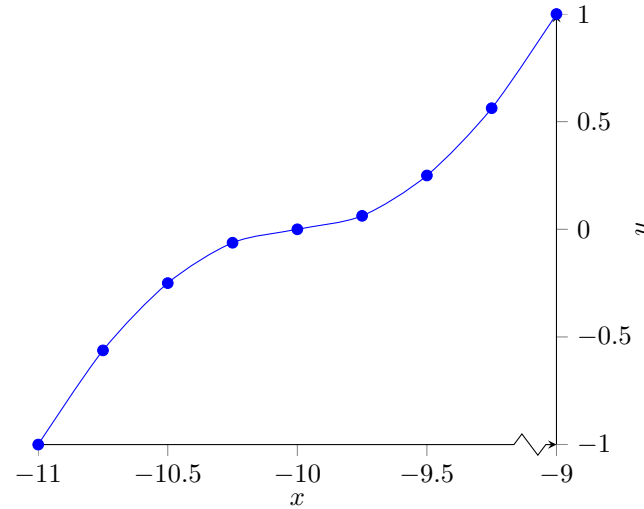
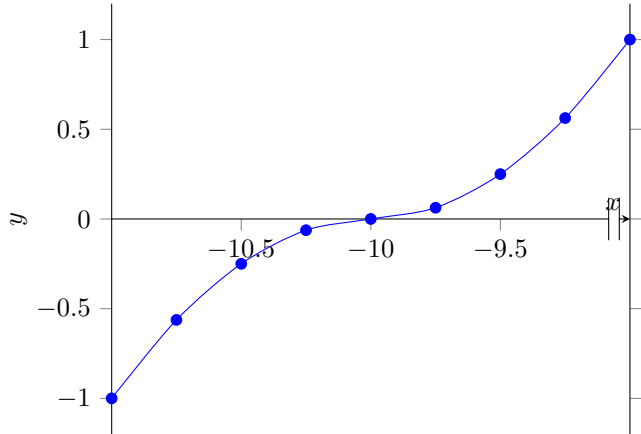
centered axis lines - middle/box crunch parallel

centered axis lines - middle/box parallel

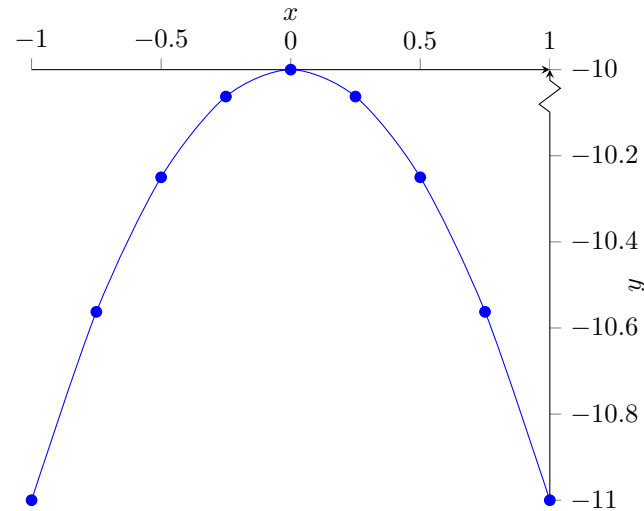
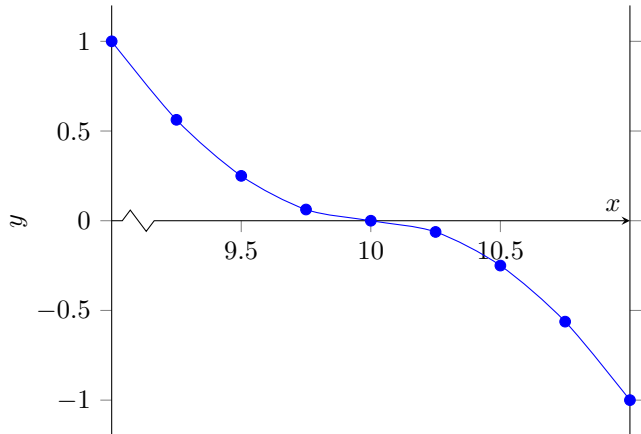


centered axis lines - middle/box crunch parallel

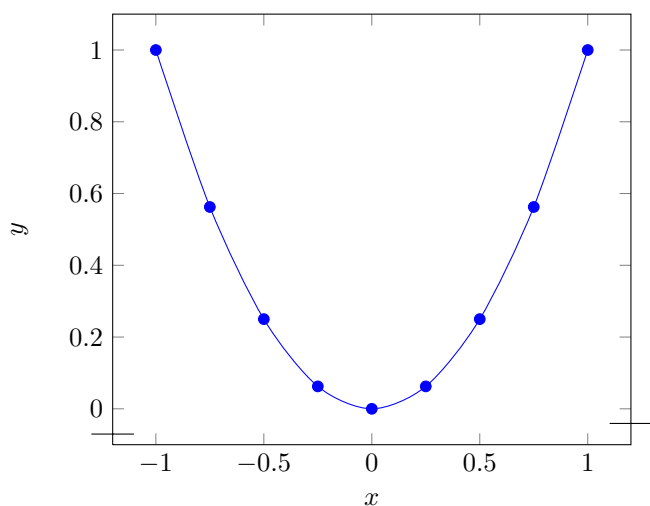
centered axis lines - middle/box parallel (2)



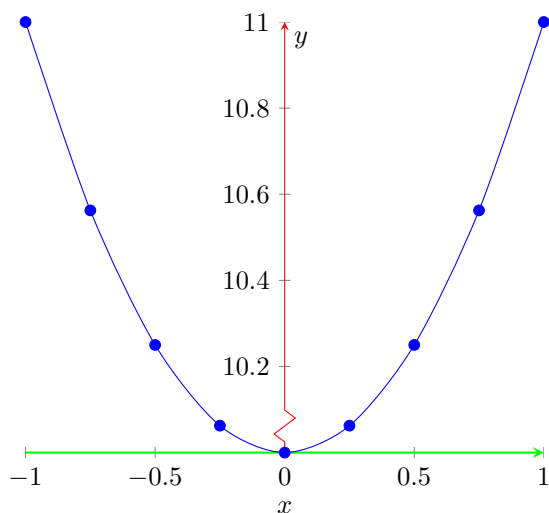
centered axis lines - middle/box crunch



### 7.1.5 centered axis lines – axis y discontinuity

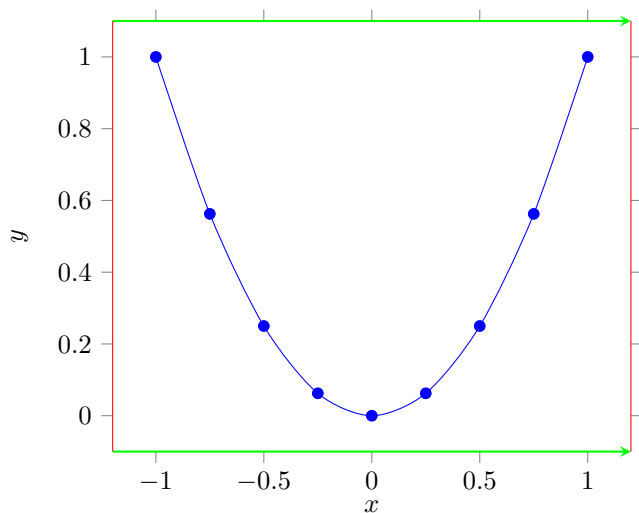


### 7.2.3 Separate lines – axis x line=bottom, axis y line=center / tick align/ y discont

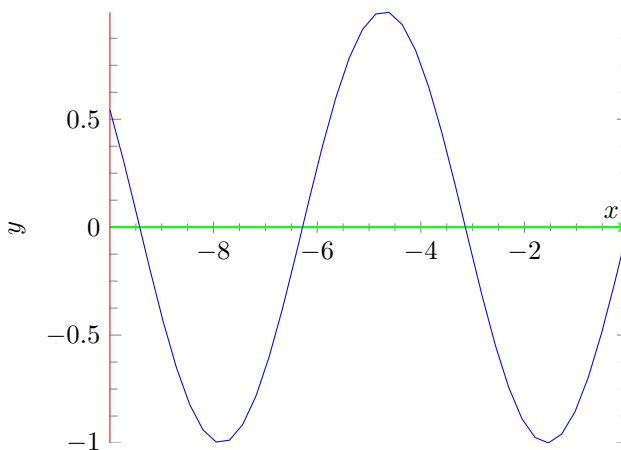


## 7.2 Axislines placement – Separate lines

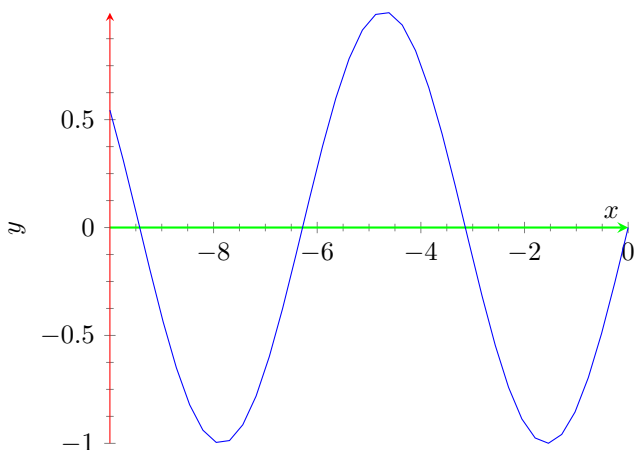
### 7.2.1 tick align=outside



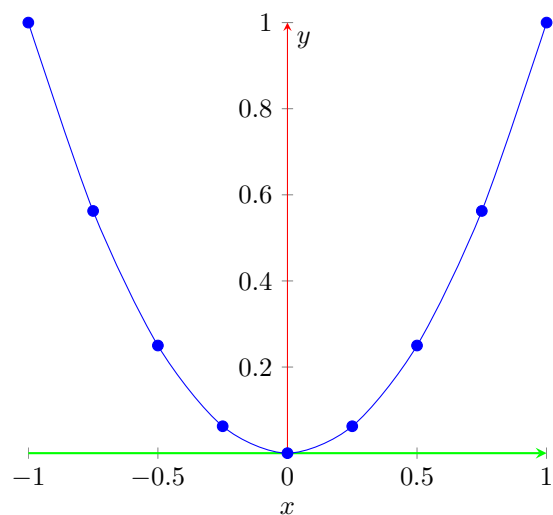
### Separate lines – axis x line=middle, axis y line=box



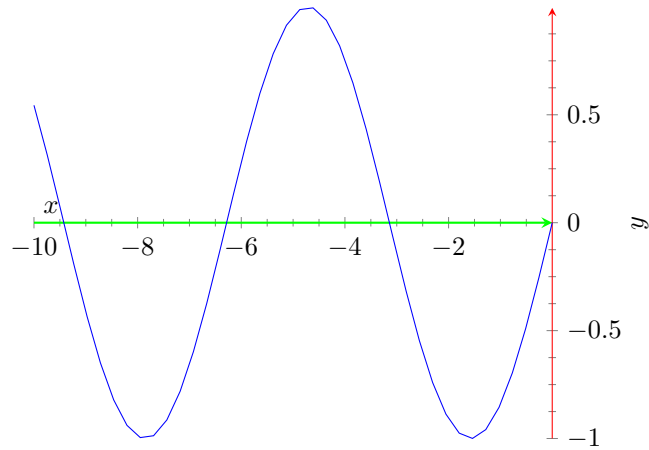
### Separate lines – axis x line=middle, axis y line=left



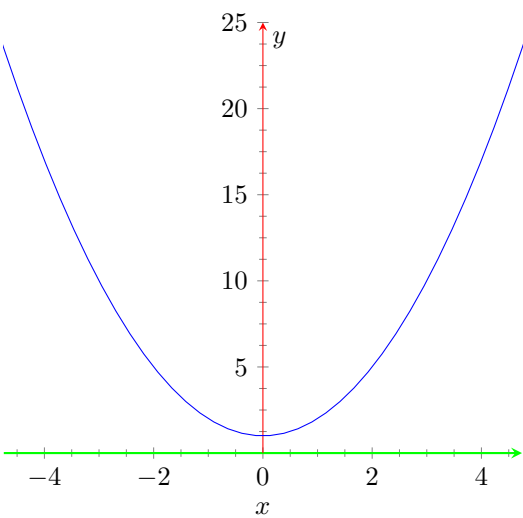
### 7.2.2 Separate lines – axis y line=center, axis x line=bottom



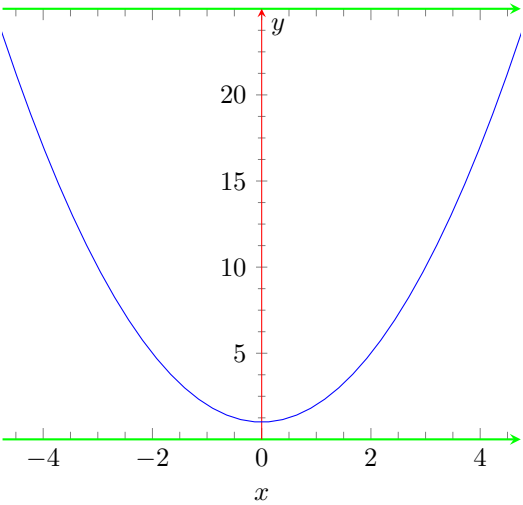
Separate lines – axis x line=middle, axis y line=right



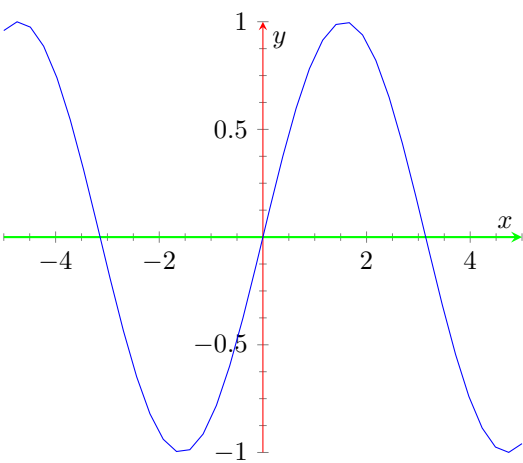
Separate lines – axis x line=bottom, axis y line=center



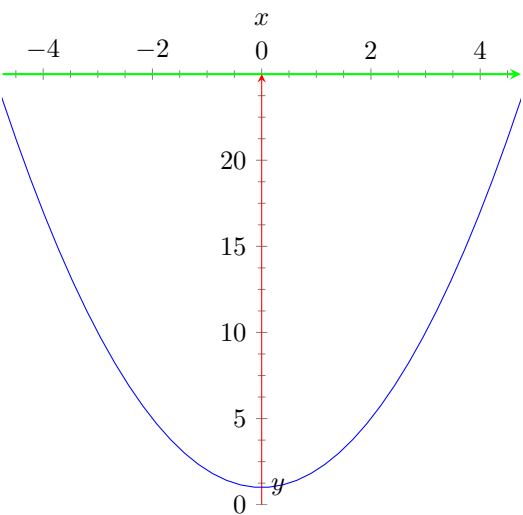
Separate lines – axis x line=box, axis y line=center



Separate lines – axis x line=middle, axis y line=center

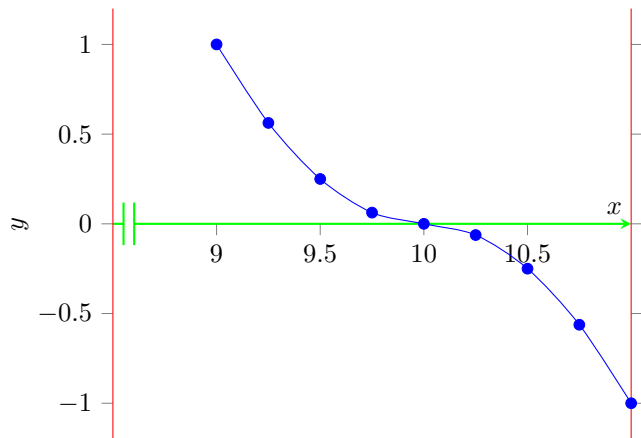


Separate lines – axis x line=top, axis y line=center

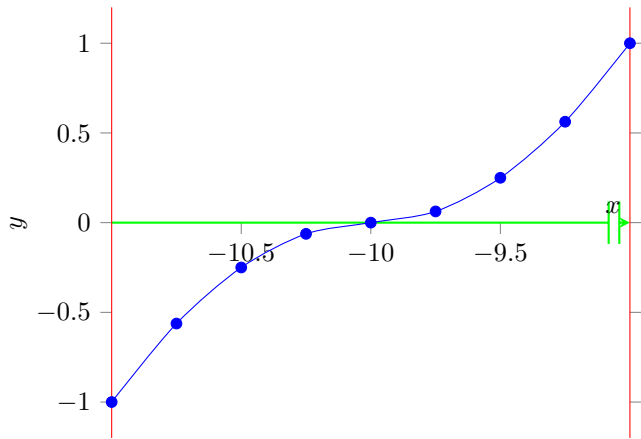


### 7.2.4 Separate lines – axis [xy] line/ tick align/ x discontin

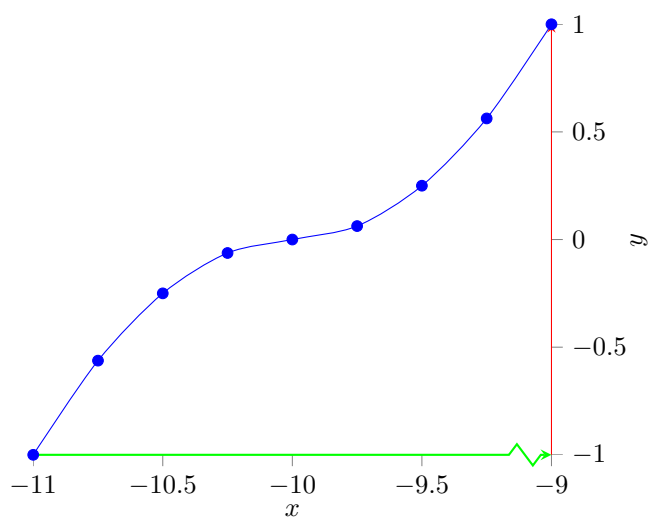
Separate lines - middle/box parallel



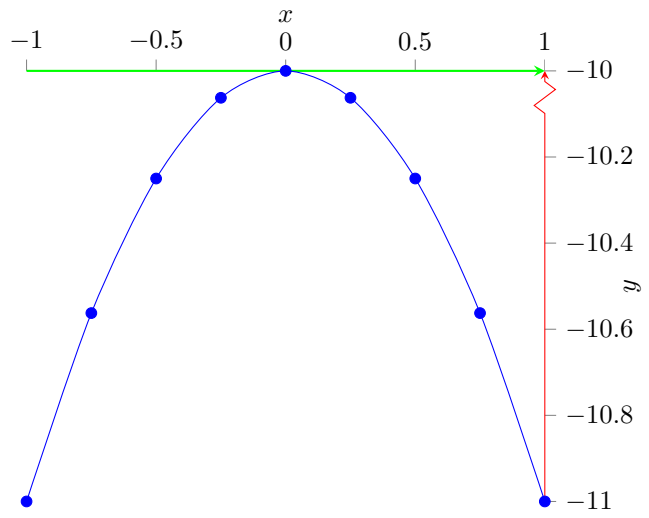
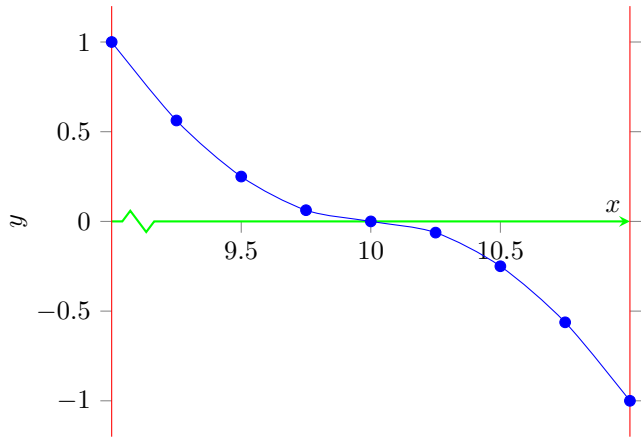
Separate lines - middle/box parallel (2)



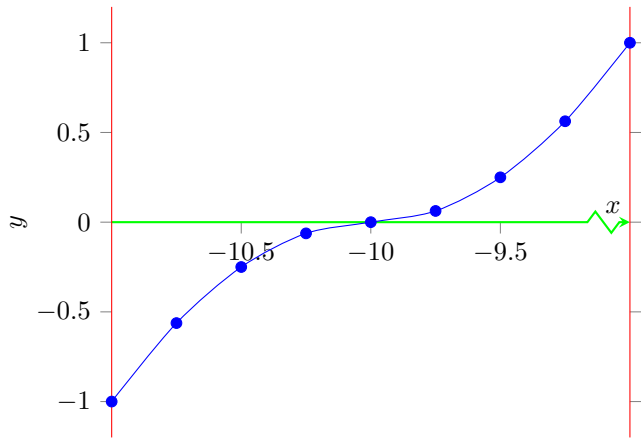
Separate lines - middle/box crunch parallel



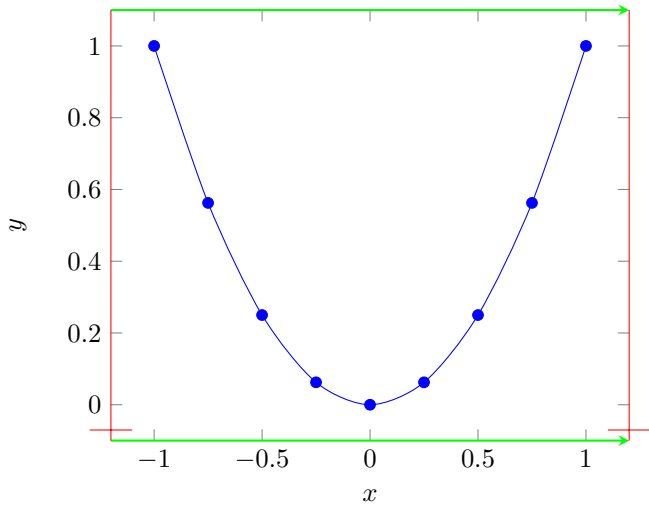
Separate lines - middle/box crunch



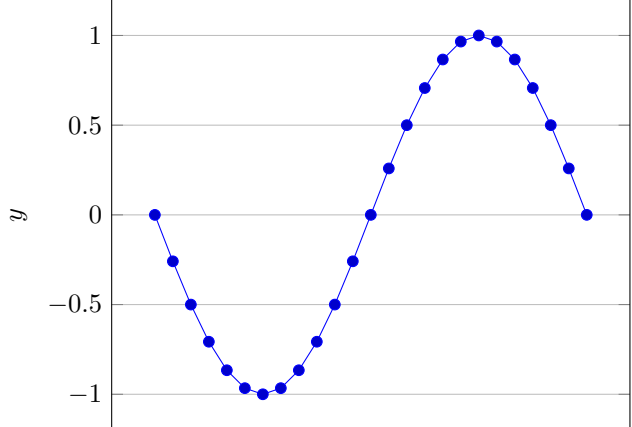
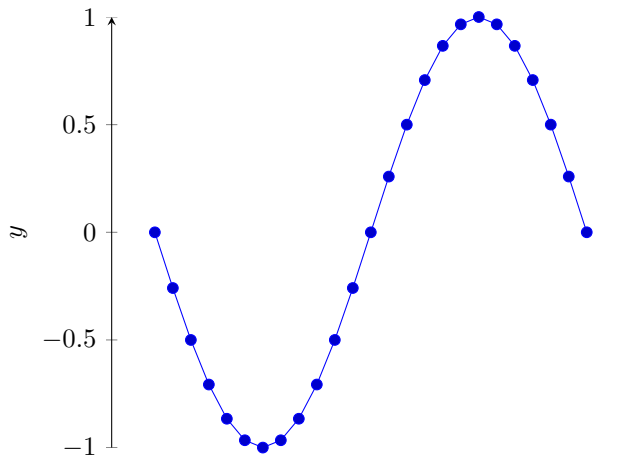
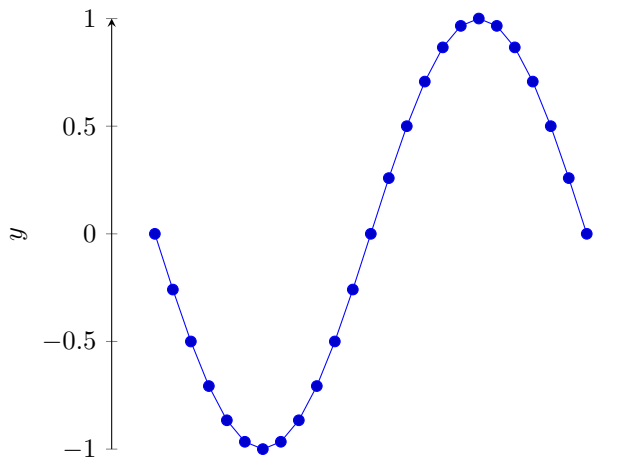
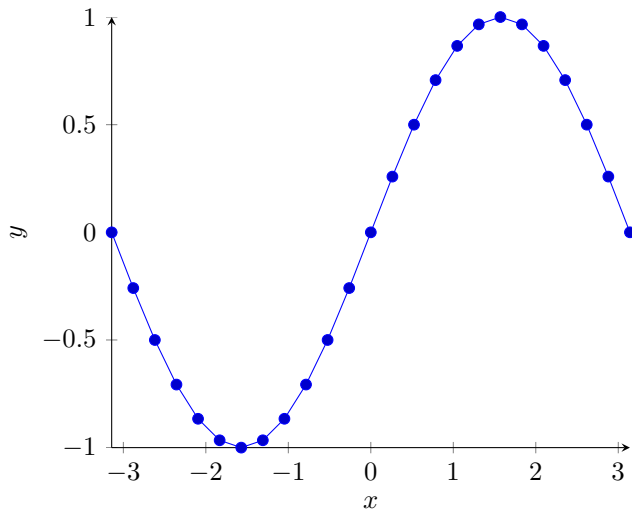
Separate lines - middle/box crunch parallel



7.2.5 Separate lines – axis y discontinuity



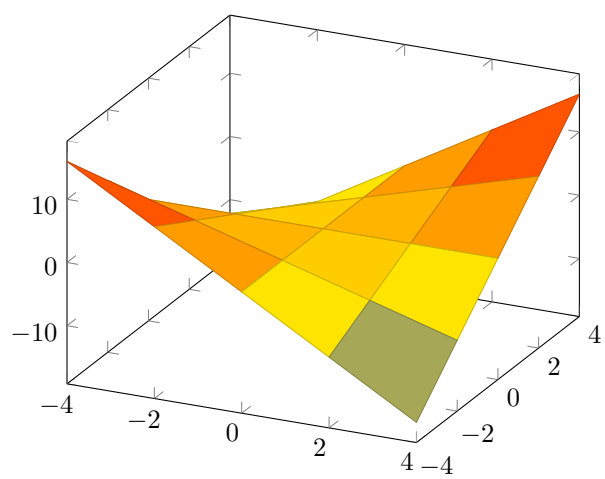
7.3 x line=none; – tick marks  
shouldn't disappear



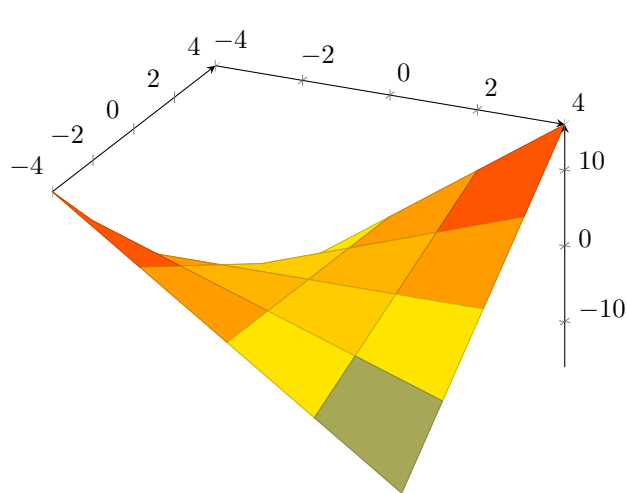
Chapter 8

pgfplotstest.axislines.3d.tex

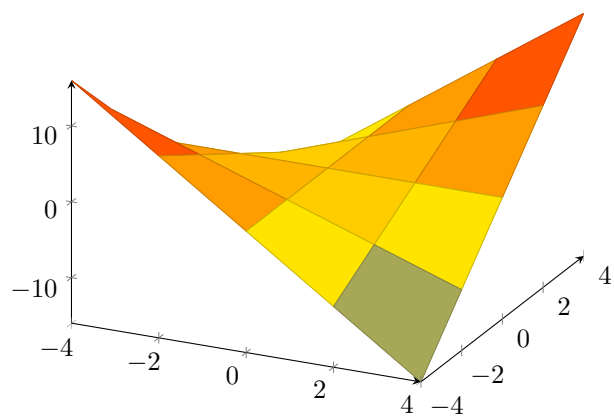
8.1    Boxed



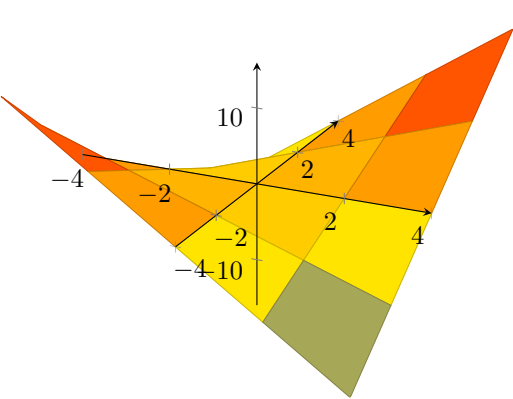
8.3    axis lines=right



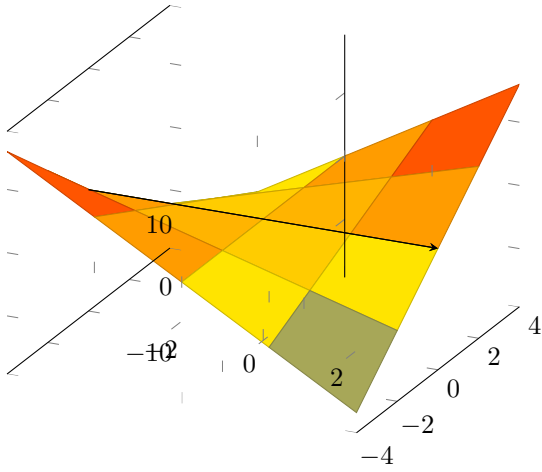
8.2    axis lines=left



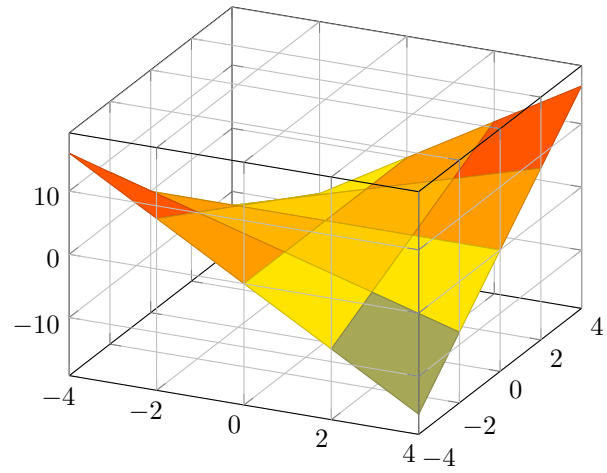
8.4    axis lines=middle,axis on top



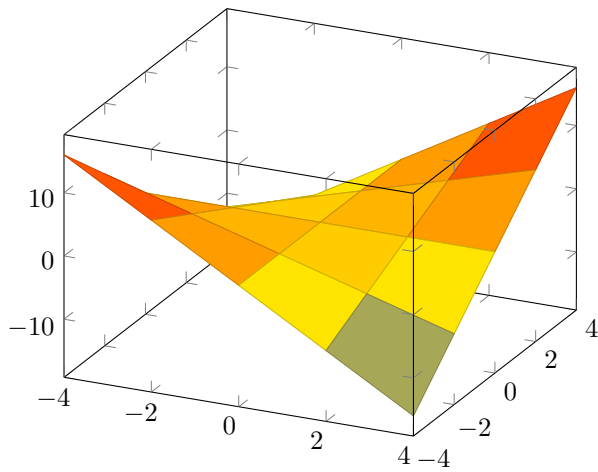
## 8.5 Only axis x line=middle



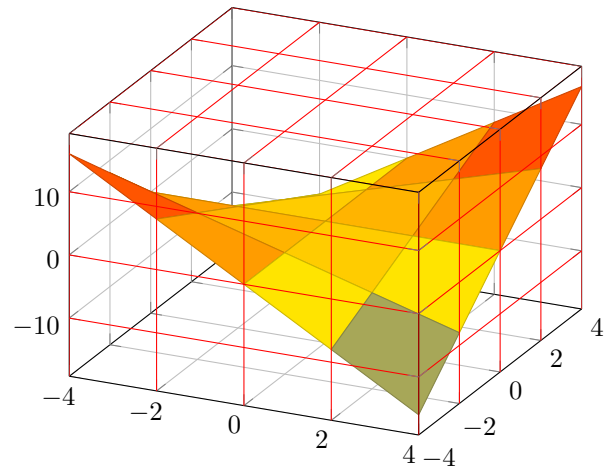
## 8.6.2 grid lines und completeSTAR



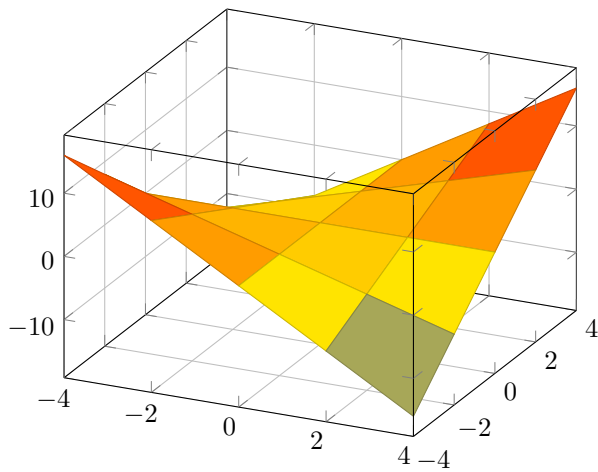
## 8.6 3d box=complete



## 8.6.3 grid lines und completeSTAR und styles



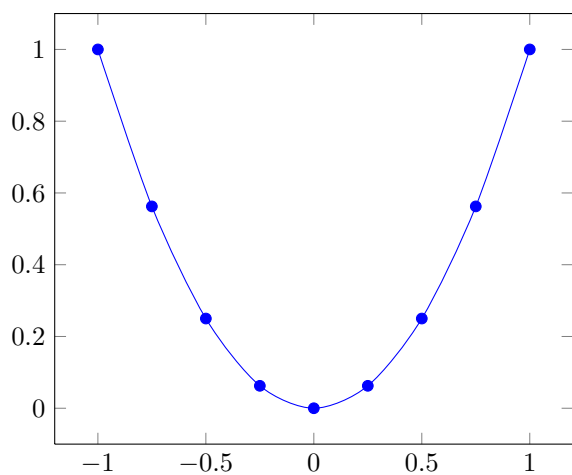
## 8.6.1 grid lines



# Chapter 9

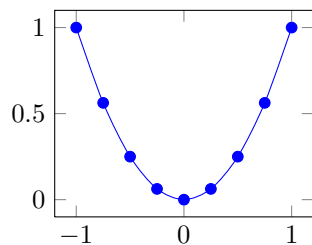
## pgfplotstest.scaling.tex

### 9.1 Standard placement normal plot

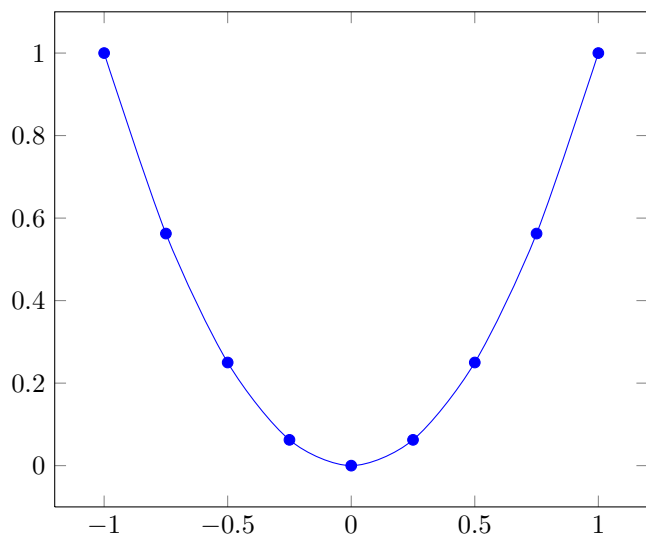


### 9.2 Scaling tests

#### 9.2.1 width=5cm



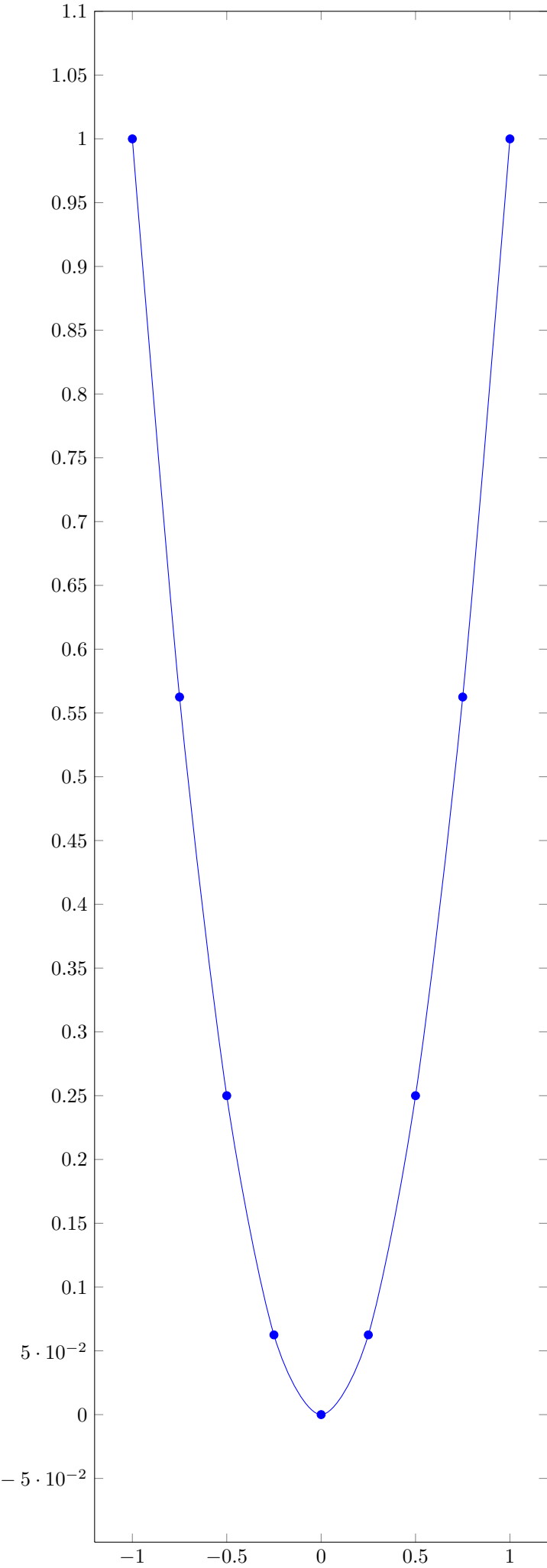
#### 9.2.2 width=linewidth



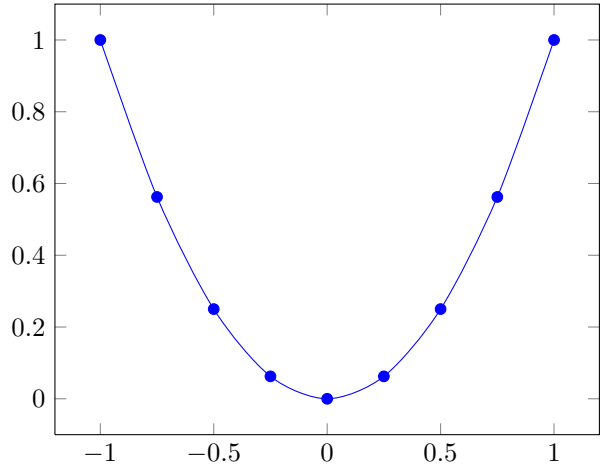


9.2.3 width=linewidth, height=textheight

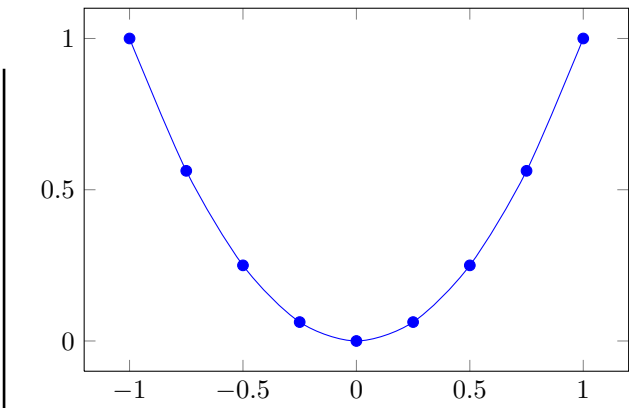
9.2.4 height=3cm



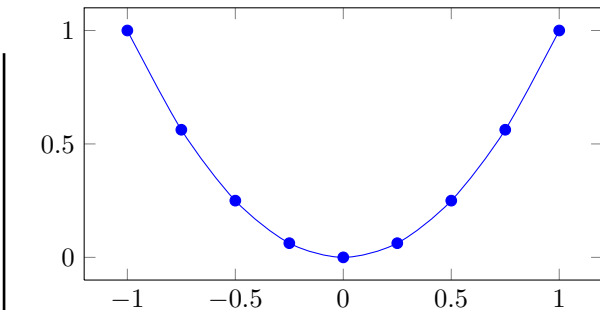
9.2.5 x=3cm



9.2.6 x=3cm, y=4cm



9.2.7 y=3cm



9.2.8 Scale vs. Datascale trafo

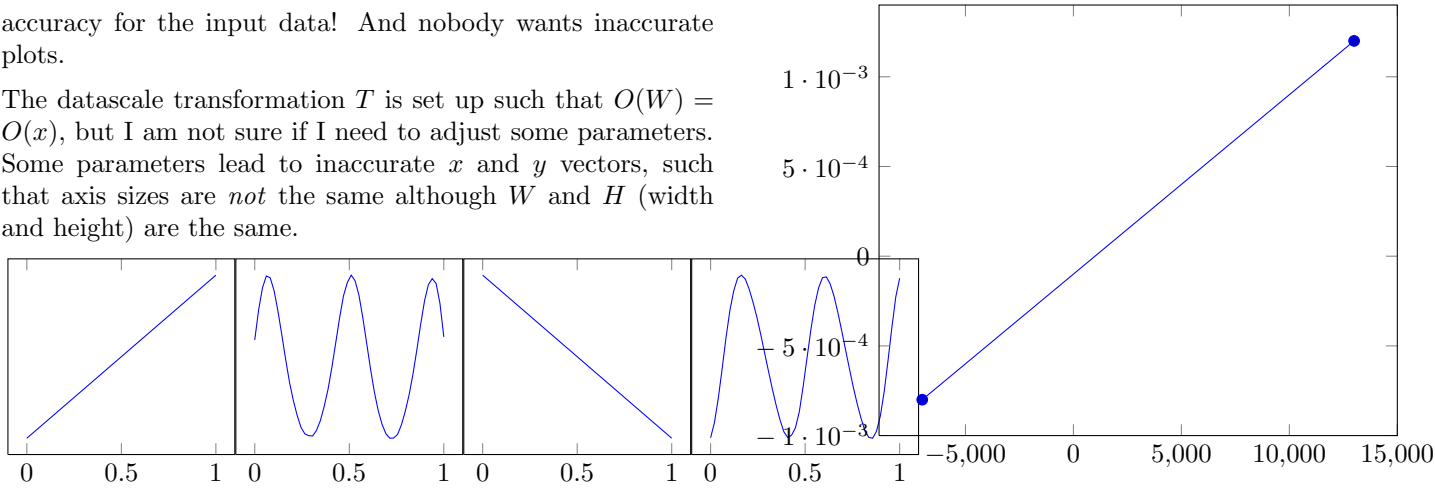
All should have the same size; especially the same height. This tests the data scale transformation and rounding inaccuracies during the computation of  $x$  and  $y$  unit vectors,

$$x = \frac{W}{T(\bar{x}) - T(\underline{x})}.$$

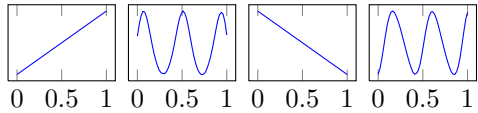
The larger  $x$ , the higher the scaling accuracy. Large  $x$  means small  $T(\bar{x}) - T(\underline{x})$  (relative to width  $W$ ). But this implies low

accuracy for the input data! And nobody wants inaccurate plots.

The datascale transformation  $T$  is set up such that  $O(W) = O(x)$ , but I am not sure if I need to adjust some parameters. Some parameters lead to inaccurate  $x$  and  $y$  vectors, such that axis sizes are *not* the same although  $W$  and  $H$  (width and height) are the same.

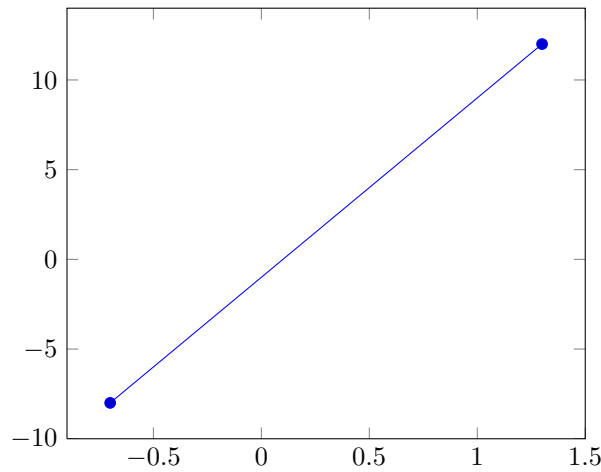
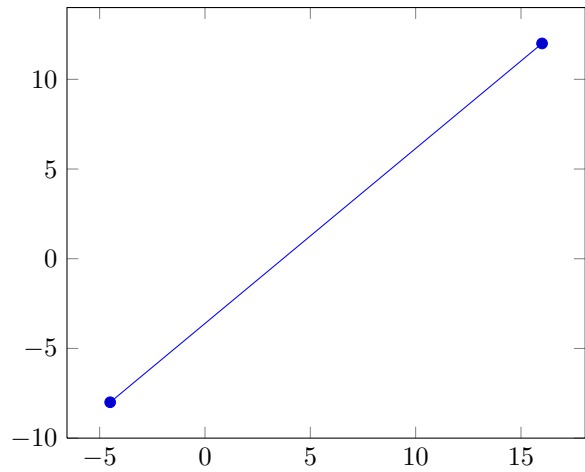


once more again without ‘scale only axis’:

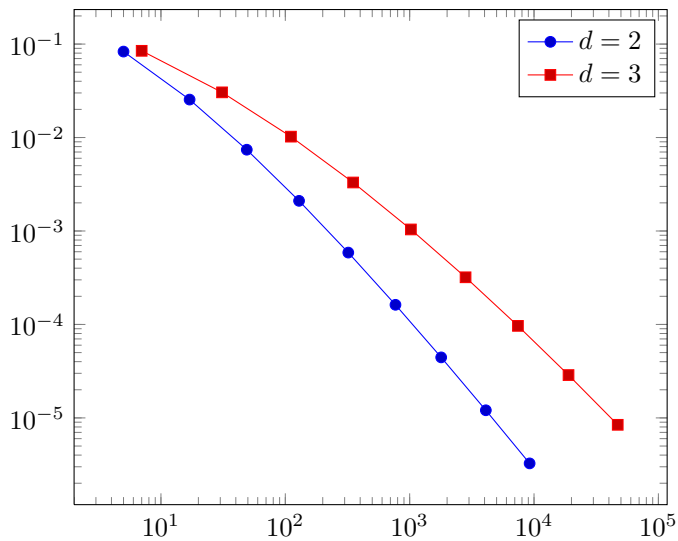


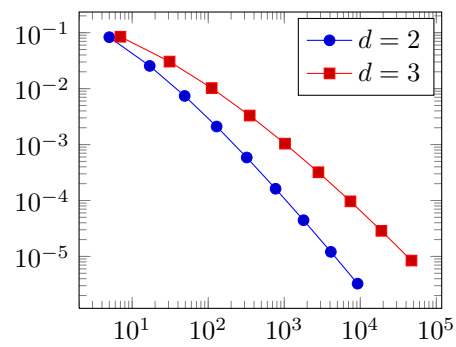
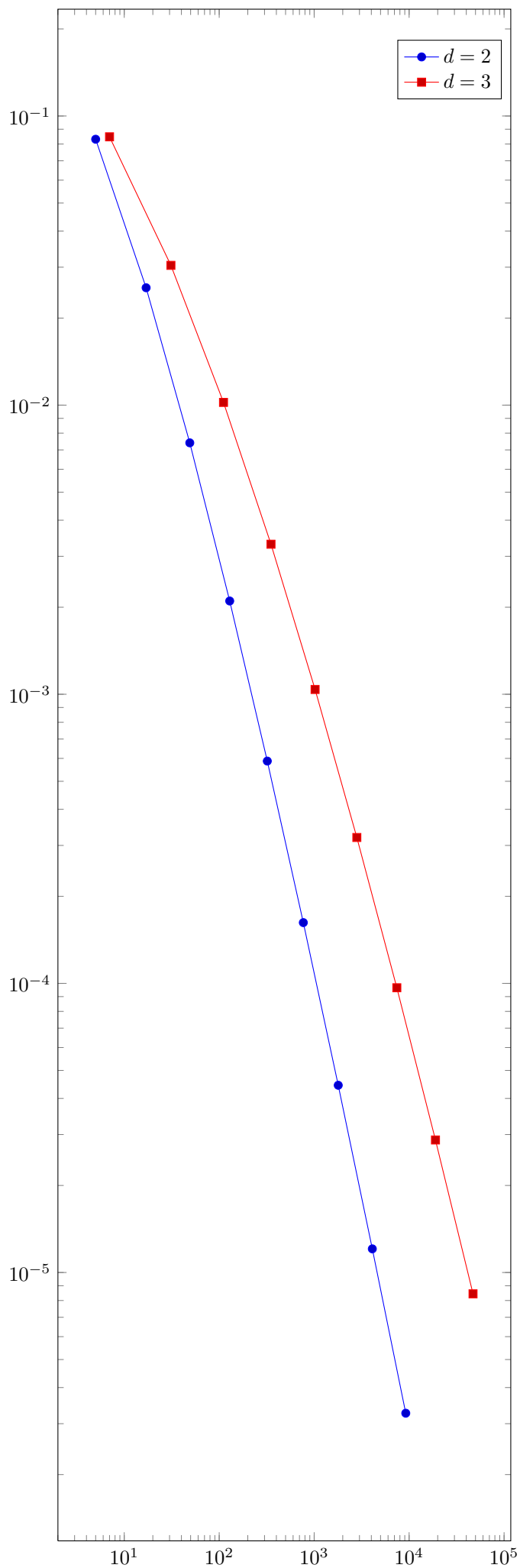
9.2.9 Testing numeric artefacts around tick position ‘0’

[scaled ticks=false] in this subsection



9.3 Scaling log plots



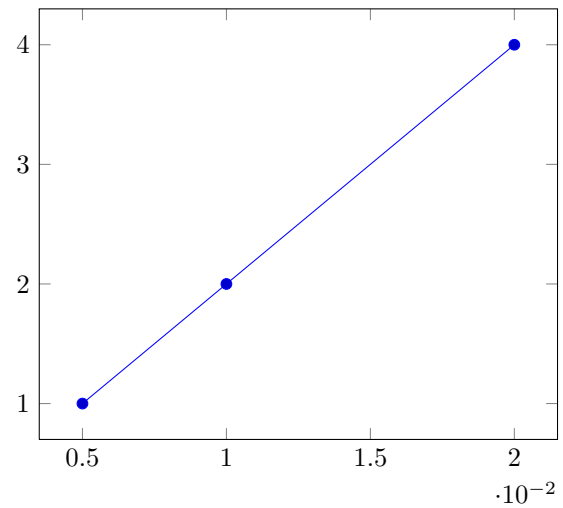


## 9.4 Scaletest

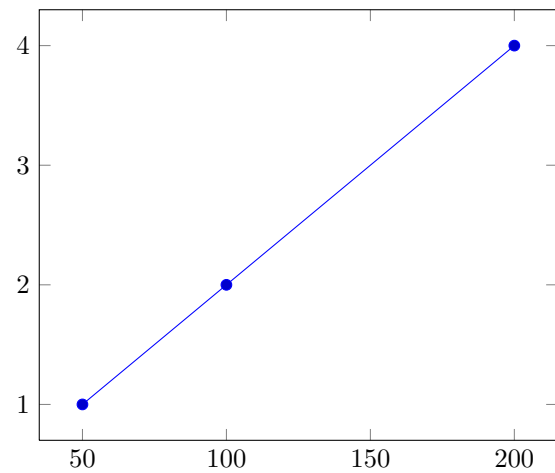


## 9.5 Scaling test for very small or very large x values

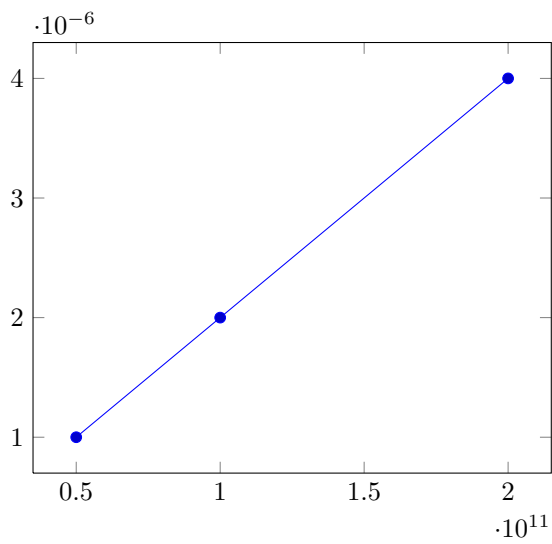
### 9.5.1 1e-2



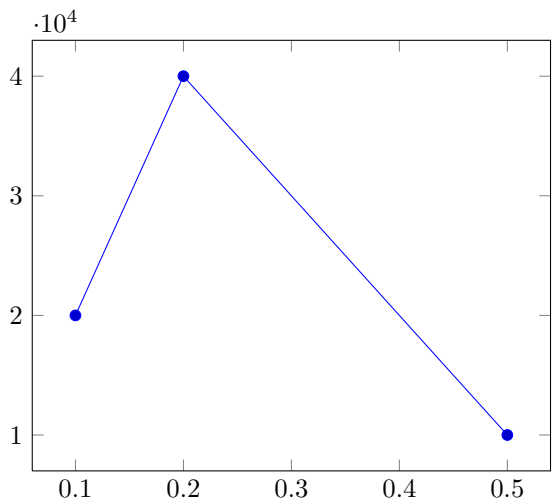
### 9.5.2 1e+2



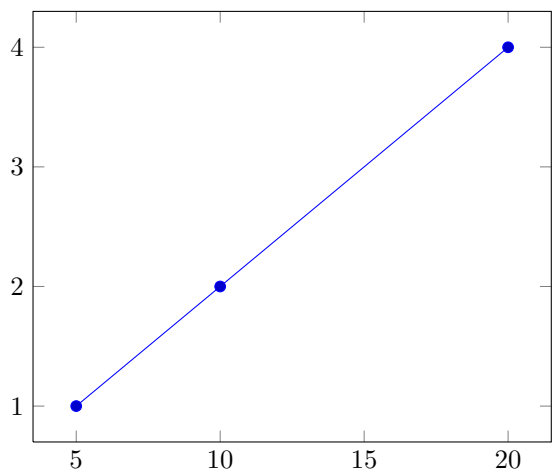
9.5.3  $x=1e+11; y=1e-6$



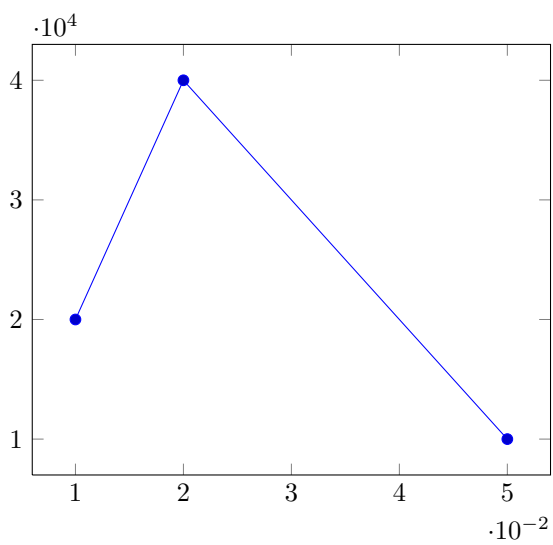
9.5.6  $1e+4$



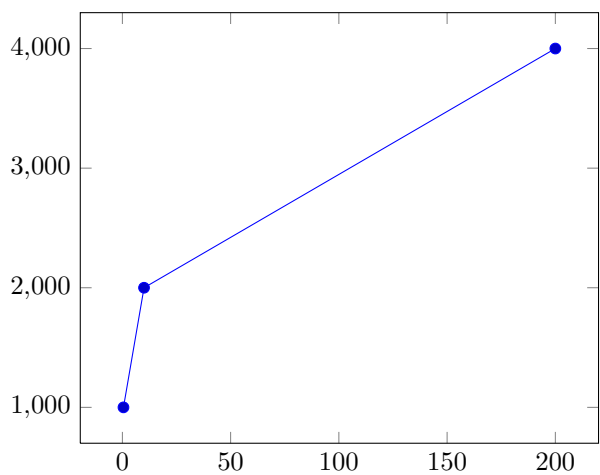
9.5.4  $1e+1$



9.5.7  $1e-2, 1e+4$



9.5.5  $1e+3$

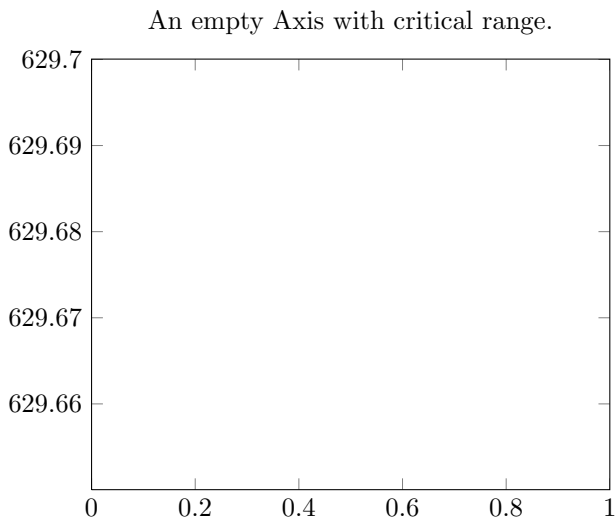


# Chapter 10

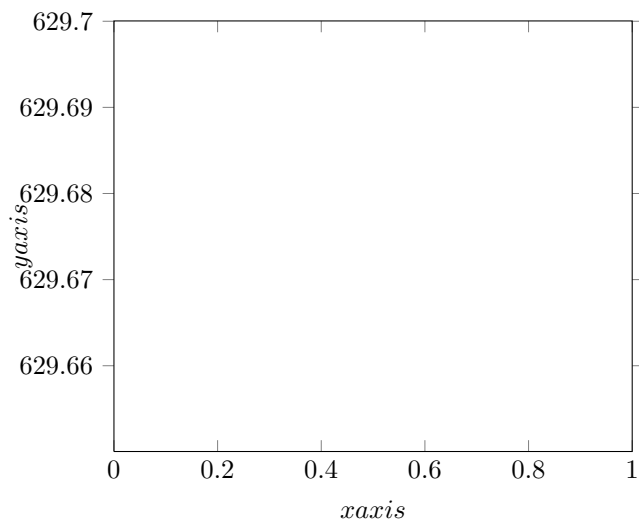
## pgfplotstest.ticks.tex

### 10.1 Ticks for very small data range vs Datascaletrafo

#### 10.1.1 Critical Range in y

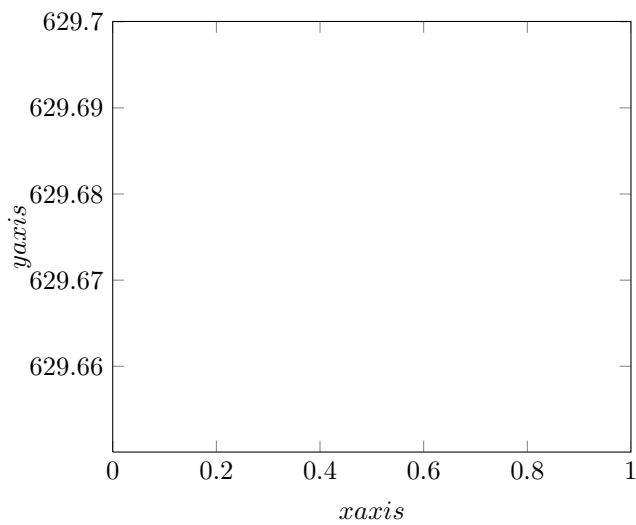


### 10.2.2 xtick align=inside, ytick align=outside

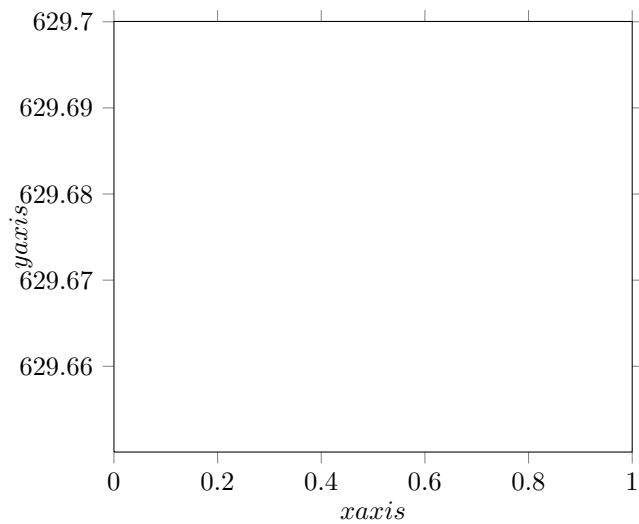


## 10.2 Tick align

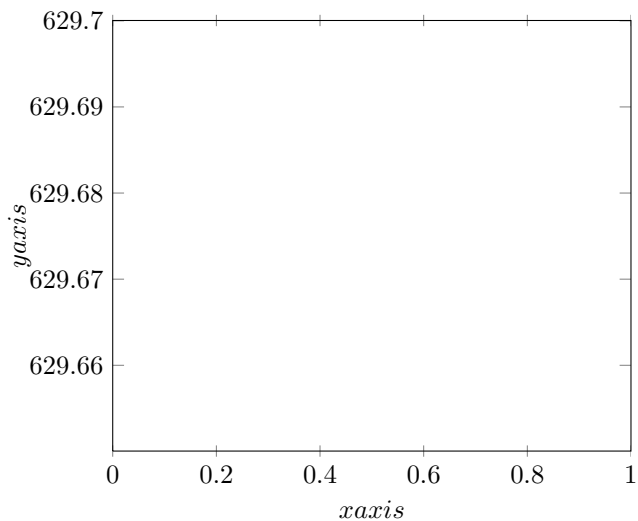
### 10.2.1 xtick align=inside, ytick align=inside



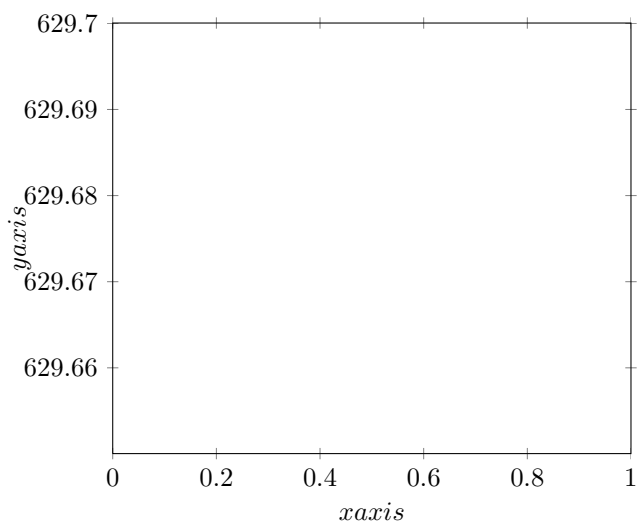
### 10.2.3 xtick align=outside, ytick align=outside



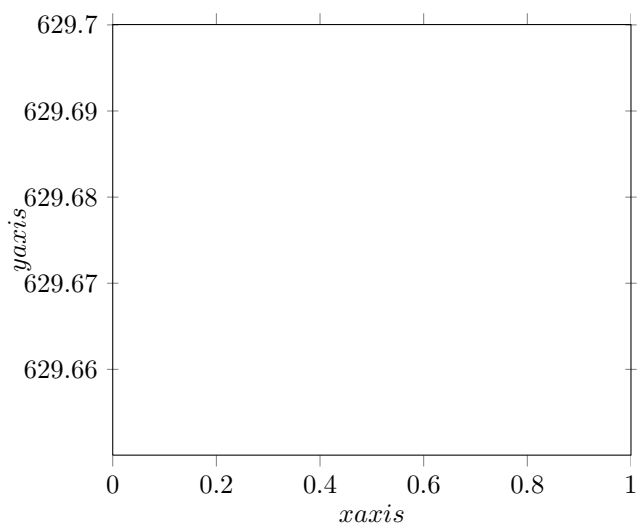
## 10.2.4 xtick align=center, ytick align=inside



## 10.2.5 xtick align=center, ytick align=center

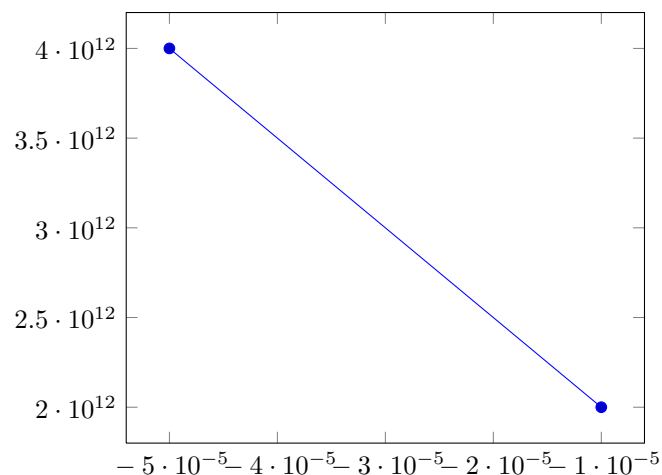


## 10.2.6 xtick align=outside, ytick align=center

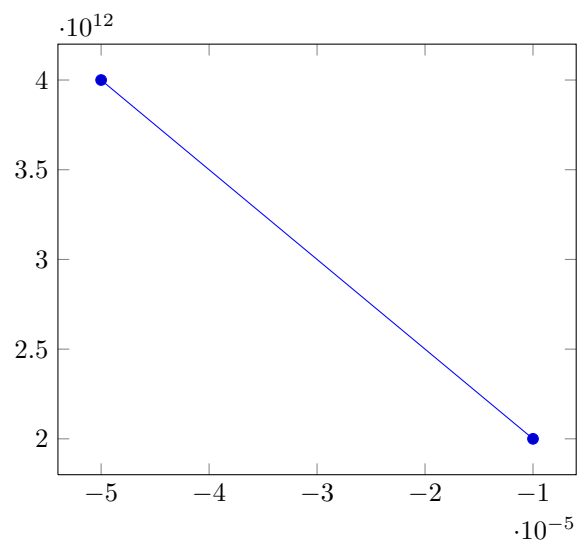


## 10.3 Scaled ticks

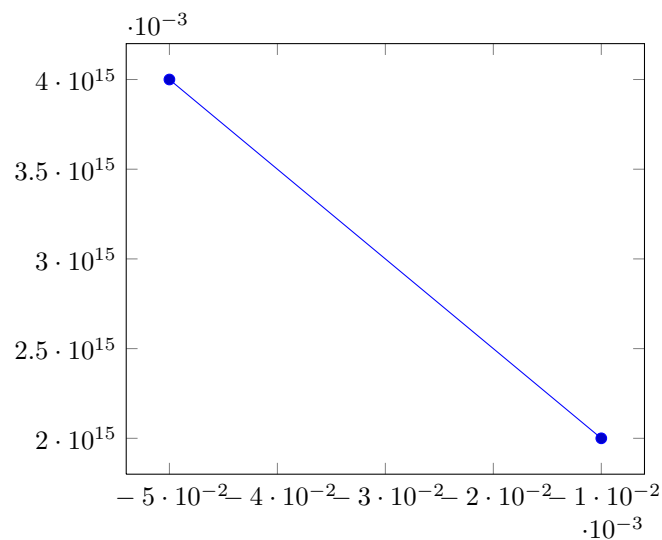
### 10.3.1 false



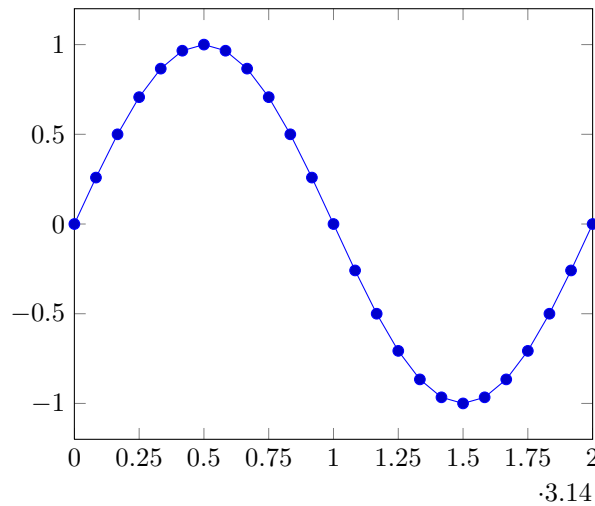
### 10.3.2 true



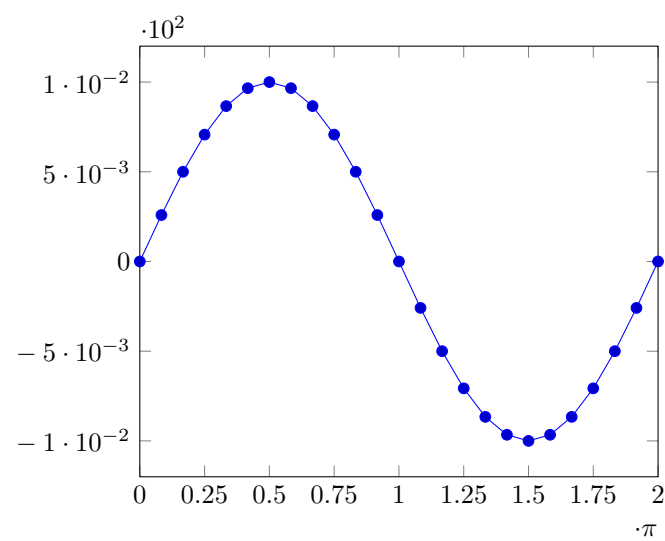
### 10.3.3 base 10:3



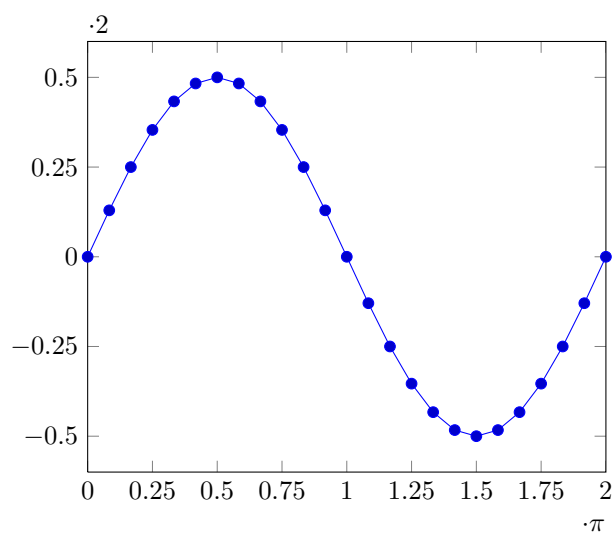
10.3.4 real:3.1415



10.3.5 real:3.1415 und y = base 10:-2

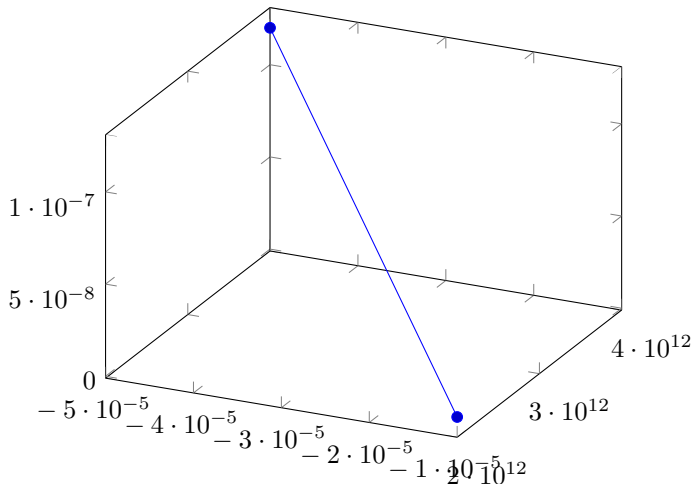


10.3.6 real:3.1415 und y = real:2

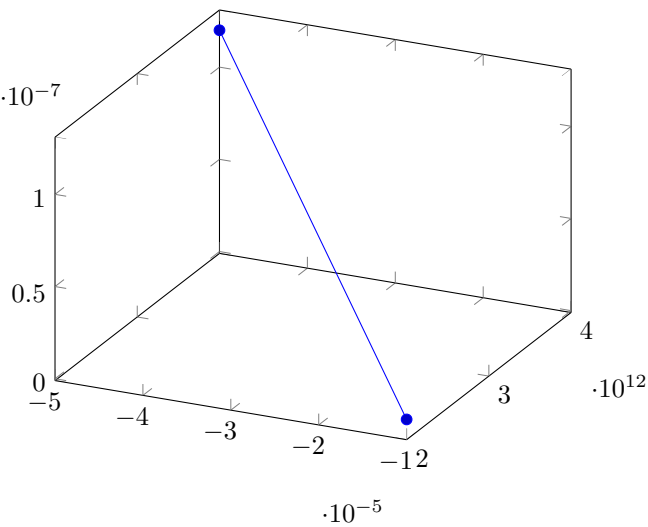


10.4 Scaled Ticks 3D

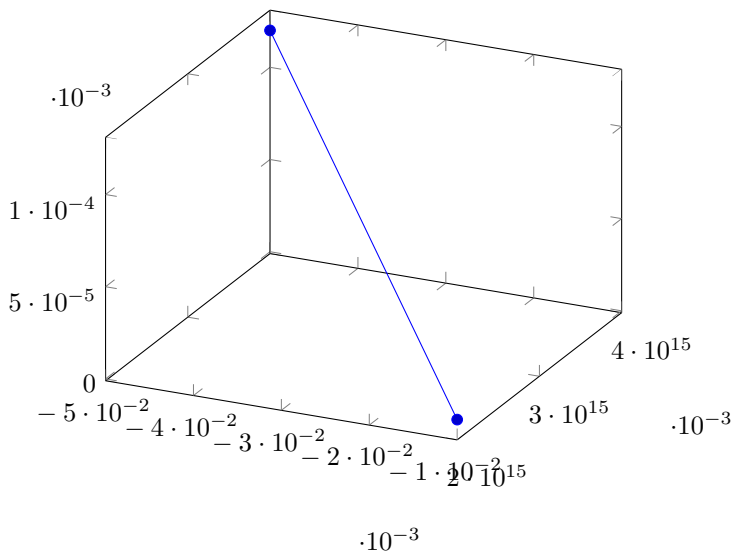
10.4.1 false



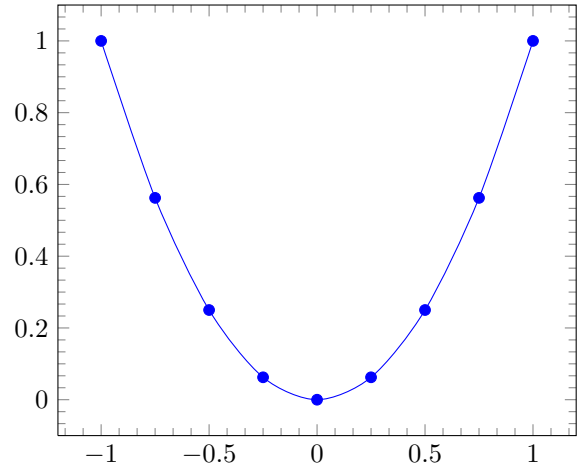
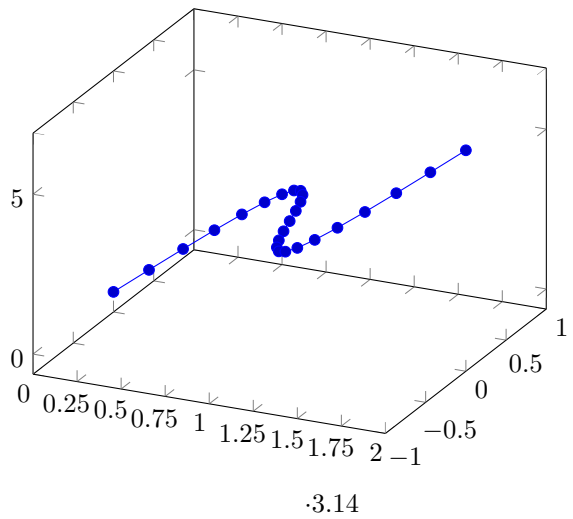
10.4.2 true



10.4.3 base 10:3

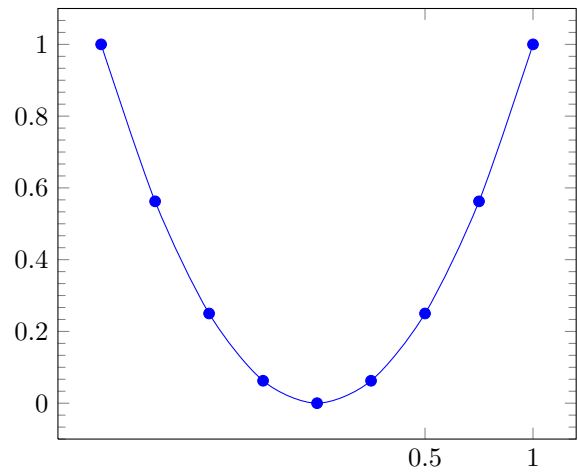
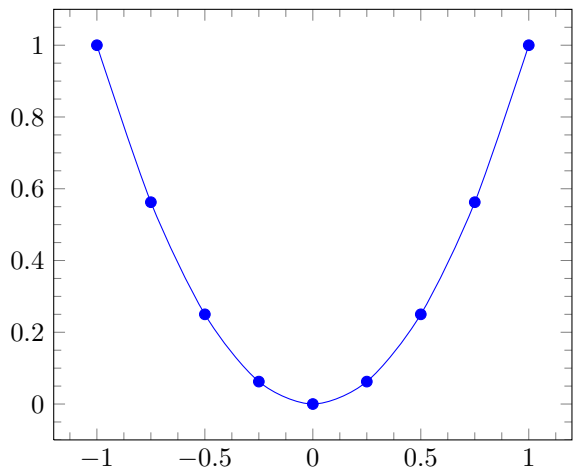


10.4.4    real:3.1415

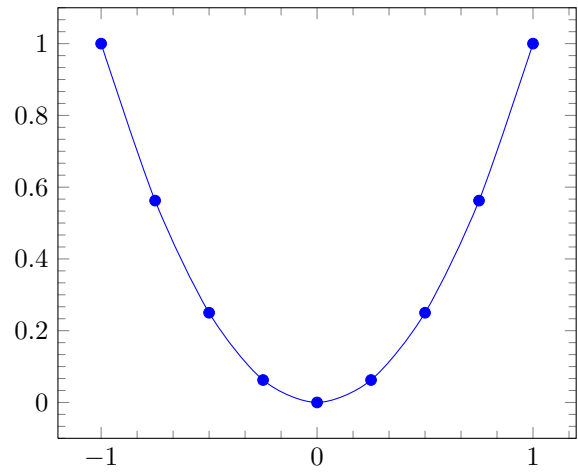
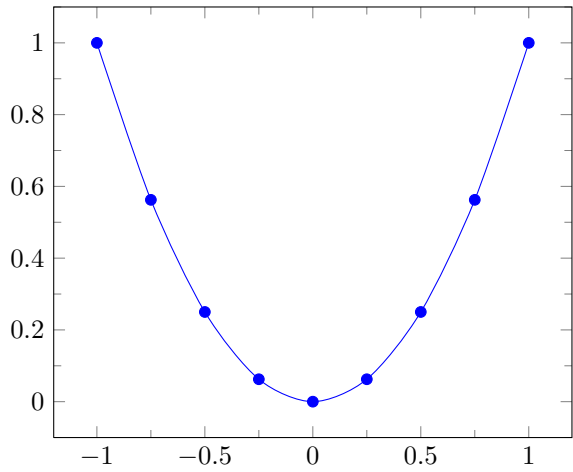


10.5.1    + Explicit tick marks (non-uniform)

10.5    Minor ticks

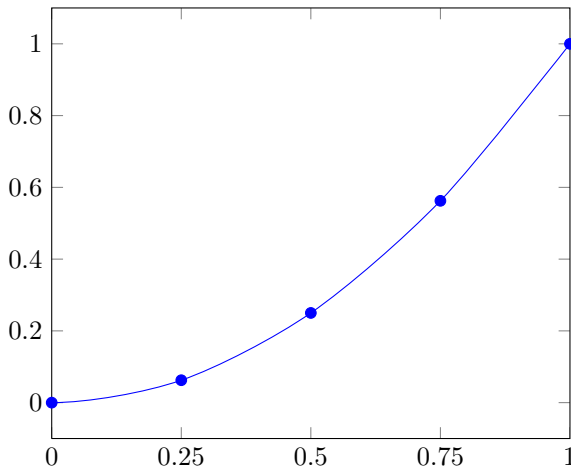
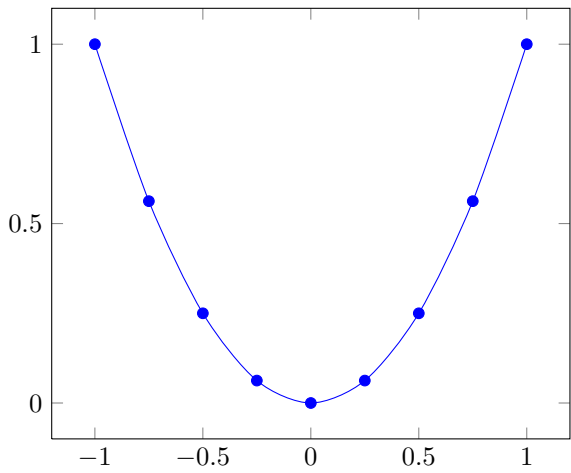


10.5.2    + Explicit tick marks (uniform)

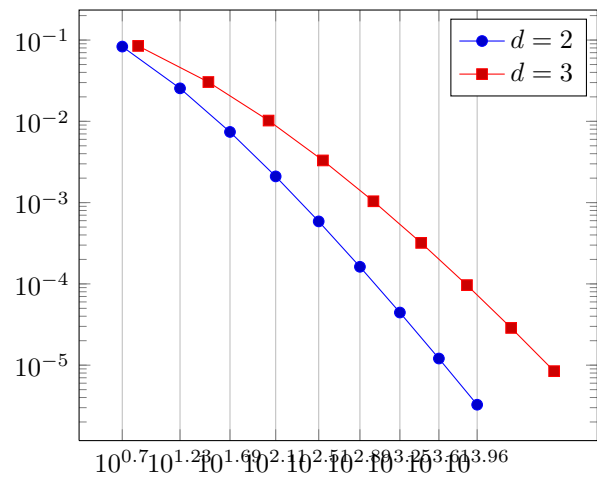
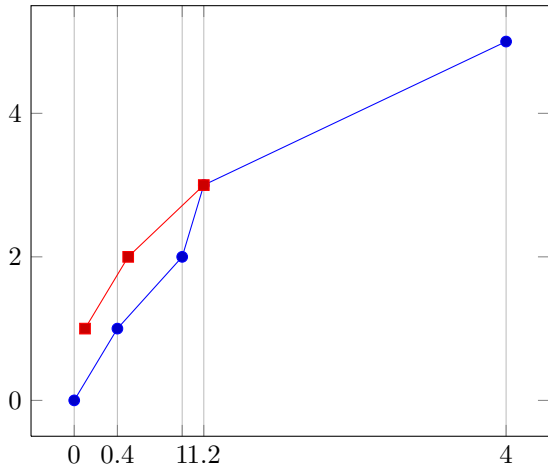
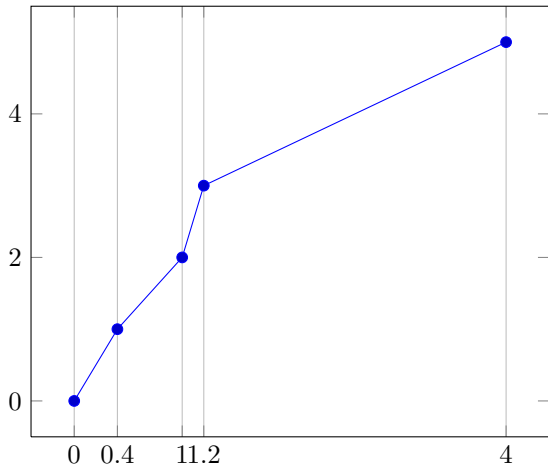




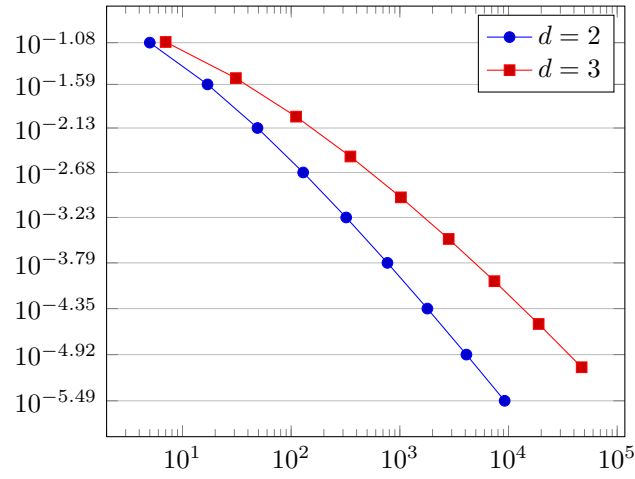
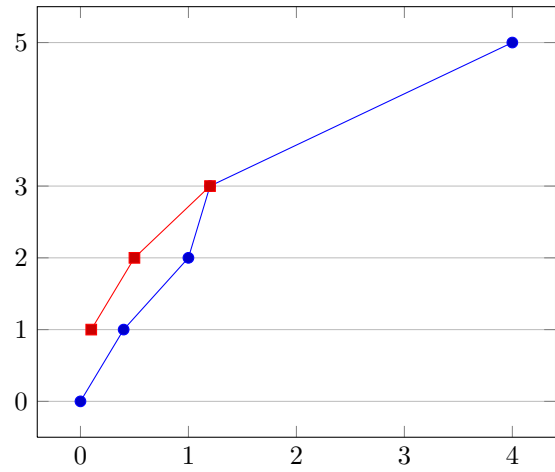
10.6 Tick placement



10.6.1 xtick=data

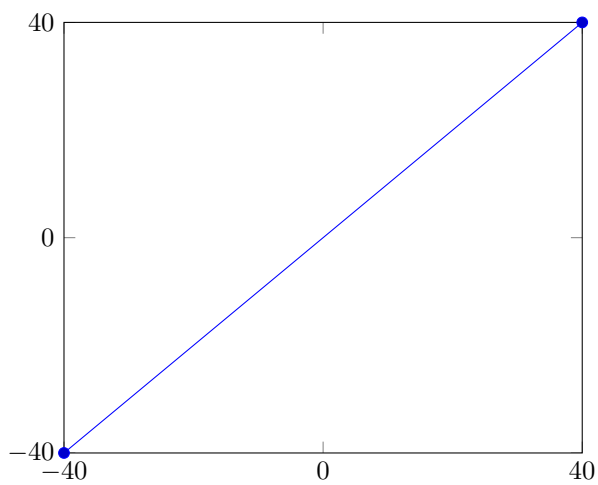
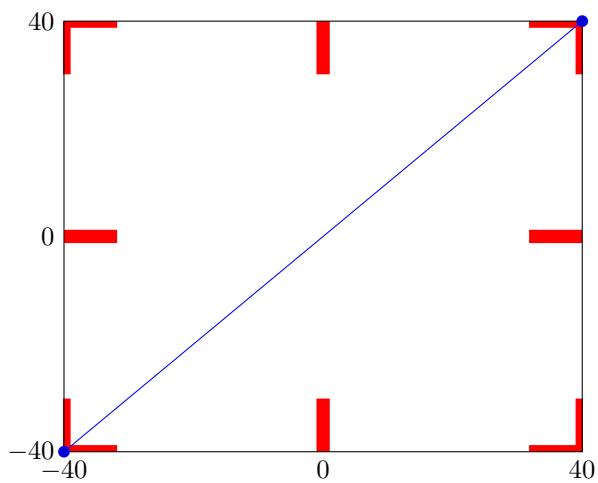
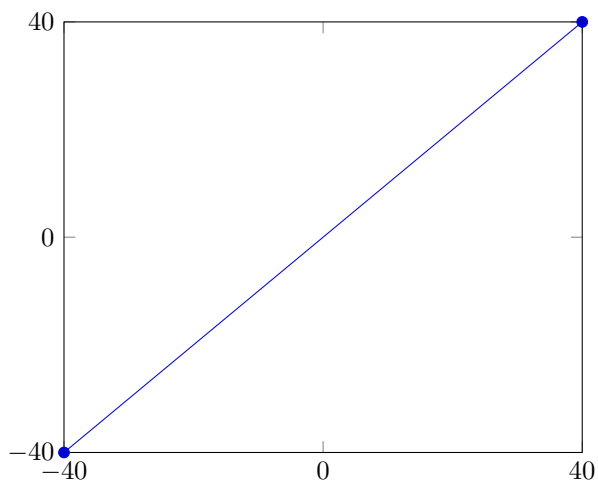


ytick=data

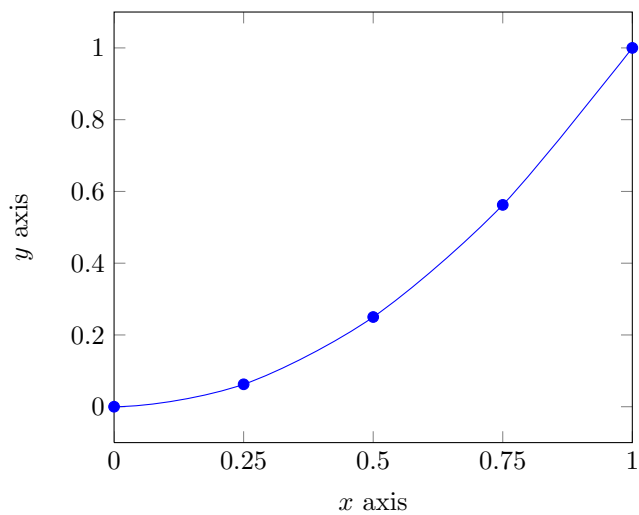
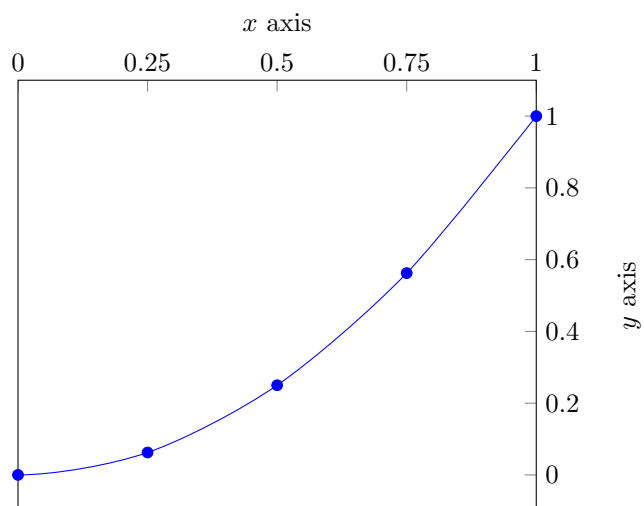


10.6.2 ticks on axis rectangle

First plot: default tick style; second plot: red, third: 'help lines'

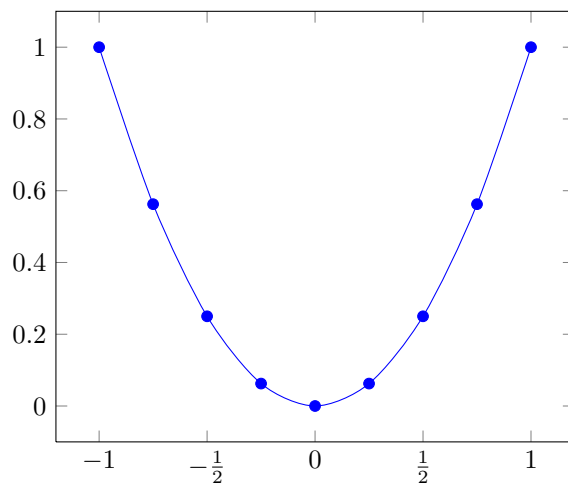


### 10.6.3 modified labels

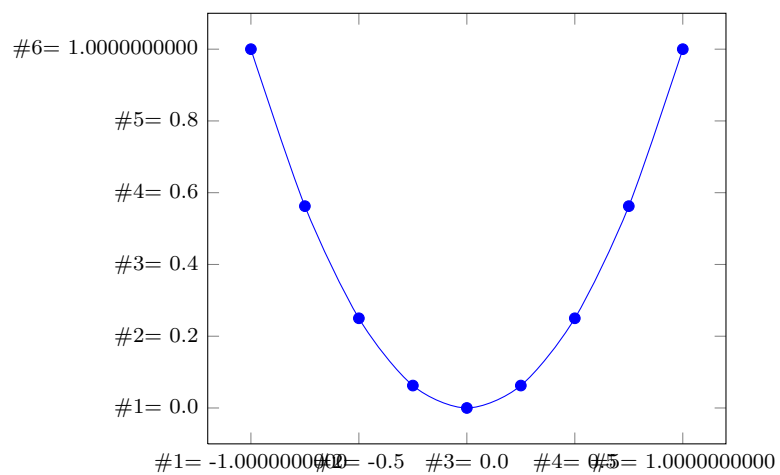


## 10.7 Tick label assignment tests

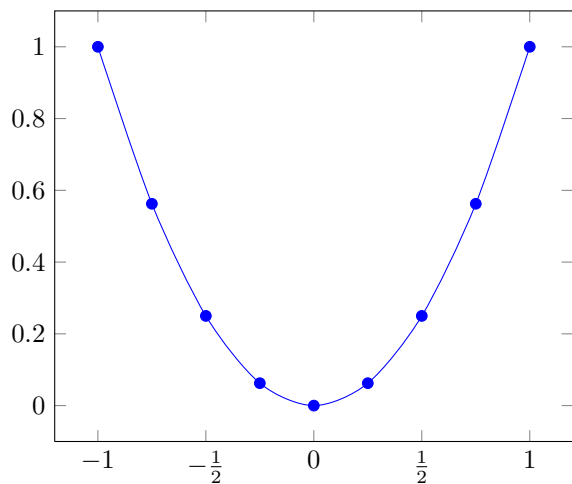
### 10.7.1 Using xticklabel and xtick



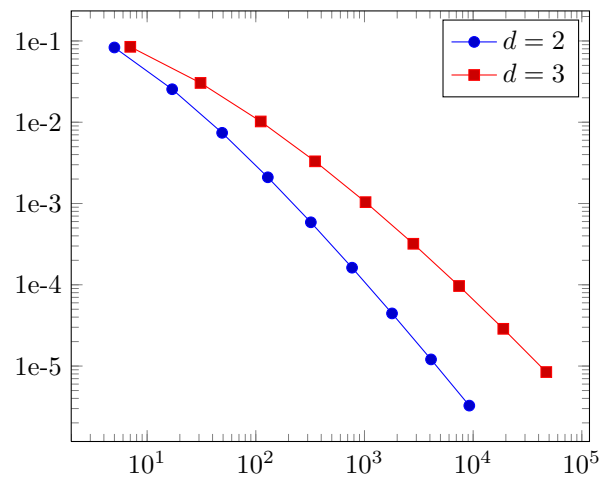
### 10.7.2 Showing ticknum verbatim



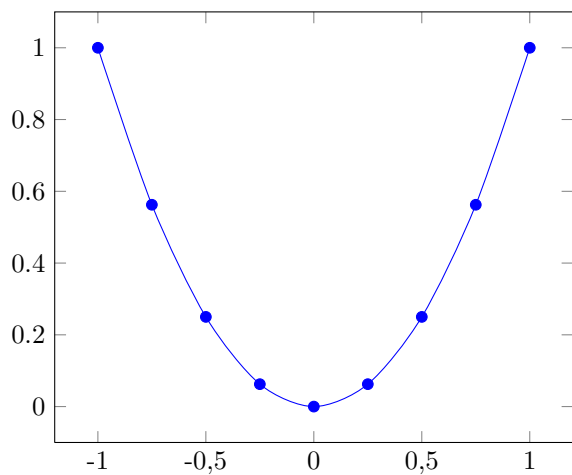
### 10.7.3 Using xticklabels



### 10.7.6 Using yticklabels in logplot

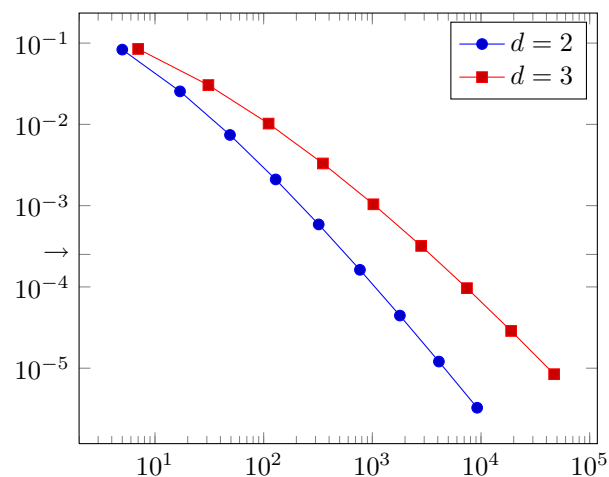


### 10.7.4 With xtick labels and commas by hand

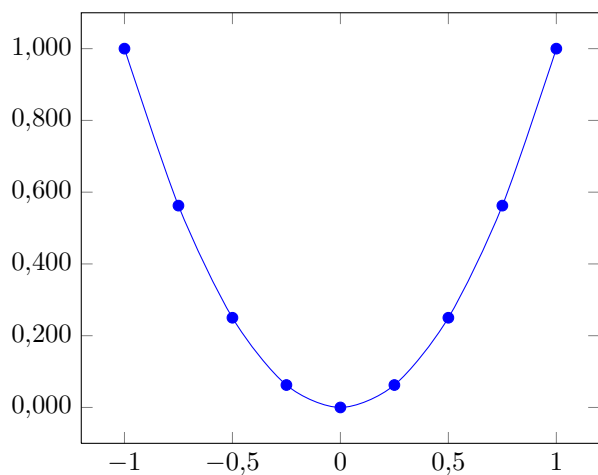


### 10.8 Tick/Tick-Label placement log plots

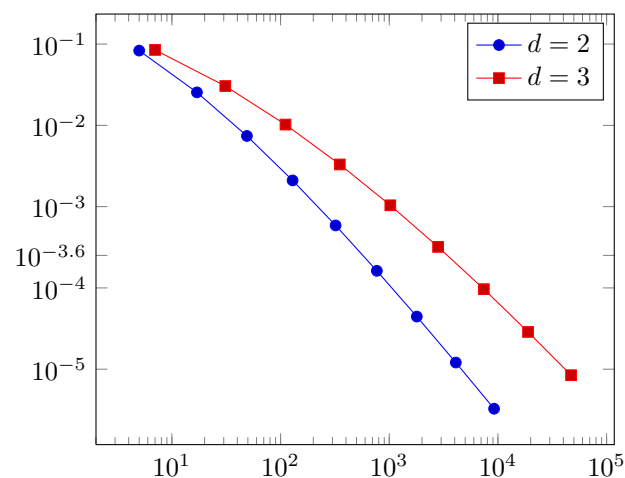
#### 10.8.1 ytickten



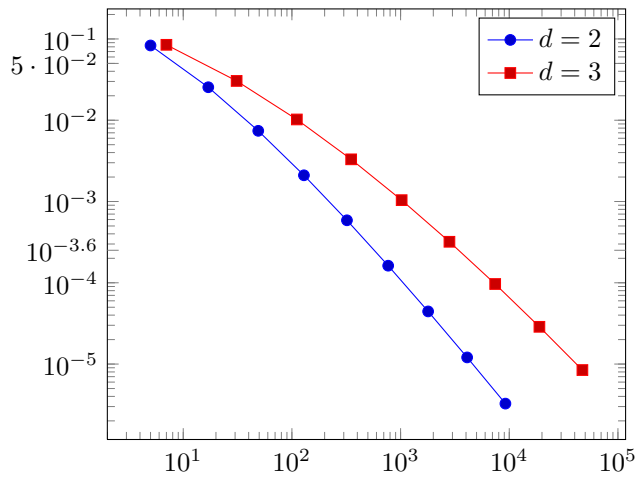
### 10.7.5 Only with auto number formatting options; different for x and y



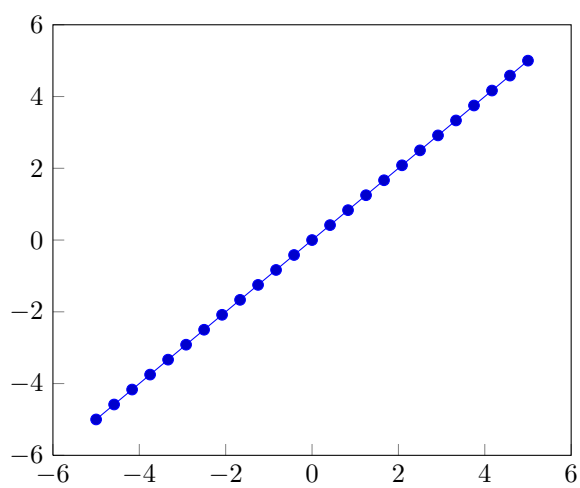
#### 10.8.2 ytick



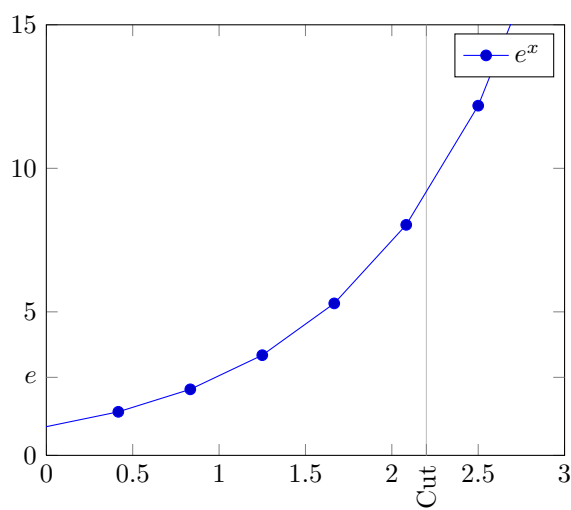
10.8.3 extra y ticks



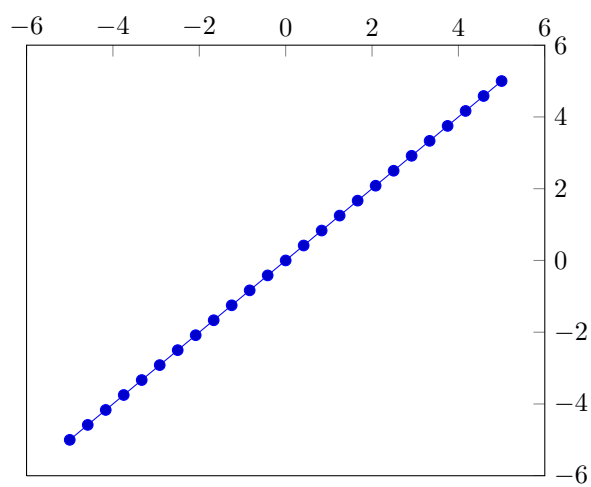
tick pos=left



10.8.4 extra x and y ticks, linear plot



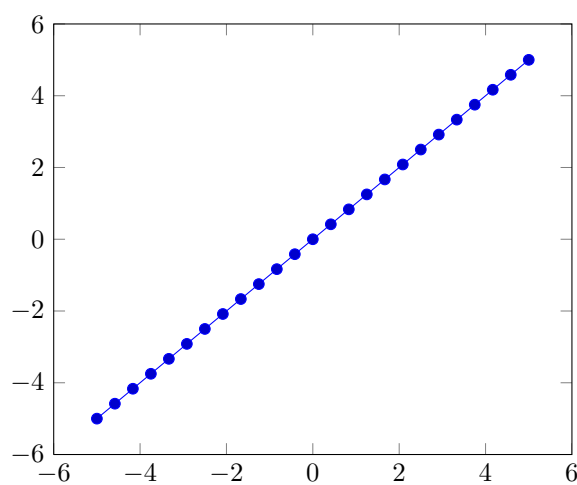
tick pos=right



10.9 tick pos

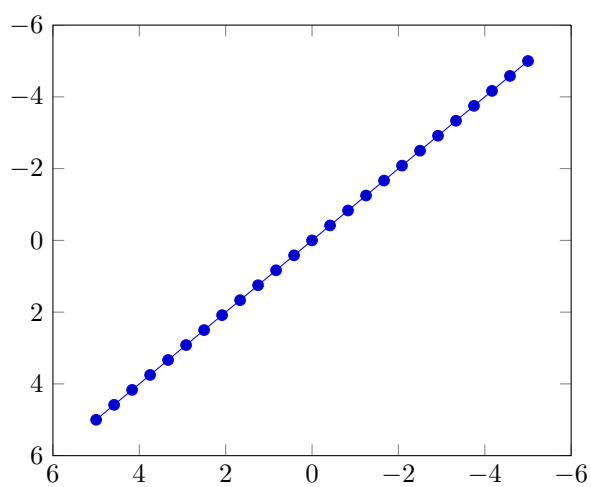
10.9.1 Standard

tick pos=both

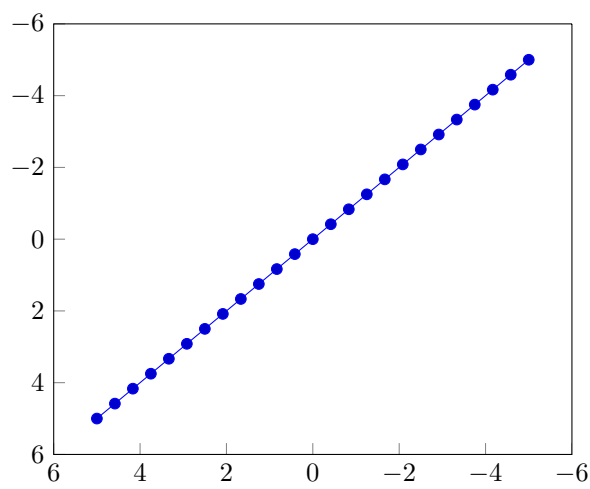


10.9.2 Reversed axes

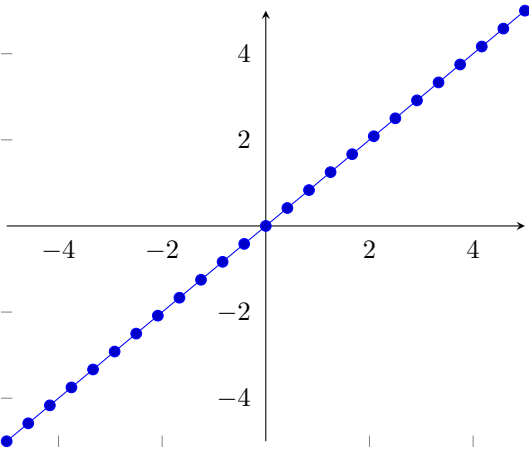
tick pos=both



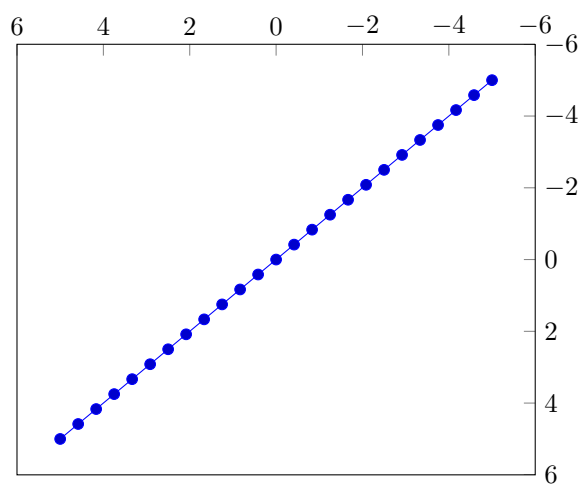
tick pos=left



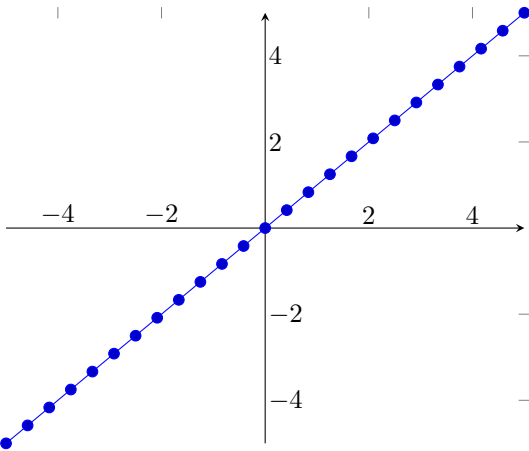
tick pos=left



tick pos=right

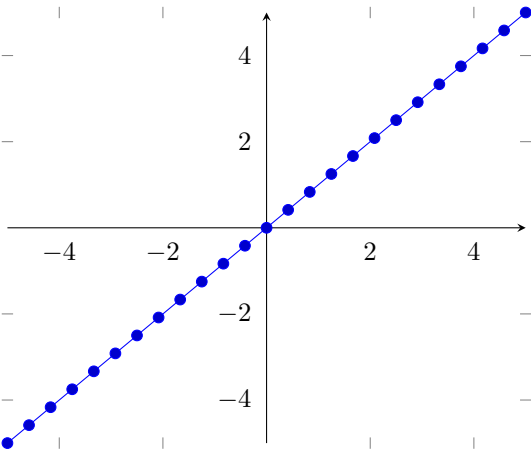


tick pos=right



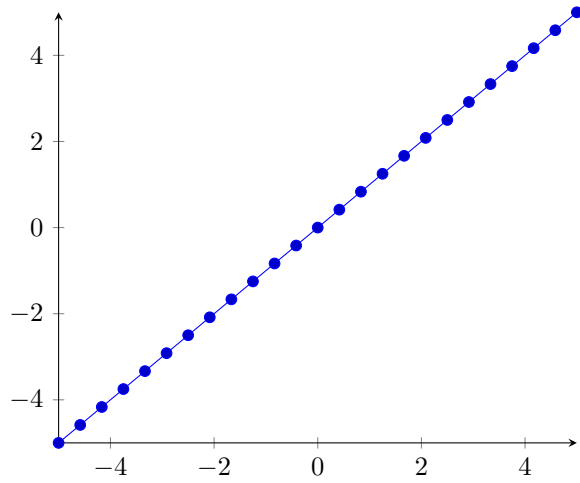
10.9.3 axis lines =center

tick pos=both

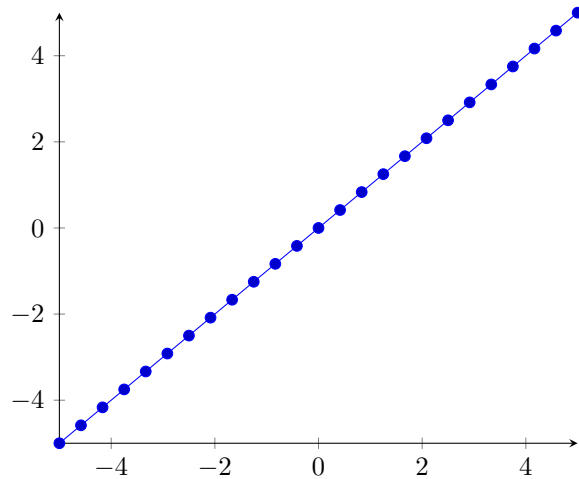


10.9.4 axis lines =left

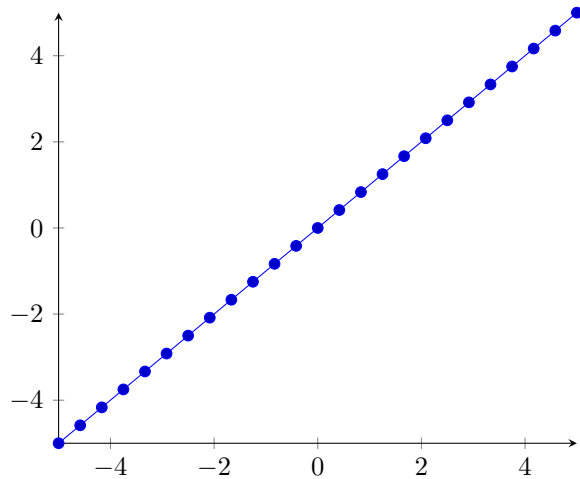
tick pos=both



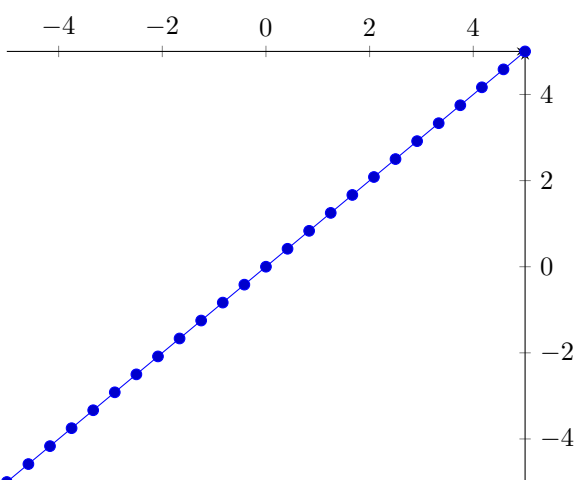
tick pos=left



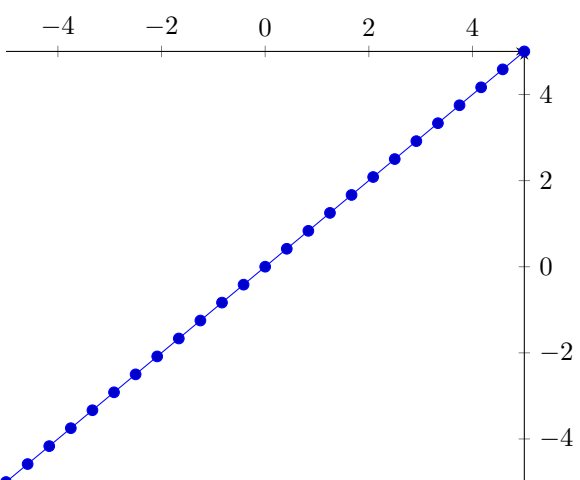
tick pos=left



tick pos=right

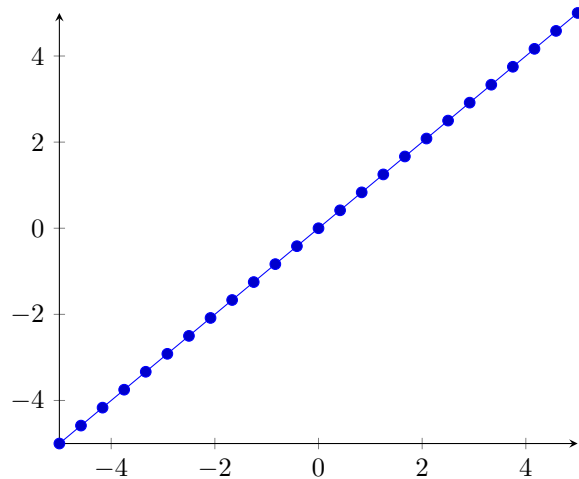


tick pos=right



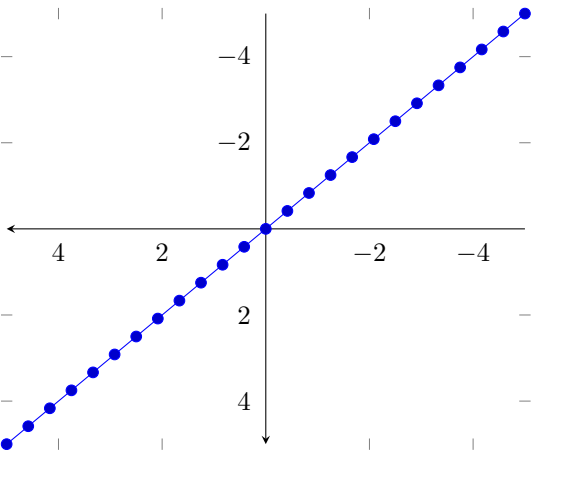
10.9.5 axis lines =right

tick pos=both

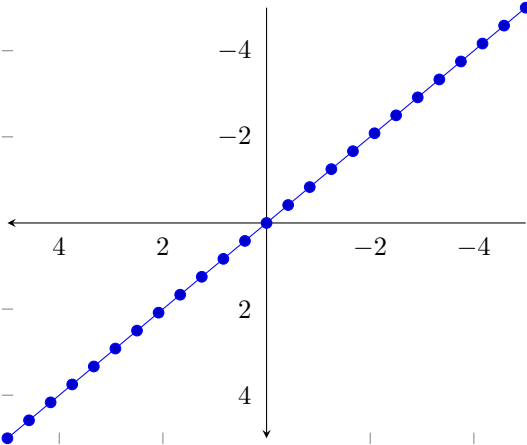


10.9.6 reversed axes and axis lines =center

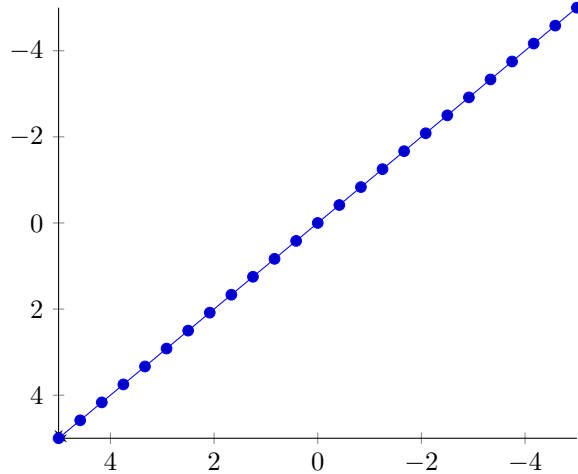
tick pos=both



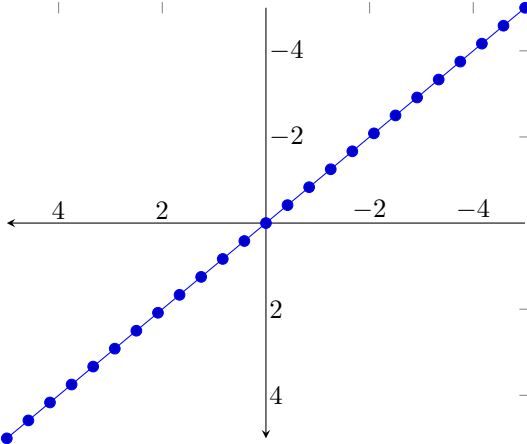
tick pos=left



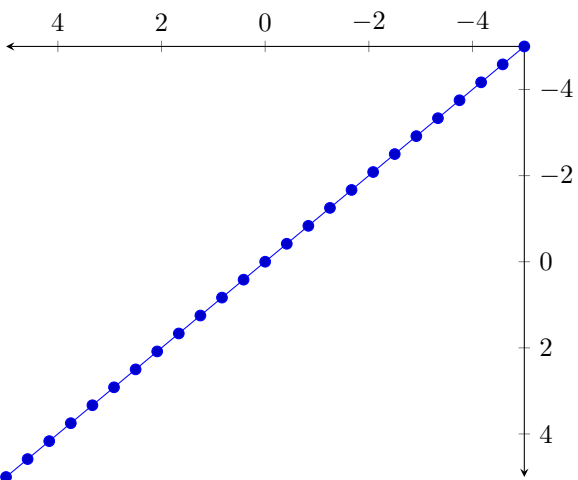
tick pos=left



tick pos=right

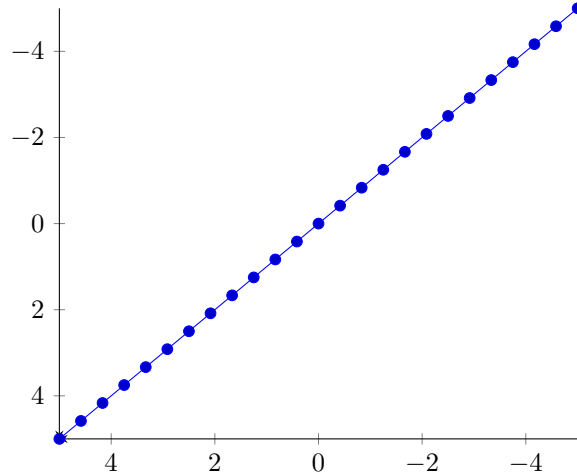


tick pos=right



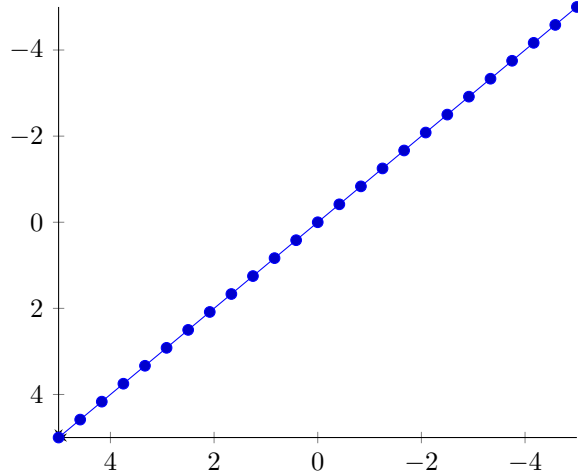
10.9.7 reversed axes and axis lines =left

tick pos=both

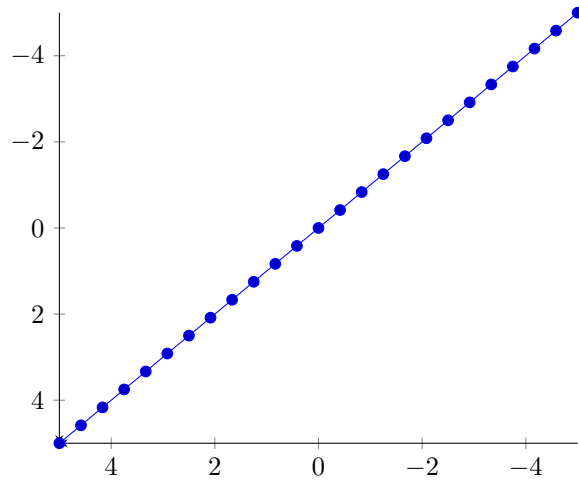


10.9.8 reversed axes and axis lines =right

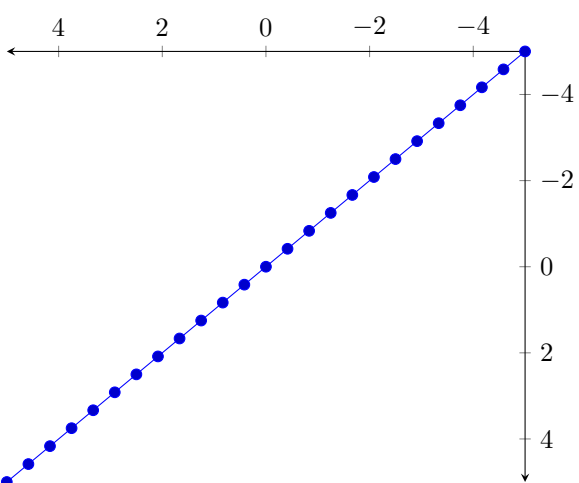
tick pos=both



tick pos=left



tick pos=right





# Chapter 11

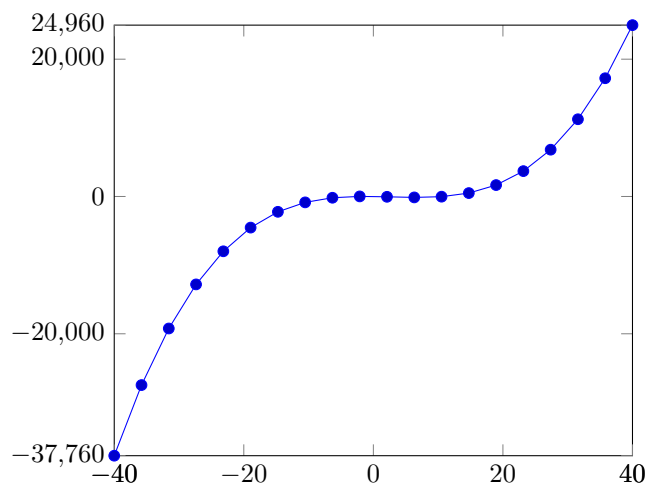
## pgfplotstest.enlargelimits.tex

### 11.1 Limit computation

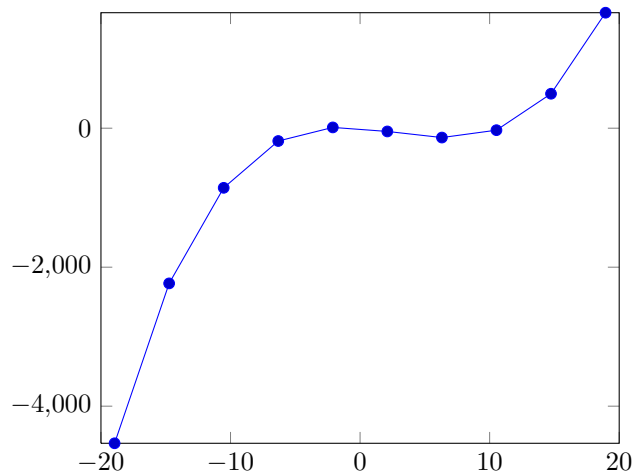
#### 11.1.1 User specified limits

[scaled ticks = false,enlargelimits=false] in this section

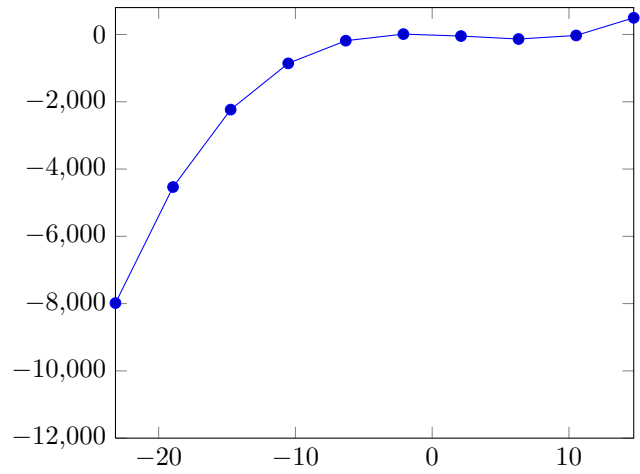
linear plot, unconstraint



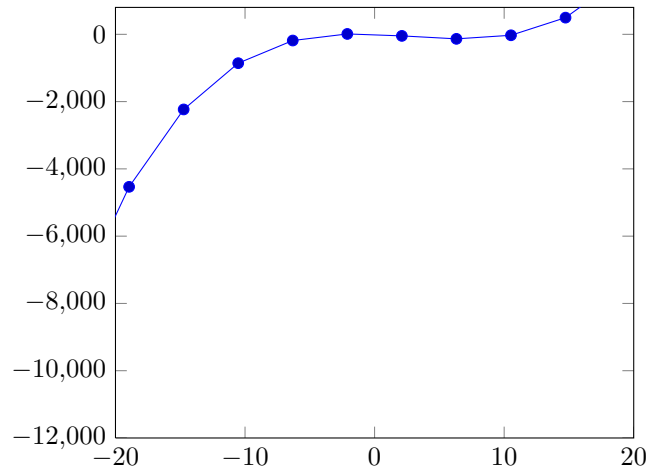
linear plot, limited to  $x \in [-20, 20]$



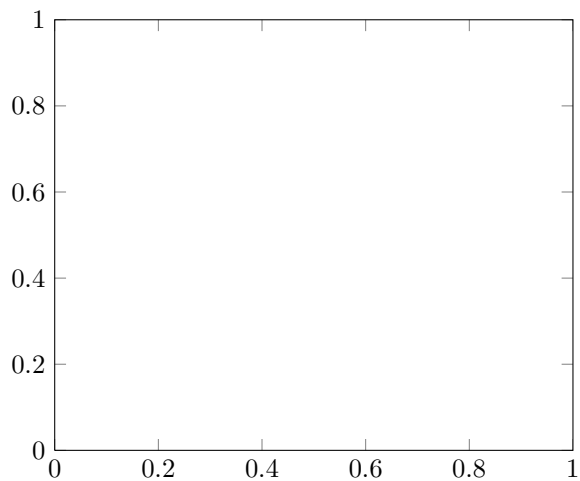
linear plot, limited to  $y \in [-12000, 800]$



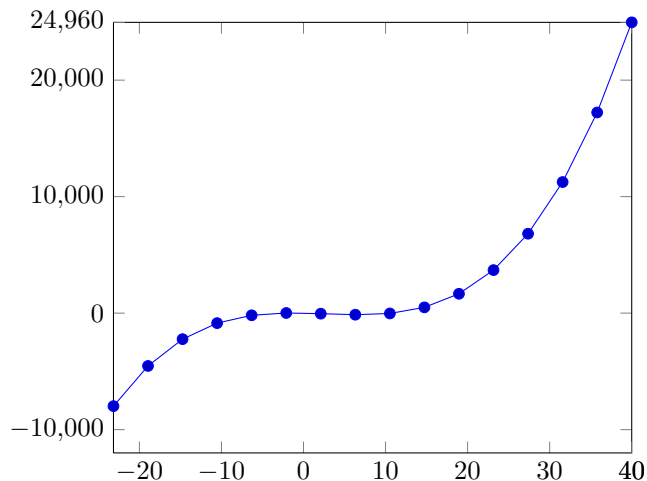
linear plot, limited to  $x \in [-20, 20]; y \in [-12000, 800]$



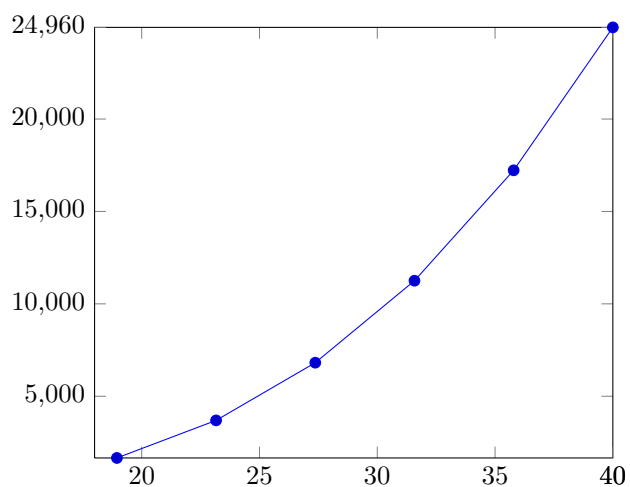
linear plot, limited to empty  $x$ -range



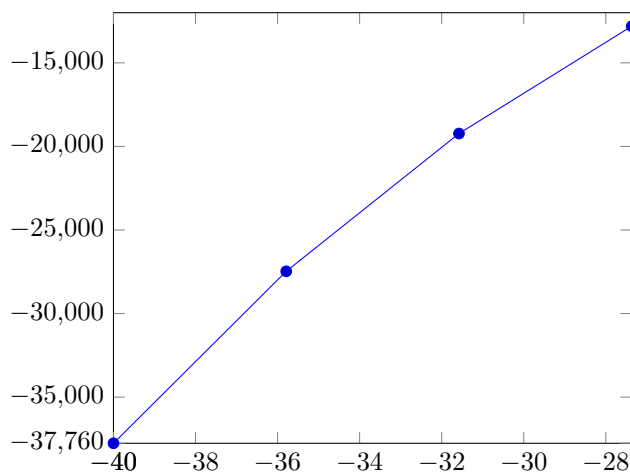
linear plot, limited only in  $y_{\min}=-12000$



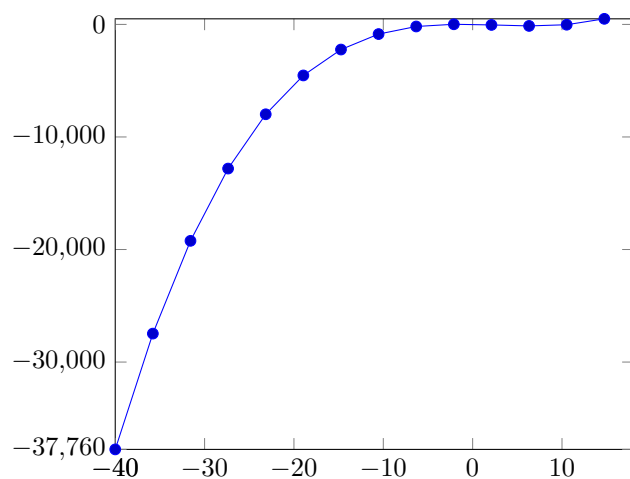
linear plot, limited to  $x_{\min}=18$



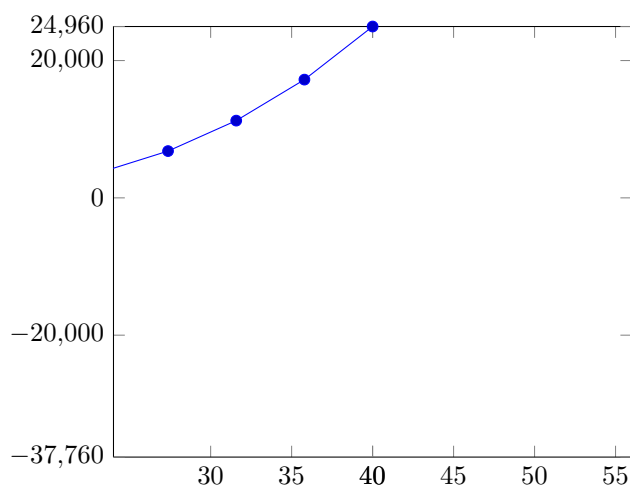
linear plot, limited only in  $y_{\max}=-12000$



linear plot, limited only in  $x_{\max}=18$



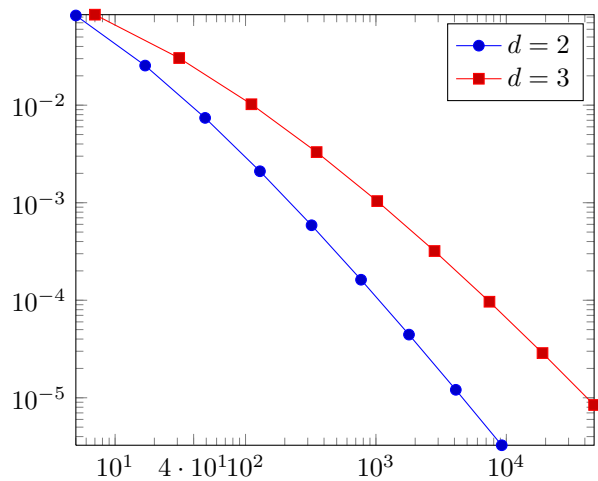
linear plot, clip limits=false and  $x_{\min} = 50$



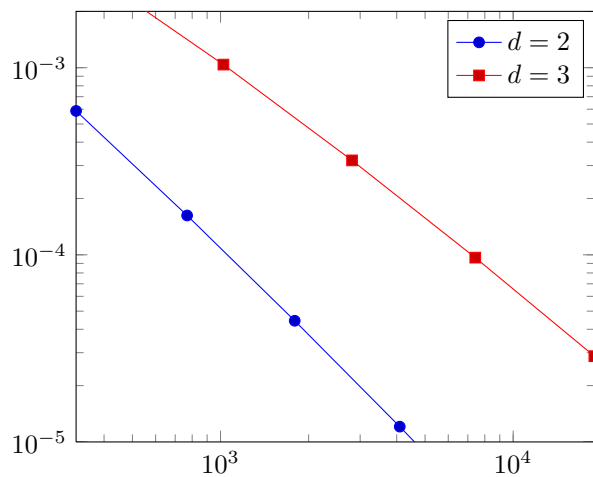
### 11.1.2 Log plots

Log-plots use the same code; they should work in the same way!

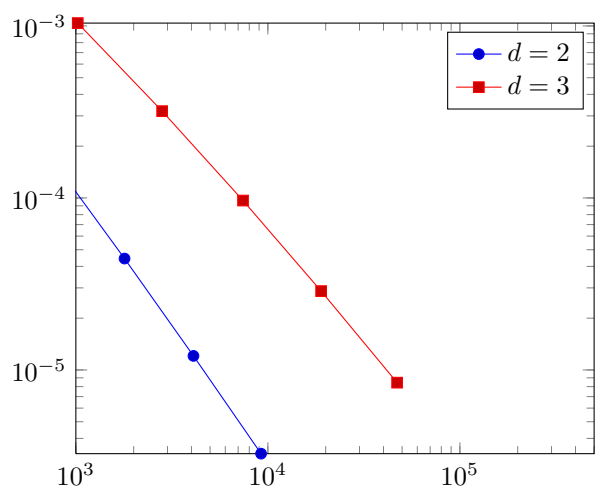
log plot unconstraint



log plot limited to  $y \in [10^{-5}, 2 \cdot 10^{-3}]$

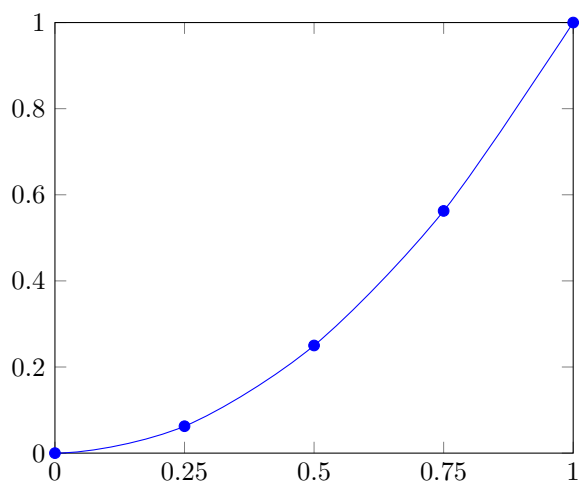


log plot limited to  $x \in [10^3, 5 \cdot 10^5]$

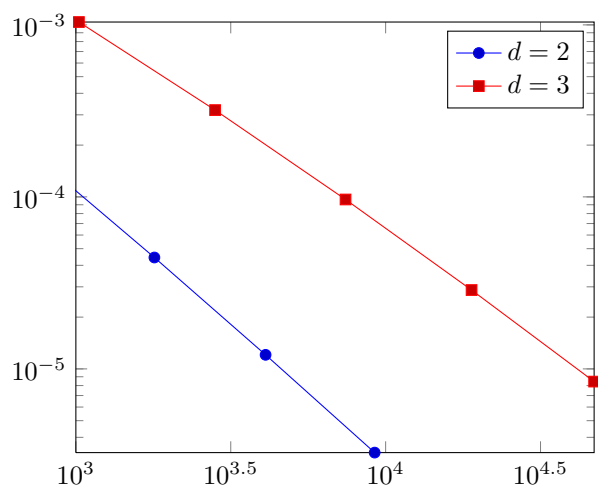


### 11.1.3 Enlargelimits tests

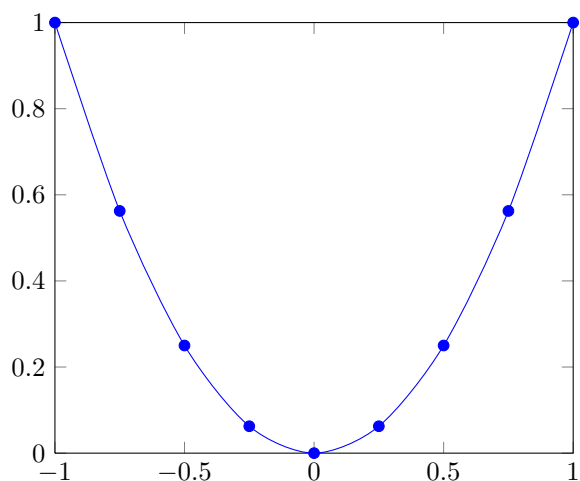
enlargelimits=false, x limits provided



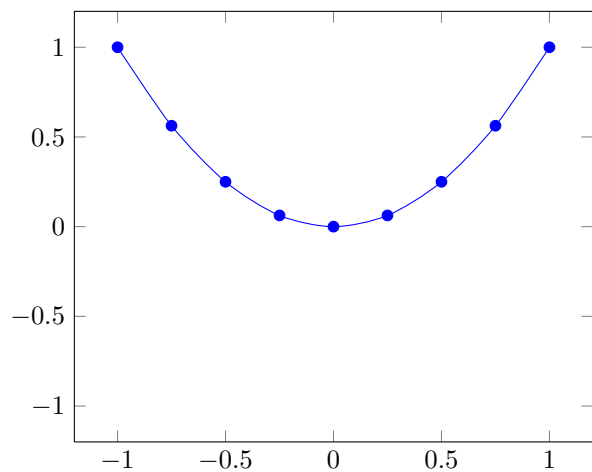
log plot limited to  $x > 10^3$



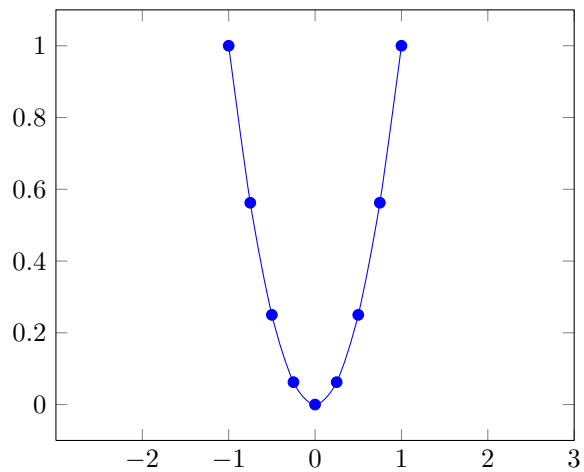
enlargelimits=false, no limits provided



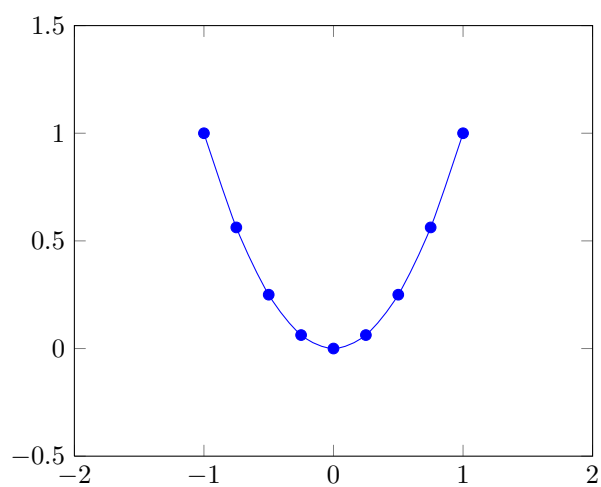
enlarge\_limits=true, all limits provided  $[-1, 1] \times [-1, 1]$



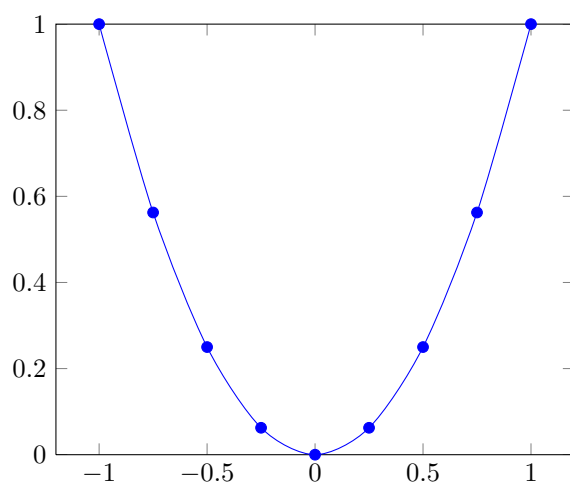
enlarge x limits=1



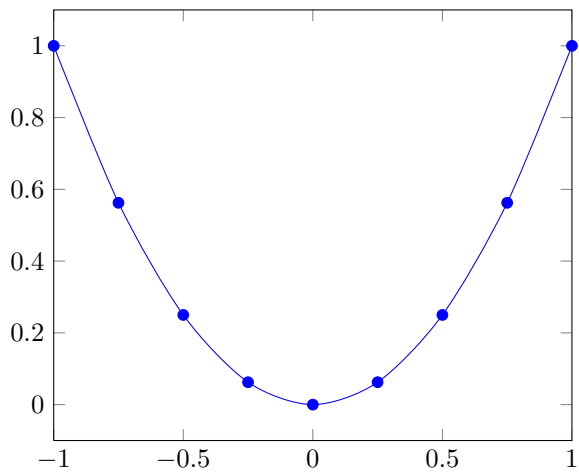
enlarge\_limits=0.5



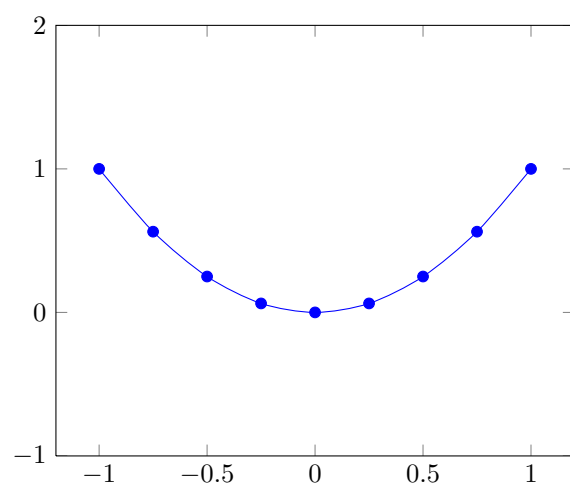
enlarge y limits=false



enlarge x limits=false

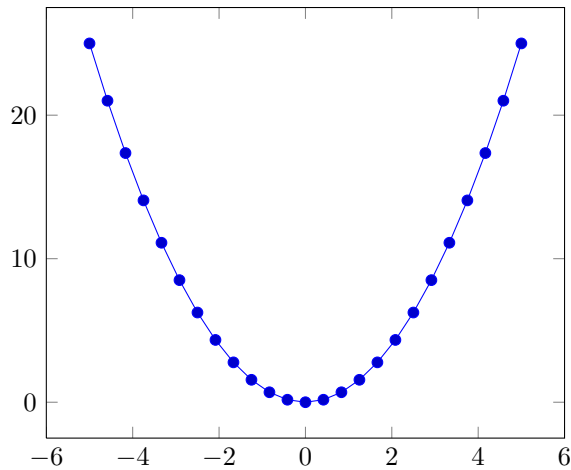


enlarge y limits=1

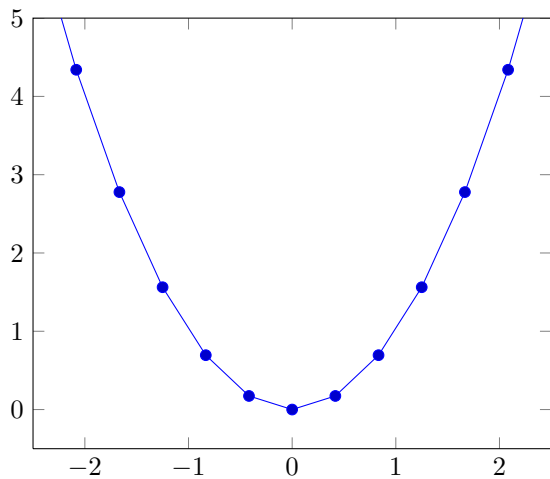


11.2 Once again with partial limits

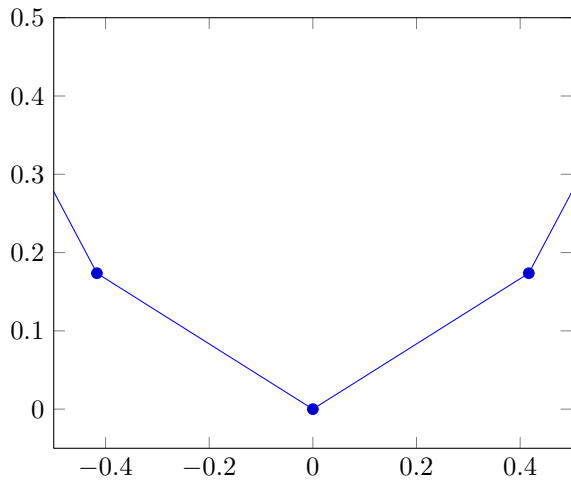
11.2.1 Unconstraint



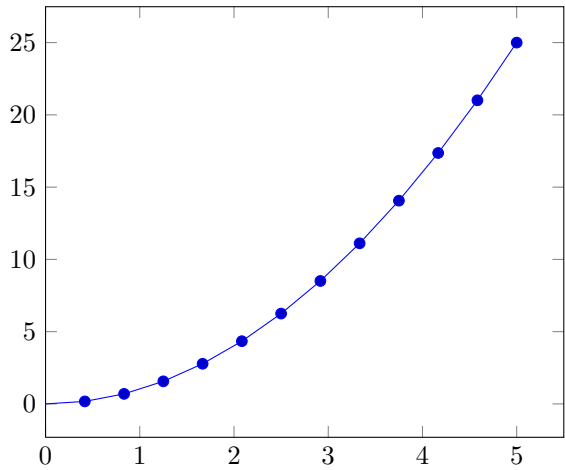
11.2.2  $y_{\max}=5$



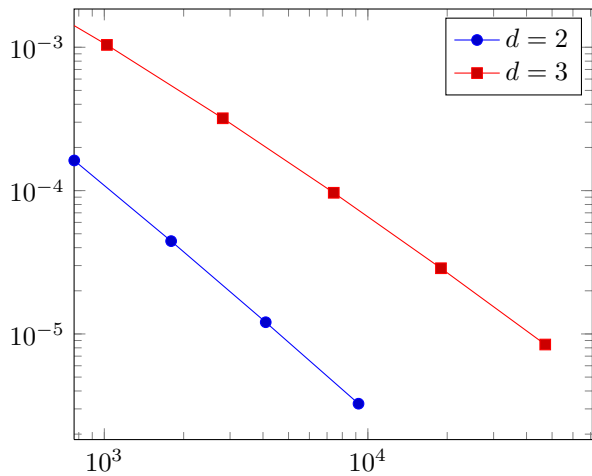
11.2.3  $y_{\max}=0.5$



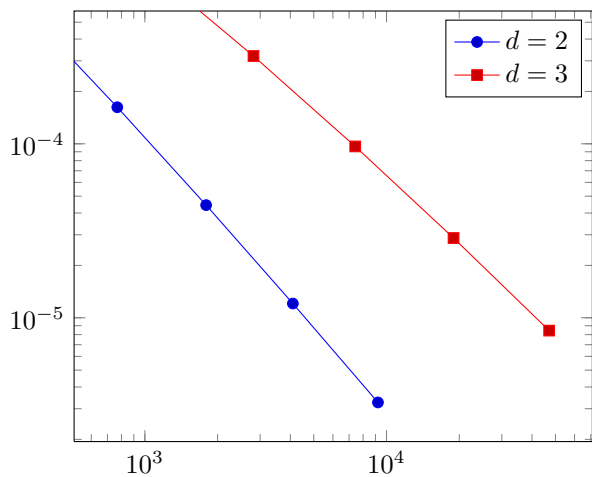
11.2.4  $x_{\min}=0$



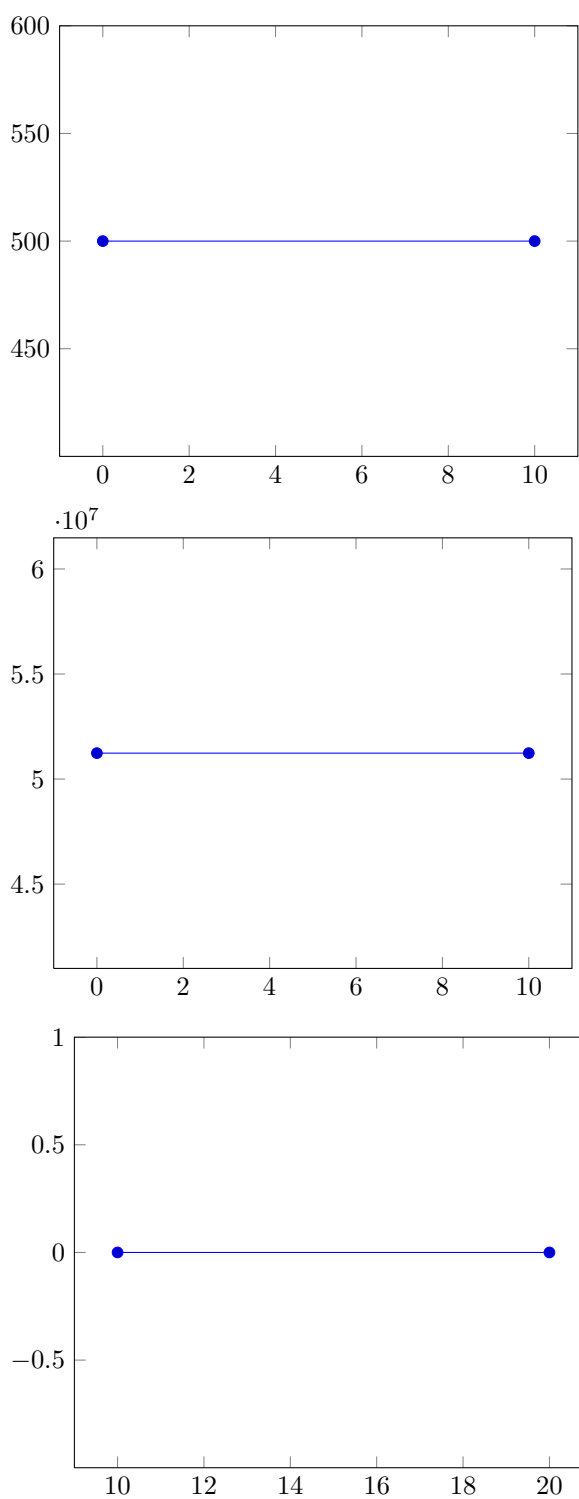
11.2.5  $x_{\min}=768$



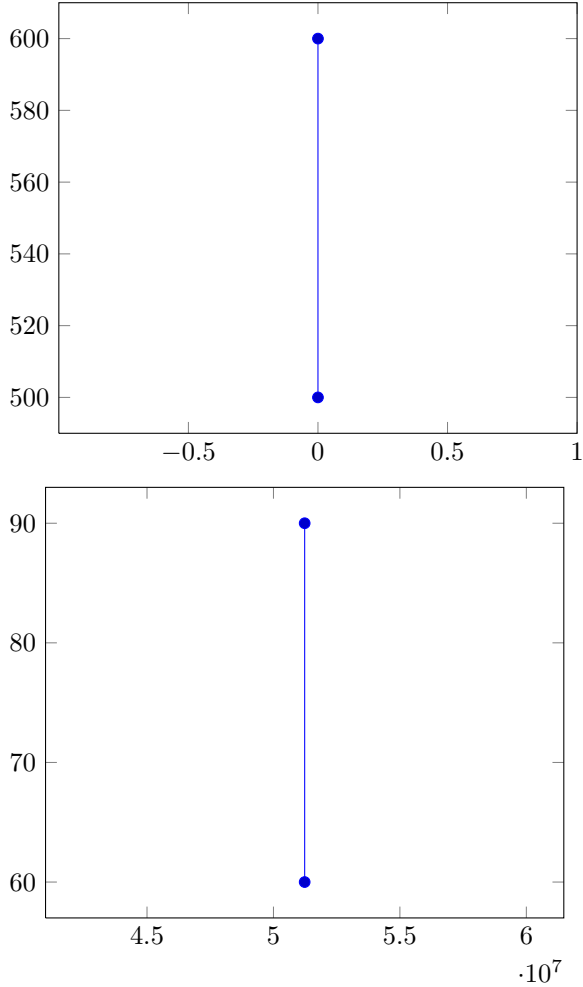
11.2.6  $y_{\max}=5.8e-4$



11.2.7 constant in  $y$



11.2.8 constant in  $x$

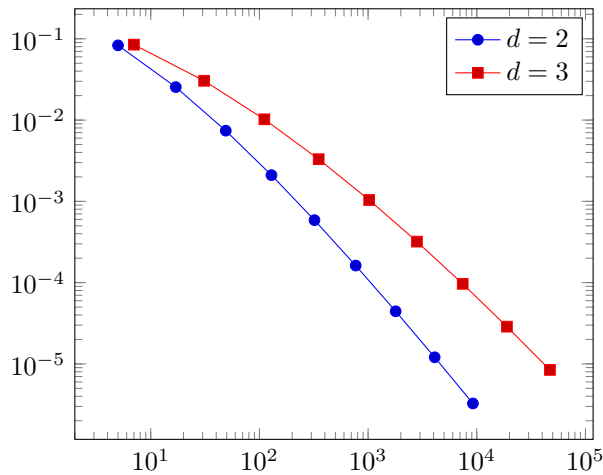


# Chapter 12

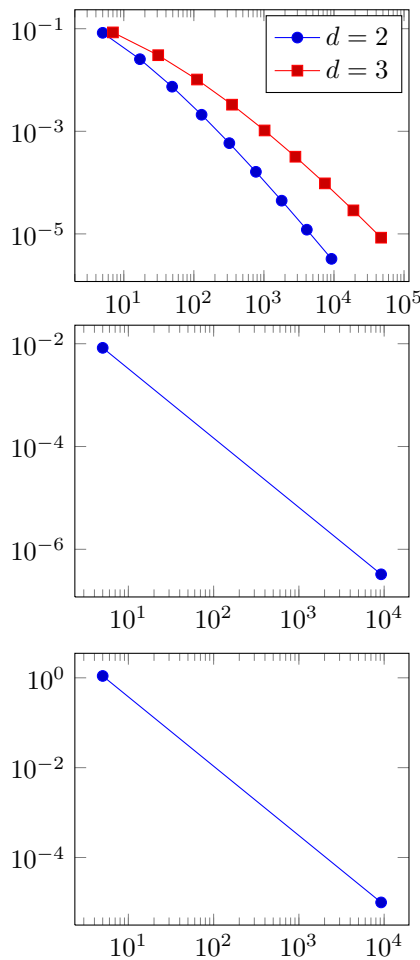
## pgfplotstest.logplotenv.tex

### 12.1 Default options log plot

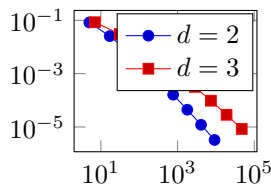
#### 12.1.1 Default size



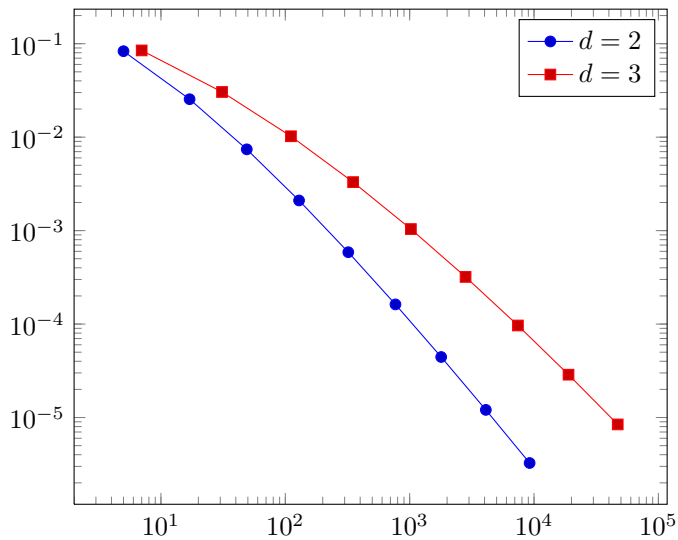
#### 12.1.2 Small size



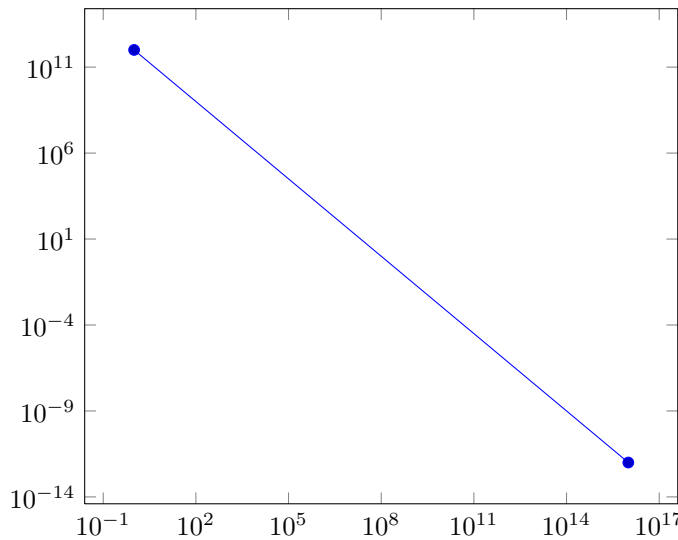
#### 12.1.3 Very small size



#### 12.1.4 Large size

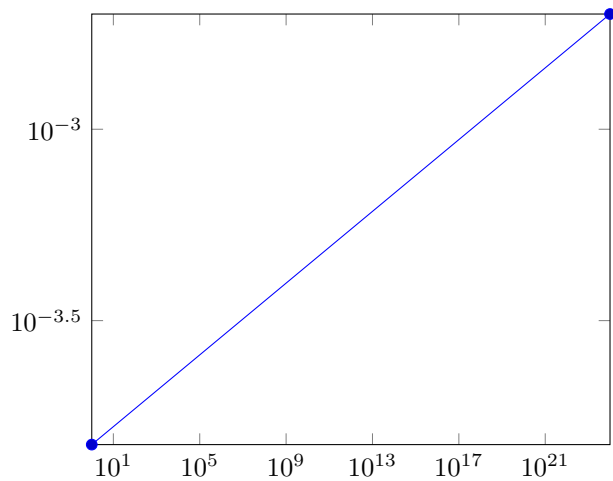


#### 12.1.5 Large size; large range



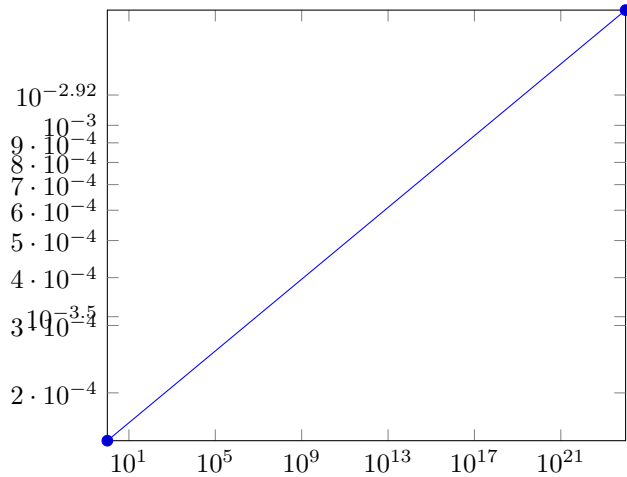
12.1.6 Extremely small y range for log plot

Without extra ticks, enlargelimits=false

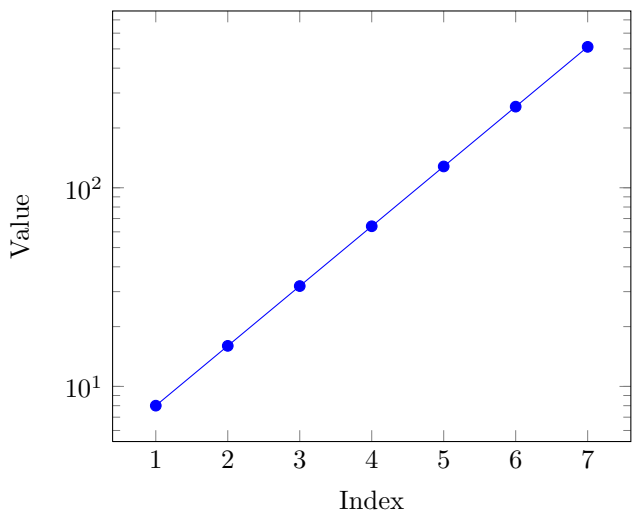


With extra ticks, enlargelimits=false

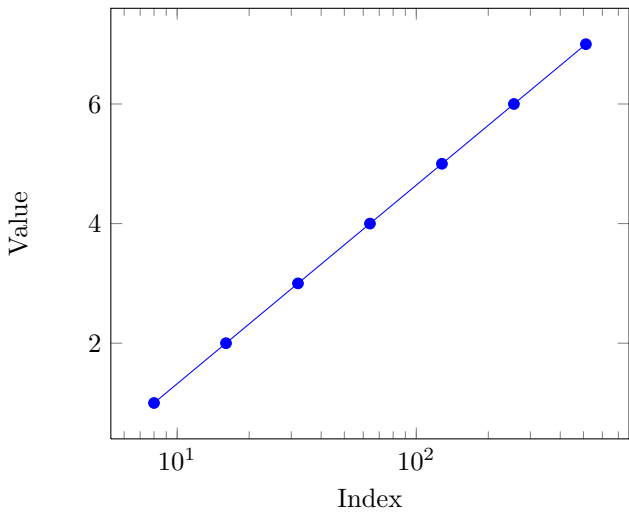
extra y ticks={2e-4,3e-4,4e-4,5e-4,6e-4,7e-4,8e-4,9e-4,1.2e-3}



12.2 Semilogy plot



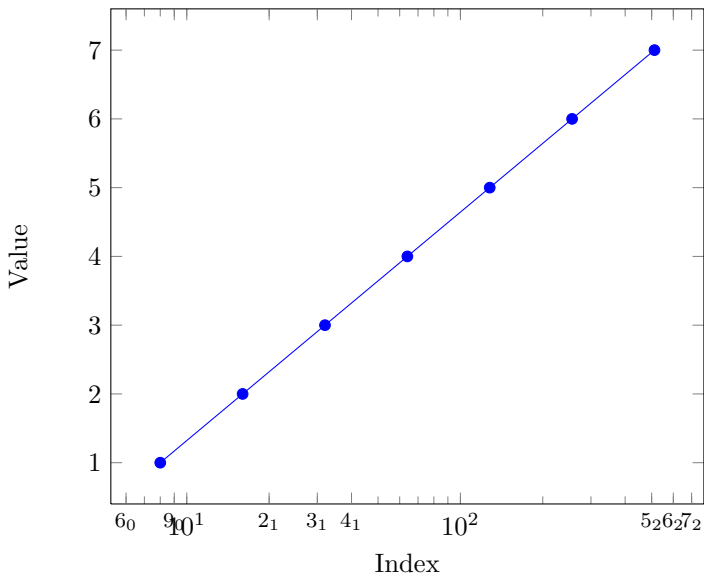
12.3 Semilogx plot



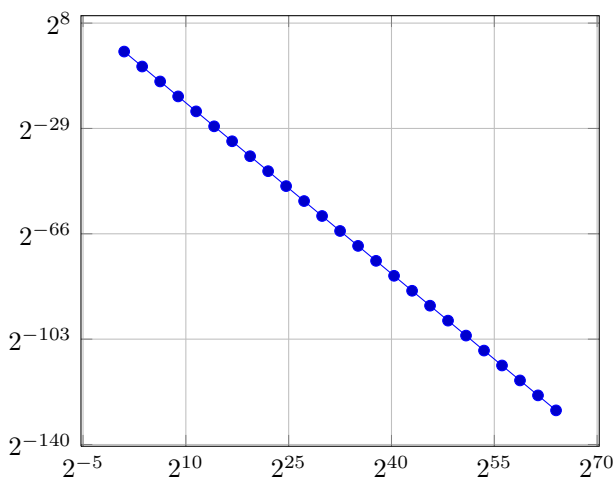
12.3.1 Extra ticks

Options:

extra x ticks={6e0,9e0,2e1,3e1,4e1,5e2,6e2,7e2,8e2,9e2},  
extra x tick style={/pgf/number format/sci sub-script,font=footnotesize},

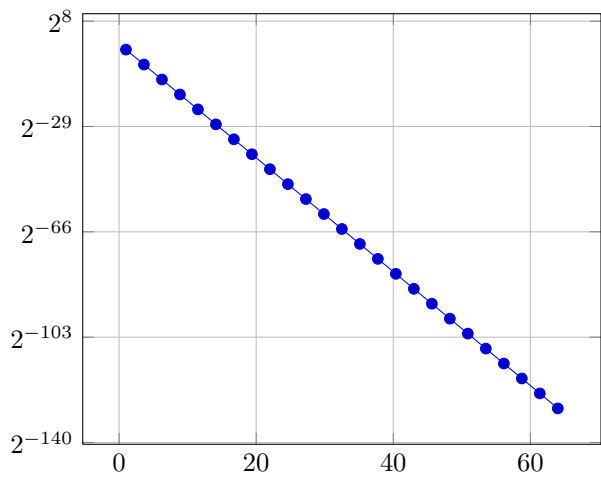
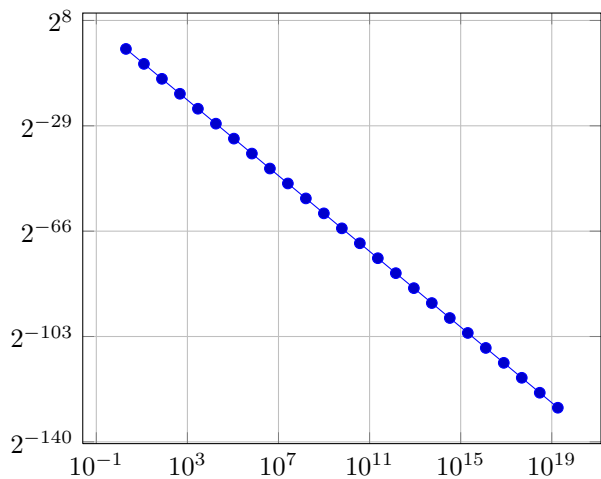


12.4 log basis y=2, log basis x=2





12.5 log basis y=2, std for x



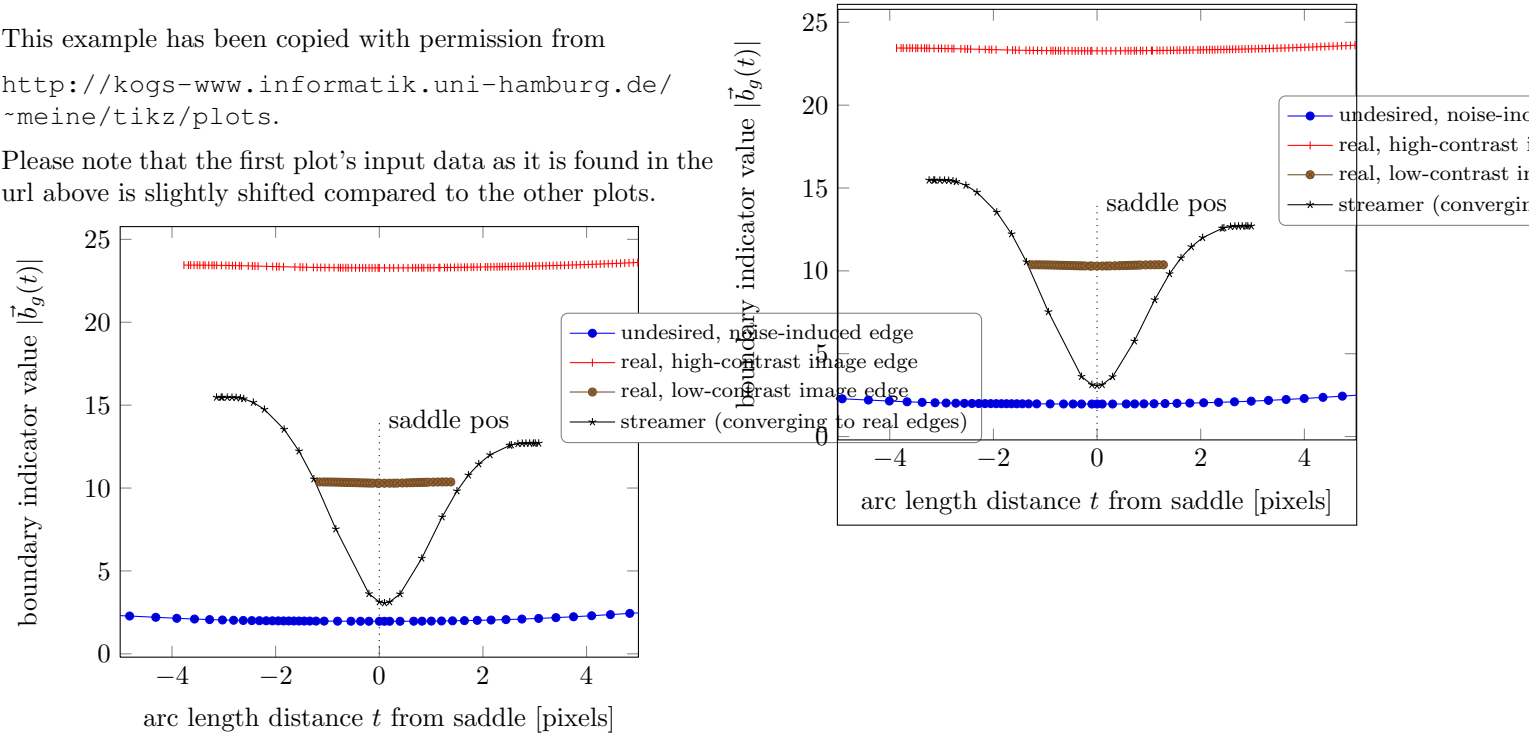
# Chapter 13

## pgfplotstest.hansmeine\_app.tex

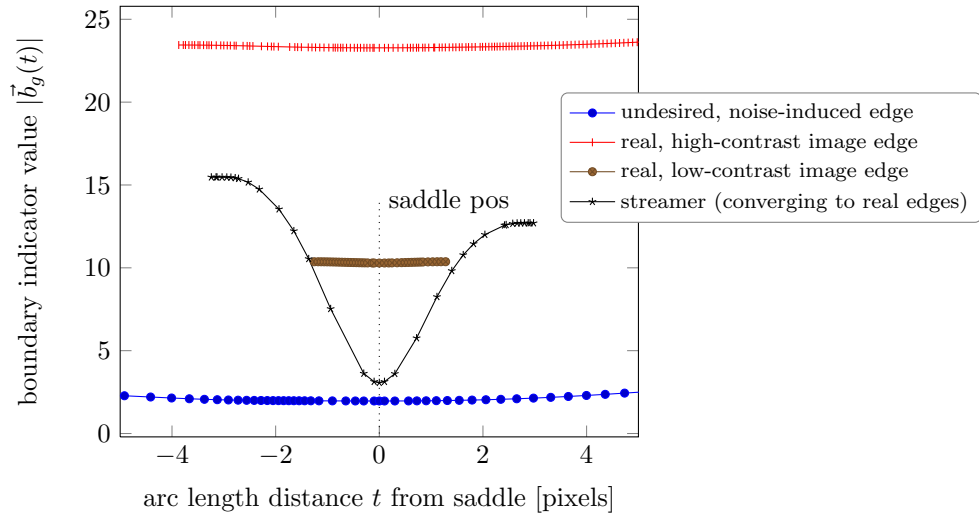
13.1 Application example of Hans Meine

13.1.2 With plot file and restricted bounding box, centered

This example has been copied with permission from <http://kogs-www.informatik.uni-hamburg.de/~meine/tikz/plots>. Please note that the first plot's input data as it is found in the url above is slightly shifted compared to the other plots.



### 13.1.1 With plot file



# Chapter 14

## pgfplotstest.3d.tex

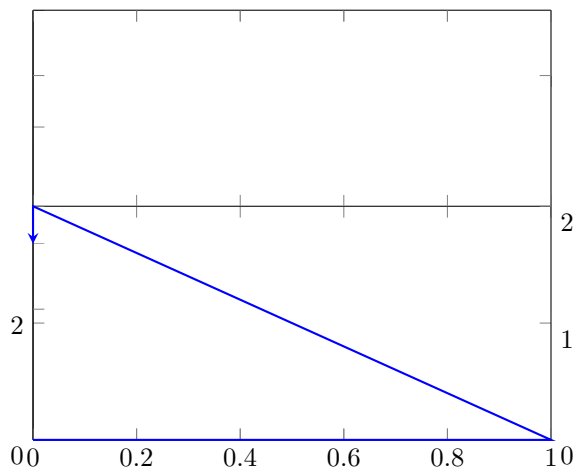
### 14.1 View

The following test plot has

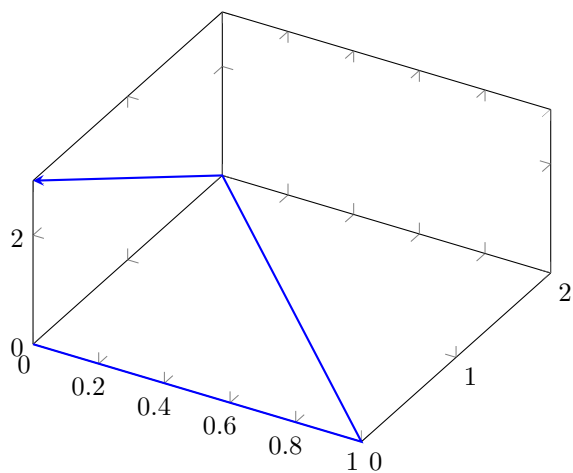
```
\addplot3[blue,-stealth,thick] coordinates
{(0,0,0) (1,0,0) (0,2,0) (0,0,3)};
```

#### 14.1.1 Test von YAW

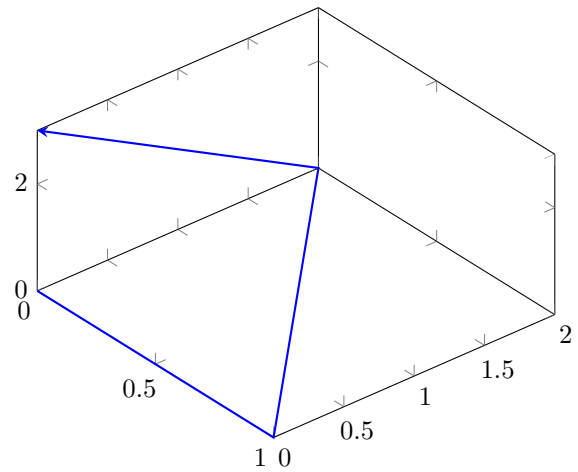
fr {0}{50}:



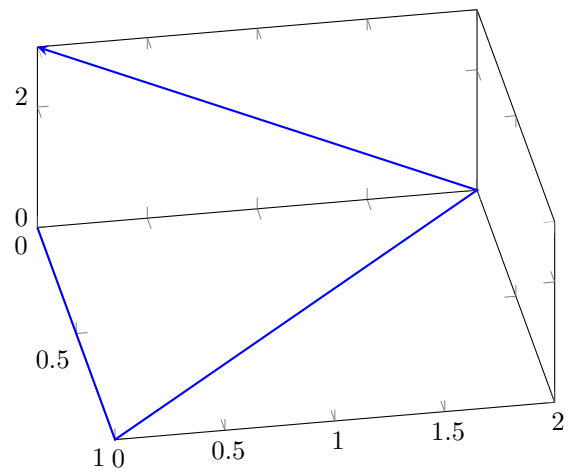
fr {30}{50}:



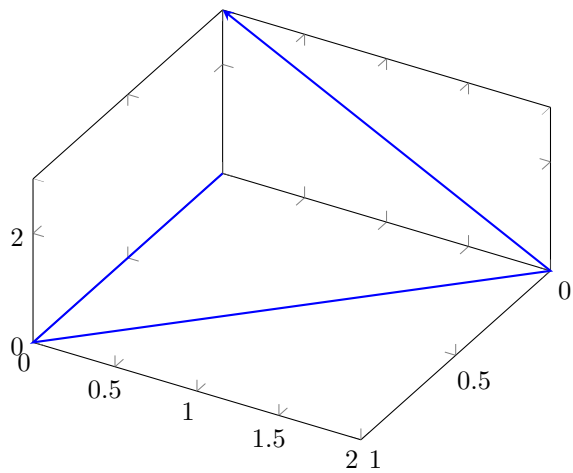
fr {50}{50}:



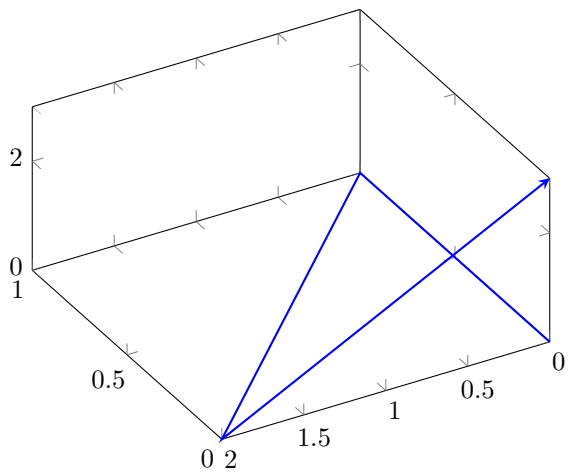
fr {80}{50}:



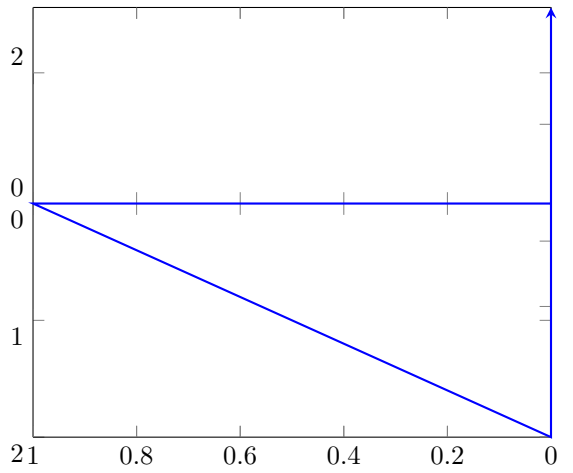
fr {120}{50}:



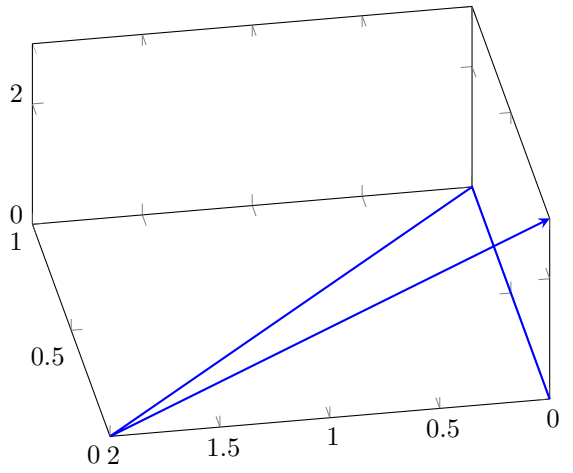
fr {240}{50}:



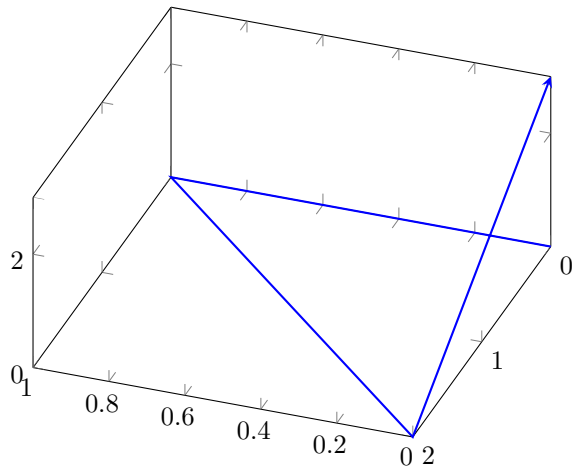
fr {180}{50}:



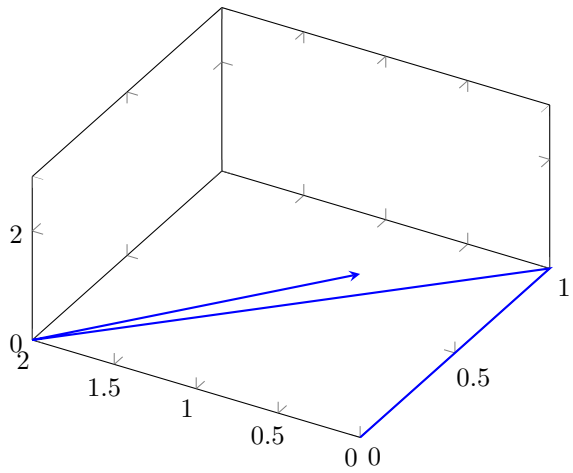
fr {260}{50}:



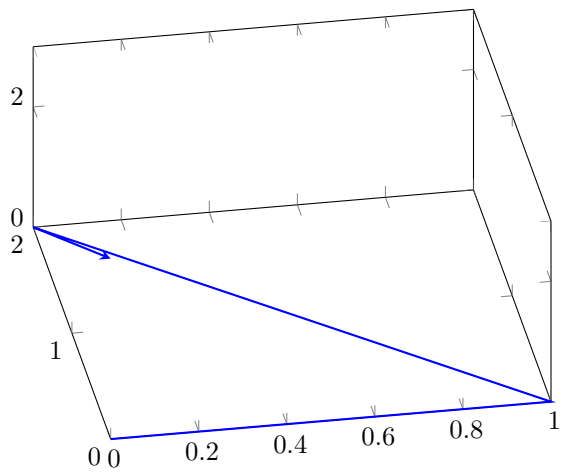
fr {200}{50}:



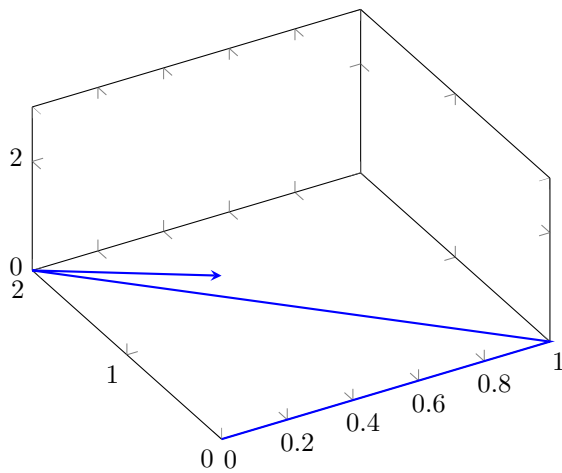
fr {300}{50}:



fr {350}{50}:

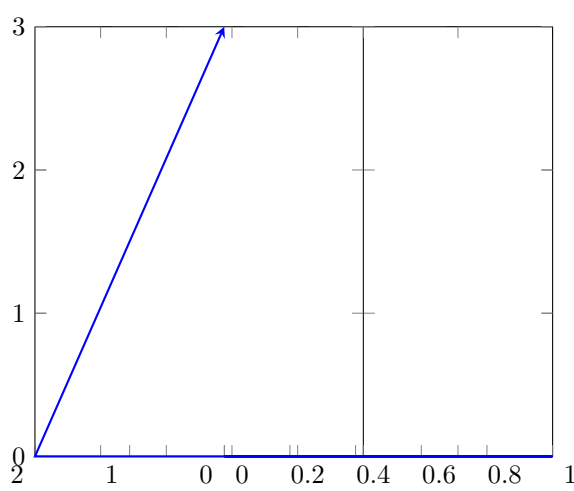


fr {-30}{50}:

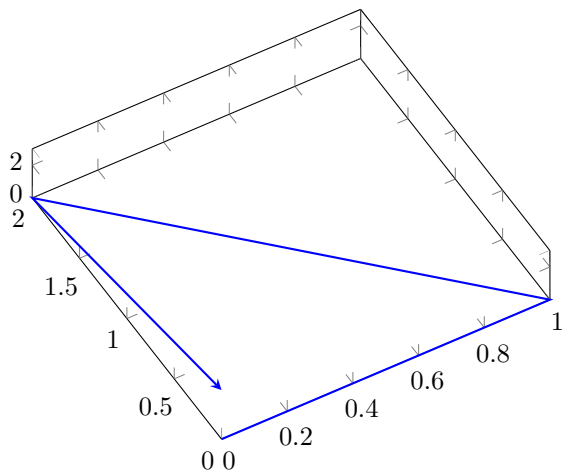


14.1.2 Test von PITCH

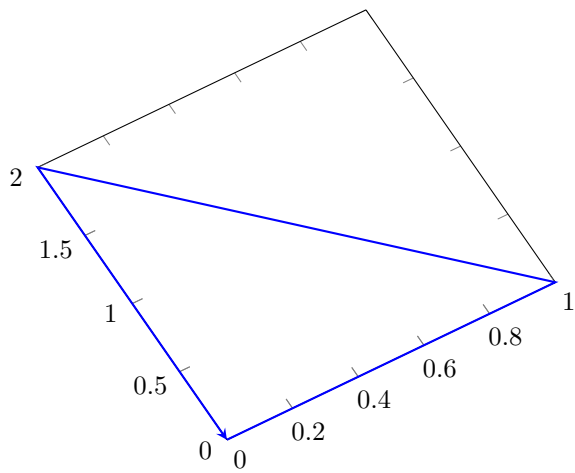
fr {-30}{0}:



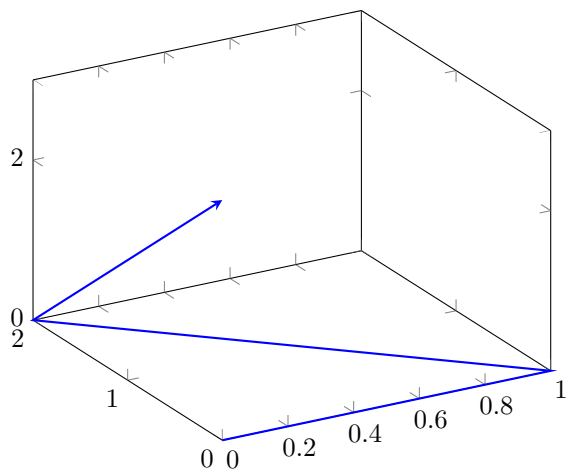
fr {-30}{80}:



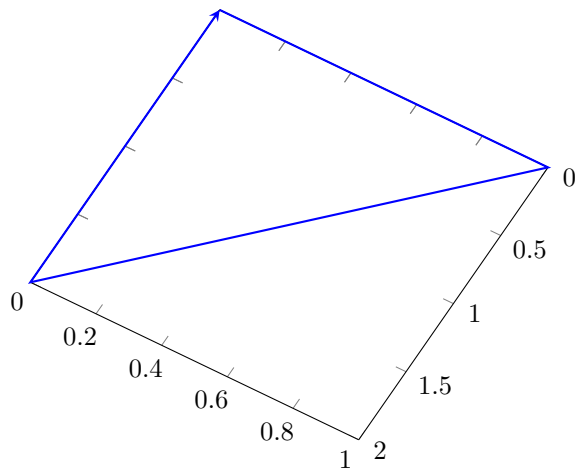
fr {-30}{90}:



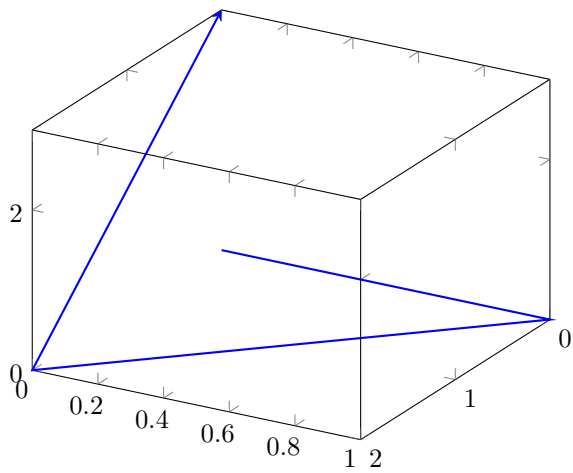
fr {-30}{30}:



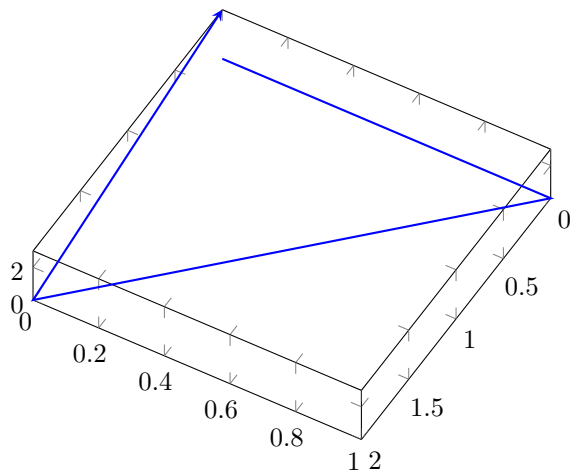
fr {-30}{-90}:



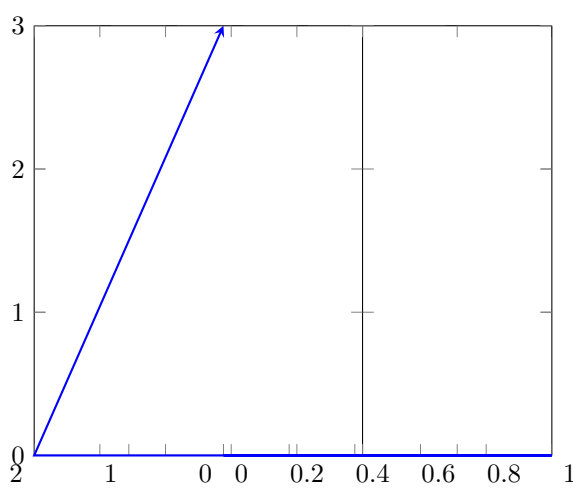
fr {-30}{-30}:



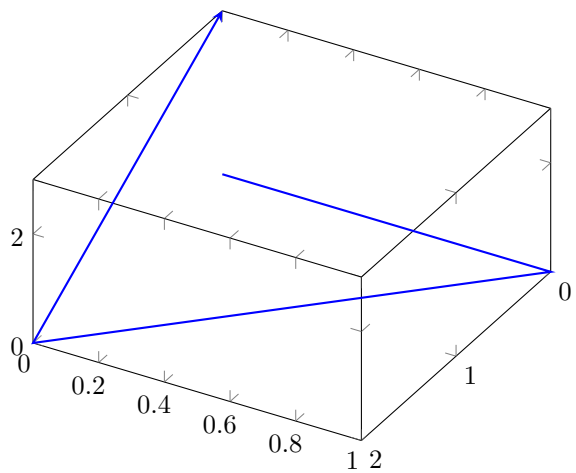
fr {-30}{-80}:



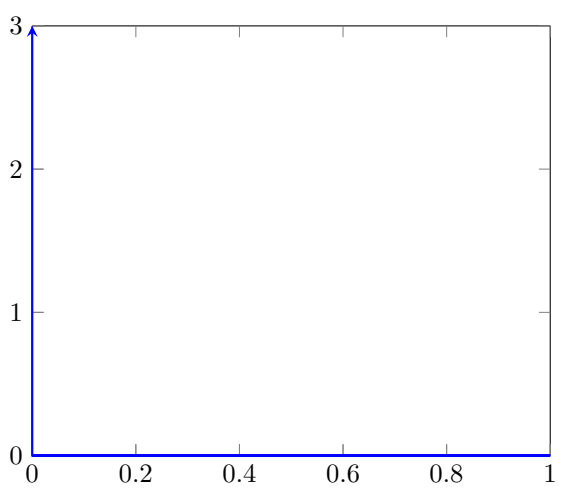
fr {-30}{0}:



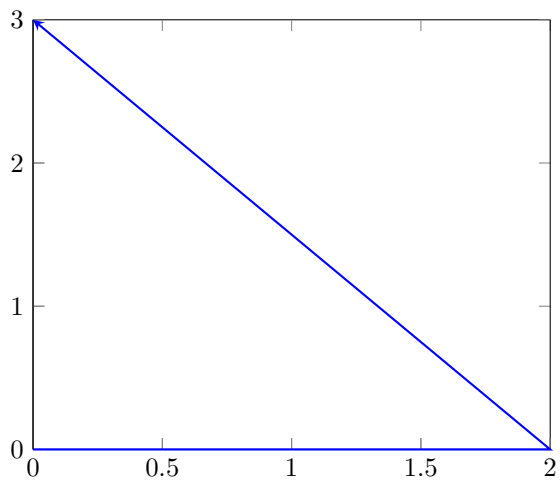
fr {-30}{-50}:



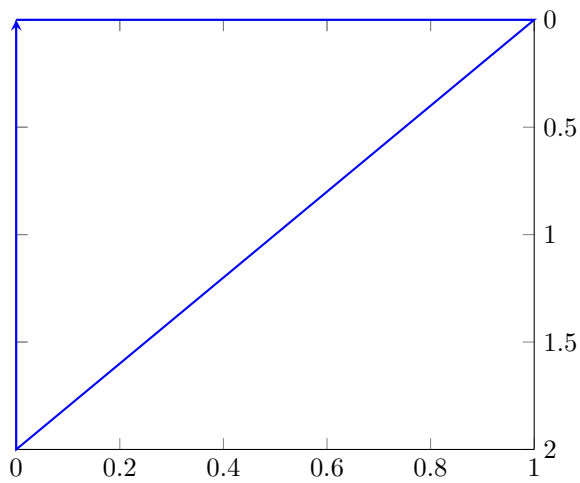
Special case view=0,0



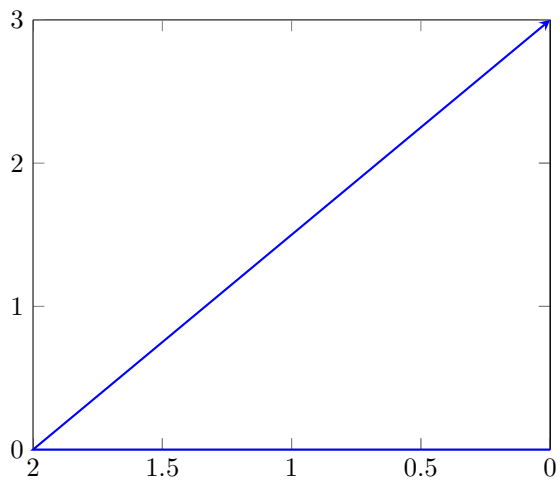
Special case view=90,0



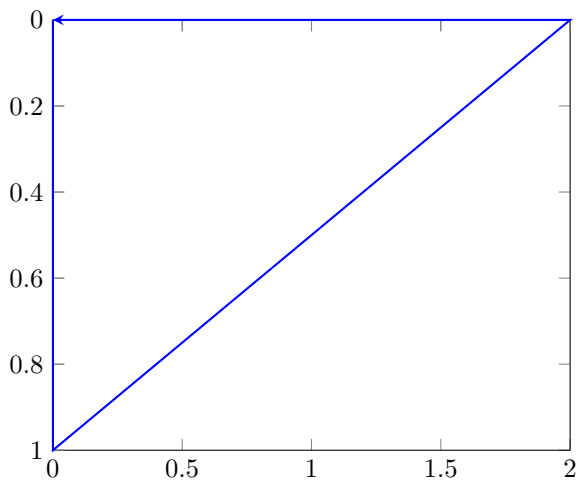
Special case view=0,-90



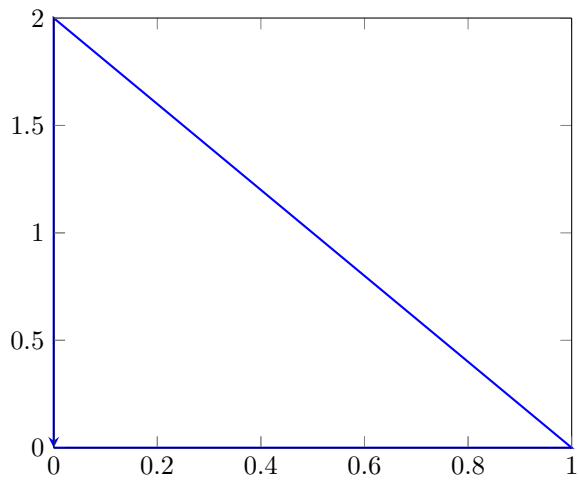
Special case view=-90,0



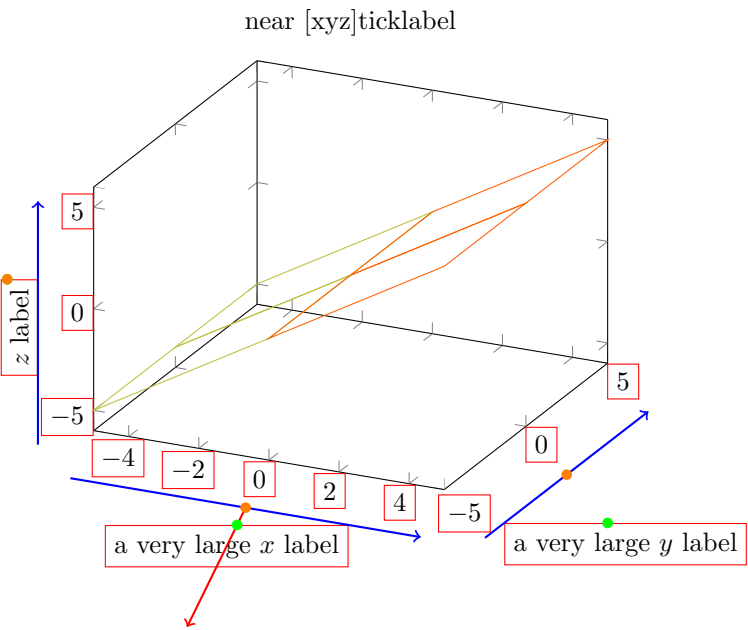
Special case view=90,90

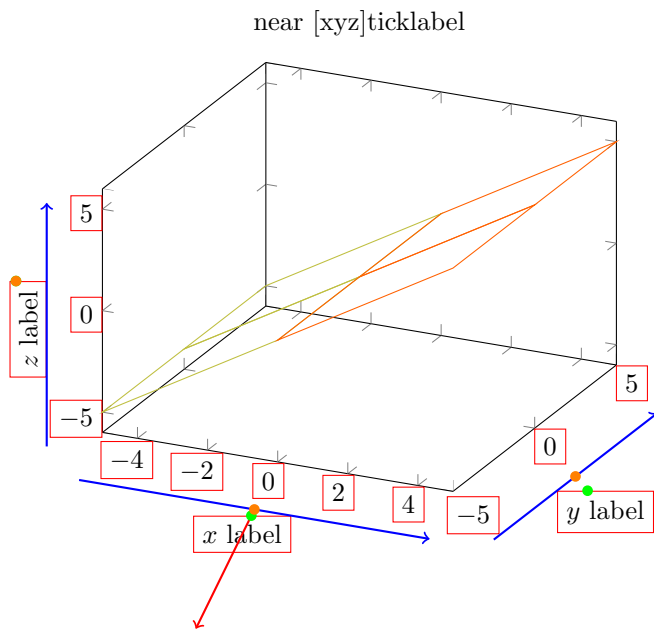
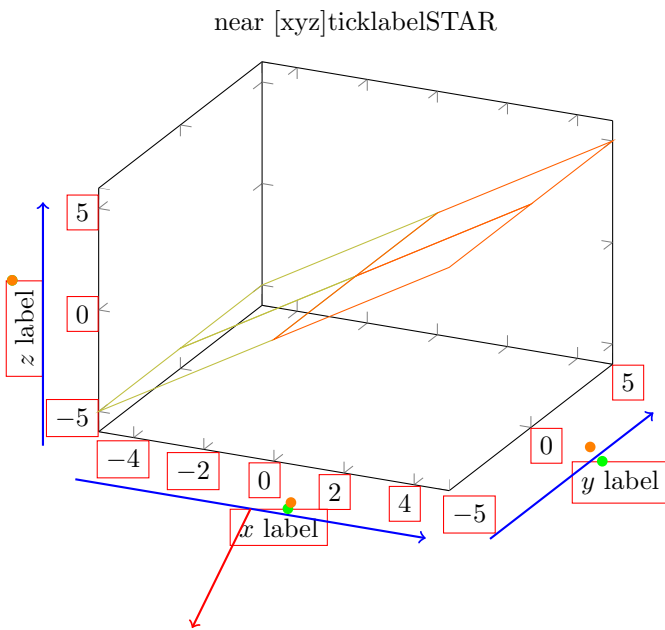
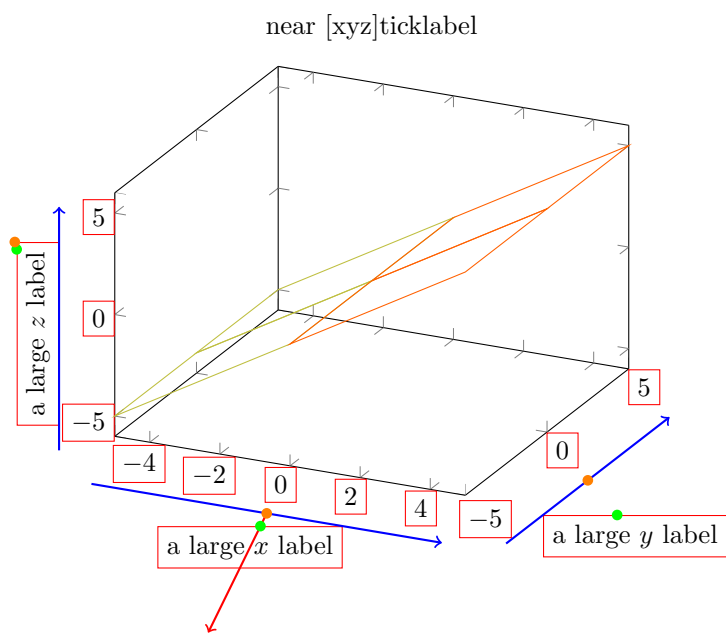
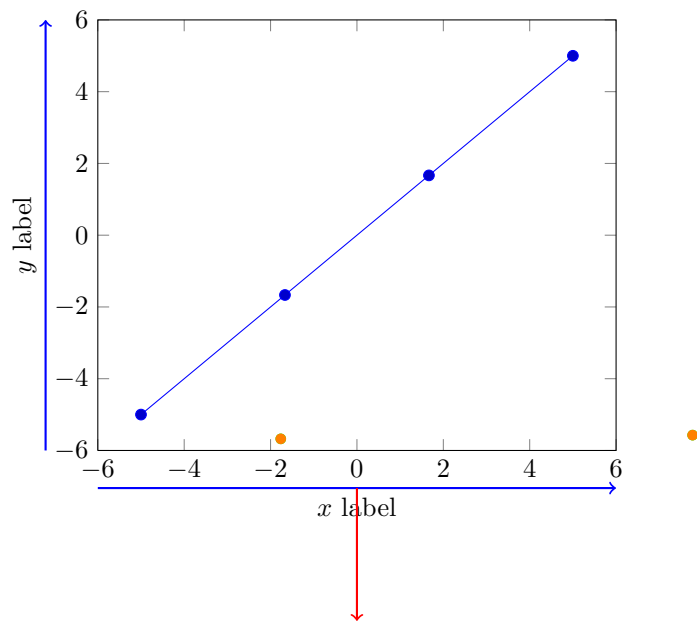
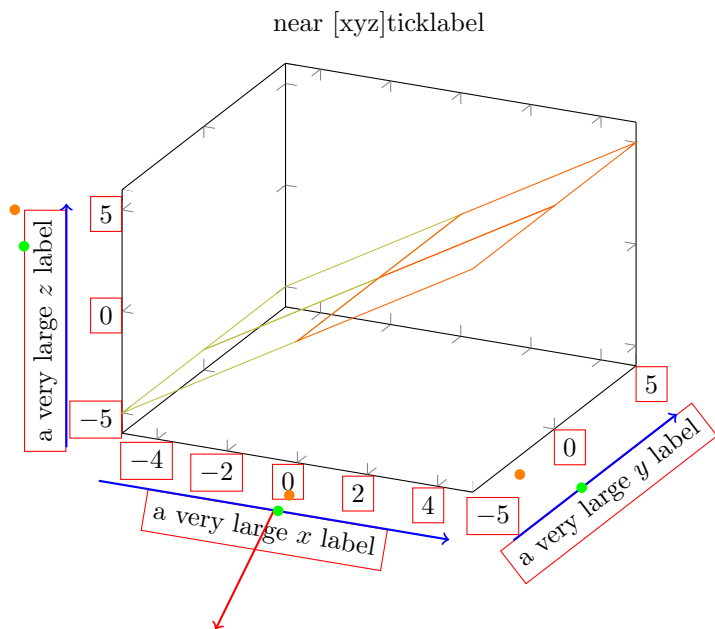


Special case view=0,90

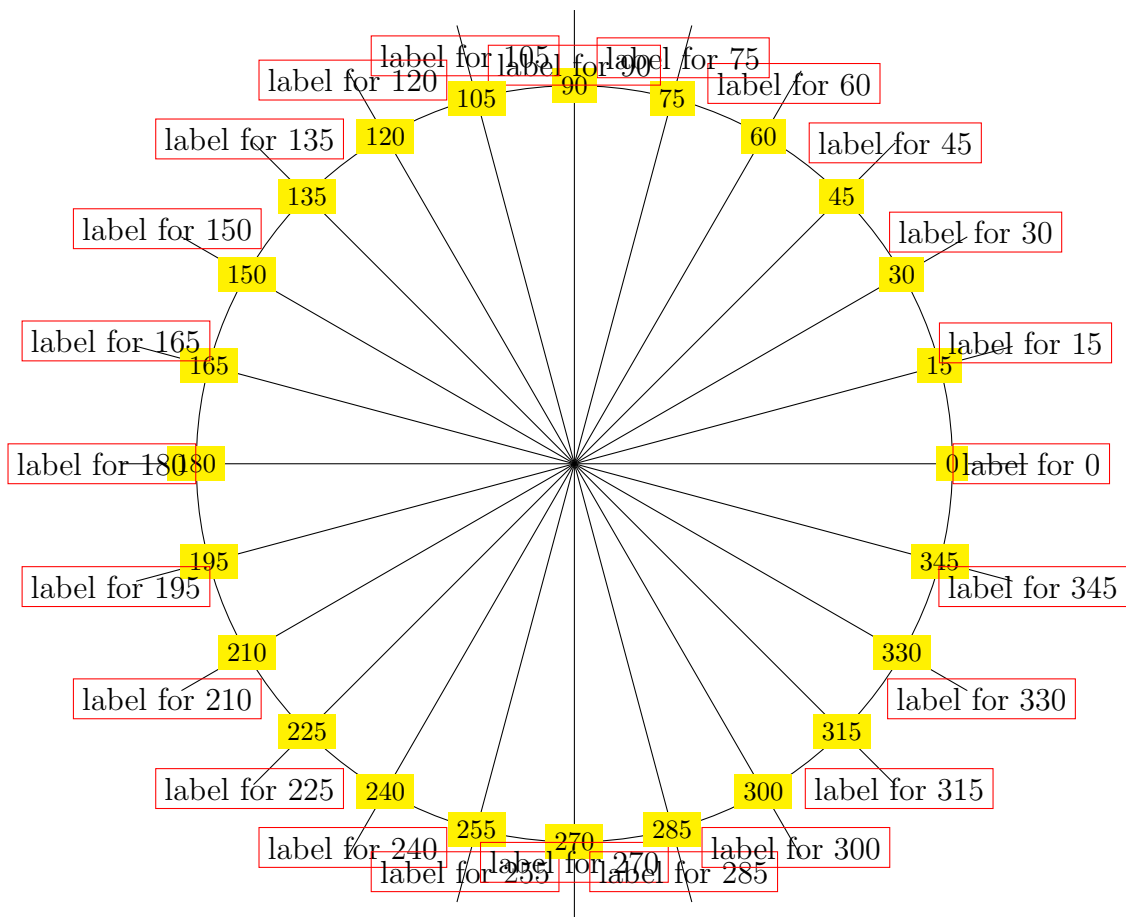


14.2 Tests and Debugging of near ticklabel anchors



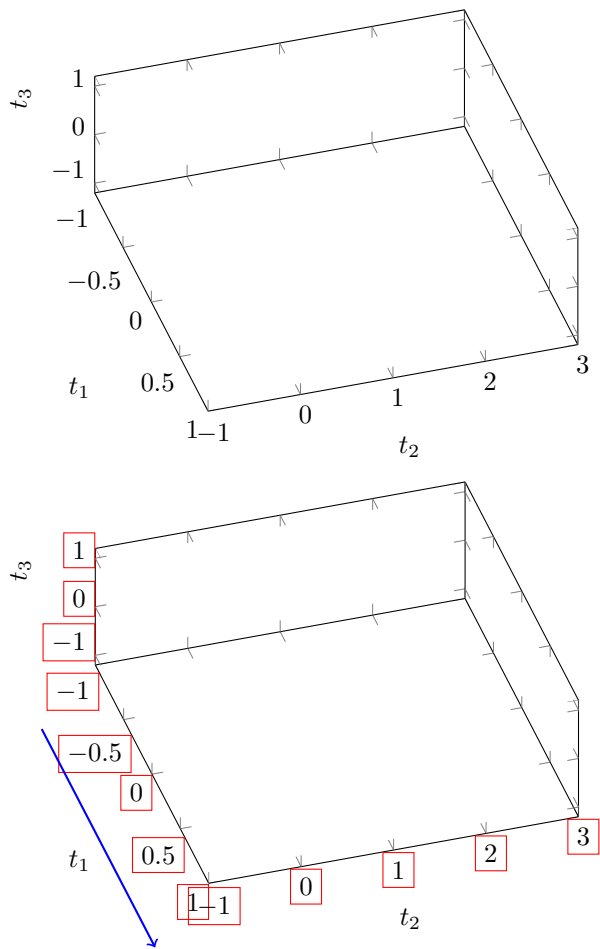




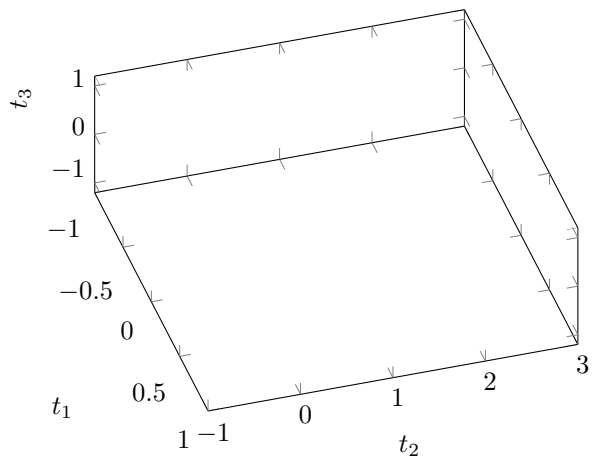


14.2.1 Placement of ticklabels

Here, a  $-0.5$  penetrated the axis in an earlier version, should be fixed now:

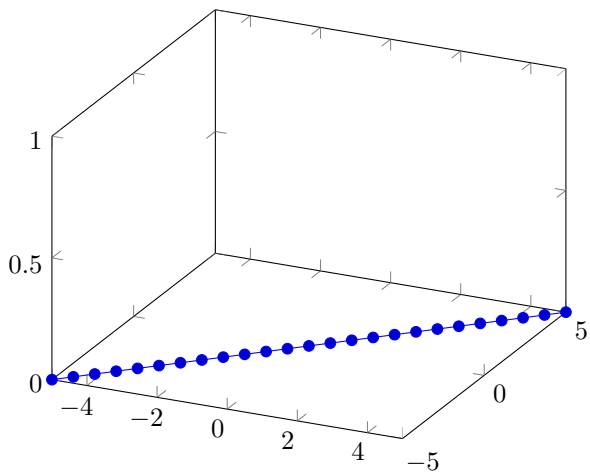


mit `xticklabel shift=5pt`

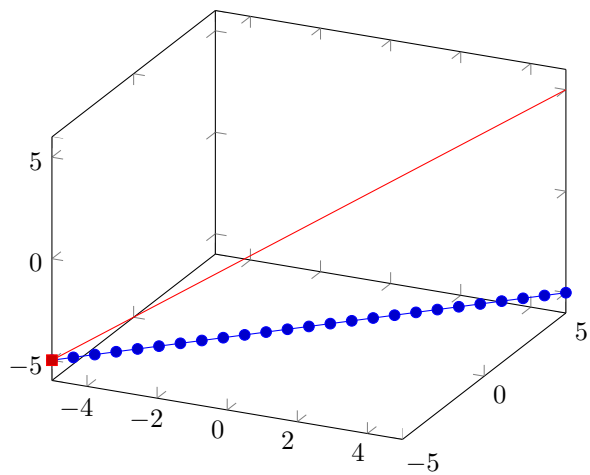


14.3 Sanity checking

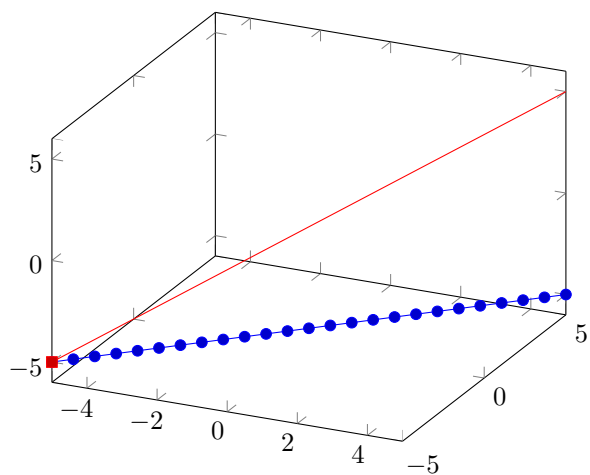
14.3.1 addplot in 3D axis



14.3.2 addplot and addplot3 in an axis



14.3.3 addplot and addplot3 in an axis

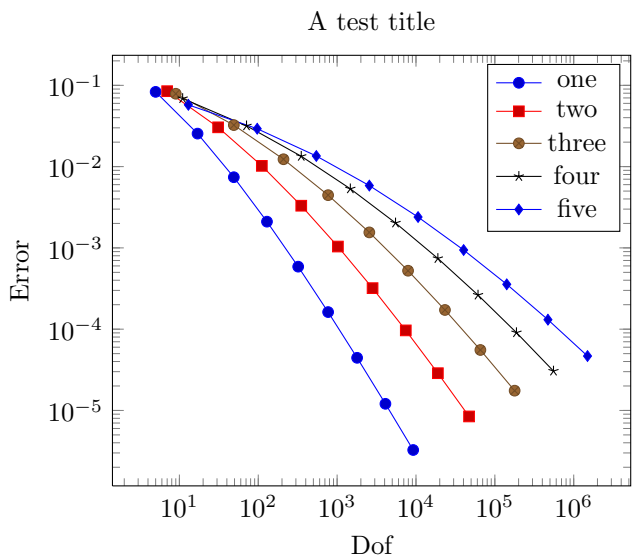


# Chapter 15

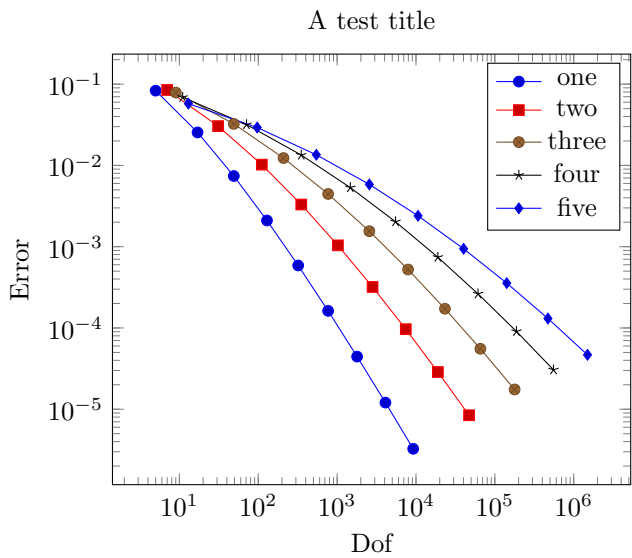
## pgfplotstest.legend.tex

### 15.1 Legends

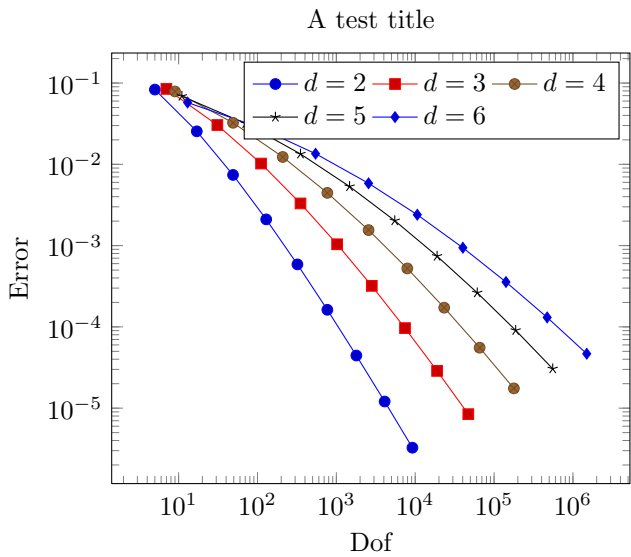
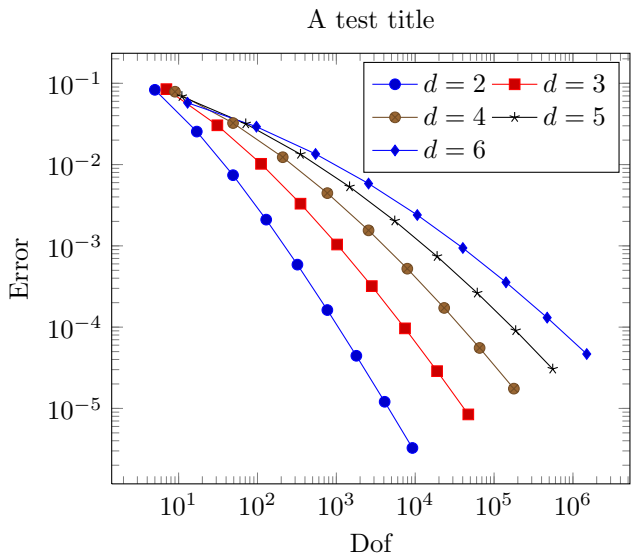
#### 15.1.1 Old-format legends with two backslashes as separator



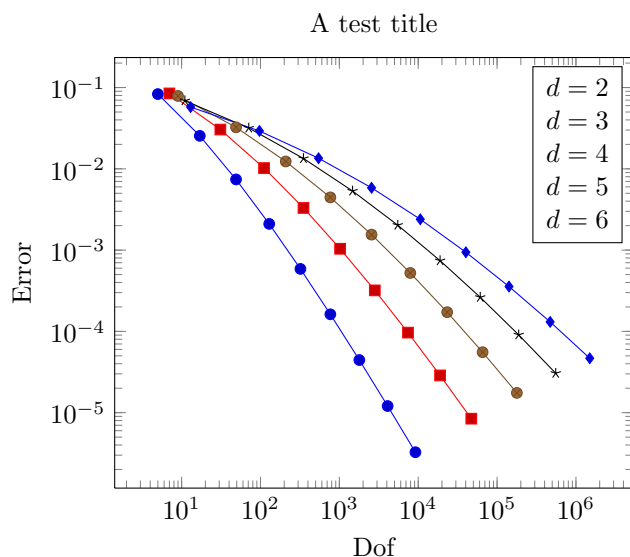
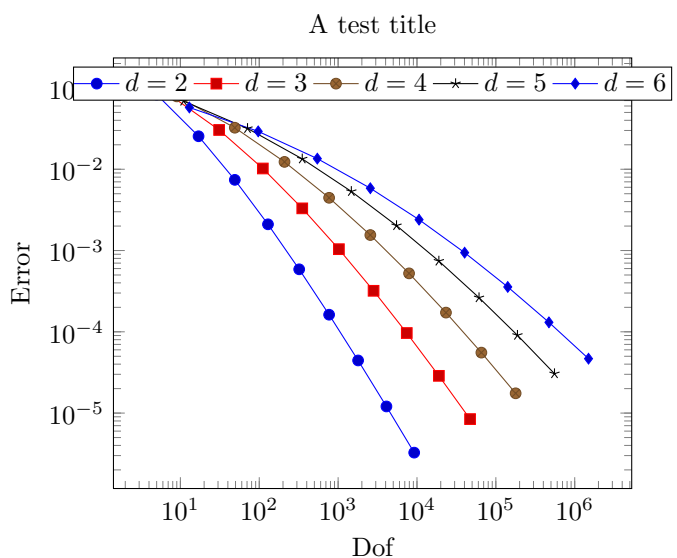
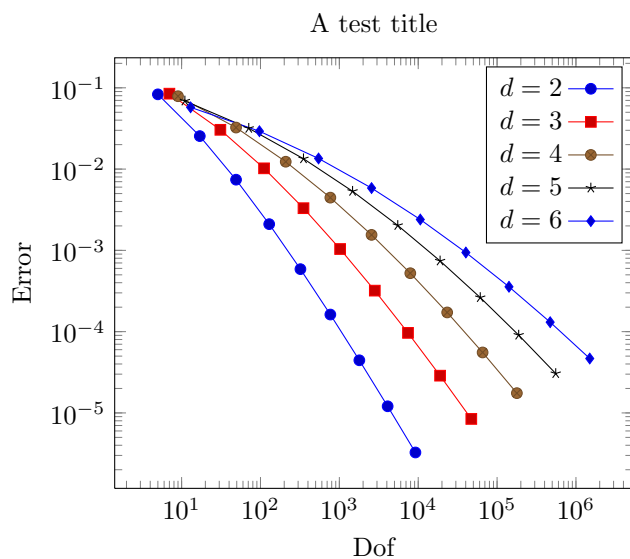
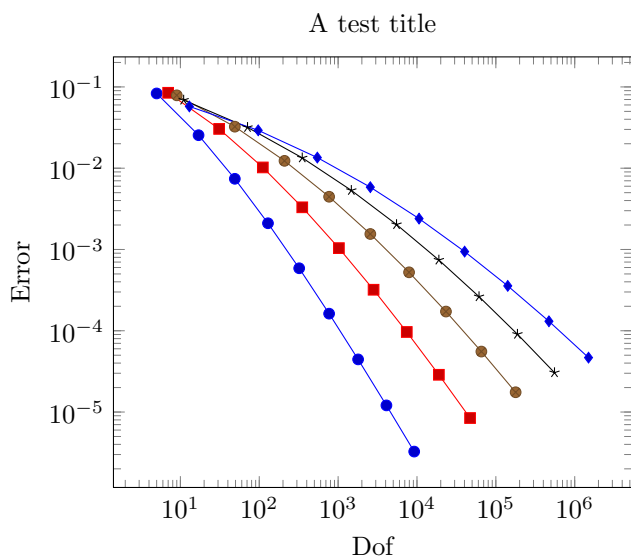
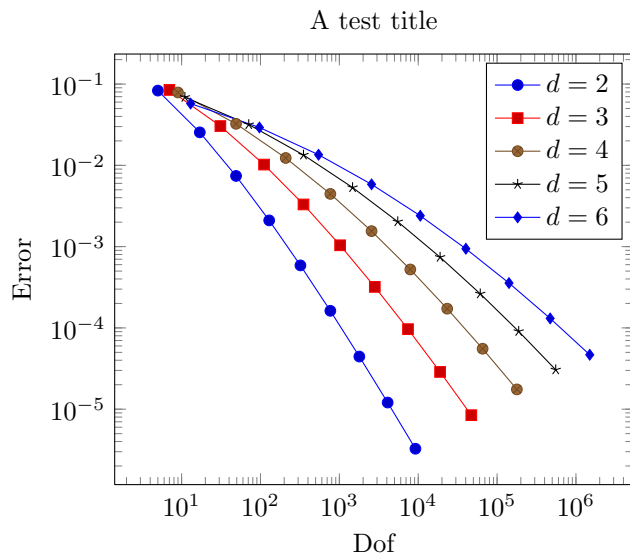
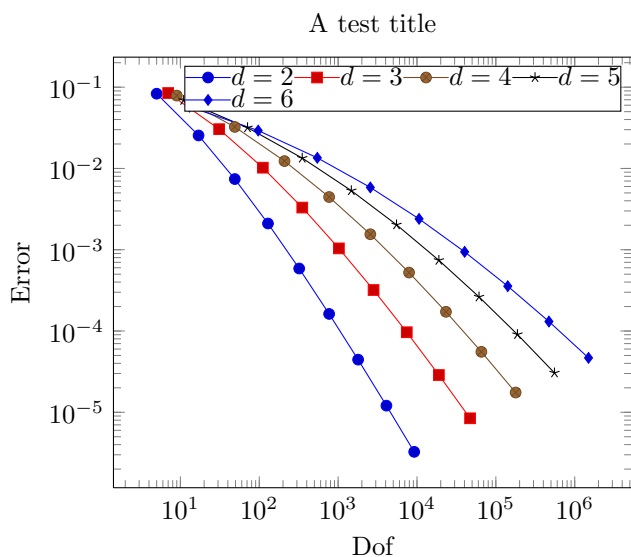
#### 15.1.2 Using comma-separated-legends

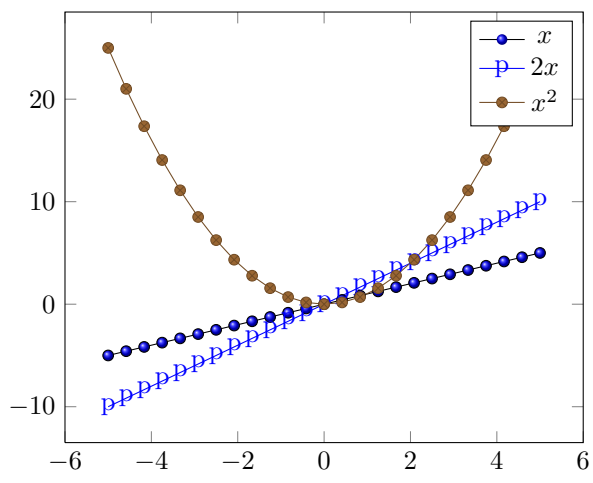


### 15.1.3 testing legend columns



### 15.1.4 “legend plot pos” options





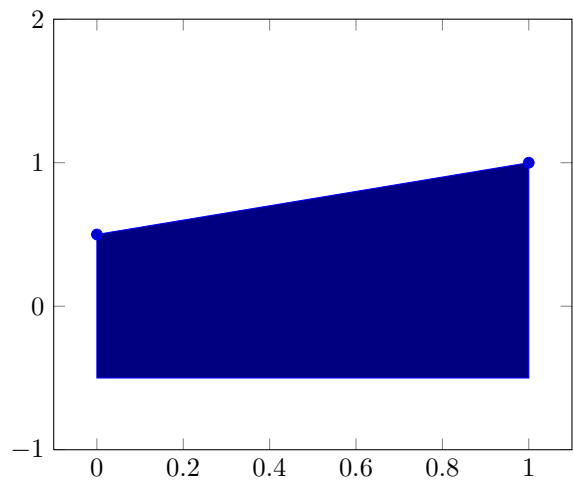
# Chapter 16

## pgfplotstest.misc.tex

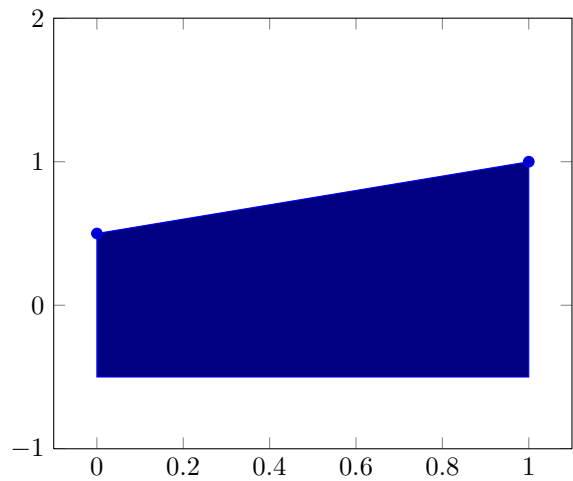
### 16.1 Paths after addplot

#### 16.1.1 plot coordinates

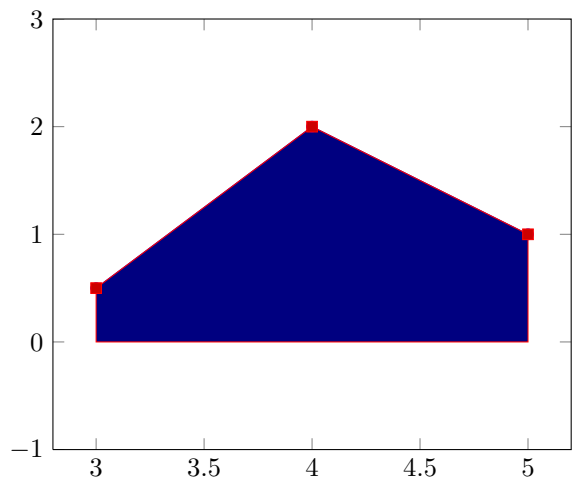
without space after 'coordinates'



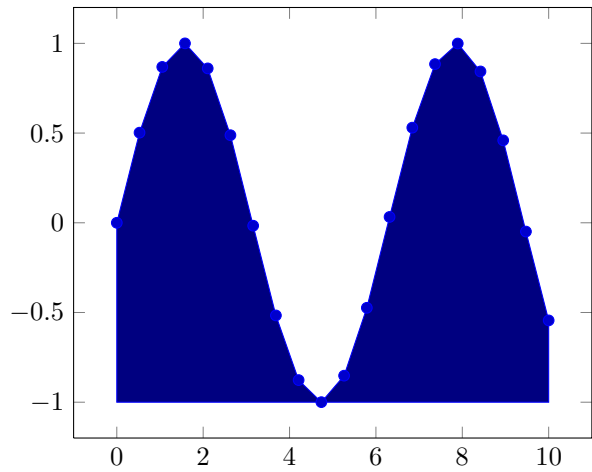
with space after 'coordinates'



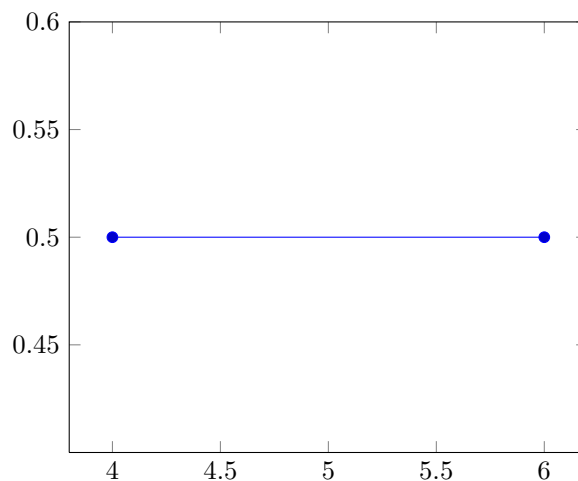
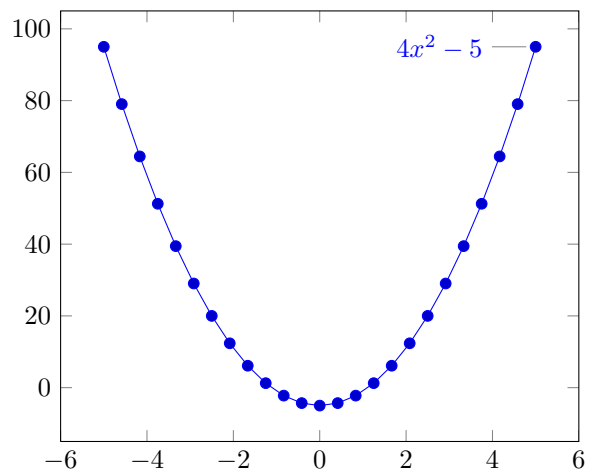
using closedcycle path



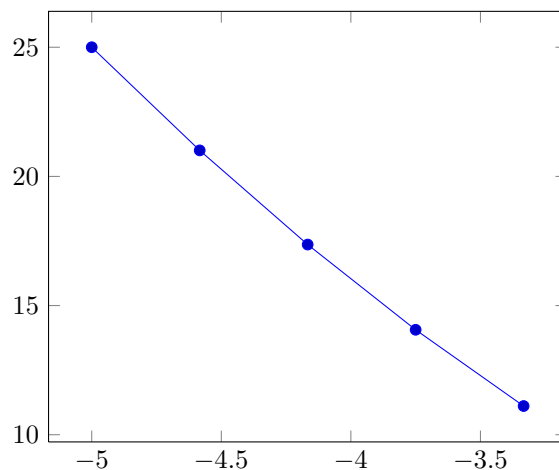
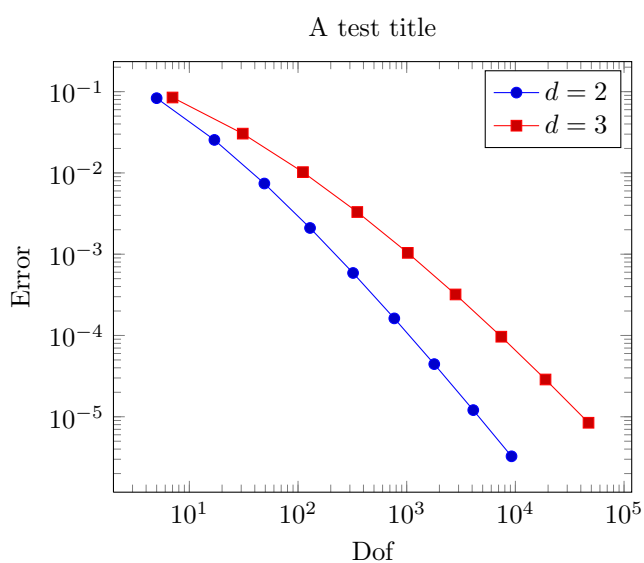
#### 16.1.2 plot table



### 16.1.3 plot function

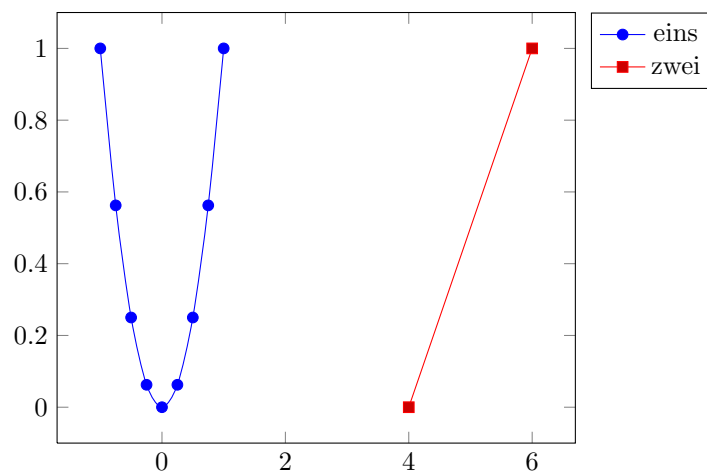


### 16.2 Title-option



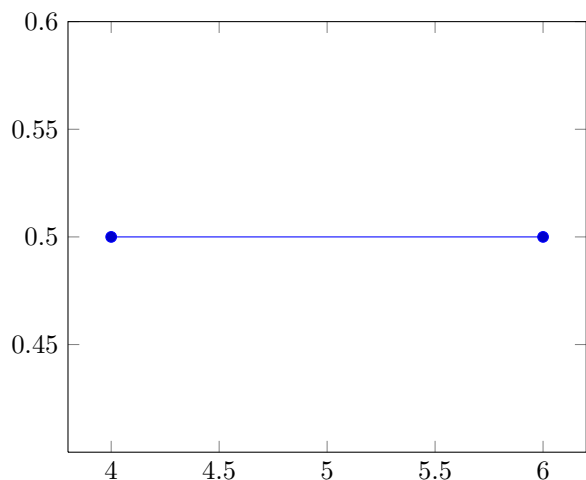
### 16.4 Test for addplot+[...]

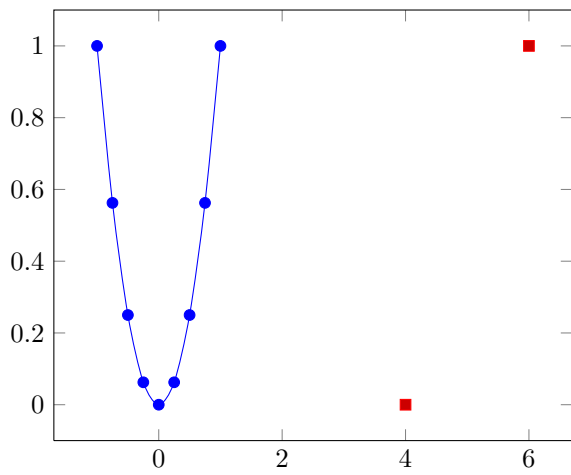
1. Ohne aenderung:



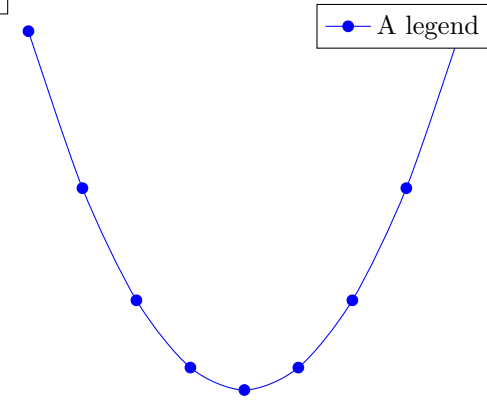
2. MIT aenderung:

### 16.3 Filter test

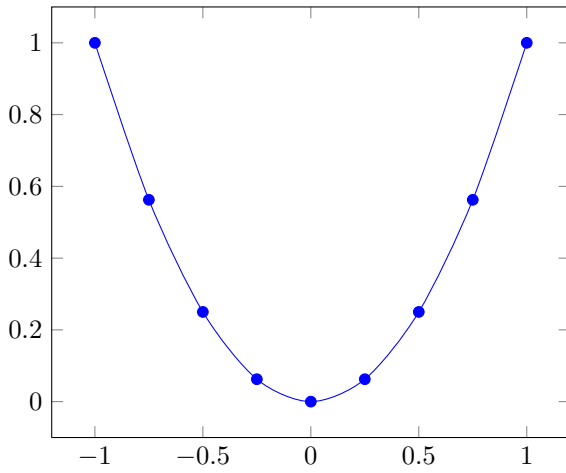




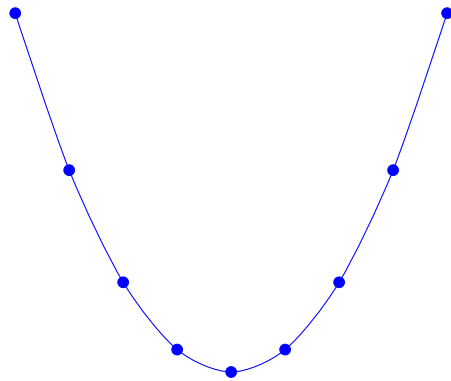
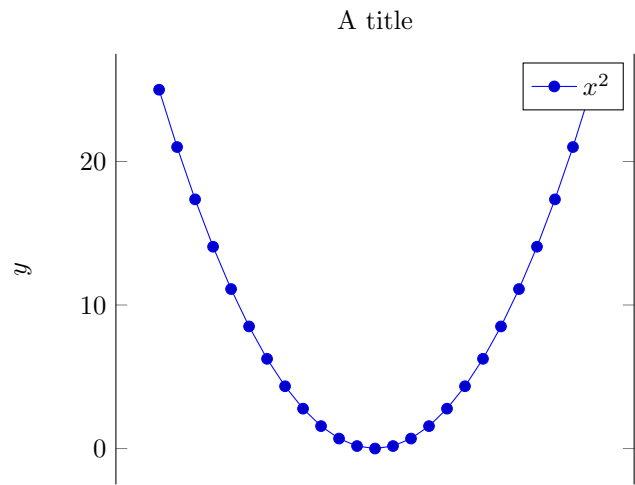
A plot with hidden axis



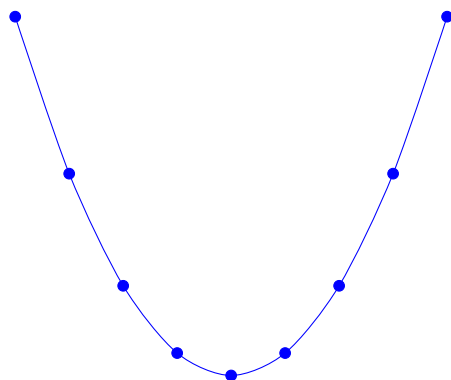
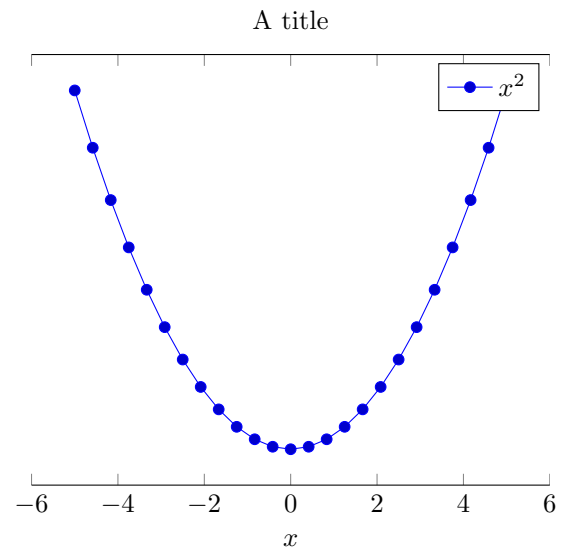
## 16.5 Hide axis test



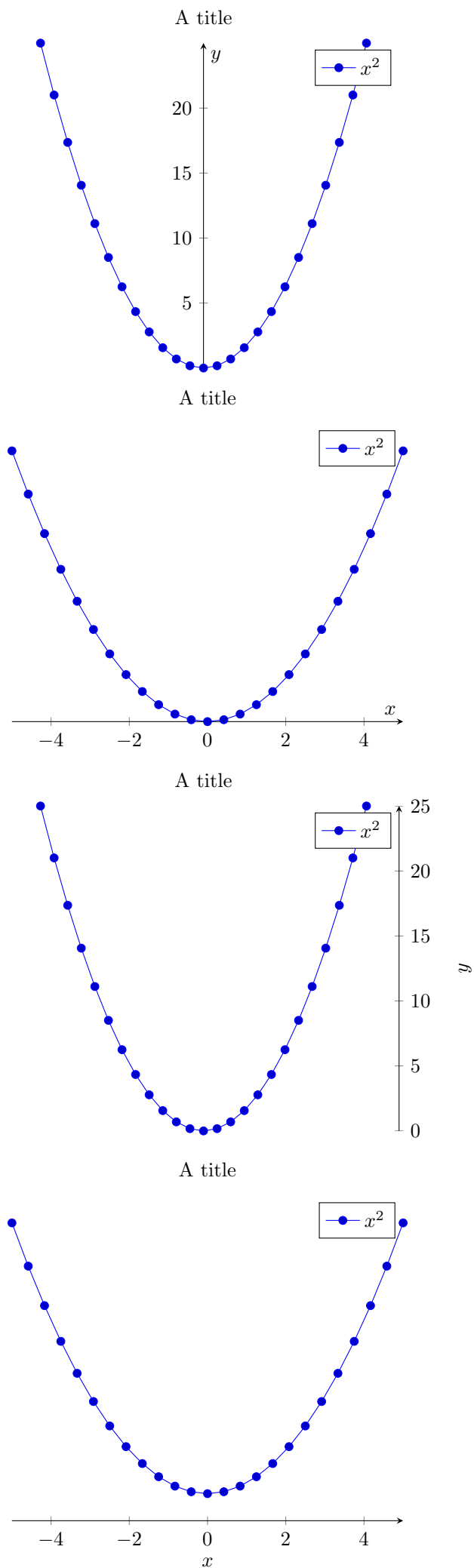
### 16.5.1 hide x/y axis



A plot with hidden axis

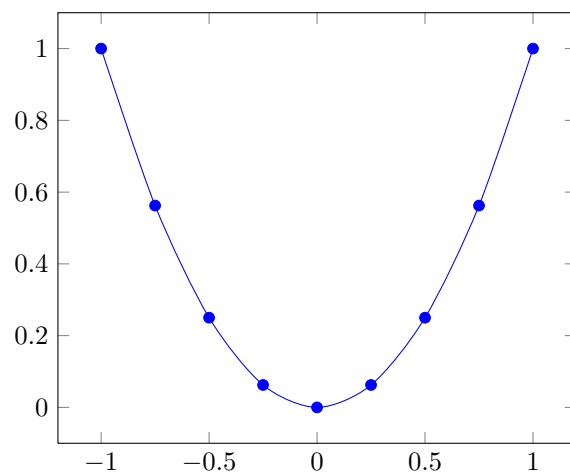




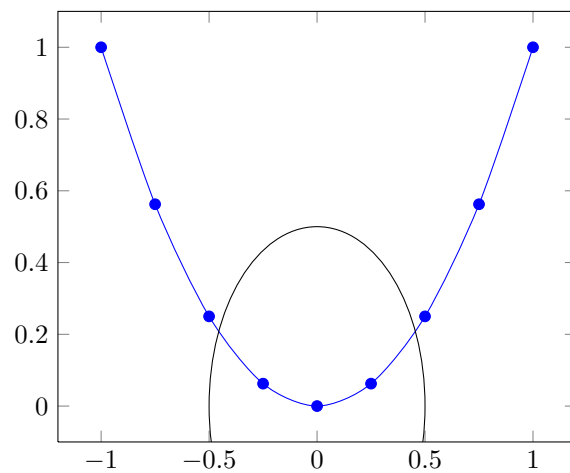


## 16.6 disabledatascaling / disablelog-filter

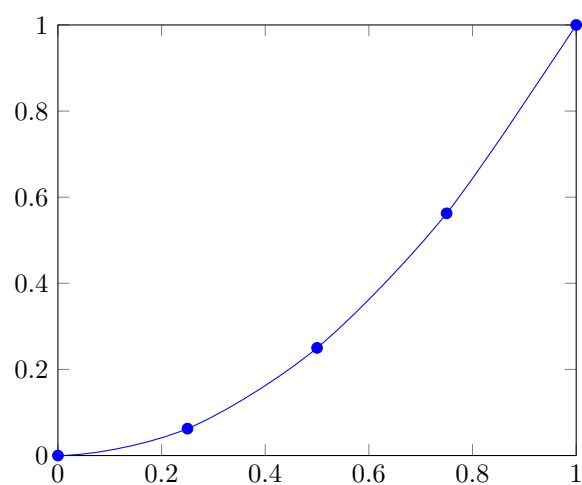
### 16.6.1 disabledatascaling



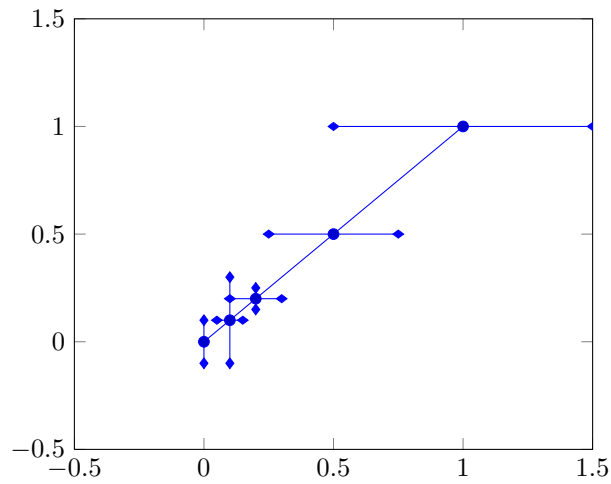
### 16.6.2 disabledatascaling+circle at (0,0) radius (0.5)



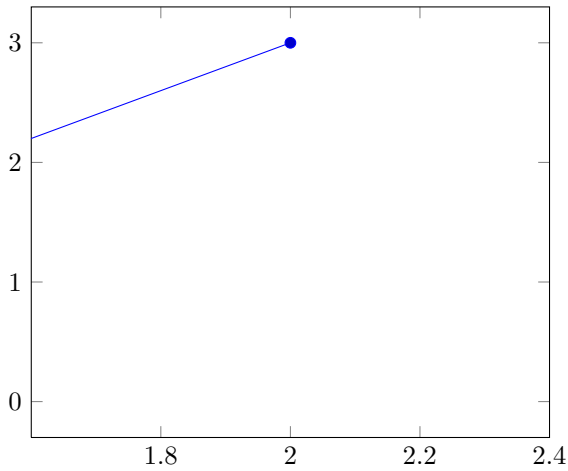
### 16.6.3 disabledatascaling + explicit limits



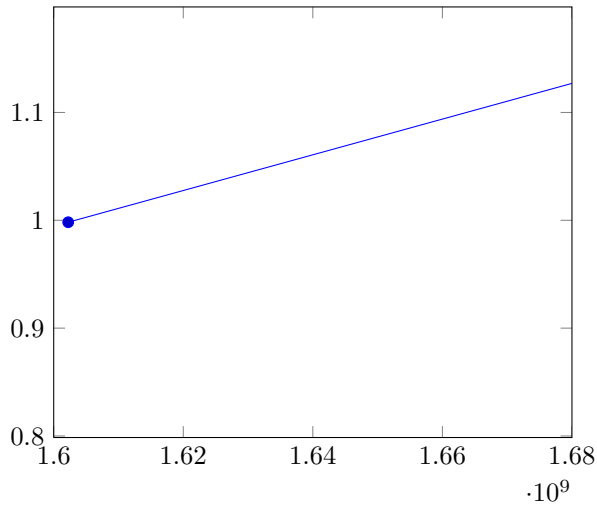
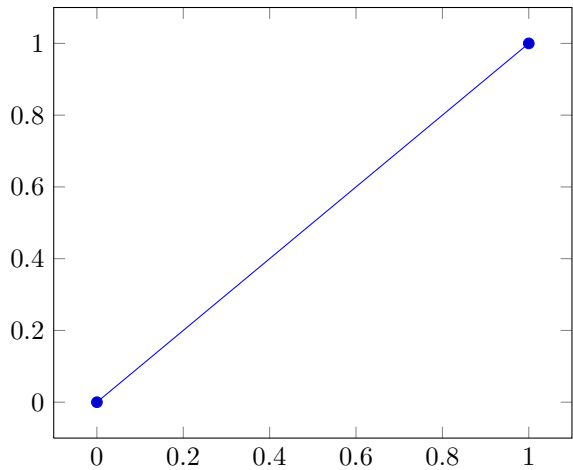
16.6.4 disabled datascaling + explicit limits + error bars



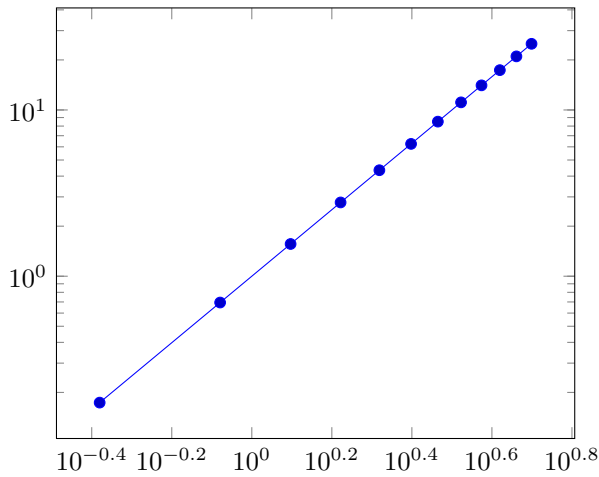
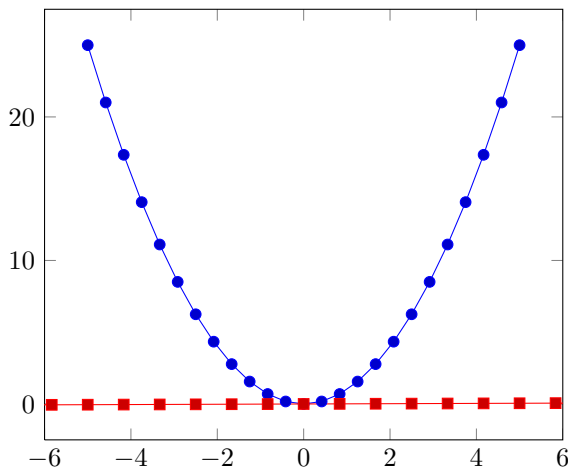
16.6.6 check for special limit cases



16.6.5 Reading nan und inf in linear axis



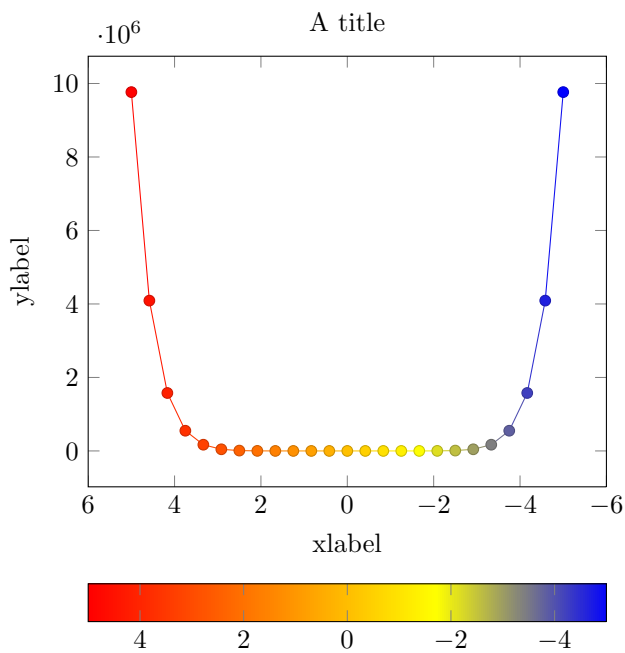
16.7 interrupt bounding box



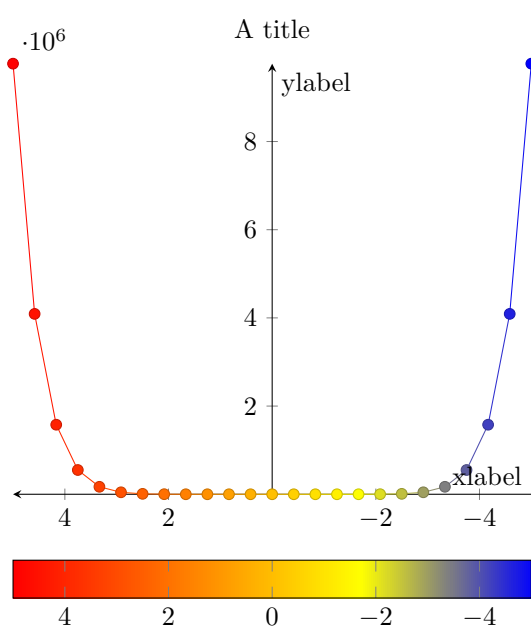
# Chapter 17

## pgfplotstest.reverseaxis.tex

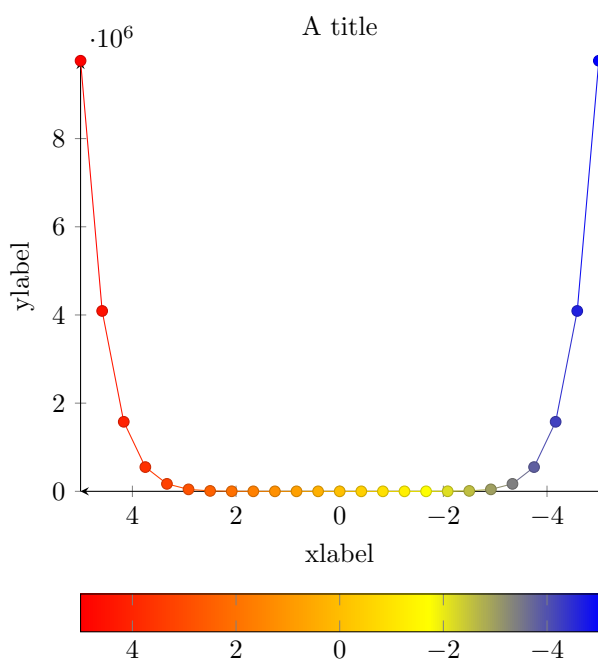
### 17.1 x dir=reverse



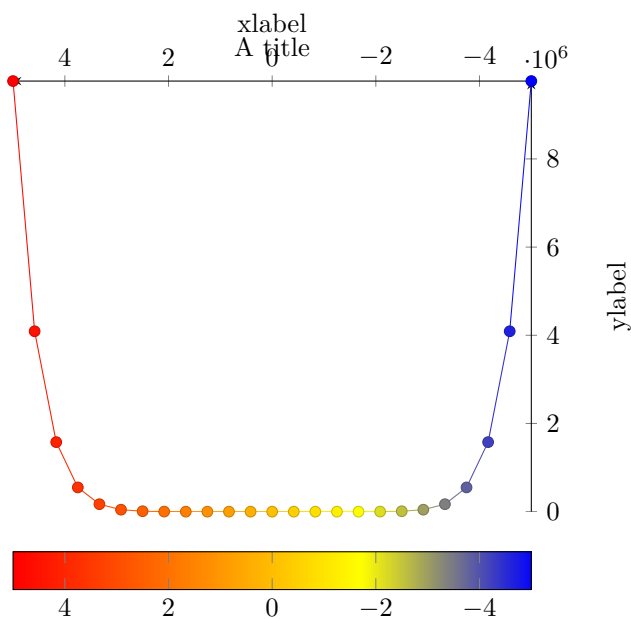
### 17.3 x dir=reverse,axis lines=center



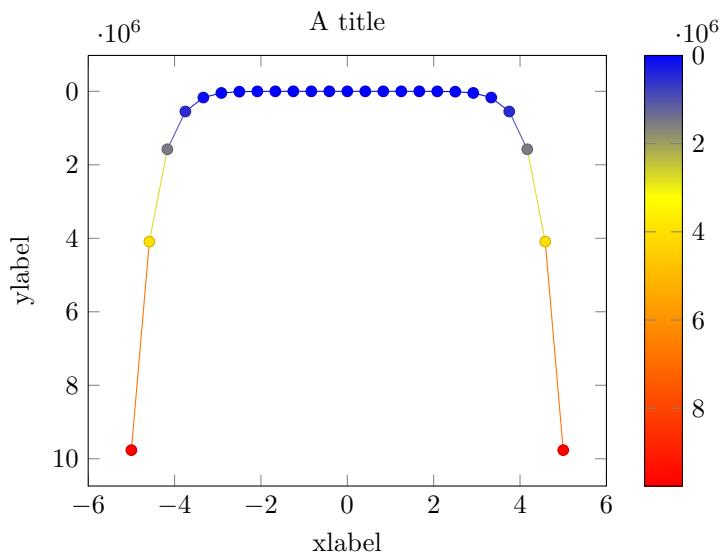
### 17.2 x dir=reverse,axis lines=left



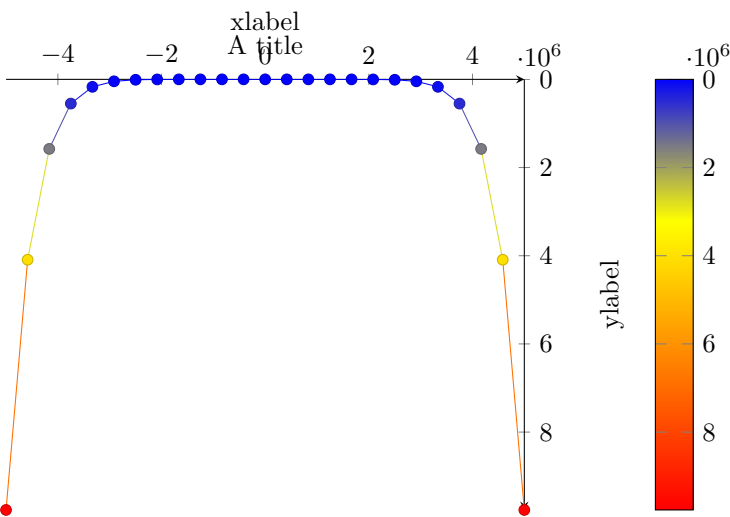
### 17.4 x dir=reverse,axis lines=right



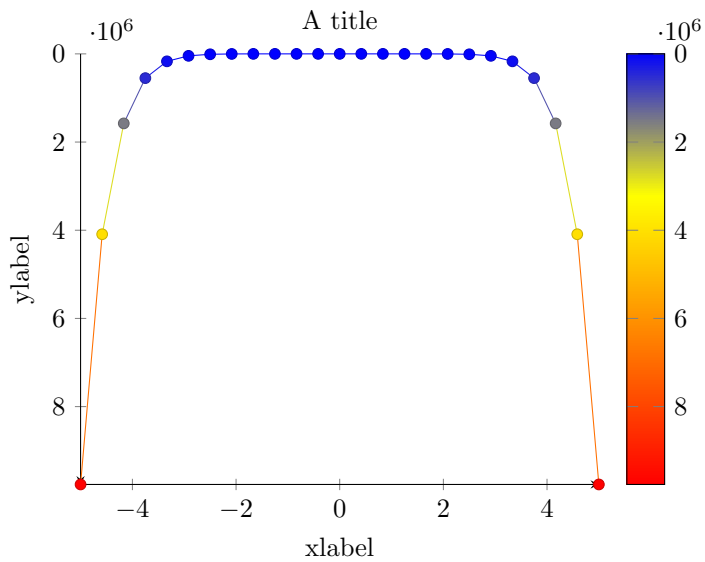
17.5 y dir=reverse



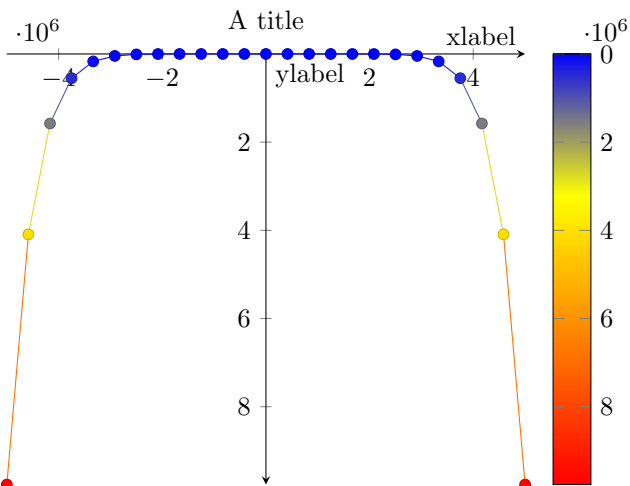
17.8 y dir=reverse,axis lines=right



17.6 y dir=reverse,axis lines=left



17.7 y dir=reverse,axis lines=center



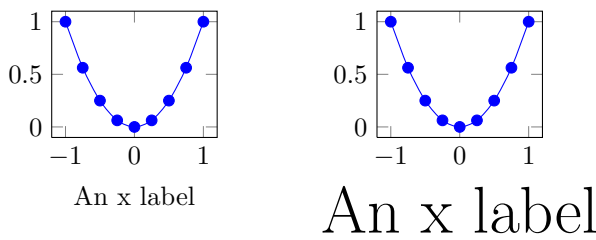
# Chapter 18

## pgfplotstest.align.tex

18.1 Anchors, alignment, baselines, sub nodes

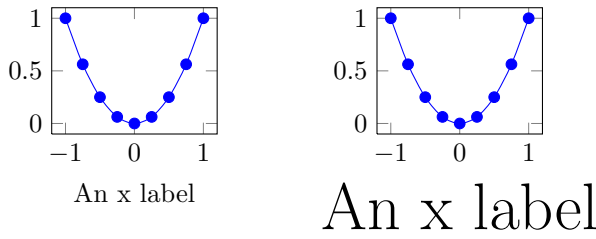
18.1.4 Horizontal and Vertical alignment

18.1.1 Baseline alignment

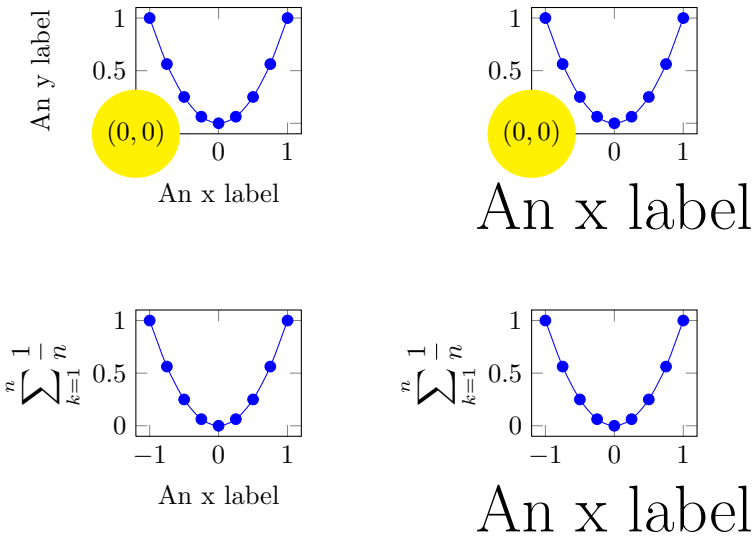
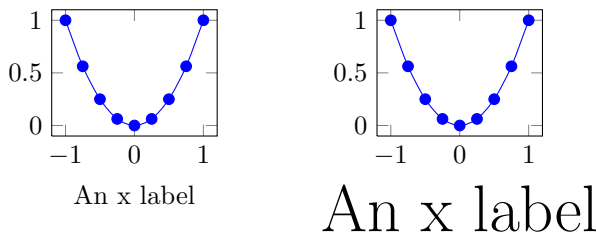


18.1.2 Baseline alignment and externalized graphics

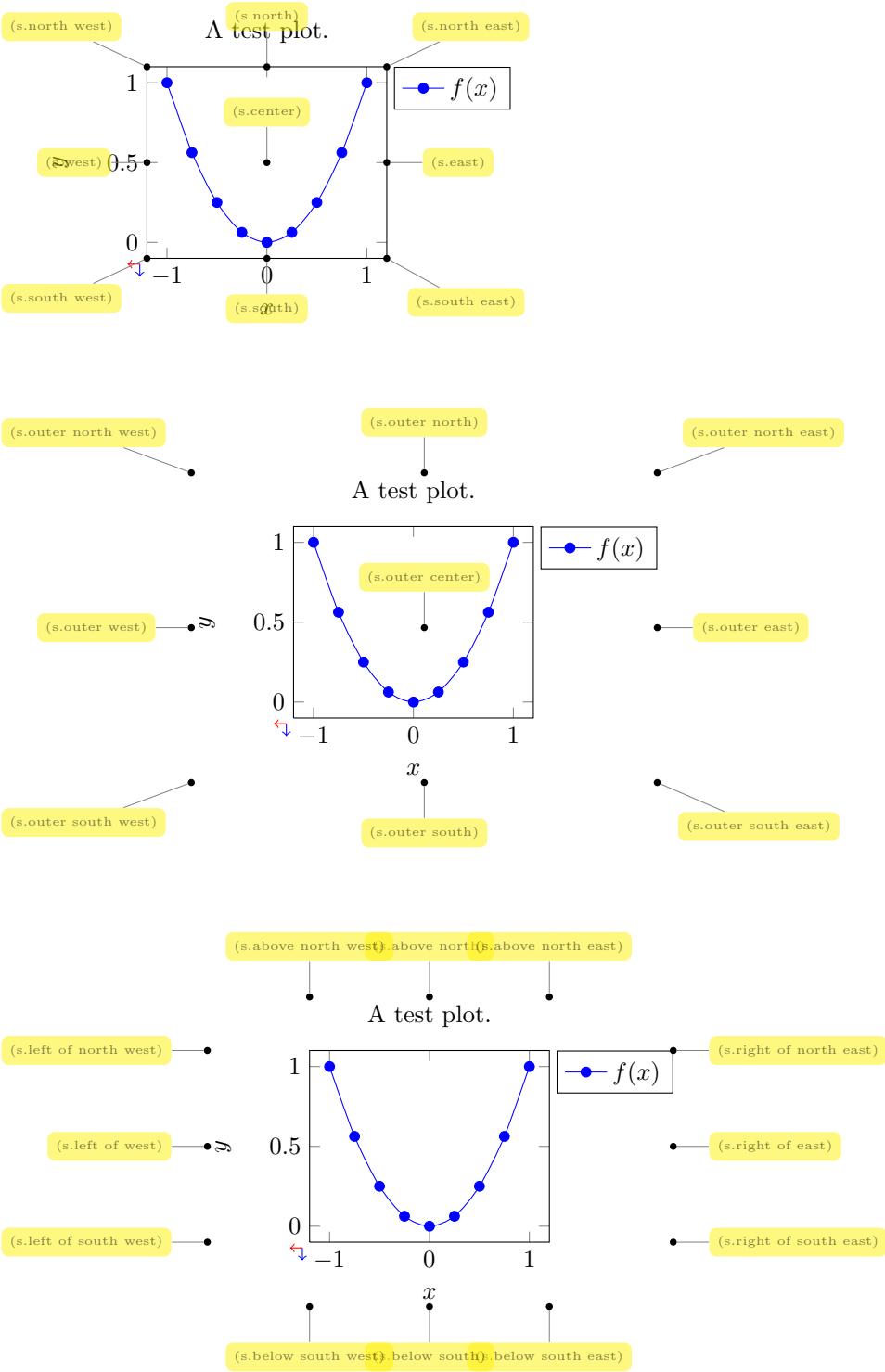
One needs `\beginpgfgraphicnamed` around the complete paragraph, so this here doesn't work (see source code):

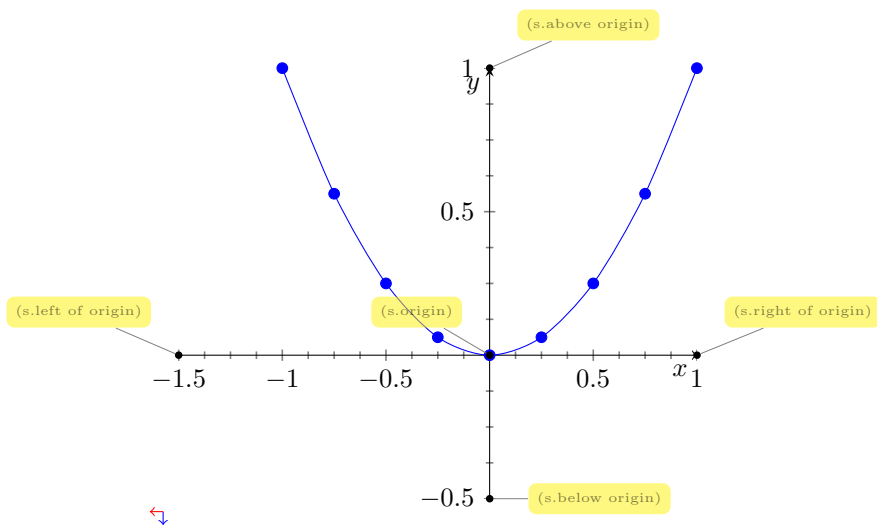


18.1.3 Baseline alignment and externalized graphics II

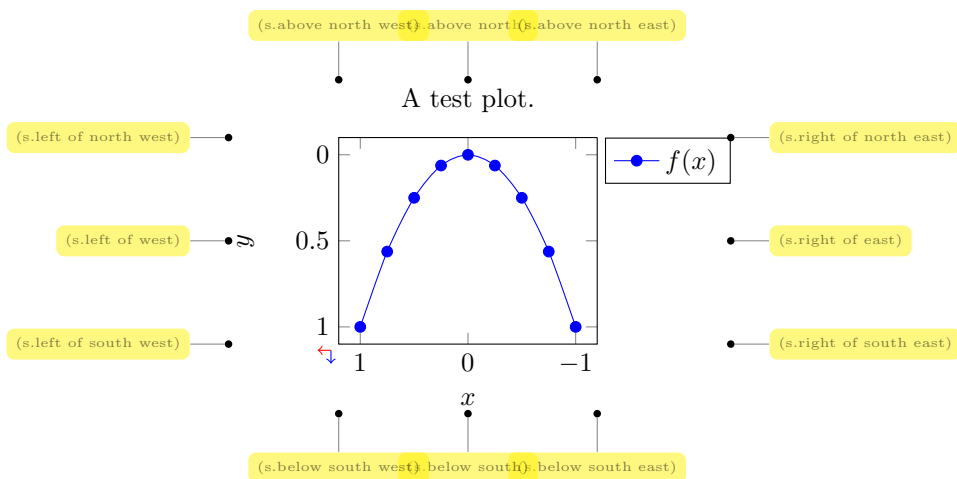
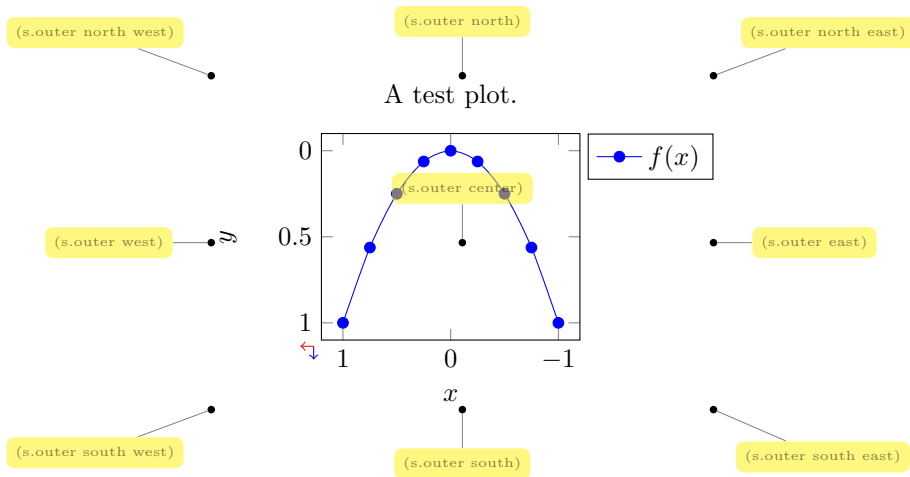
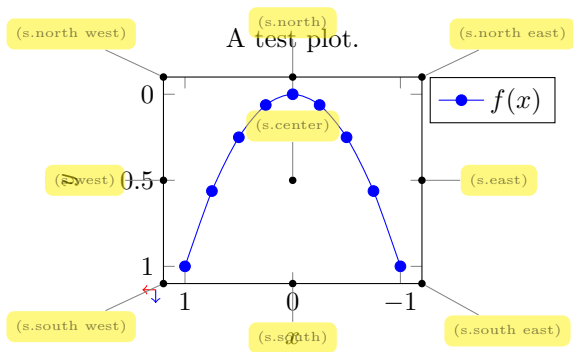


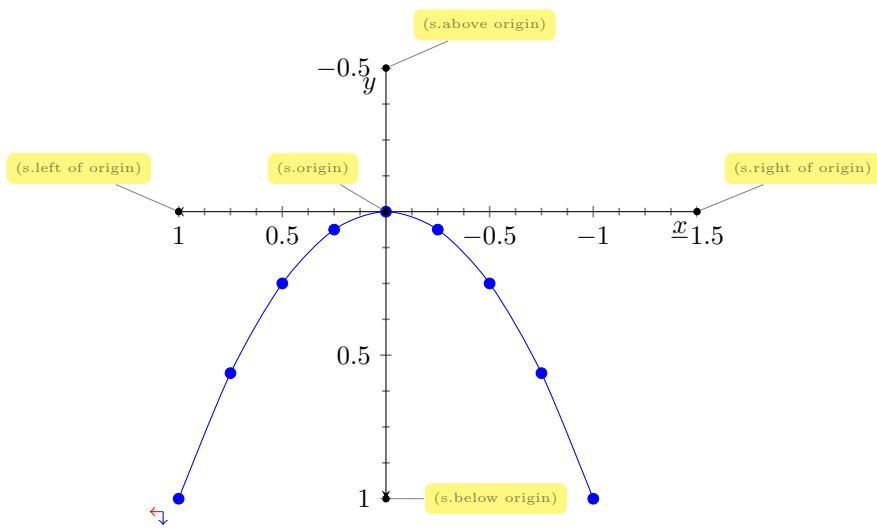
18.1.5 Anchortest



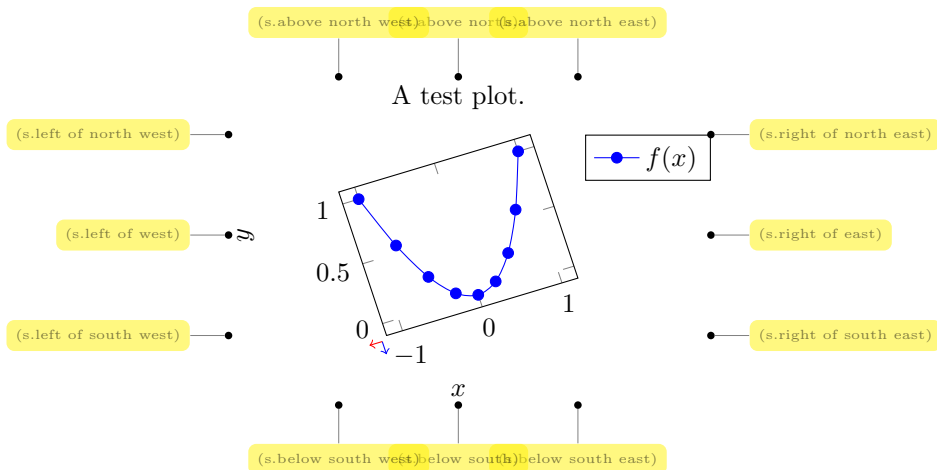
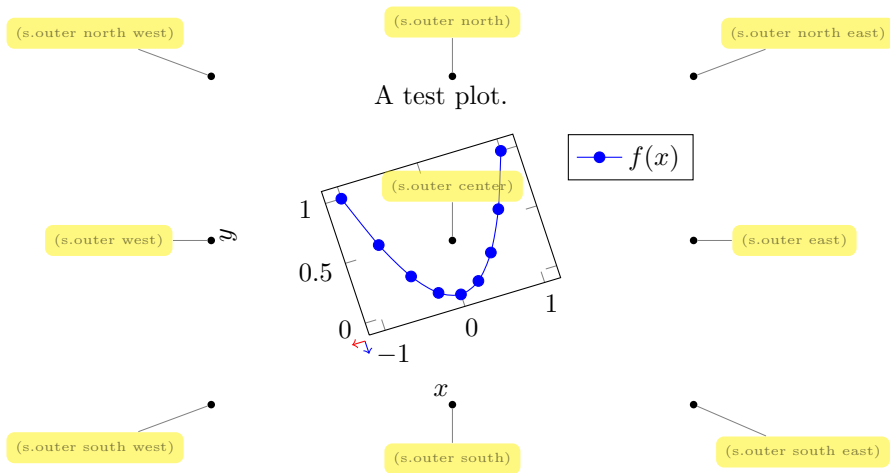
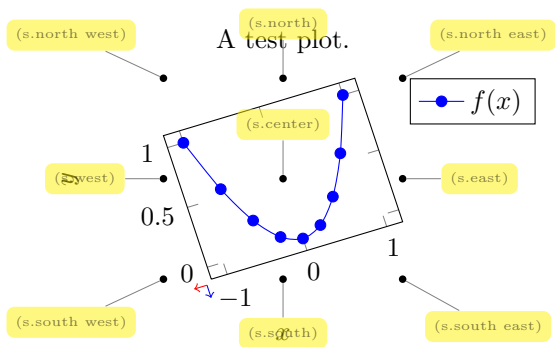


## 18.1.6 Reversed axes

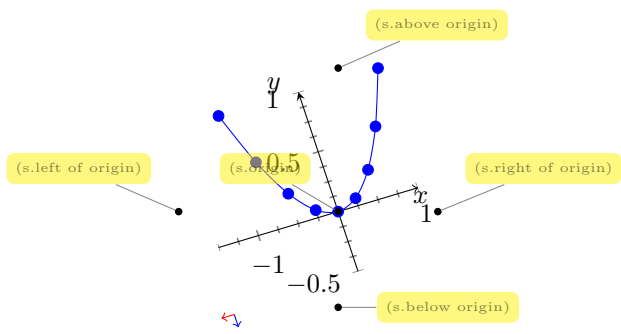




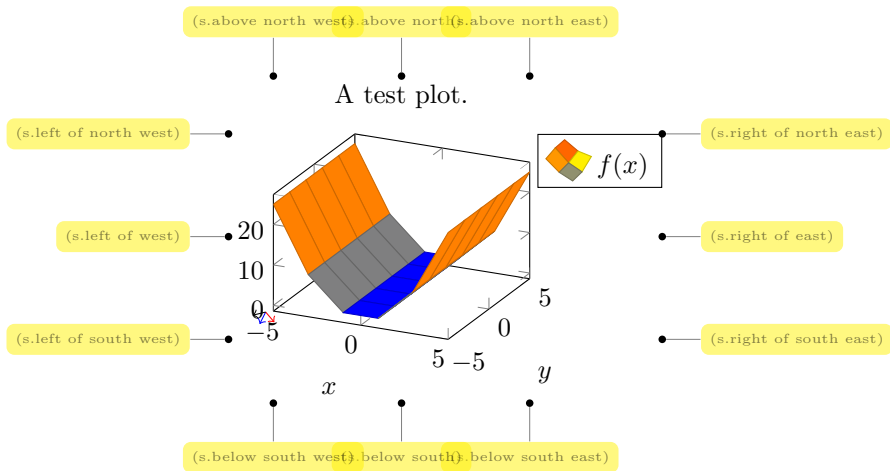
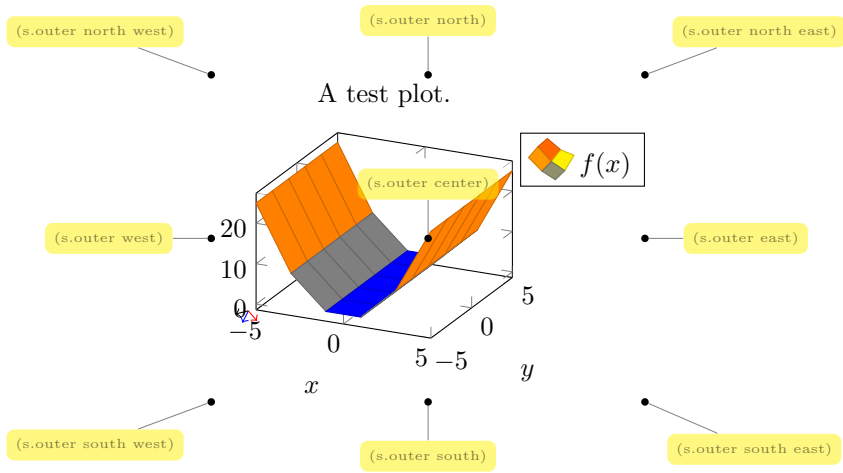
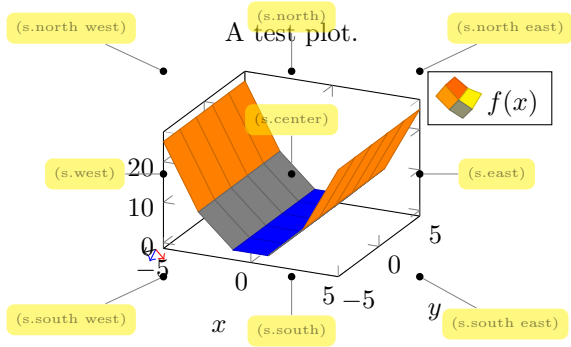
### 18.1.7 Using non-standard unit vectors

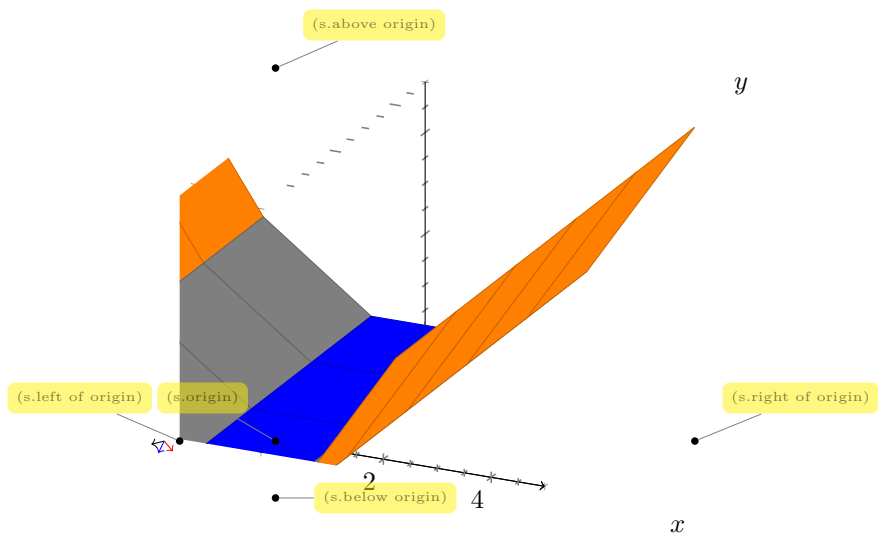




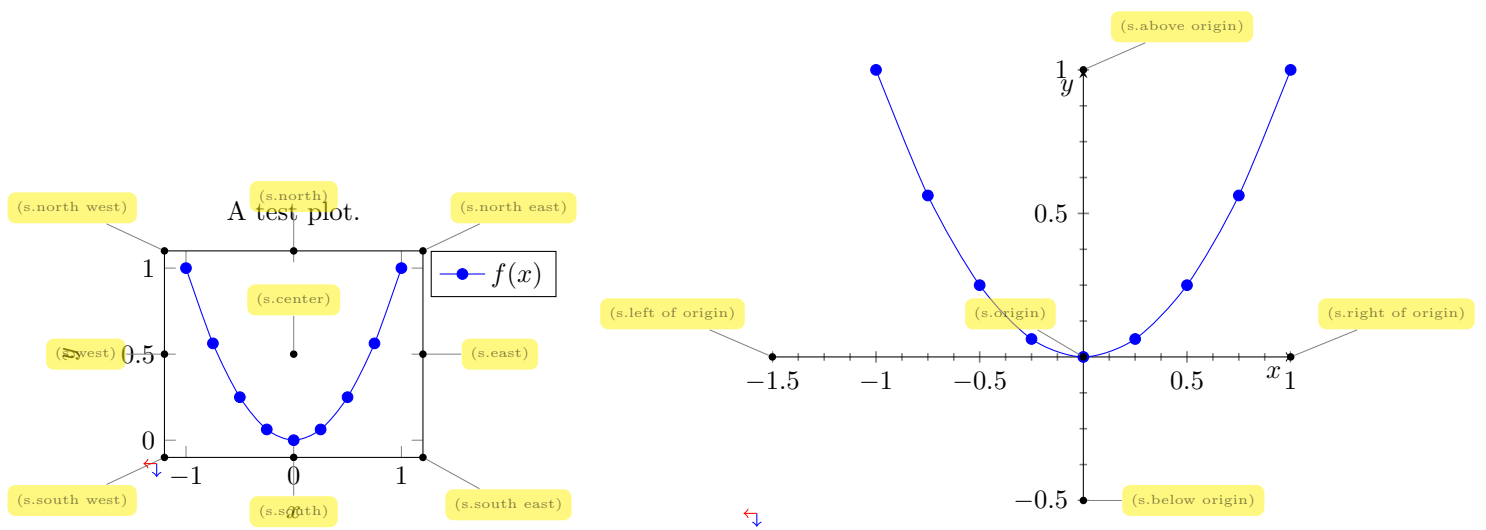


### 18.1.8 3D

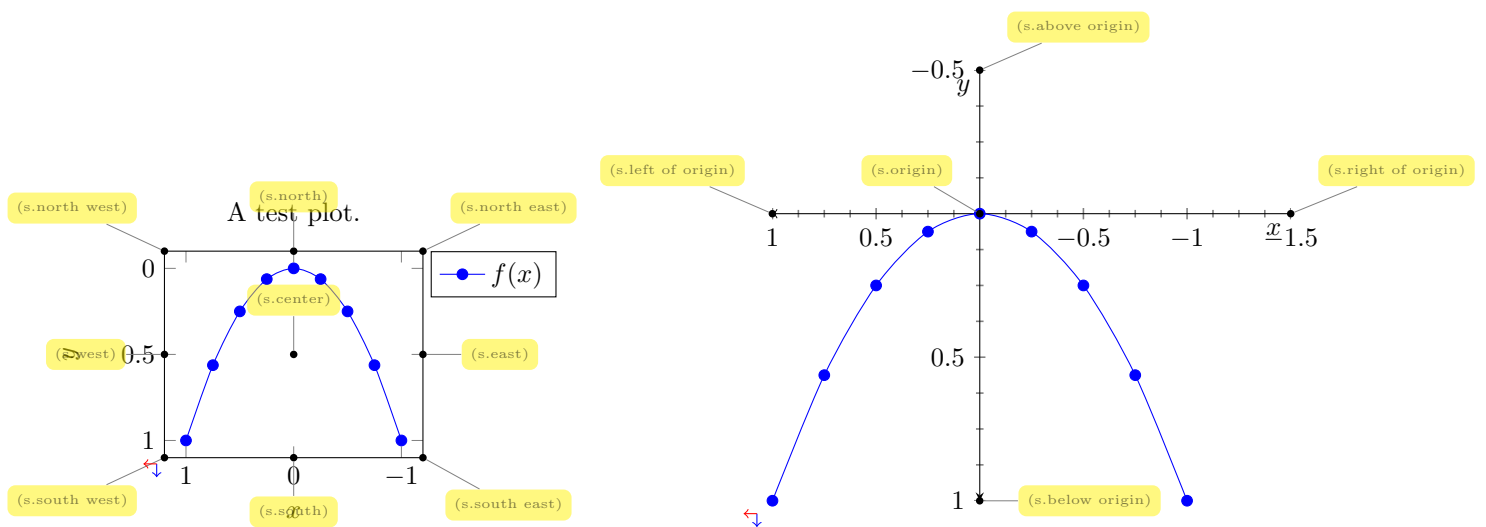




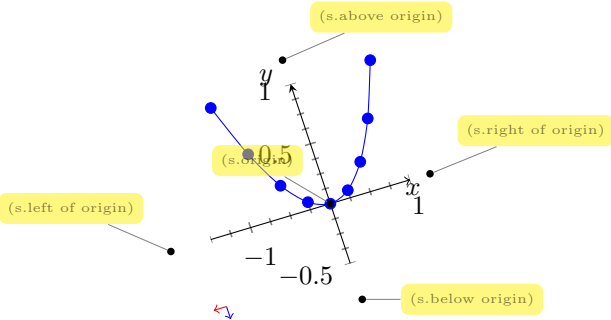
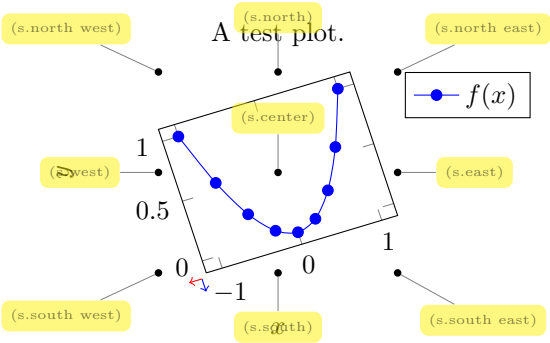
### 18.1.9 Using anchors before axis is finished



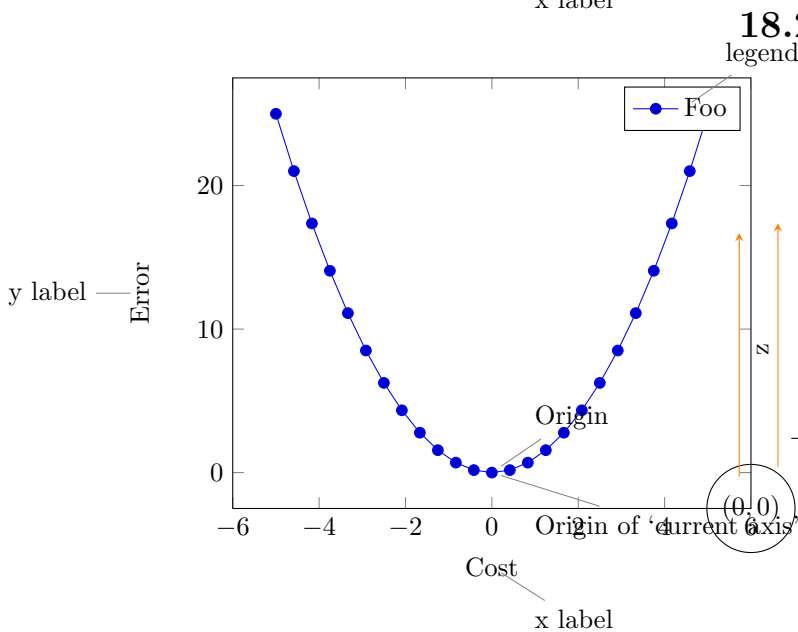
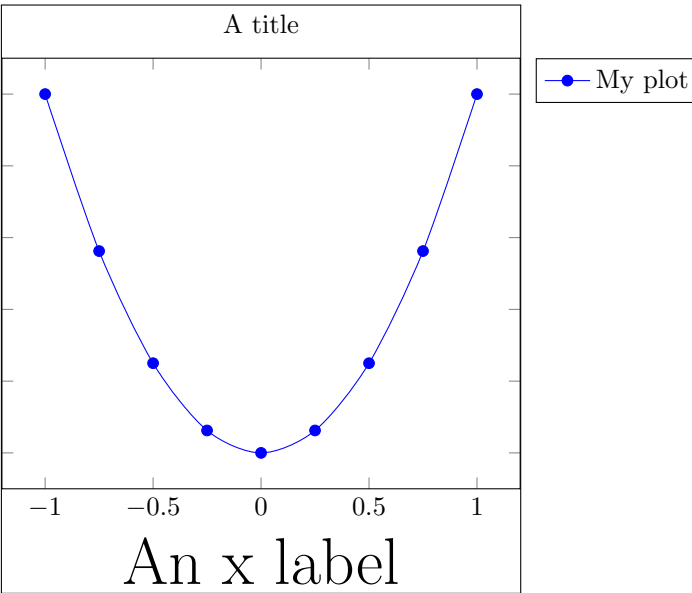
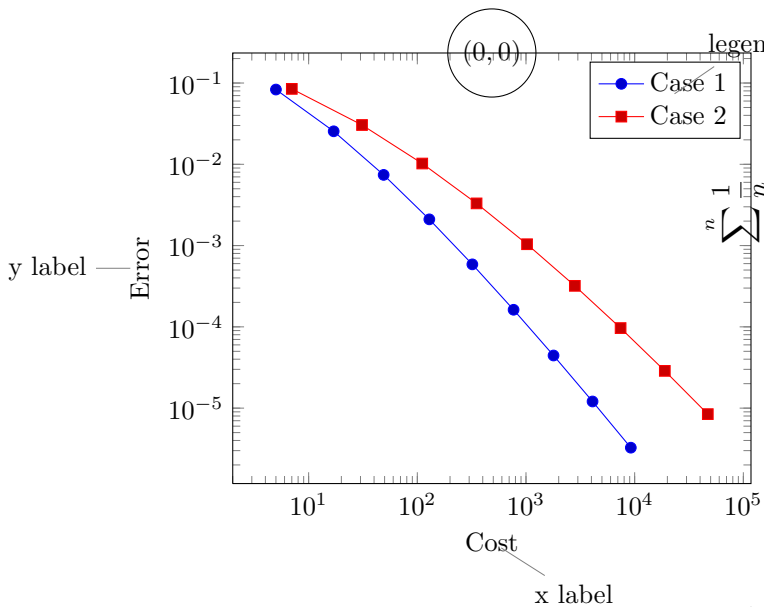
### Reversed axes



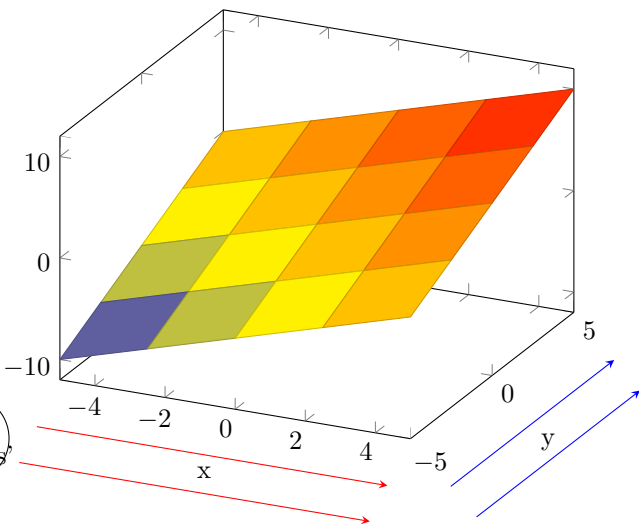
non-unit vectors



18.1.10 Accessing sub-nodes



18.2 ticklabel cs

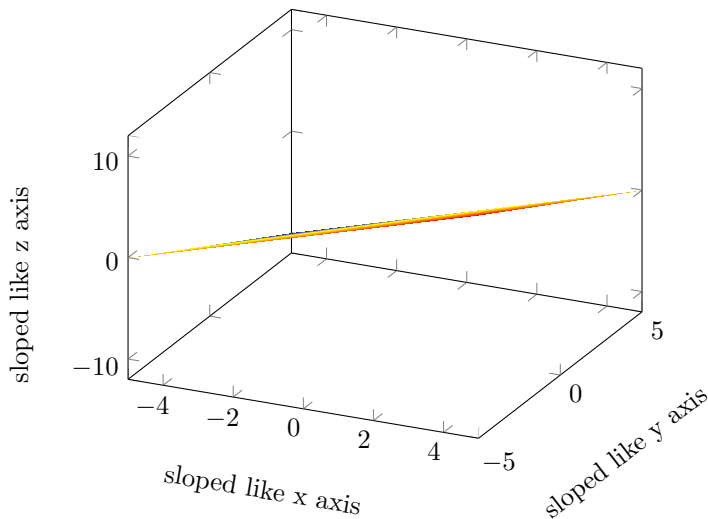


18.1.11 Funny bounding boxes

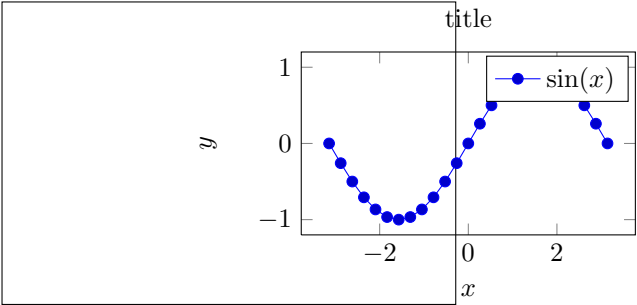
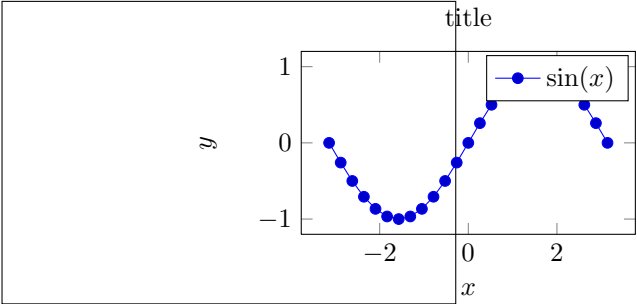
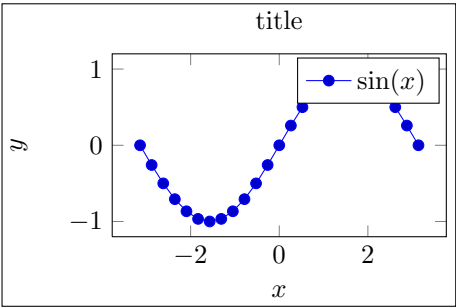
(my plot.below south west) rectangle (my plot.above north east)

The following figure is centered:

18.3 sloped like XXX axis



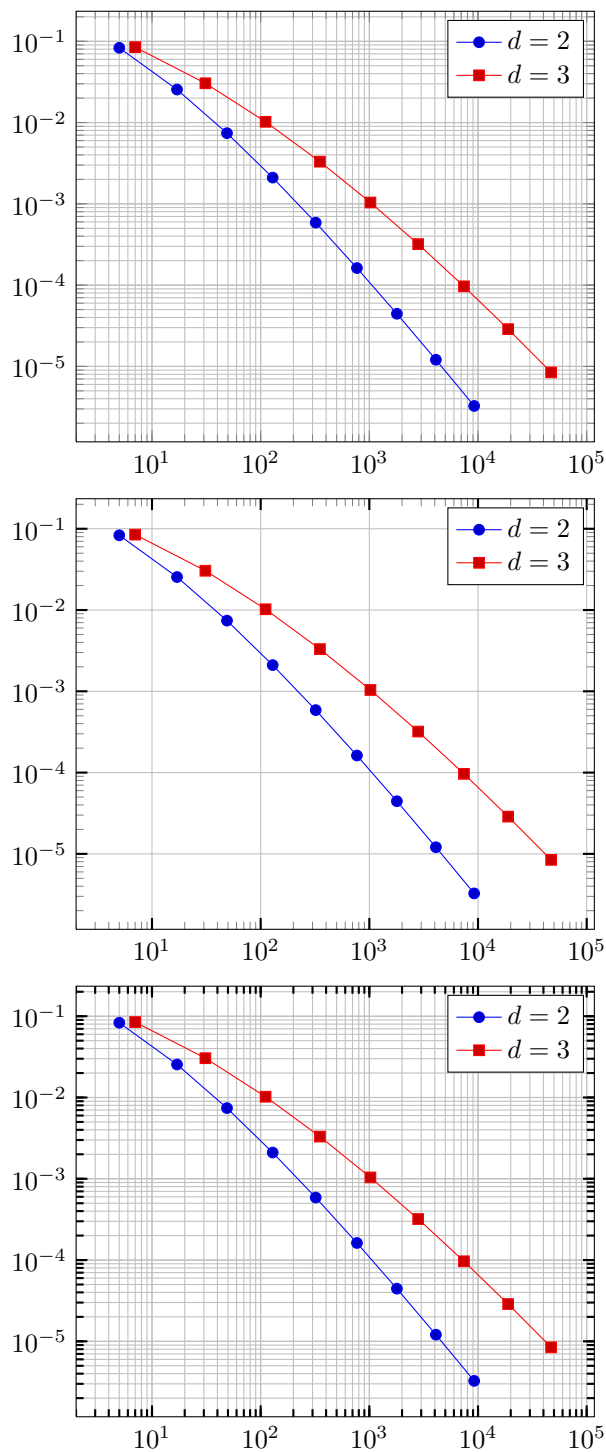
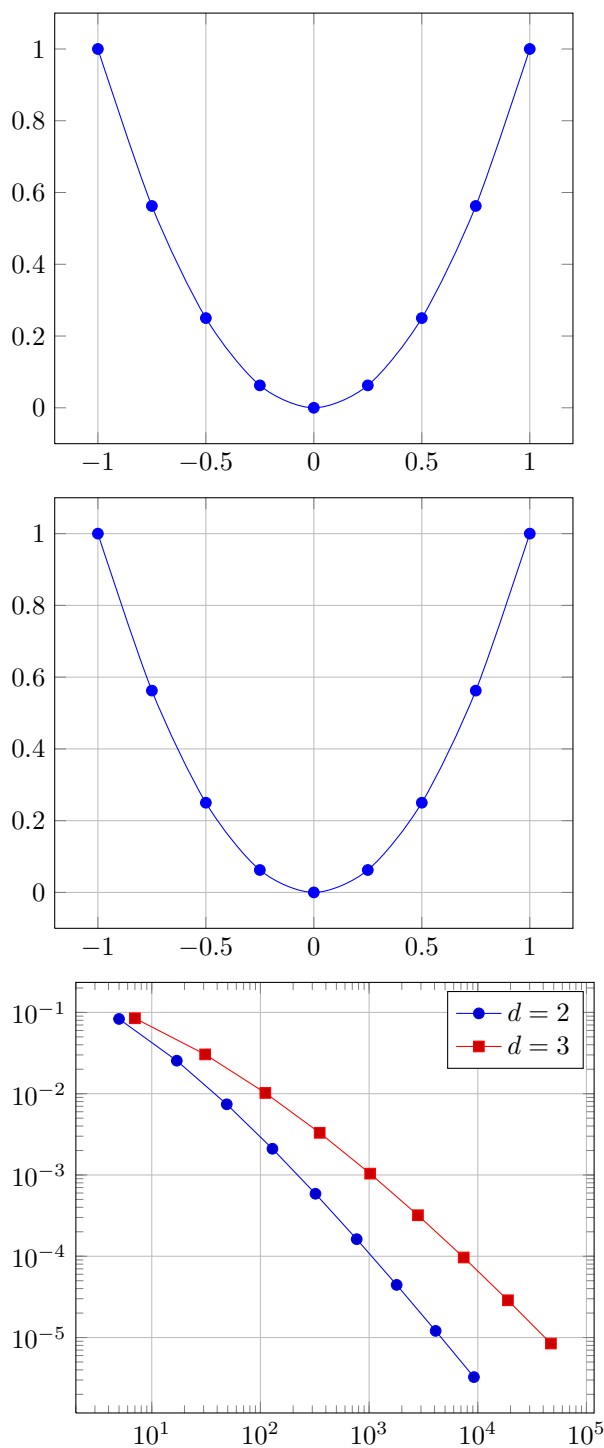
18.4 xyshift in axis and contained nodes



# Chapter 19

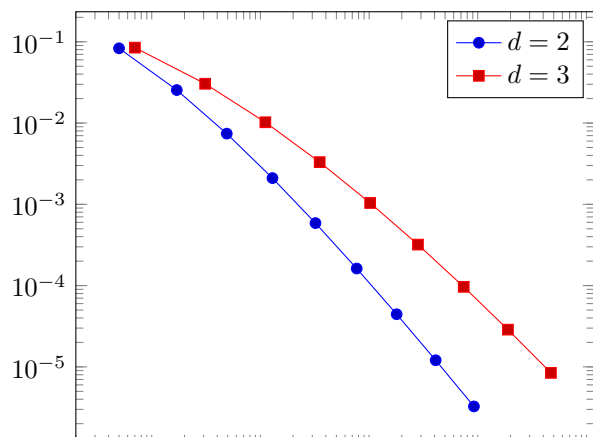
## pgfplotstest.gridtick.tex

### 19.1 Grid lines test

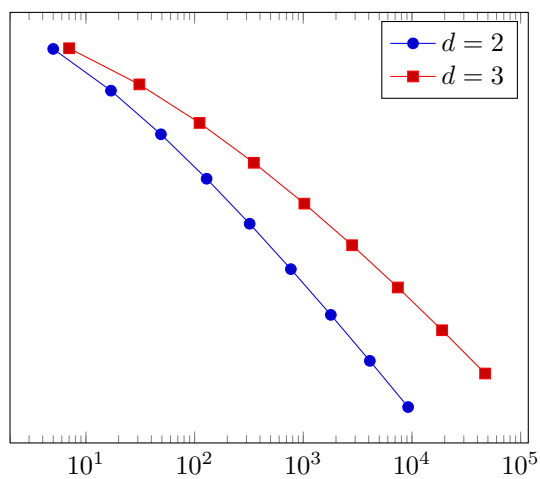


## 19.2 Tick lines test

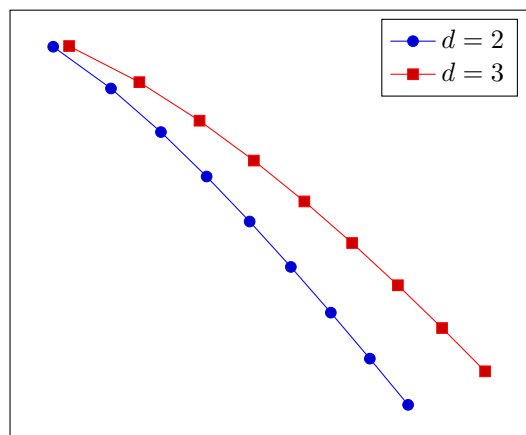
### 19.2.1 xmajorticks=false,xminorticks=true



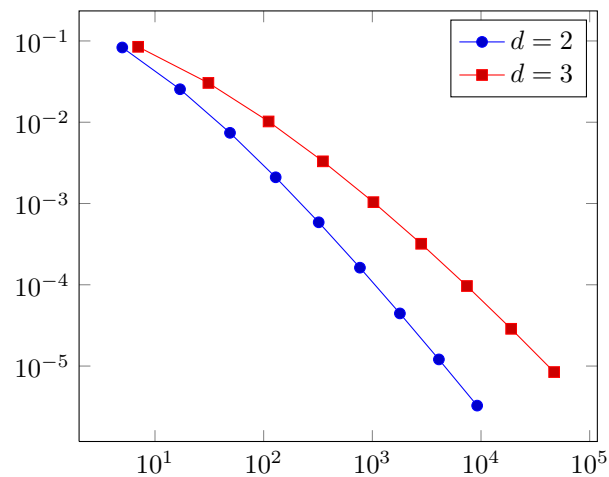
### 19.2.2 ymajorticks=false,yminorticks=false



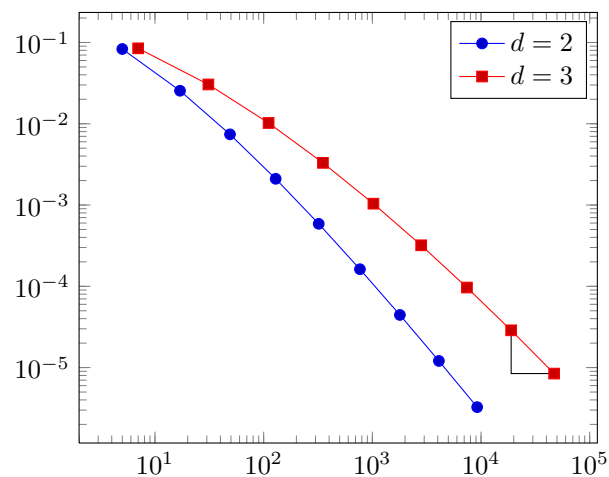
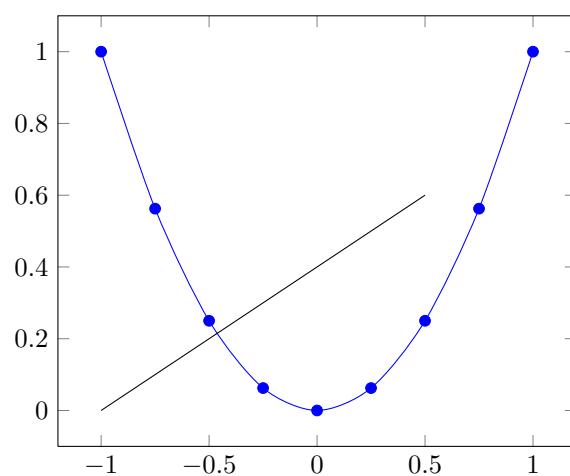
### 19.2.3 ticks=none



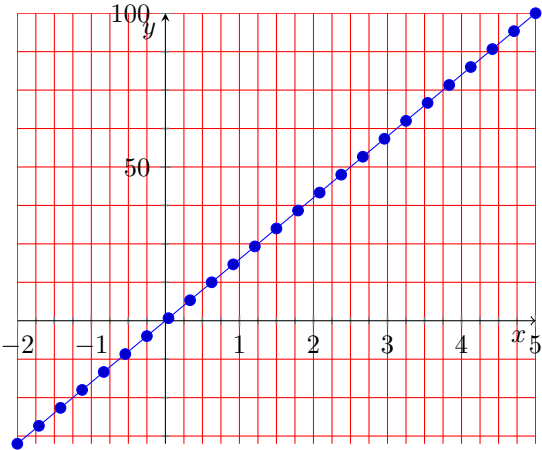
### 19.2.4 ticks=major



## 19.3 TikZ-coordinate system “axis”



19.4    Grid styles and axis line styles



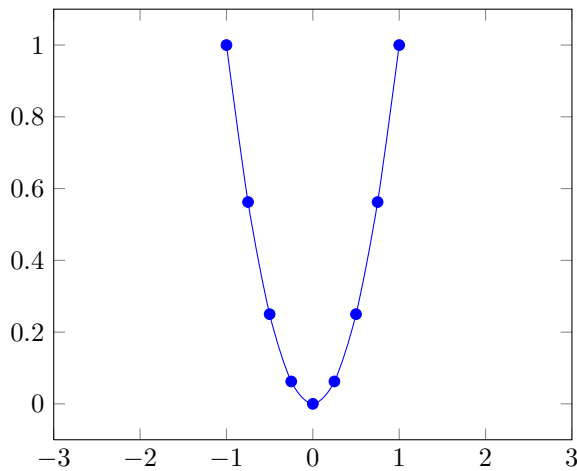


# Chapter 20

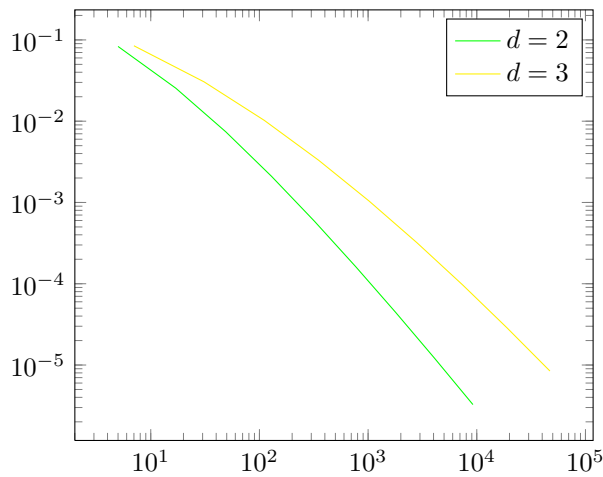
## pgfplotstest.styles.tex

### 20.1 Style-tests

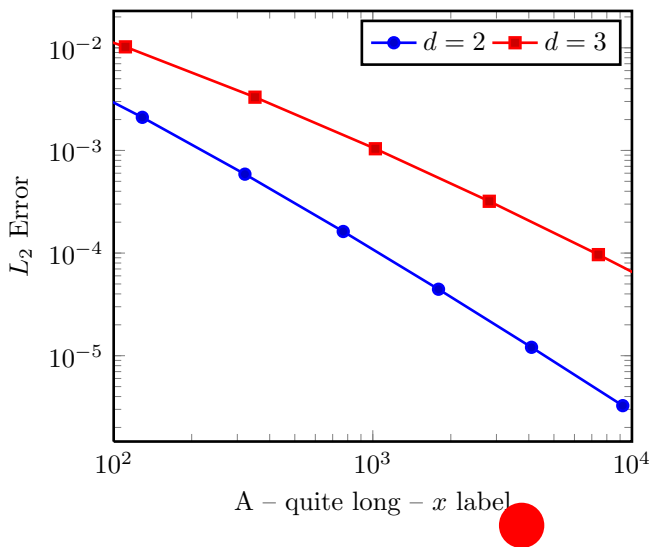
#### 20.1.1 Limits in ‘every axis’; ‘cycle list’ option and ‘cycle list name’ option



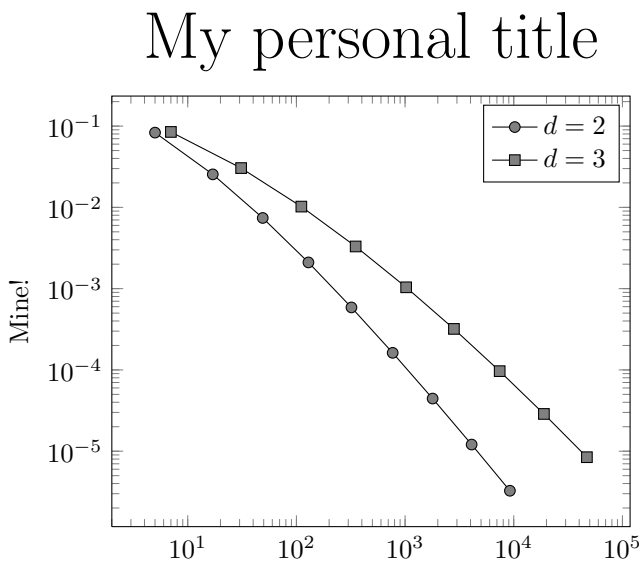
#### 20.1.2 testing ‘every loglog axis’ style



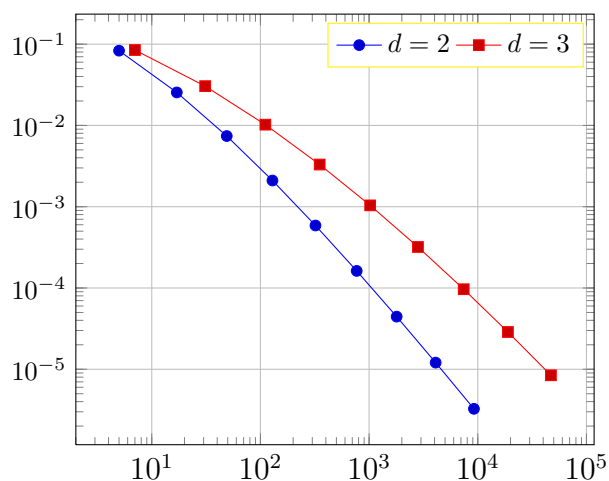
#### 20.1.3 Using several ‘every ...’ styles



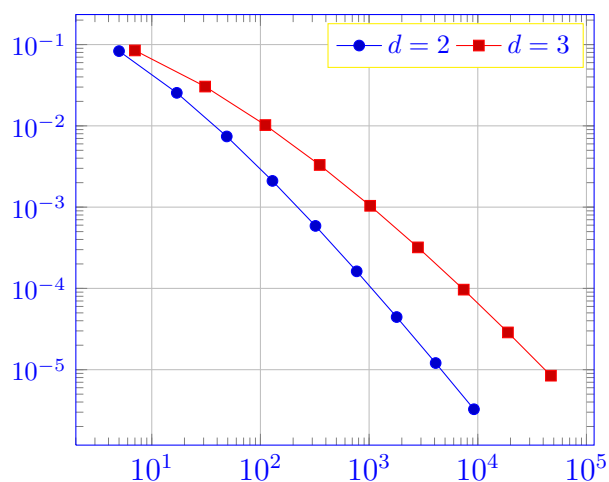
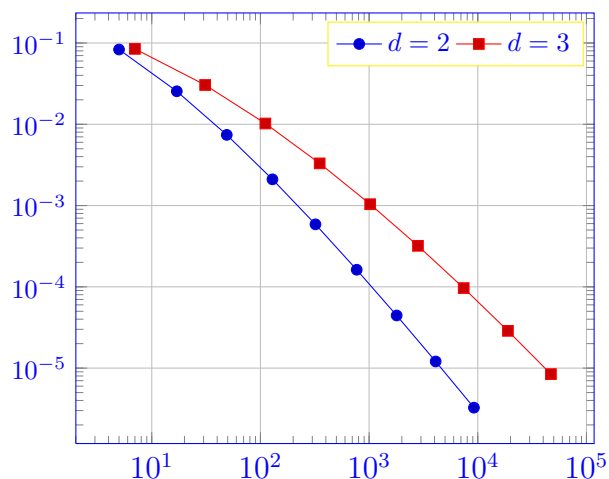
#### 20.1.4 Using the ‘style=’ option



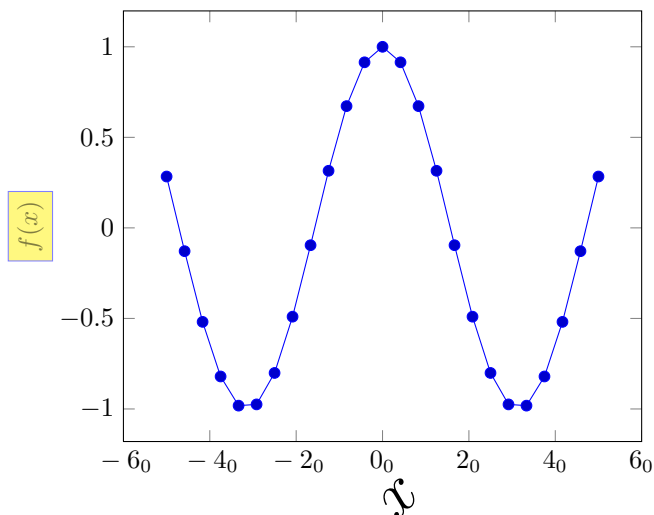
### 20.1.5 legend style, grid style, x label style etc. options



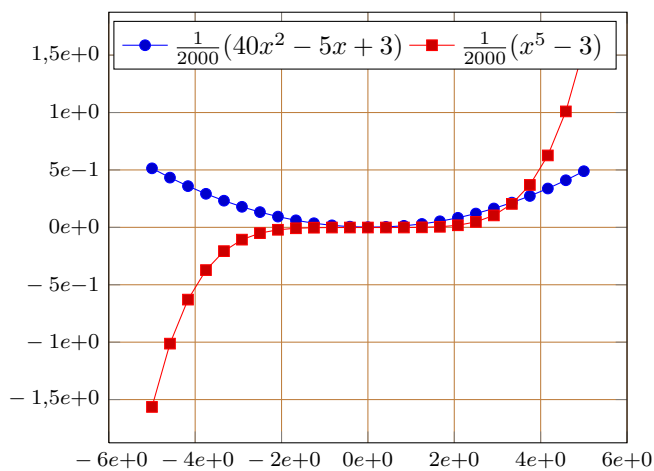
### 20.1.6 Providing TikZ-options to either tikzpicture or axis



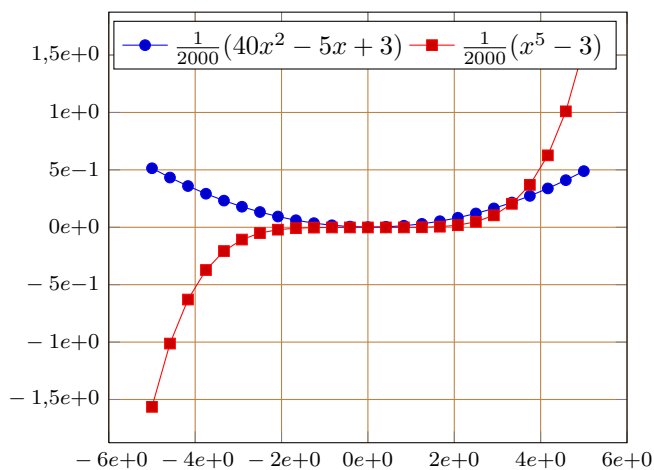
### 20.1.7 xlabel style and ylabel style



### 20.1.8 Collecting many options together

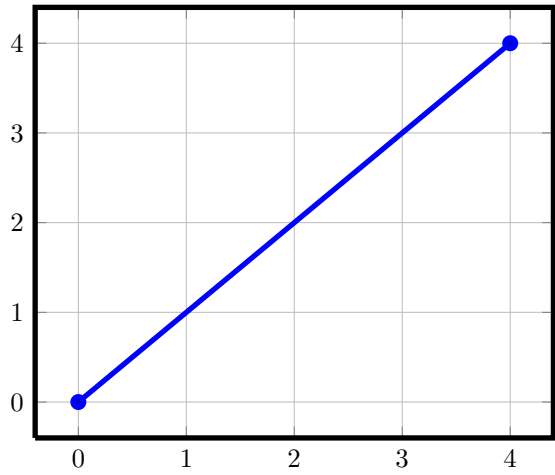


Putting the same options into a style...

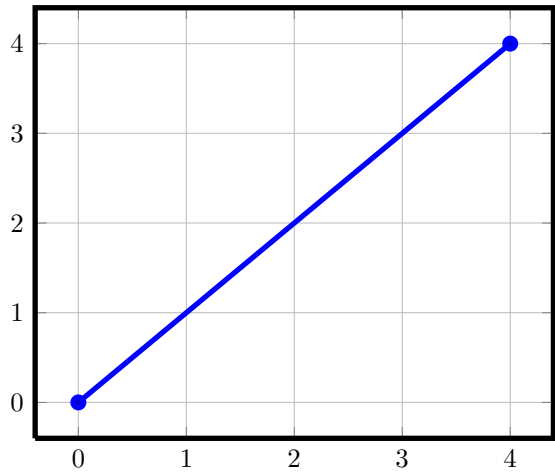


20.1.9 Line width

2pt global



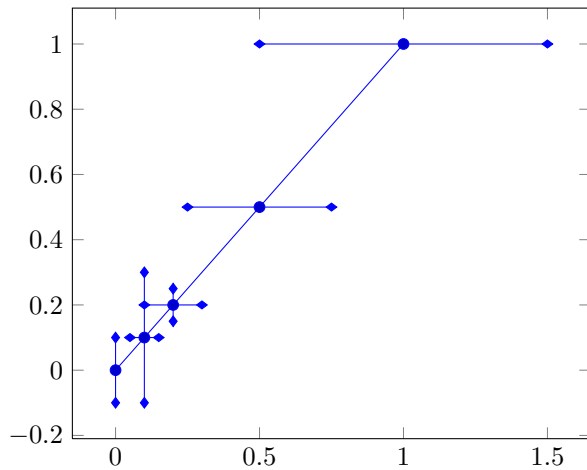
2pt in every axis



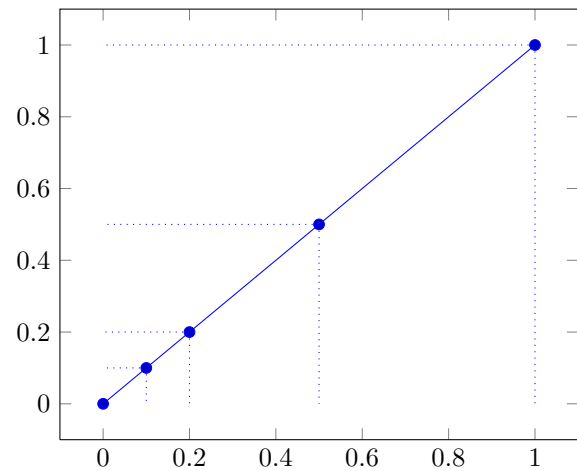
# Chapter 21

## pgfplotstest.errorbars.tex

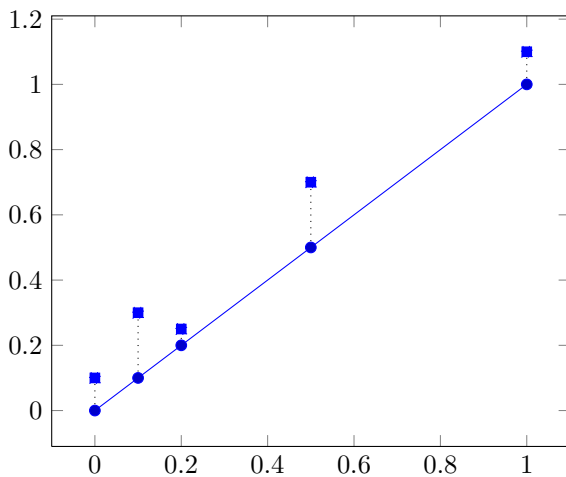
### 21.1 Errorbars



using 100% minus

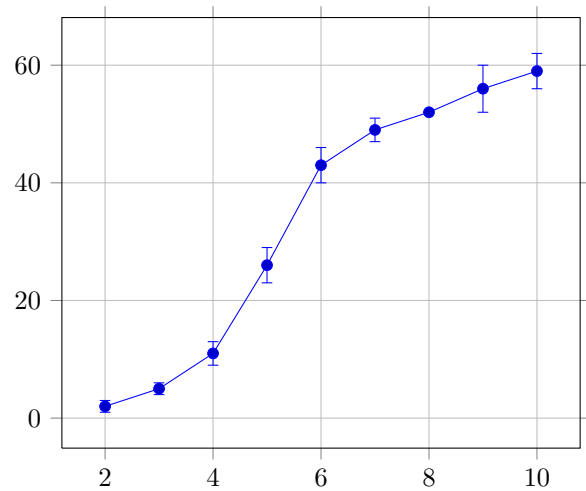


changing styles



with plot table

maxlevel versus cgiter, table 21.1

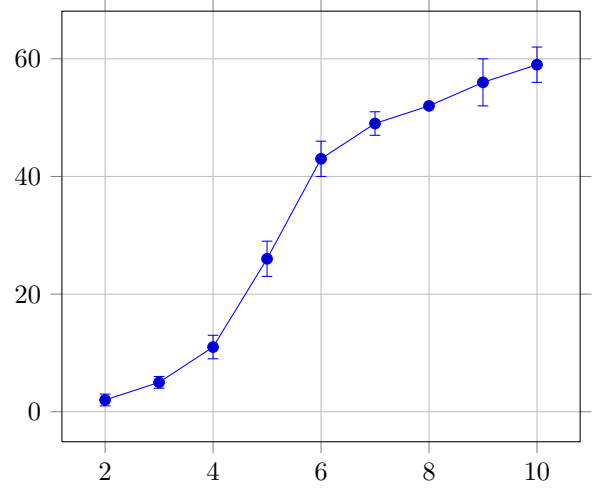


1	G	Basis	dof	l2	l2_abserror	A	lmax	lmax_relerror	cgiter	cgiter_err	maxlevel	eps
2	\$flags_int	int	int	sci:8	sci:8	sci:8	sci:8	sci:8	int	sci:8	int	std:8
3	5	5	5	8.31160034e-02	1e-2	0.00000000e+00	1.80007647e-01	0.00000000e+00	2	1	2	1
4	17	17	17	2.54685628e-02	0	0.00000000e+00	3.75580565e-02	0.02	0.7	1	3	1
5	49	49	49	7.40715288e-03	5e-3	0.00000000e+00	1.49212716e-02	0.5	11	2	4	1
6	129	129	129	2.10192154e-03	1e-1	0.00000000e+00	4.23330523e-03	0.9	26	3	5	1
7	321	321	321	5.87352989e-04	0	0.00000000e+00	1.30668515e-03	0.2	43	3	6	1
8	769	769	769	1.62269942e-04	1e-4	0.00000000e+00	3.88658098e-04	0.25	49	2	7	1
9	1793	1793	1793	4.44248889e-05	1e-5	0.00000000e+00	1.12651668e-04	0.4	52	0	8	1
10	4097	4097	4097	1.20714122e-05	0.5e-5	0.00000000e+00	3.20339285e-05	0.3	56	4	9	1
11	9217	9217	9217	3.26101452e-06	0.7e-6	0.00000000e+00	8.97617707e-06	0.5	59	3	10	1

Table 21.1: The table used for the plot table tests and error bars.

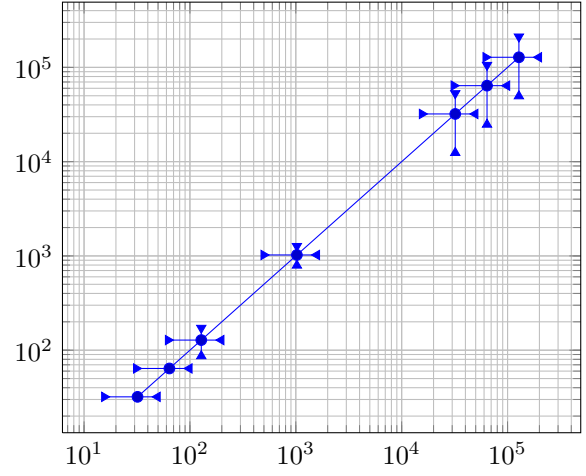
with plot table from macro

maxlevel versus cgiter, table 21.1

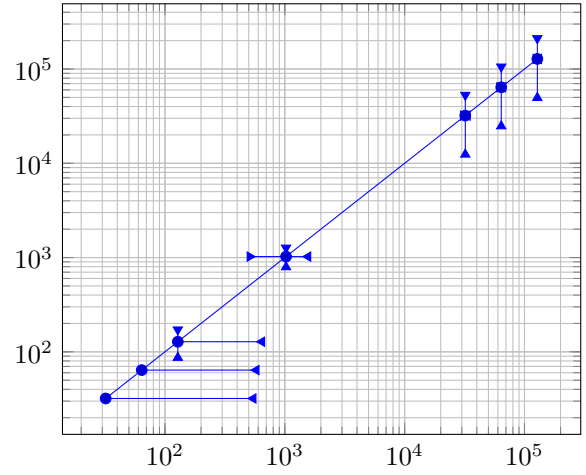


## 21.1.1 Log-plot

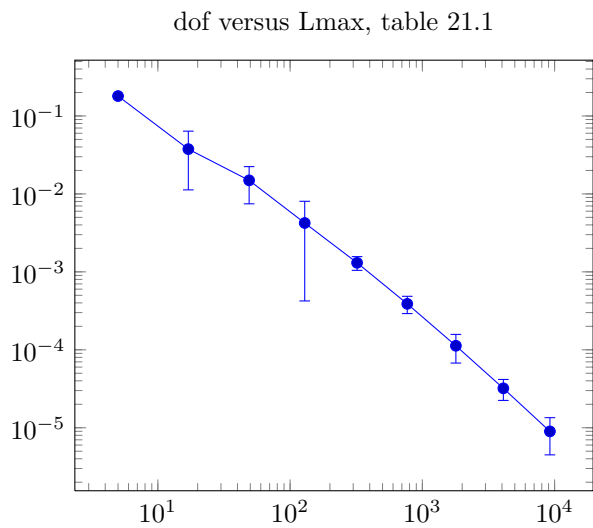
relative errors



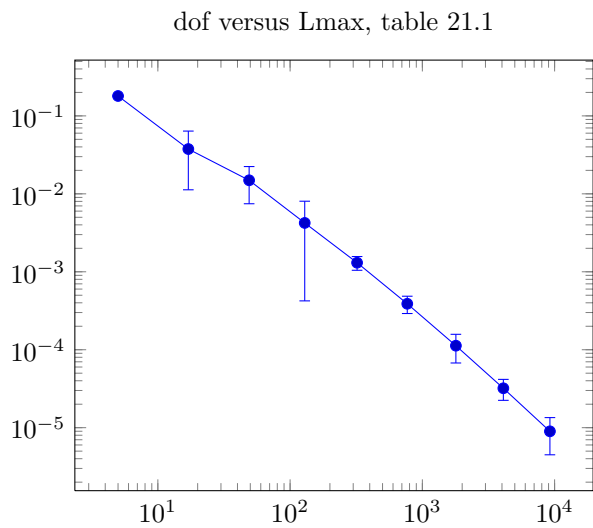
x fixed=500, y explicit relative



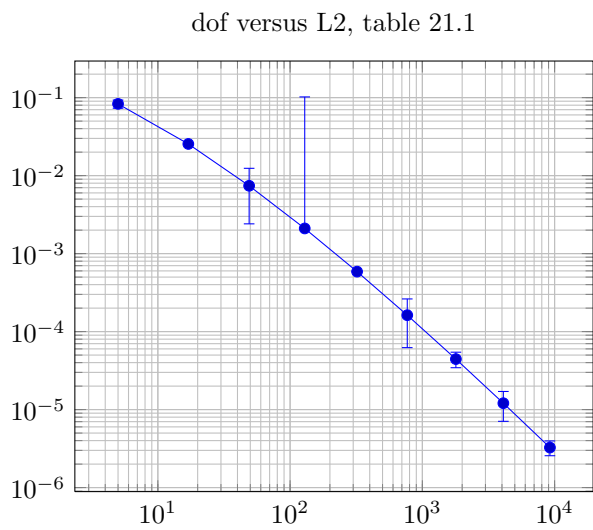
with plot table



with plot table from macro



with plot table absolute

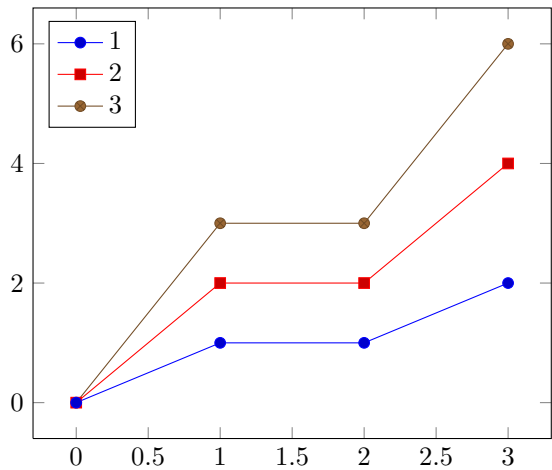


Chapter 22

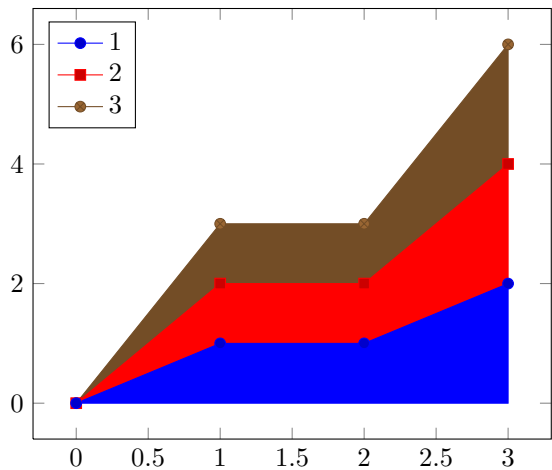
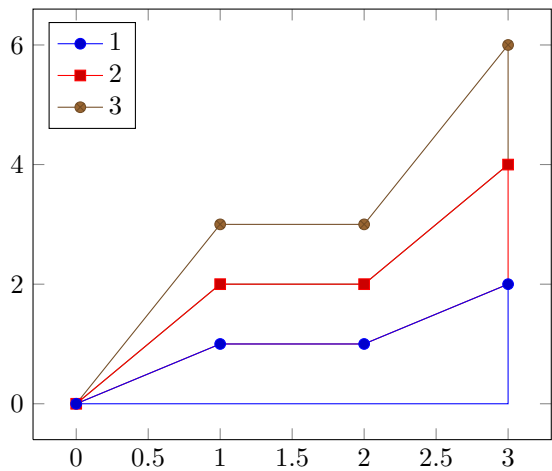
pgfplotstest.plottypes.tex

22.1 Stacked plots

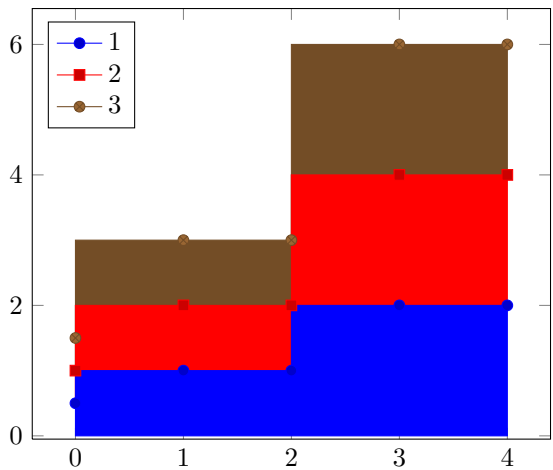
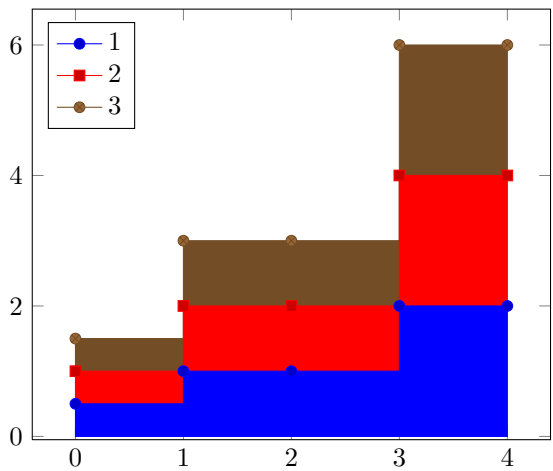
22.1.1 stack y, sharp plot



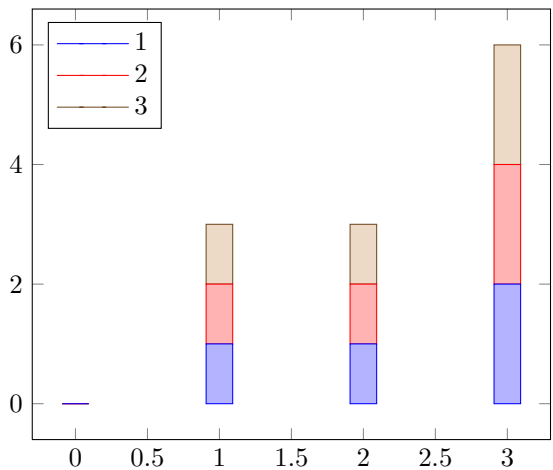
with closedcycle



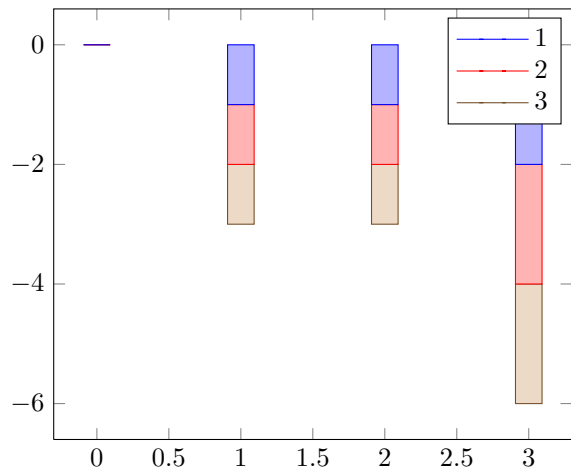
with closedcycle and const plots



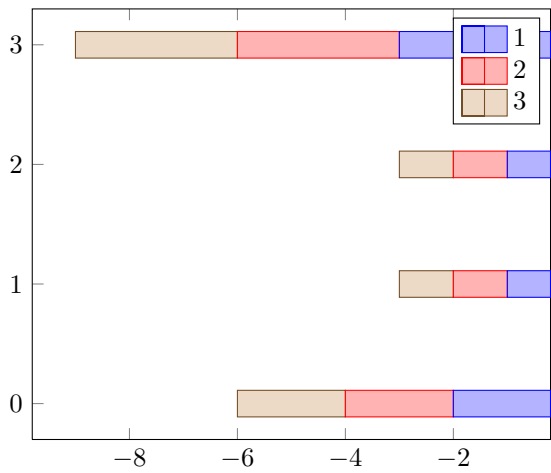
22.1.2 stack y, ybar



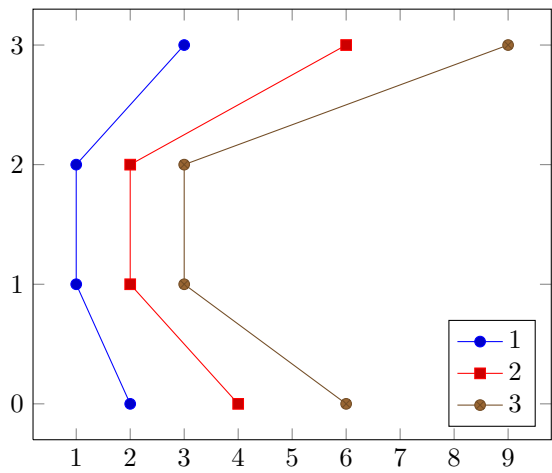
22.1.3 stack y, ybar, minus



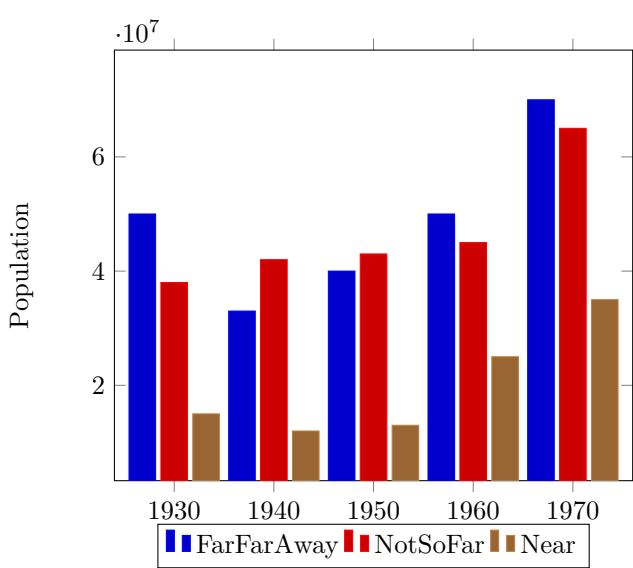
22.1.6 stack x, xbar, minus



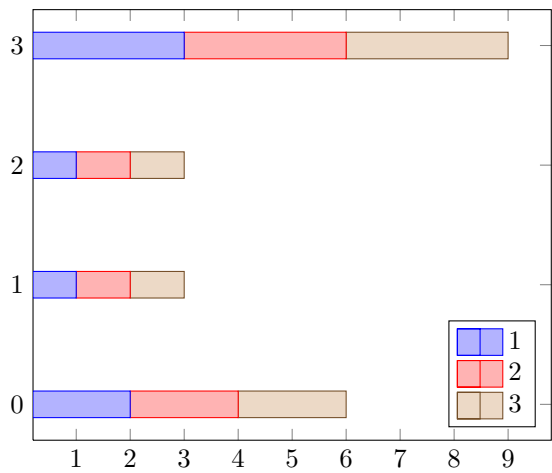
22.1.4 stack x, sharp plot [not useful]



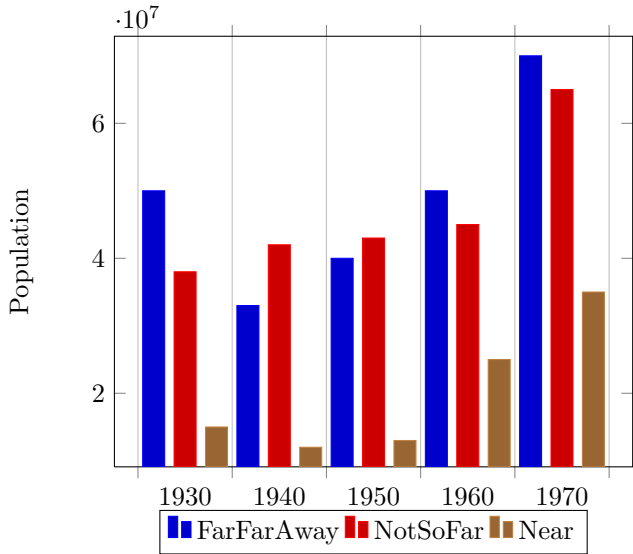
22.2 Bar diagrams



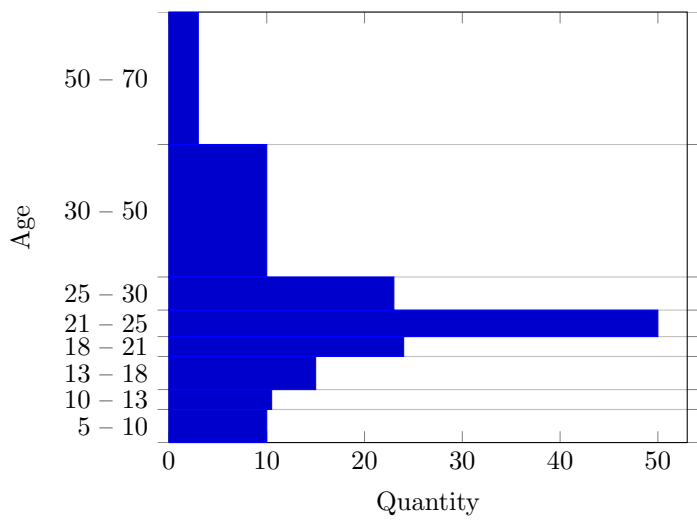
22.1.5 stack x, xbar



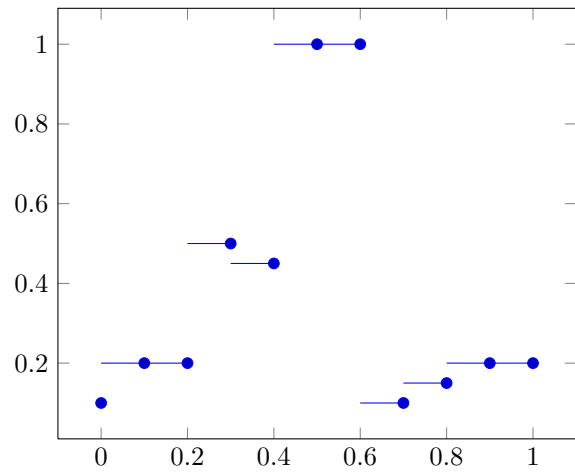
22.2.1 Interval bar handlers



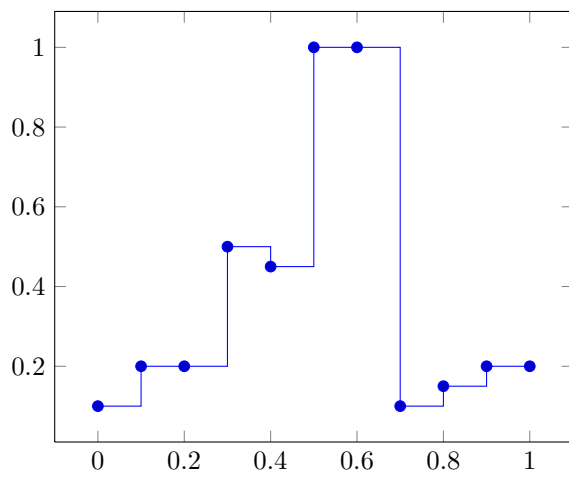




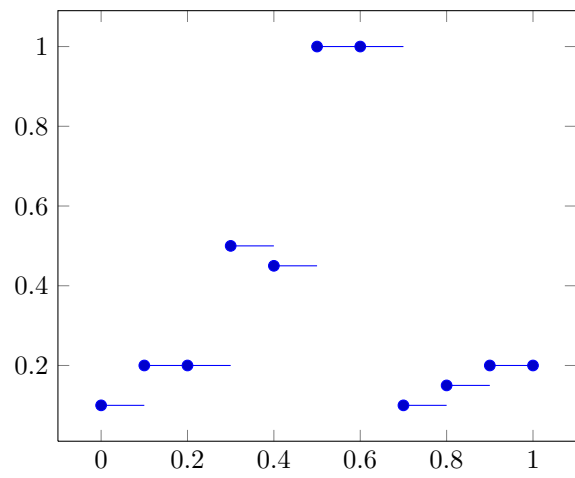
22.5 jump mark right



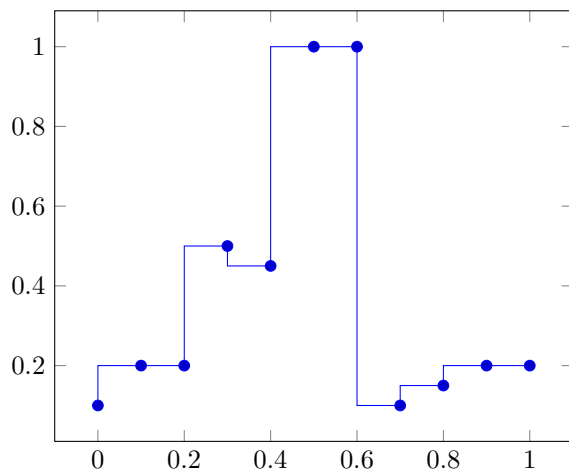
22.3 const plot



22.6 jump mark left



22.4 const plot mark right



# Chapter 23

## pgfplotstest.binary.tex

### 23.1 bytes=4, pgfplotsbinaryencode-unsigned

0→ 00000000  
1→ 00000001  
2→ 00000002  
3→ 00000003  
4→ 00000004  
5→ 00000005  
6→ 00000006  
7→ 00000007  
8→ 00000008  
9→ 00000009  
10→ 0000000A  
11→ 0000000B  
12→ 0000000C  
13→ 0000000D  
14→ 0000000E  
15→ 0000000F  
16→ 00000010  
128→ 00000080  
129→ 00000081  
255→ 000000FF  
256→ 00000100  
1000→ 000003E8  
65533→ 0000FFFD  
65534→ 0000FFFE

### 23.2 bytes=2, pgfplotsbinaryencode-unsigned

0→ 0000  
1→ 0001  
2→ 0002  
3→ 0003  
4→ 0004  
5→ 0005  
6→ 0006

7→ 0007  
8→ 0008  
9→ 0009  
10→ 000A  
11→ 000B  
12→ 000C  
13→ 000D  
14→ 000E  
15→ 000F  
16→ 0010  
128→ 0080  
129→ 0081  
255→ 00FF  
256→ 0100  
1000→ 03E8  
65533→ FFFD  
65534→ FFFE

### 23.3 bytes=4, pgfplotsbinaryencode-signedmaplinearly

-2147483647→ 00000000  
-16384→ 7FFFBFFF  
-500→ 7FFFFE0B  
-1→ 7FFFFFFE  
0→ 80000000  
16→ 8000000F  
128→ 8000007F  
129→ 80000080  
255→ 800000FE  
256→ 800000FF  
1000→ 800003E7  
65533→ 8000FFFC  
65534→ 8000FFFD  
2147483647→ FFFFFFFF

### 23.4 bytes=3, pgfplotsbinaryencode- signedmaplinearly

-2147483647  $\mapsto$  000000  
-16384  $\mapsto$  7FFFBF  
-500  $\mapsto$  7FFFFE  
-1  $\mapsto$  800000  
0  $\mapsto$  800000  
16  $\mapsto$  800000  
128  $\mapsto$  800000  
129  $\mapsto$  800000  
255  $\mapsto$  800000  
256  $\mapsto$  800000  
1000  $\mapsto$  800002  
65533  $\mapsto$  8000FE  
65534  $\mapsto$  8000FE  
2147483647  $\mapsto$  FFFFFE

### 23.5 bytes=2, pgfplotsbinaryencode- signedmaplinearly

-2147483647  $\mapsto$  0000  
-16384  $\mapsto$  8000  
-500  $\mapsto$  8000  
-1  $\mapsto$  8000  
0  $\mapsto$  8000  
16  $\mapsto$  8000  
128  $\mapsto$  8000  
129  $\mapsto$  8000  
255  $\mapsto$  8000  
256  $\mapsto$  8000  
1000  $\mapsto$  8000  
65533  $\mapsto$  8000  
65534  $\mapsto$  8000  
2147483647  $\mapsto$  FFFE

### 23.6 bytes=4, pgfplotsbinaryen- codedimenmaplinearly

-16383.99999pt  $\mapsto$  00000001  
-1pt  $\mapsto$  7FFDFFFF  
0pt  $\mapsto$  80000000  
1pt  $\mapsto$  8001FFFF  
16383.99999pt  $\mapsto$  FFFFFFFD

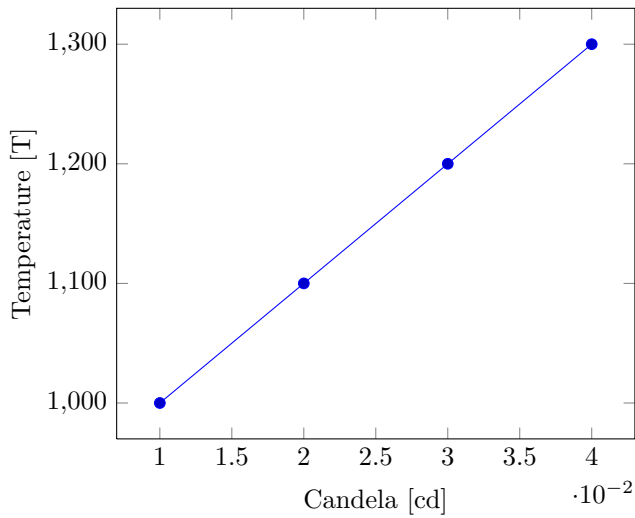
### 23.7 bytes=3, pgfplotsbinaryen- codedimenmaplinearly

-16383.99999pt  $\mapsto$  000000  
-1pt  $\mapsto$  7FFDFF  
0pt  $\mapsto$  800000  
1pt  $\mapsto$  8001FF  
16383.99999pt  $\mapsto$  FFFFFE

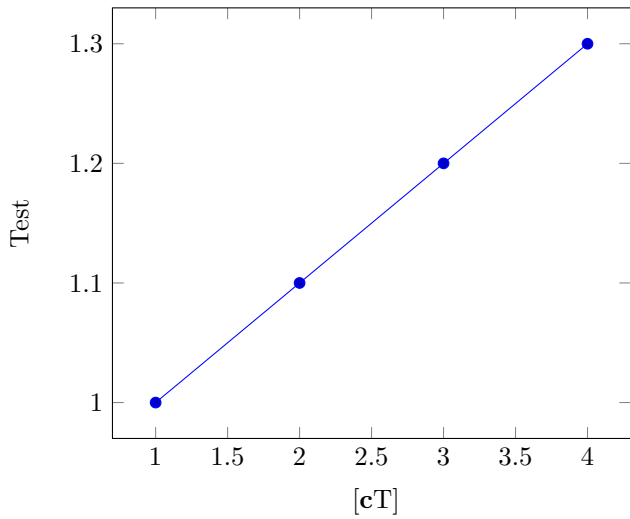
### 23.8 bytes=2, pgfplotsbinaryen- codedimenmaplinearly

-16383.99999pt  $\mapsto$  0000  
-1pt  $\mapsto$  7FFE  
0pt  $\mapsto$  8000  
1pt  $\mapsto$  8000  
16383.99999pt  $\mapsto$  FFFE

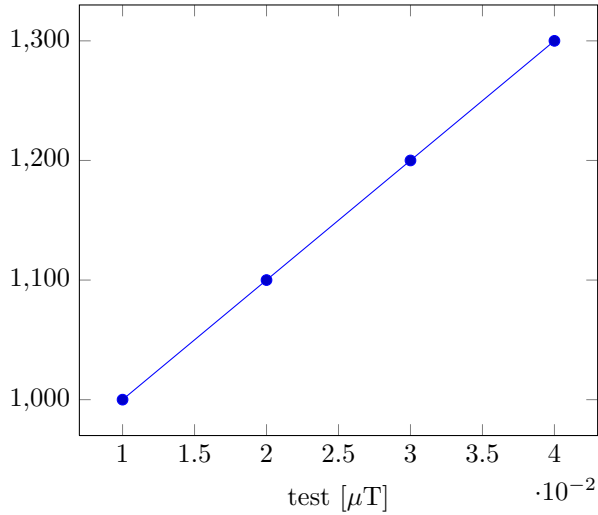
23.9 Library: Units in labels



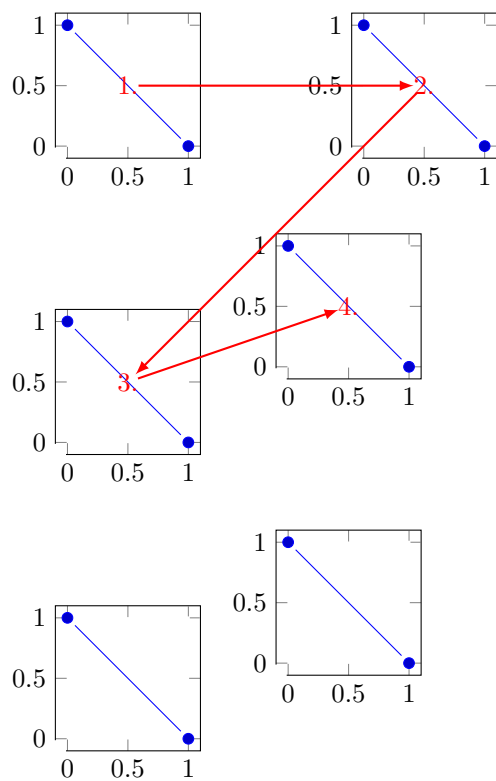
With scaled



With prefix no scale



## 23.10 Library: Groupplots



# Chapter 24

## pgfplotstest.utils

### 24.1 Unscoped pgfplotsforeachentry- inCSV Loops

Single loop iter #1  
Single loop iter #2  
Single loop iter #3  
Single loop iter #4  
Single loop iter #5  
Single loop iter #6  
Nested loop iter #1,1  
Nested loop iter #1,2  
Nested loop iter #1,3  
Nested loop iter #1,4  
Nested loop iter #1,5  
Nested loop iter #1,6  
(End of outer #1)  
Nested loop iter #2,1  
Nested loop iter #2,2  
Nested loop iter #2,3  
Nested loop iter #2,4  
Nested loop iter #2,5  
Nested loop iter #2,6  
(End of outer #2)  
Nested loop iter #3,1  
Nested loop iter #3,2  
Nested loop iter #3,3  
Nested loop iter #3,4  
Nested loop iter #3,5  
Nested loop iter #3,6  
(End of outer #3)  
Nested loop iter #4,1  
Nested loop iter #4,2  
Nested loop iter #4,3  
Nested loop iter #4,4  
Nested loop iter #4,5  
Nested loop iter #4,6  
(End of outer #4)  
Nested loop iter #5,1

Nested loop iter #5,2  
Nested loop iter #5,3  
Nested loop iter #5,4  
Nested loop iter #5,5  
Nested loop iter #5,6  
(End of outer #5)  
Nested loop iter #6,1  
Nested loop iter #6,2  
Nested loop iter #6,3  
Nested loop iter #6,4  
Nested loop iter #6,5  
Nested loop iter #6,6  
(End of outer #6)

### 24.2 pgfplotsforeachungrouped

#### 24.2.1 without FPU

1,2,...,4

1  
2  
3  
4  
(1, 1)  
(1, 2)  
(1, 3)  
(1, 4)  
(2, 1)  
(2, 2)  
(2, 3)  
(2, 4)  
(3, 1)  
(3, 2)  
(3, 3)  
(3, 4)  
(4, 1)  
(4, 2)  
(4, 3)

(4, 4)	(-1, -3)
	(-1, -4)
<b>1,...,4</b>	(-2, 1)
1	(-2, 0)
2	(-2, -1)
3	(-2, -2)
4	(-2, -3)
(1, 1)	(-2, -4)
(1, 2)	(-3, 1)
(1, 3)	(-3, 0)
(1, 4)	(-3, -1)
(2, 1)	(-3, -2)
(2, 2)	(-3, -3)
(2, 3)	(-3, -4)
(2, 4)	(-4, 1)
(3, 1)	(-4, 0)
(3, 2)	(-4, -1)
(3, 3)	(-4, -2)
(3, 4)	(-4, -3)
(4, 1)	(-4, -4)
(4, 2)	
(4, 3)	<b>24.2.2 with FPU</b>
(4, 4)	<b>1,2,...,4</b>
	1Y1.0e0]
<b>1,0,...,-4</b>	1Y2.0e0]
1	1Y3.0e0]
0	1Y4.0e0]
-1	(1Y1.0e0], 1Y1.0e0])
-2	(1Y1.0e0], 1Y2.0e0])
-3	(1Y1.0e0], 1Y3.0e0])
-4	(1Y1.0e0], 1Y4.0e0])
(1, 1)	(1Y2.0e0], 1Y1.0e0])
(1, 0)	(1Y2.0e0], 1Y2.0e0])
(1, -1)	(1Y2.0e0], 1Y3.0e0])
(1, -2)	(1Y2.0e0], 1Y4.0e0])
(1, -3)	(1Y3.0e0], 1Y1.0e0])
(1, -4)	(1Y3.0e0], 1Y2.0e0])
(0, 1)	(1Y3.0e0], 1Y3.0e0])
(0, 0)	(1Y3.0e0], 1Y4.0e0])
(0, -1)	(1Y4.0e0], 1Y1.0e0])
(0, -2)	(1Y4.0e0], 1Y2.0e0])
(0, -3)	(1Y4.0e0], 1Y3.0e0])
(0, -4)	(1Y4.0e0], 1Y4.0e0])
(-1, 1)	
(-1, 0)	<b>1,...,4</b>
(-1, -1)	1
(-1, -2)	

2	(2Y2.0e0], 2Y1.0e0])
3	(2Y2.0e0], 2Y2.0e0])
4	(2Y2.0e0], 2Y3.0e0])
(1, 1)	(2Y2.0e0], 2Y4.0e0])
(1, 2)	(2Y3.0e0], 1Y1.0e0])
(1, 3)	(2Y3.0e0], 0Y0.0e-2])
(1, 4)	(2Y3.0e0], 2Y1.0e0])
(2, 1)	(2Y3.0e0], 2Y2.0e0])
(2, 2)	(2Y3.0e0], 2Y3.0e0])
(2, 3)	(2Y3.0e0], 2Y4.0e0])
(2, 4)	(2Y4.0e0], 1Y1.0e0])
(3, 1)	(2Y4.0e0], 0Y0.0e-2])
(3, 2)	(2Y4.0e0], 2Y1.0e0])
(3, 3)	(2Y4.0e0], 2Y2.0e0])
(3, 4)	(2Y4.0e0], 2Y3.0e0])
(4, 1)	(2Y4.0e0], 2Y4.0e0])
(4, 2)	
(4, 3)	
(4, 4)	

#### 1,0,...,-4

1Y1.0e0]  
 0Y0.0e-2]  
 2Y1.0e0]  
 2Y2.0e0]  
 2Y3.0e0]  
 2Y4.0e0]  
 (1Y1.0e0], 1Y1.0e0])  
 (1Y1.0e0], 0Y0.0e-2])  
 (1Y1.0e0], 2Y1.0e0])  
 (1Y1.0e0], 2Y2.0e0])  
 (1Y1.0e0], 2Y3.0e0])  
 (1Y1.0e0], 2Y4.0e0])  
 (0Y0.0e-2], 1Y1.0e0])  
 (0Y0.0e-2], 0Y0.0e-2])  
 (0Y0.0e-2], 2Y1.0e0])  
 (0Y0.0e-2], 2Y2.0e0])  
 (0Y0.0e-2], 2Y3.0e0])  
 (0Y0.0e-2], 2Y4.0e0])  
 (2Y1.0e0], 1Y1.0e0])  
 (2Y1.0e0], 0Y0.0e-2])  
 (2Y1.0e0], 2Y1.0e0])  
 (2Y1.0e0], 2Y2.0e0])  
 (2Y1.0e0], 2Y3.0e0])  
 (2Y1.0e0], 2Y4.0e0])  
 (2Y2.0e0], 1Y1.0e0])  
 (2Y2.0e0], 0Y0.0e-2])