

# LEARN PGF BY EXAMPLES

Original from project:pgf-tikz/pgfplots

ReTypeset by Eureka

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```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
xmin=-3, xmax=3,
ymin=-3, ymax=3,
extra x ticks={-1,1},
extra y ticks={-2,2},
extra tick style={grid=major},
]
\draw[red] \pgfextra{
\pgfpathellipse{\pgfplotspointaxisxy{0}{0}}
{\pgfplotspointaxisdirectionxy{1}{0}}
{\pgfplotspointaxisdirectionxy{0}{2}}
% see also the documentation of
% 'axis direction cs' which
% allows a simpler way to draw this ellipse
};
\draw[blue] \pgfextra{
\pgfpathellipse{\pgfplotspointaxisxy{0}{0}}
{\pgfplotspointaxisdirectionxy{1}{1}}
{\pgfplotspointaxisdirectionxy{0}{2}}
};
\addplot [only marks,mark=*] coordinates { (0,0) };
\end{axis}
\end{tikzpicture}
\end{document}
```

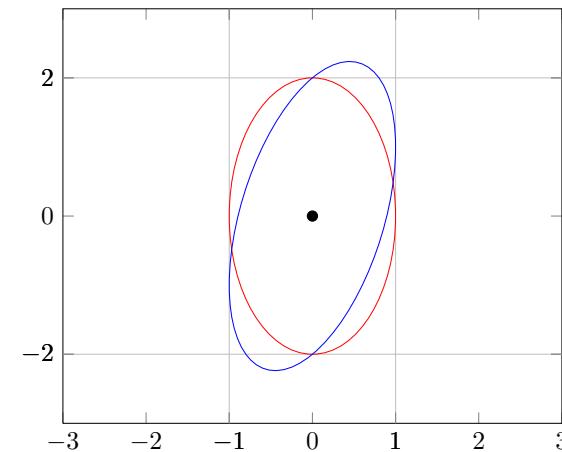


FIGURE: EXAMPLE\_1.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
xlabel=$x$,
ylabel={$f(x) = x^2 - x + 4$}
]
% use TeX as calculator:
\addplot {x^2 - x +4};
\end{axis}
\end{tikzpicture}
\end{document}
```

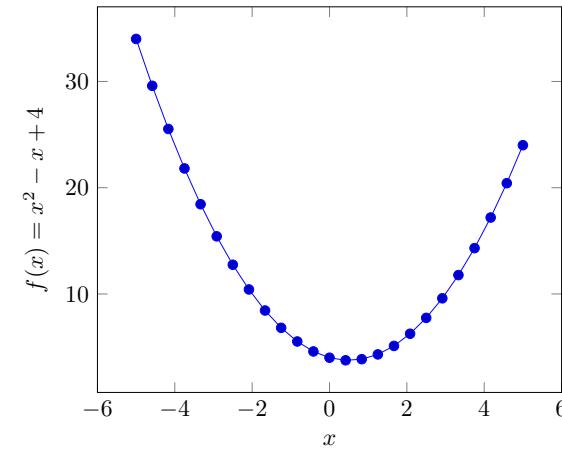


FIGURE: EXAMPLE\_2.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  xlabel=$x$,
  ylabel=$\sin(x)$
]
% invoke external gnuplot as
% calculator:
\addplot gnuplot[id=sin]\sin(x);
\end{axis}
\end{tikzpicture}
\end{document}
```

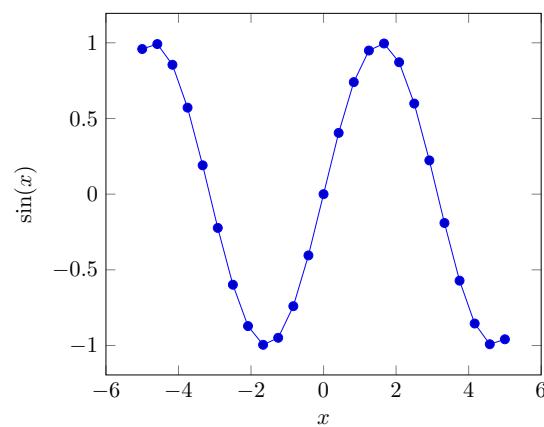


FIGURE: EXAMPLE\_3.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  height=9cm,
  width=9cm,
  grid=major,
]

\addplot {-x^5 - 242};
\addlegendentry{model}
\addplot coordinates {
  (-4.77778,2027.60977)
  (-3.55556,347.84069)
  (-2.33333,22.58953)
  (-1.11111,-493.50066)
  (0.11111,46.66082)
  (1.33333,-205.56286)
  (2.55556,-341.40638)
  (3.77778,-1169.24780)
  (5.00000,-3269.56775)
};
\addlegendentry{estimate}
\end{axis}
\end{tikzpicture}
\end{document}
```

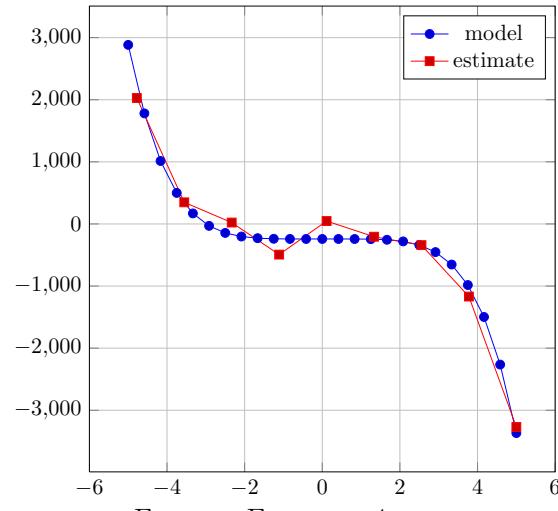


FIGURE: EXAMPLE\_4.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[ xlabel=Cost, ylabel=Gain]
\addplot [color=red,mark=x] coordinates {
(10,100)
(20,150)
(40,225)
(80,340)
(160,510)
(320,765)
(640,1150)
};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

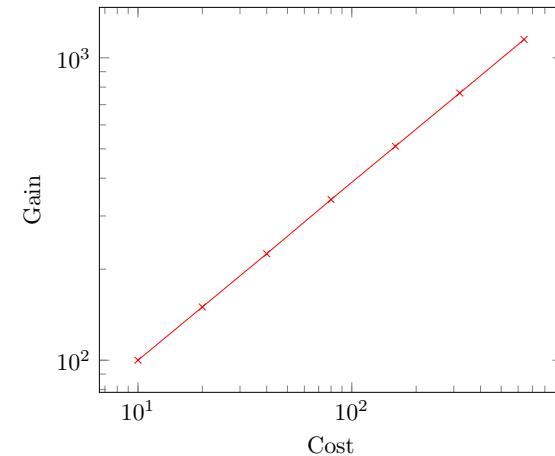


FIGURE: EXAMPLE\_5.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[
  xlabel={Degrees of freedom},
  ylabel={$L_2$ Error}
]
\addplot coordinates {
  (5,8.312e-02)    (17,2.547e-02)    (49,7.407e-03)
  (129,2.102e-03)  (321,5.874e-04)   (769,1.623e-04)
  (1793,4.442e-05) (4097,1.207e-05)  (9217,3.261e-06)
};
\addplot coordinates{
  (7,8.472e-02)    (31,3.044e-02)    (111,1.022e-02)
  (351,3.303e-03)  (1023,1.039e-03)  (2815,3.196e-04)
  (7423,9.658e-05) (18943,2.873e-05) (47103,8.437e-06)
};
\addplot coordinates{
  (9,7.881e-02)    (49,3.243e-02)    (209,1.232e-02)
  (769,4.454e-03)  (2561,1.551e-03)  (7937,5.236e-04)
  (23297,1.723e-04) (65537,5.545e-05) (178177,1.751e-05)
};
\addplot coordinates{
  (11,6.887e-02)    (71,3.177e-02)    (351,1.341e-02)
  (1471,5.334e-03)  (5503,2.027e-03)  (18943,7.415e-04)
  (61183,2.628e-04) (187903,9.063e-05) (553983,3.053e-05)
};
\addplot coordinates{
  (13,5.755e-02)    (97,2.925e-02)    (545,1.351e-02)
  (2561,5.842e-03)  (10625,2.397e-03)  (40193,9.414e-04)
  (141569,3.564e-04) (471041,1.308e-04) (1496065,4.670e-05)
};
\legend{$d=2$, $d=3$, $d=4$, $d=5$, $d=6$}
\end{loglogaxis}
\end{tikzpicture}
\end{document}

```

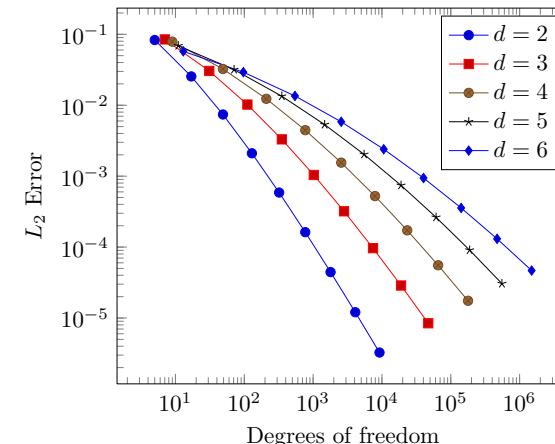


FIGURE: EXAMPLE\_8.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{clickable}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[clickable coords=
 {Level \thisrow{level} (q=\thisrow{q})}]
\addplot table[x=dof,y=error] {
level    dof      error          q
1        4       2.5000000e-01 48
2        16      6.2500000e-02 25
3        64      1.5625000e-02 41
4        256     3.9062500e-03 8
5        1024    9.76562500e-04 22
6        4096    2.44140625e-04 46
7        16384   6.10351562e-05 40
8        65536   1.52587891e-05 3
9        262144  3.81469727e-06 1
10      1048576 9.53674316e-07 9
};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

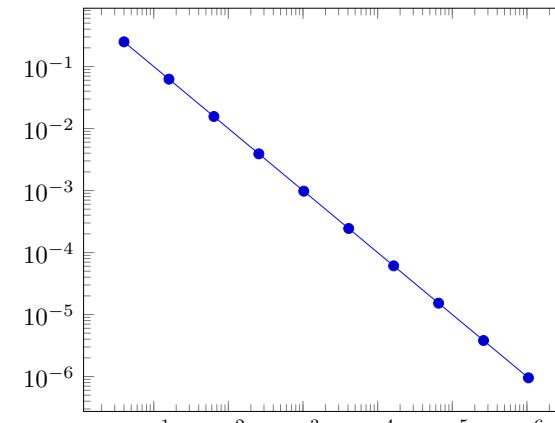


FIGURE: EXAMPLE\_9.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{clickable}
\begin{document}
\begin{tikzpicture}
\begin{axis}[%]
    clickable coords={(xy): \thisrow{label}},%
    scatter/classes={%
        a={mark=square*,blue},%
        b={mark=triangle*,red},%
        c={mark=o,draw=black}}]
\addplot [scatter,only marks,%
    scatter src=explicit symbolic]%
    table[meta=label] {
x      y      label
0.1   0.15   a
0.45  0.27   c
0.02  0.17   a
0.06  0.1    a
0.9   0.5    b
0.5   0.3    c
0.85  0.52   b
0.12  0.05   a
0.73  0.45   b
0.53  0.25   c
0.76  0.5    b
0.55  0.32   c
};
\end{axis}
\end{tikzpicture}
\end{document}
```

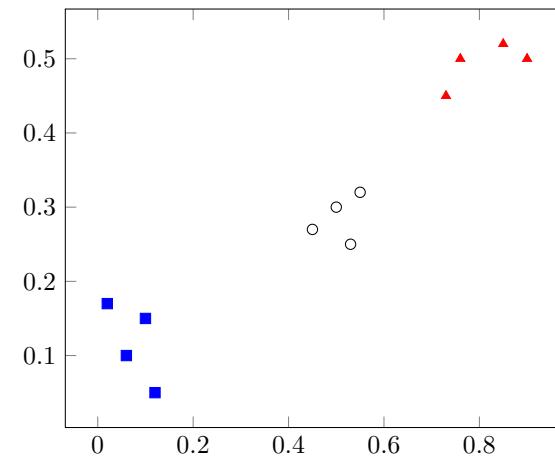


FIGURE: EXAMPLE\_10.PDF

```
% ! LaTeX Error: File `insdlijs.sty' not found.  
\documentclass{standalone}  
\usepackage{pgfplots}  
\pgfplotsset{compat=newest}  
\usepgfplotslibrary{clickable}  
\begin{document}  
\begin{tikzpicture}  
\begin{loglogaxis}[clickable coords code=%  
  \pgfmathprintnumberto[verbatim,precision=1] %  
    {\thisrow{error}}%  
  \error%  
  \pgfmathprintnumberto[verbatim,frac] %  
    {\thisrow{frac}}%  
  \fraccomp%  
  \edef\pgfplotsretval{\error \error, R=\fraccomp}%  
];%  
\addplot table[x=dof,y=error] {  
level  dof      error          frac  
1      4        2.5000000e-01  0.5  
2      16       6.2500000e-02  0.75  
3      64       1.5625000e-02  0.1  
4      256      3.9062500e-03  0.2  
5      1024     9.76562500e-04  0.5  
6      4096     2.44140625e-04  0.8  
7      16384    6.10351562e-05  0.125  
8      65536    1.52587891e-05  0.725  
9      262144   3.81469727e-06  0.625  
10     1048576  9.53674316e-07  1  
};  
  
\end{loglogaxis}  
\end{tikzpicture}  
\end{document}
```

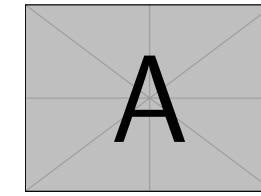


FIGURE: EXAMPLE\_11.PDF MISSING

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{groupplot}
\usepgfplotslibrary{groupplots}
\begin{document}
% Example using groupplots library
\begin{tikzpicture}
\begin{groupplot}[group style={group size=2 by 2},height=3cm,width=3cm]
\nextgroupplot
\addplot coordinates {(0,0) (1,1) (2,2)};
\nextgroupplot
\addplot coordinates {(0,2) (1,1) (2,0)};
\nextgroupplot
\addplot coordinates {(0,2) (1,1) (2,1)};
\nextgroupplot
\addplot coordinates {(0,2) (1,1) (1,0)};
\end{groupplot}
\end{tikzpicture}
% Same example created as done without the library
\begin{tikzpicture}
\begin{axis}[name=plot1,height=3cm,width=3cm]
\addplot coordinates {(0,0) (1,1) (2,2)};
\end{axis}
\begin{axis}[name=plot2,at={($(plot1.east)+(1cm,0)$)},anchor=west,height=3cm, width=3cm]
\addplot coordinates {(0,2) (1,1) (2,0)};
\end{axis}
\begin{axis}[name=plot3,at={($(plot1.south)-(0,1cm)$)},anchor=north,height=3cm, width=3cm]
\addplot coordinates {(0,2) (1,1) (2,1)};
\end{axis}
\begin{axis}[name=plot4,at={($(plot2.south)-(0,1cm)$)},anchor=north,height=3cm, width=3cm]
\addplot coordinates {(0,2) (1,1) (1,0)};
\end{axis}
\end{tikzpicture}
\end{document}

```

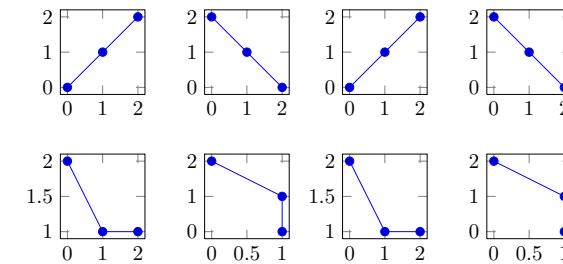


FIGURE: EXAMPLE\_12.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title={\texttt{patch type=quadratic spline}}]
\addplot[
    mark=*,%
    patch, mesh, % without mesh, pgfplots tries to fill
    patch type=quadratic spline]
coordinates {
    % left, right, middle-> first segment
    (0,0) (1,1) (0.5,0.5^2)
    % left, right, middle-> second segment
    (1.2,1) (2.2,1) (1.7,2)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

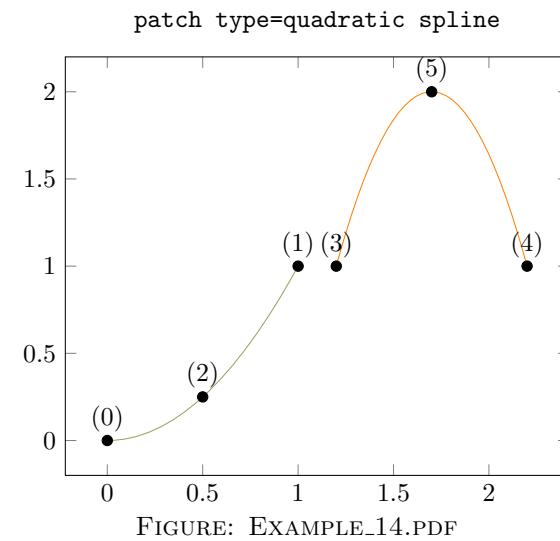


FIGURE: EXAMPLE\_14.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
  title=\texttt{patch type=cubic spline}]
\addplot[
  mark=*, 
  patch, mesh,
  patch type=cubic spline]
coordinates {
  % left, right, left middle, right middle
  (-1,-1) (1,1)
  (-1/3,{(-1/3)^3}) (1/3,{(1/3)^3})
};
\end{axis}
\end{tikzpicture}
\end{document}
```

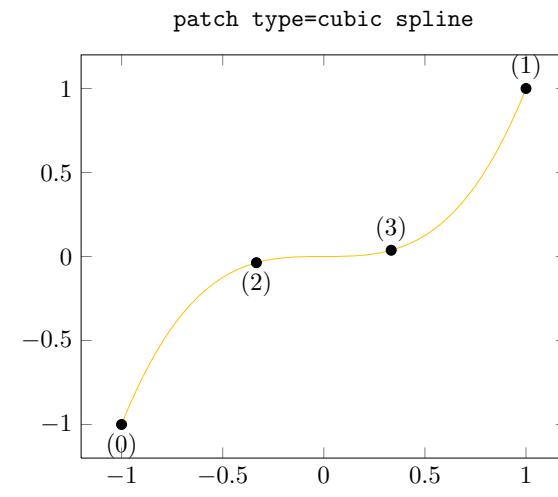


FIGURE: EXAMPLE\_15.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
  title=Rectangle from matrix input]
% note that surf implies 'patch type=rectangle'
\addplot3[surf,shader=interp,samples=2,
  patch type=rectangle]
  {x*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

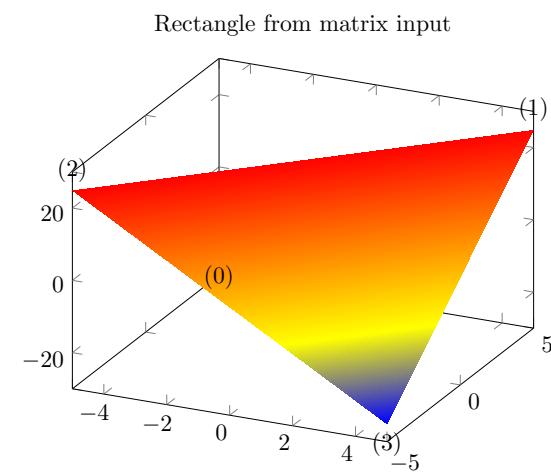


FIGURE: EXAMPLE\_16.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title=Rectangle from patch input]
\addplot3[patch,shader=interp,patch type=rectangle] coordinates {
    (0,0,1) (1,0,0) (1,1,0) (0,1,0)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

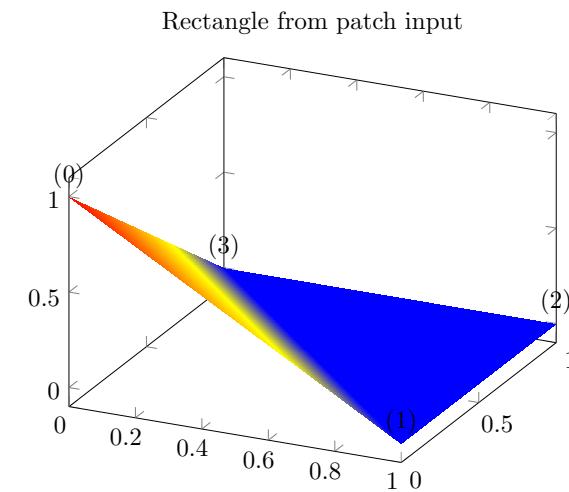


FIGURE: EXAMPLE\_17.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title=Bilinear from $2\times 2$ matrix input
    % note that surf implies 'patch type=rectangle'
]
\addplot3[surf,shader=interp,samples=2,
    patch type=bilinear]
    {x*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

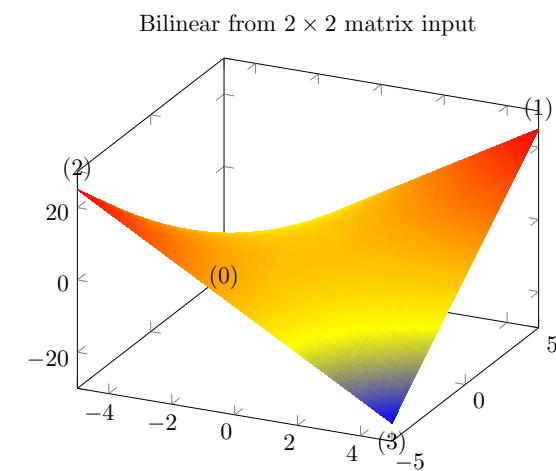


FIGURE: EXAMPLE\_18.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[enlargelimits,
    nodes near coords={(\coordindex)},
    title=Single Triangle patch]
\addplot3[patch,shader=interp] coordinates {
    (0,0,1)
    (1,0,0)
    (1,1,0)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

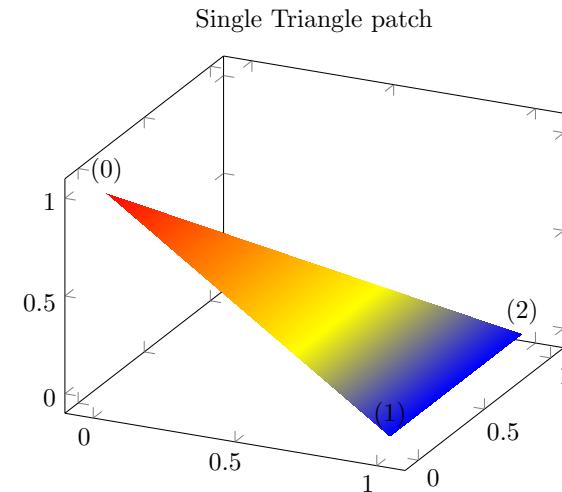


FIGURE: EXAMPLE\_20.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title=Quadratic Triangle]
\addplot[patch,patch type=triangle quadr,
    shader=interp,point meta=explicit]
coordinates {
    (0,0) [1] (5,4) [2] (0,7) [3]
    (2,3) [1] (3,6) [2] (-1,4) [3]
};
\end{axis}
\end{tikzpicture}
\end{document}
```

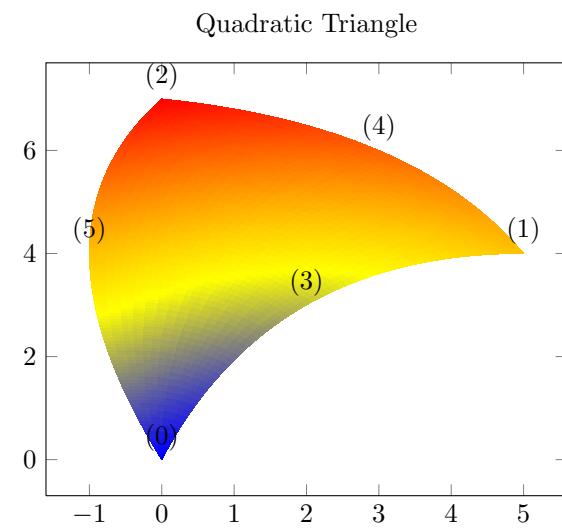


FIGURE: EXAMPLE\_21.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title=Quadratic Triangle]
\addplot3[patch,patch type=triangle quadr,
    shader=interp]
coordinates {
    (0,0,1) (5,4,0) (0,7,0)
    (2,3,0) (3,6,0) (-1,4,0)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

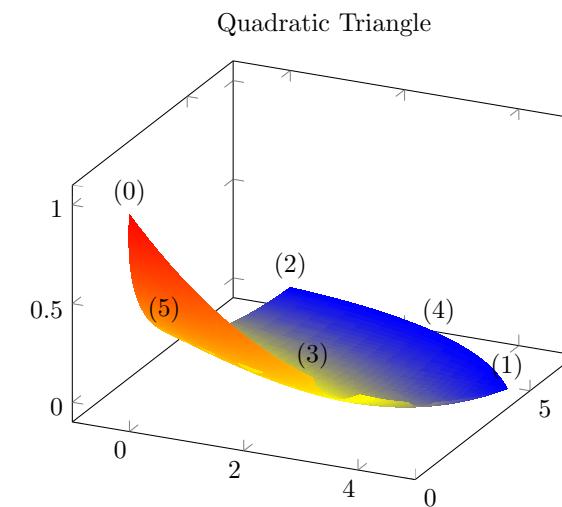


FIGURE: EXAMPLE\_22.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title=Single Biquadratic Quadrilateral]
\addplot[patch,patch type=biquadratic,
    shader=interp,point meta=explicit]
coordinates {
    (0,0) [1] (6,1) [2] (5,5) [3] (-1,5) [4]
    (3,1) [1] (6,3) [2] (2,6) [3] (0,3) [4]
    (3,3.75) [4]
};
\end{axis}
\end{tikzpicture}
\end{document}
```

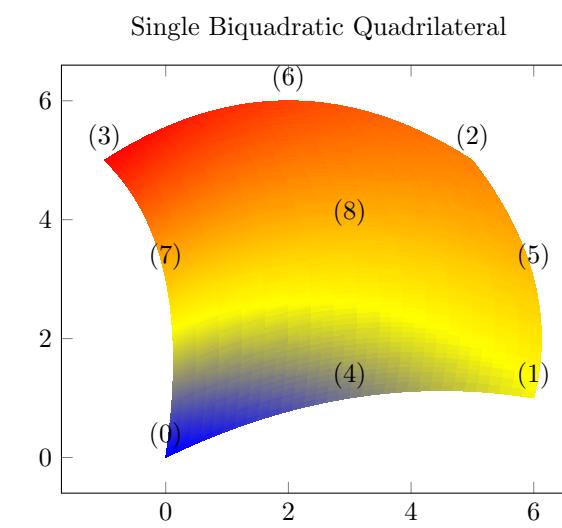
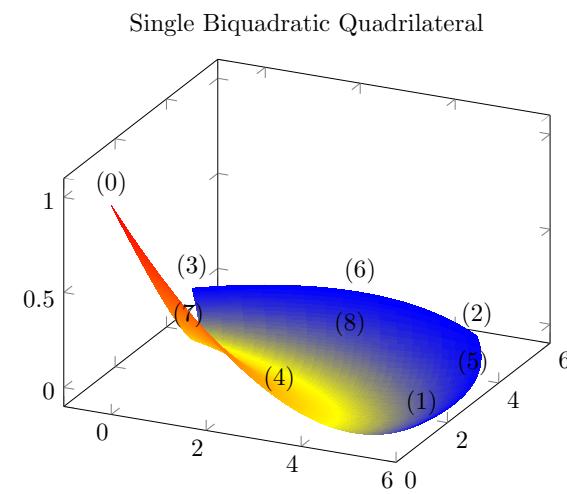


FIGURE: EXAMPLE\_23.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
  title=Single Biquadratic Quadrilateral]
\addplot3[patch,patch type=biquadratic,shader=interp]
coordinates {
  (0,0,1) (6,1,0) (5,5,0) (-1,5,0)
  (3,1,0) (6,3,0) (2,6,0) (0,3,0)
  (3,3.75,0)
};
\end{axis}
\end{tikzpicture}
\end{document}
```



```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
width=12cm,
title=A Coons Patch]
\addplot [mark=*,patch,patch type=coons,
shader=interp,point meta=explicit]
coordinates {
(0,0) [0] % first corner
(1,-1) [0] % Bezier control point between (0) and (3)
(4,0.7) [0] % Bezier control point between (0) and (3)
%
(3,2) [1] % second corner
(4,3.5) [1] % Bezier control point between (3) and (6)
(7,2) [1] % Bezier control point between (3) and (6)
%
(7,1) [2] % third corner
(6,0.6) [2] % Bezier control point between (6) and (9)
(4.5,-0.5) [2] % Bezier control point between (6) and (9)
%
(5,-2) [3] % fourth corner
(4,-2.5) [3] % Bezier control point between (9) and (0)
(-1,-2) [3] % Bezier control point between (9) and (0)
};
\end{axis}
\end{tikzpicture}
\end{document}

```

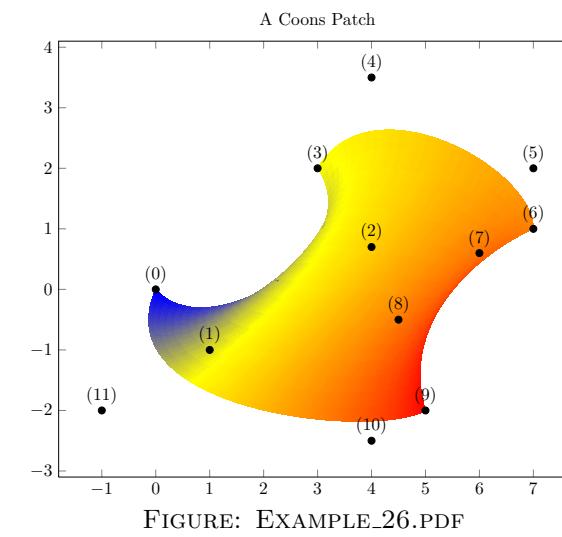


FIGURE: EXAMPLE\_26.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\foreach \level in {0,1,2} {%
    \begin{tikzpicture}
        \begin{axis}[
            nodes near coords={(\coordindex)},
            footnotesize,
            title=[patch refines=\level]
        ]
        \addplot3[patch,patch type=triangle quadr,
            shader=faceted interp,patch refines=\level]
        coordinates {
            (0,0,0) (5,4,0) (0,7,0)
            (2,3,0) (3,6,1) (-1,4,0)
        };
        \end{axis}
    \end{tikzpicture}
}
\end{document}
```

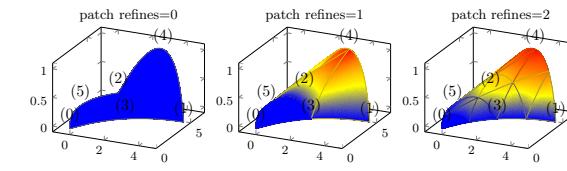


FIGURE: EXAMPLE\_28.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\foreach \level in {0,1,2} {%
    \begin{tikzpicture}
        \begin{axis}[
            nodes near coords={(\coordindex)},
            footnotesize,
            title=[Triangulation + \level\ refines]
        ]
        \addplot3[patch,patch type=biquadratic,shader=faceted interp,
            patch to triangles,patch refines=\level]
        coordinates {
            (0,0,0) (6,1,0) (5,5,0) (-1,5,0)
            (3,1,0) (6,3,0) (2,6,0) (0,3,0)
            (3,3.75,1)
        };
        \end{axis}
    \end{tikzpicture}
}
\end{document}
```

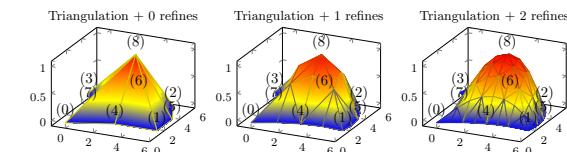


FIGURE: EXAMPLE\_29.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\foreach \level in {0,1,2} {%
\begin{tikzpicture}
\begin{axis}[
    footnotesize,
    title={Faceted + \level\ refines}]
\addplot3[patch,patch type=biquadratic,shader=faceted,
    patch refines=\level]
coordinates {
(0,0,1) (6,1,0) (5,5,0) (-1,5,0)
(3,1,0) (6,3,0) (2,6,0) (0,3,0)
(3,3.75,0)
};
\end{axis}
\end{tikzpicture}
}
\end{document}
```

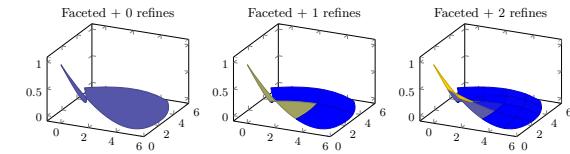


FIGURE: EXAMPLE\_30.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={Grids with shader=faceted}]
\addplot3[patch,patch type=biquadratic,
    shader=faceted,patch refines=3]
coordinates {
(0,0,1) (6,1,1.6) (5,5,1.3) (-1,5,0)
(3,1,0) (6,3,0.4) (2,6,1.1) (0,3,0.9)
(3,3.75,0.5)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

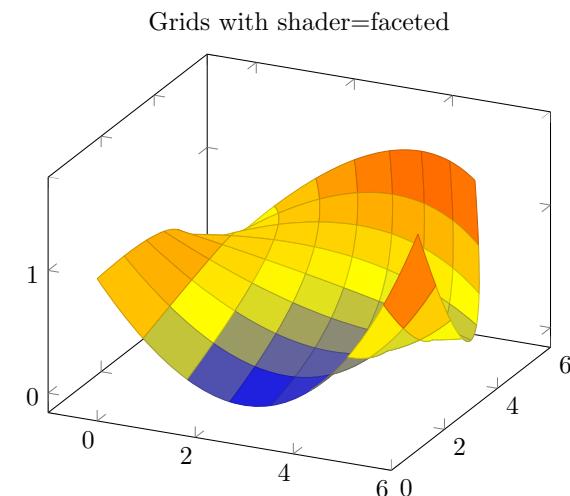


FIGURE: EXAMPLE\_31.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={Grids with shader=faceted interp}]
\addplot3[patch,patch type=biquadratic,
    shader=faceted interp,patch refines=3]
coordinates {
    (0,0,1) (6,1,1.6) (5,5,1.3) (-1,5,0)
    (3,1,0) (6,3,0.4) (2,6,1.1) (0,3,0.9)
    (3,3.75,0.5)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

Grids with shader=faceted interp

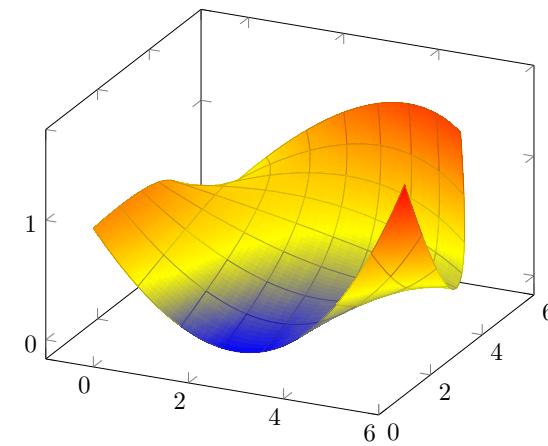


FIGURE: EXAMPLE\_32.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{patchplots}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={Separate Grids (iii)}]
\addplot3[patch,patch type=biquadratic,shader=interp,
    patch refines=3]
coordinates {
(0,0,1) (6,1,1.6) (5,5,1.3) (-1,5,0)
(3,1,0) (6,3,0.4) (2,6,1.1) (0,3,0.9)
(3,3.75,0.5)
};
\addplot3[patch,patch type=biquadratic,
    mesh,black,
    z filter/.code={\def\pgfmathresult{1.8}},
    patch refines=3]
coordinates {
(0,0,1) (6,1,1.6) (5,5,1.3) (-1,5,0)
(3,1,0) (6,3,0.4) (2,6,1.1) (0,3,0.9)
(3,3.75,0.5)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

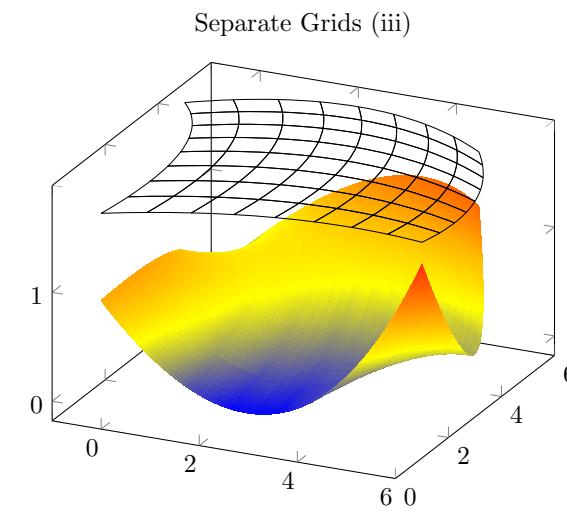


FIGURE: EXAMPLE\_35.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}
\addplot coordinates {(0,1) (90,1) (180,1) (270,1)};
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

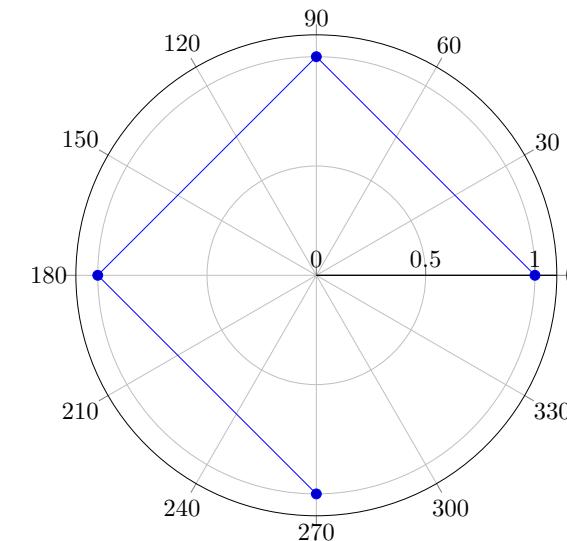


FIGURE: EXAMPLE\_36.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}[
    xtick={0,90,180,270},
    title=A polar axis]
\addplot coordinates {(0,1) (45,1)};
\addlegendentry{First}
\addplot coordinates {(180,0.5) (0,0)};
\addlegendentry{Second}
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

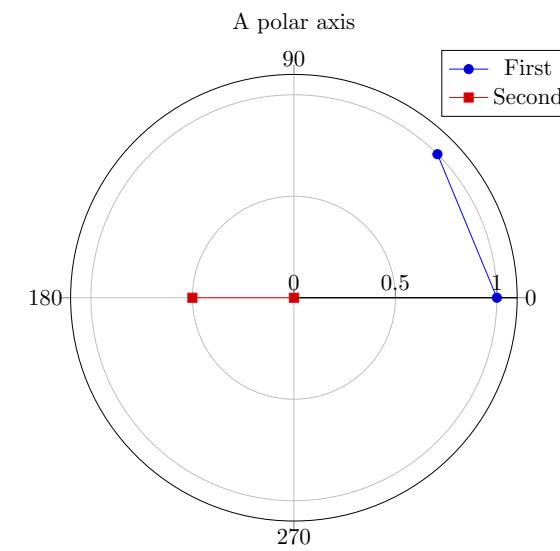


FIGURE: EXAMPLE\_39.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}[title=Degrees and/or Radians]
\addplot
    coordinates {(0,1) (90,1) (180,1) (270,1)};
\addlegendentry{Deg}
\addplot+[data cs=polararrad]
    coordinates {(0,1.5) (pi/2,1.5)
                  (pi,1.5) (pi*3/2,1.5)};
\addlegendentry{Rad}
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

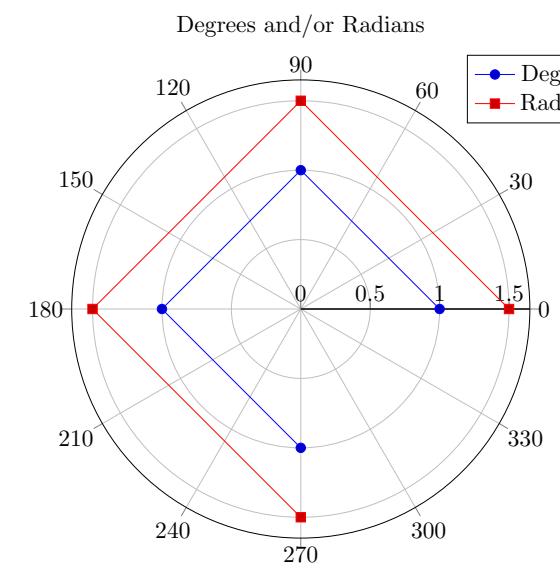


FIGURE: EXAMPLE\_40.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}[title=Cartesian Input]
\addplot+[data cs=cart]
coordinates {(1,0) (0,1) (-1,0) (0,-1)};
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

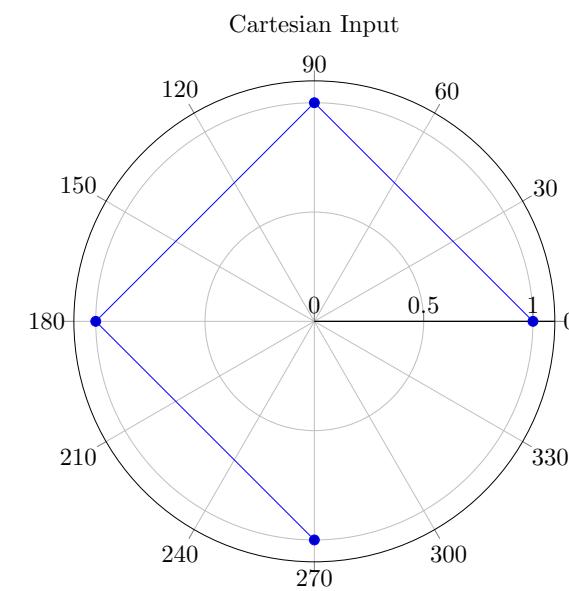


FIGURE: EXAMPLE\_41.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}
\addplot+[polar comb]
coordinates {(300,1) (20,0.3) (40,0.5)
(120,1) (200,0.4)};
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

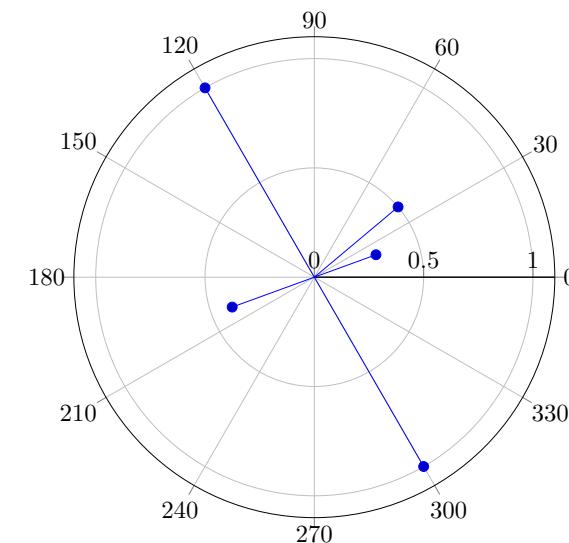


FIGURE: EXAMPLE\_43.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}[xmin=45,xmax=360]
\addplot coordinates {(0,1) (90,1) (180,1) (270,1)};
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

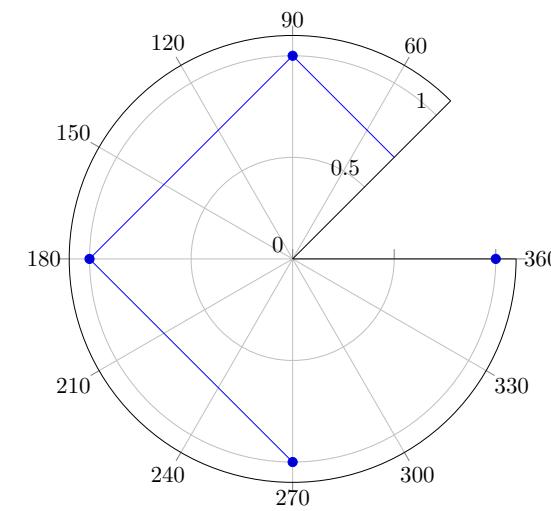


FIGURE: EXAMPLE\_44.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
\begin{tikzpicture}
\begin{polaraxis}[xmin=45,xmax=405]
\addplot coordinates {(0,1) (90,1) (180,1) (270,1)};
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

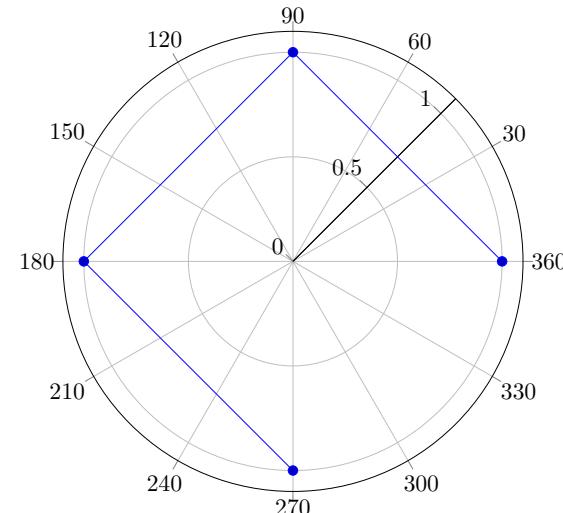


FIGURE: EXAMPLE\_47.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\usepackage{textcomp}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[ xlabel=A, ylabel=B, zlabel=C]
\addplot3 coordinates {
(0.81, 0.19, 0.00)
(0.76, 0.17, 0.07)
(0.66, 0.16, 0.16)
(0.76, 0.07, 0.17)
(0.81, 0.00, 0.19)
};
\addplot3 coordinates {
(0.85, 0.15, 0.00)
(0.82, 0.13, 0.05)
(0.73, 0.14, 0.13)
(0.82, 0.06, 0.13)
(0.84, 0.00, 0.16)
};
\node[pin=130:Deduced $z$,draw=black] at (axis cs:0.2,0.2) {};
\legend{$10^\circ$,$20^\circ$}
\end{ternaryaxis}
\end{tikzpicture}
\end{document}
```

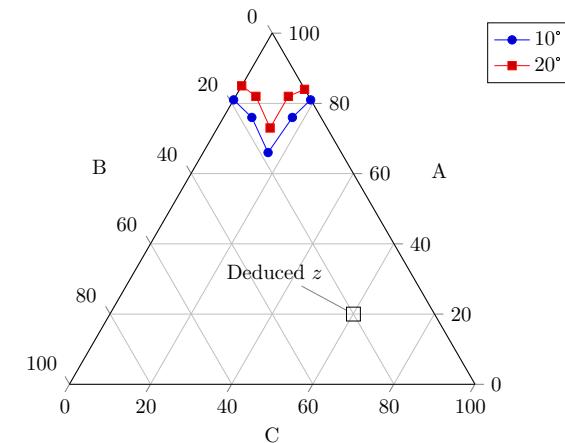


FIGURE: EXAMPLE\_49.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[
    title=Want--be--Stainless Steel,
    xlabel=Weight Percent Chromium,
    ylabel=Weight Percent Iron,
    zlabel=Weight Percent Nickel,
    label style=sloped,
]
% plotdata/pgfplotsternary.example1.dat:
%
% Chromium Iron Nickel Temperature
% 0.90 0.0      0.10 1700
% 0.85 0.14     0.00 1700
%
% 0.85 0.00     0.15 1600
% 0.78 0.22     0.00 1600
% 0.71 0.29     0.00 1600
%
% .....
\addplot3[contour prepared={labels over line},
    point meta=\thisrow{Temperature}]
    table[x=Chromium,y=Iron,z=Nickel]
    {plotdata/pgfplotsternary.example1.dat};
\end{ternaryaxis}
\end{tikzpicture}
\end{document}

```

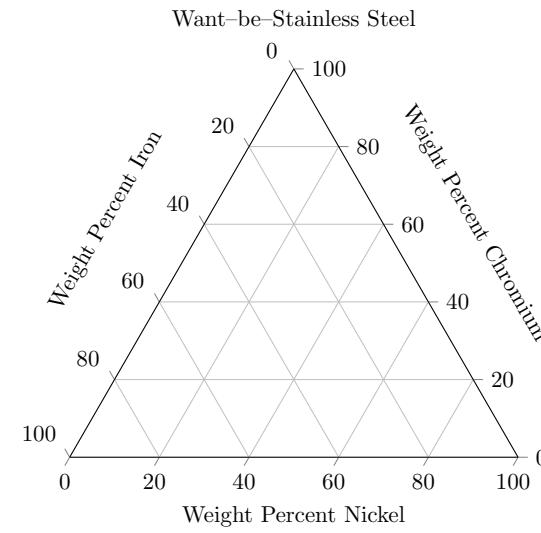
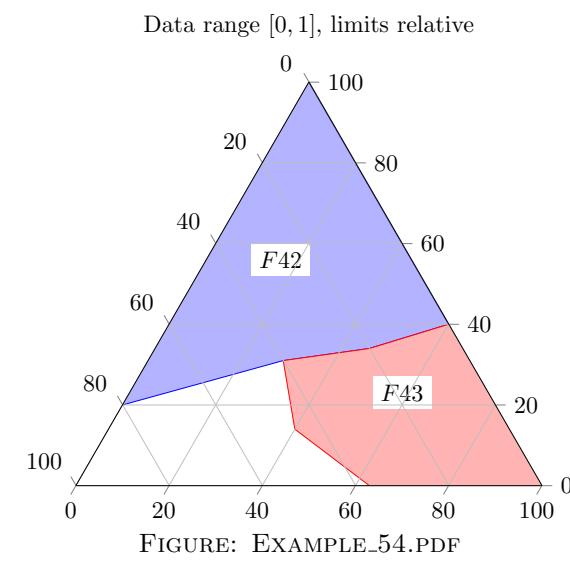


FIGURE: EXAMPLE\_53.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[
    ternary limits relative,
    title={Data range $[0,1]$, limits relative},
    area style]
\addplot3 coordinates {
    (0.2,0.8,0)
    (0.31,0.4,0.29)
    (0.34,0.2,0.46)
    (0.4,0,0.6)
    (1,0,0)
};
\addplot3 coordinates {
    (0.4,0,0.6)
    (0.34,0.2,0.46)
    (0.31,0.4,0.29)
    (0.14,0.46,0.4)
    (0,0.37,0.63)
    (0,0,1)
};
\node[fill=white]
    at (axis cs:0.56,0.28,0.16) {$F_{42}$};
\node[fill=white]
    at (0.7,0.2) {$F_{43}$};
\end{ternaryaxis}
\end{tikzpicture}
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[
xmax=500,ymin=1,ymax=2,
ternary limits relative,
title={Data range  $x \in [0, 500]$ ,  

 $y \in [1, 2]$ ,  $z \in [0, 1]$  limits relative},
area style]
\addplot3 coordinates {
(100,1.8,0)
(155,1.4,0.29)
(170,1.2,0.46)
(200,1,0.6)
(500,1,0)
};
\addplot3 coordinates {
(200,1,0.6)
(170,1.2,0.46)
(155,1.4,0.29)
(70,1.46,0.4)
(0,1.37,0.63)
(0,1,1)
};
\node[fill=white]
at (axis cs:280,1.28,0.16) {$F_{42}$};
\node[fill=white]
at (0.7,0.2) {$F_{43}$};
\end{ternaryaxis}
\end{tikzpicture}
\end{document}
```

Data range  $x \in [0, 500]$ ,  $y \in [1, 2]$ ,  $z \in [0, 1]$  limits relative

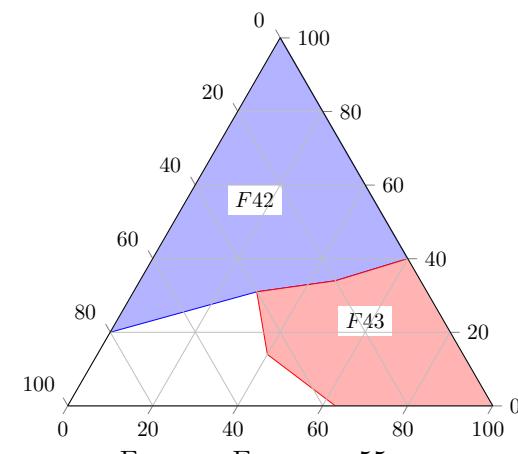


FIGURE: EXAMPLE\_55.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[
    ternary limits relative=false,
    xmax=500, ymin=1, ymax=2,
    title={Data range $x \in [0, 500]$, $y \in [1, 2]$, $z \in [0, 1]$ limits absolute},
    footnotesize, % just for the sake of demonstration...
    area style]
\addplot3 coordinates {
    (100,1.8,0)
    (155,1.4,0.29)
    (170,1.2,0.46)
    (200,1,0.6)
    (500,1,0)
};
\addplot3 coordinates {
    (200,1,0.6)
    (170,1.2,0.46)
    (155,1.4,0.29)
    (70,1.46,0.4)
    (0,1.37,0.63)
    (0,1,1)
};
\node[fill=white]
    at (axis cs:280,1.28,0.16) {$F_{42}$};
\node[fill=white]
    at (0.7,0.2) {$F_{43}$};
\end{ternaryaxis}
\end{tikzpicture}
\end{document}
```

Data range  $x \in [0, 500]$ ,  $y \in [1, 2]$ ,  $z \in [0, 1]$  limits absolute

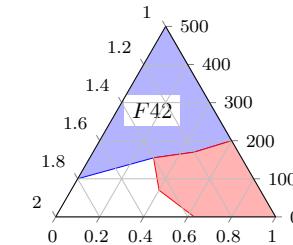


FIGURE: EXAMPLE\_56.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[
    xlabel=x (IPA),
    ylabel=y (water),
    zlabel=z (propene),
    axis on top,
]
% plotdata/ternary_data.txt is a table of the form
% A_propene A_water A_IPA B_propene B_water B_IPA
% 0.0009 0.9990 0 0.9333 0.0667 0
% 0.0009 0.9988 0.0002 0.9303 0.0665 0.0032
% 0.0011 0.9975 0.0013 0.9135 0.0673 0.0191
% 0.0013 0.9962 0.0024 0.8956 0.0693 0.0351
%...
\addplot3[tieline,fill=blue!10]
table [x=A_IPA,y=A_water,z=A_propene]
{plotdata/ternary_data.txt};
\end{ternaryaxis}
\end{tikzpicture}
\end{document}

```

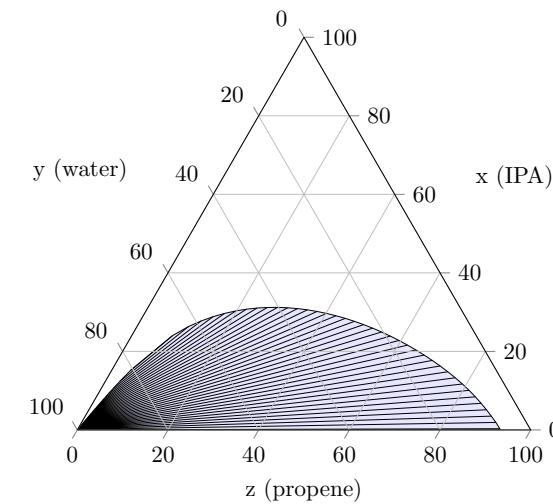


FIGURE: EXAMPLE\_58.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{ternary}
\begin{document}
\begin{tikzpicture}
\begin{ternaryaxis}[
    xlabel=x (IPA),
    ylabel=y (water),
    zlabel=z (propene),
    axis on top,
]
% plotdata/ternary_data.txt is a table of the form
% A_propene A_water A_IPA B_propene B_water B_IPA
% 0.0009 0.9990 0 0.9333 0.0667 0
% 0.0009 0.9988 0.0002 0.9303 0.0665 0.0032
% 0.0011 0.9975 0.0013 0.9135 0.0673 0.0191
% 0.0013 0.9962 0.0024 0.8956 0.0693 0.0351
%...
\addplot3[
    tieline={each nth tie=5},
    fill=blue!10,
]
table [x=A_IPA,y=A_water,z=A_propene]
{plotdata/ternary_data.txt};
\end{ternaryaxis}
\end{tikzpicture}
\end{document}

```

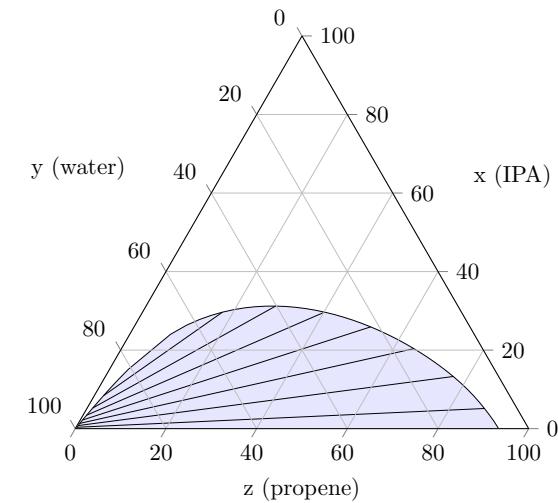


FIGURE: EXAMPLE\_59.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{units}
\usepgfplotslibrary{units}
\begin{document}
\begin{tikzpicture}
\begin{axis}[use units,
x unit=m,x unit prefix=k,
y unit=N,y unit prefix=m,
 xlabel=Distance, ylabel=Force]
\addplot coordinates {
(1,2.3)
(2,2.7)
(3,2.1)
(4,1.8)
(5,1.5)
(6,1.1)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

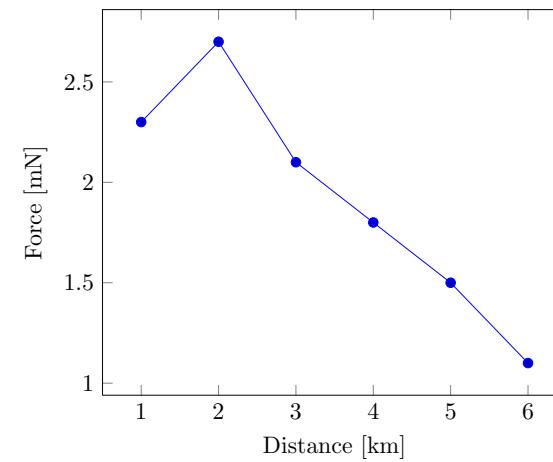


FIGURE: EXAMPLE\_61.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{units}
\usepgfplotslibrary{units}
\begin{document}
\begin{tikzpicture}
\begin{axis}[change x base,
x SI prefix=kilo,x unit=m,
y SI prefix=milli,y unit=N,
 xlabel=Distance, ylabel=Force]
\addplot coordinates {
(1000,1)
(2000,1.1)
(3000,1.2)
(4000,1.3)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

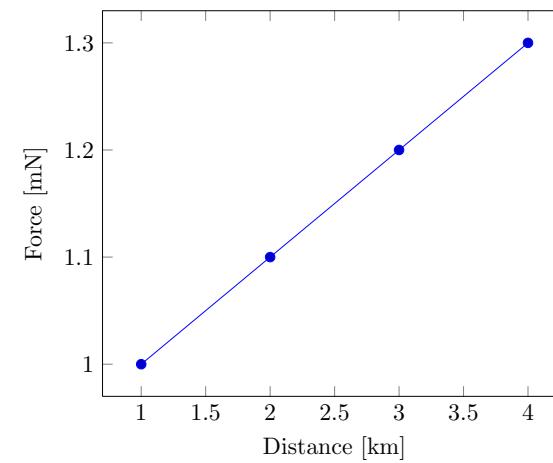


FIGURE: EXAMPLE\_62.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[sharp plot] coordinates
{(0,0) (1,2) (2,3)};
\end{axis}
\end{tikzpicture}
\end{document}
```

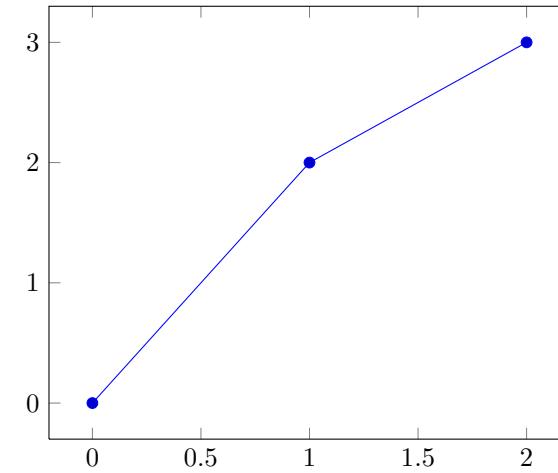


FIGURE: EXAMPLE\_63.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[smooth] coordinates
{(0,0) (1,2) (2,3)};
\end{axis}
\end{tikzpicture}
\end{document}
```

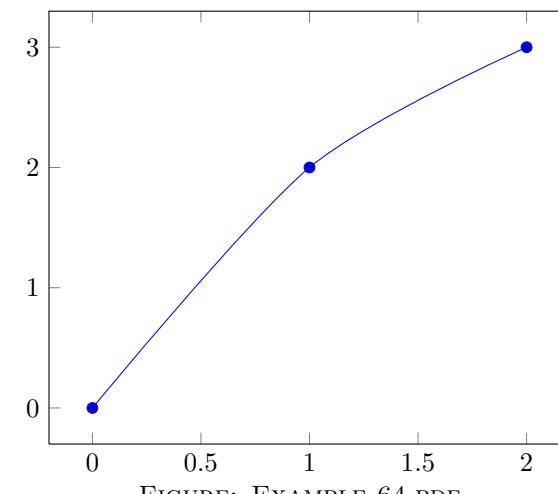


FIGURE: EXAMPLE\_64.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[const plot]
coordinates
{(0,0.1) (0.1,0.15) (0.2,0.5) (0.3,0.62)
 (0.4,0.56) (0.5,0.58) (0.6,0.65) (0.7,0.6)
 (0.8,0.58) (0.9,0.55) (1,0.52)};
\end{axis}
\end{tikzpicture}
\end{document}
```

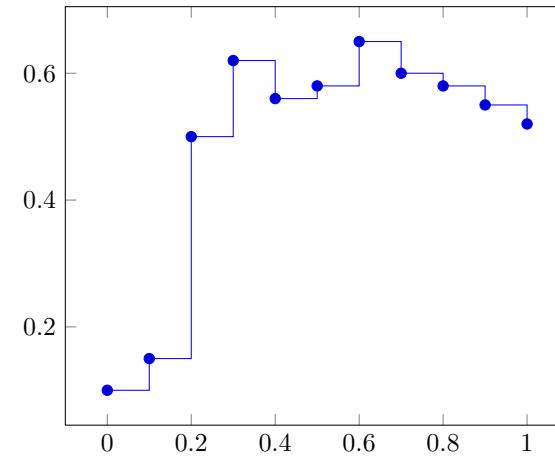


FIGURE: EXAMPLE\_65.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[ymin=0,ymax=1,enlargelimits=false]
\addplot
[const plot,fill=blue,draw=black]
coordinates
{(0,0.1) (0.1,0.15) (0.2,0.5) (0.3,0.62)
 (0.4,0.56) (0.5,0.58) (0.6,0.65) (0.7,0.6)
 (0.8,0.58) (0.9,0.55) (1,0.52)}
 \closedcycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

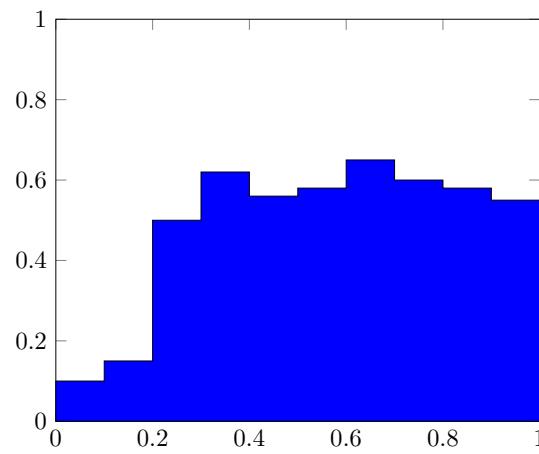


FIGURE: EXAMPLE\_66.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[const plot mark mid]
coordinates
{(0,0.1) (0.1,0.15) (0.2,0.5) (0.3,0.62)
(0.4,0.56) (0.5,0.58) (0.6,0.65) (0.7,0.6)
(0.8,0.58) (0.9,0.55) (1,0.52)};
\end{axis}
\end{tikzpicture}
\end{document}
```

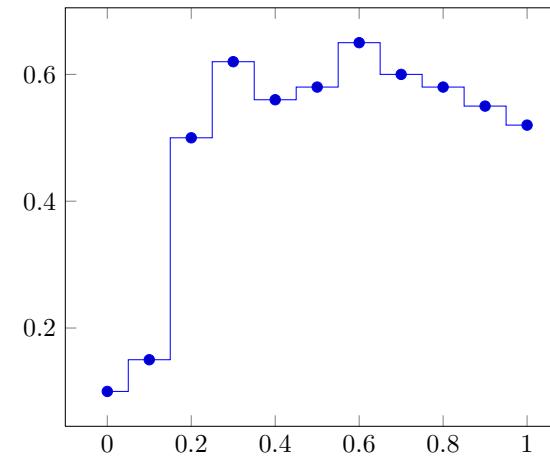


FIGURE: EXAMPLE\_68.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[samples=8]
\addplot+[jump mark left,domain=-5:0]
{4*x^2 - 5};
\addplot+[jump mark right,domain=-5:0]
{0.7*x^3 + 50};
\end{axis}
\end{tikzpicture}
\end{document}
```

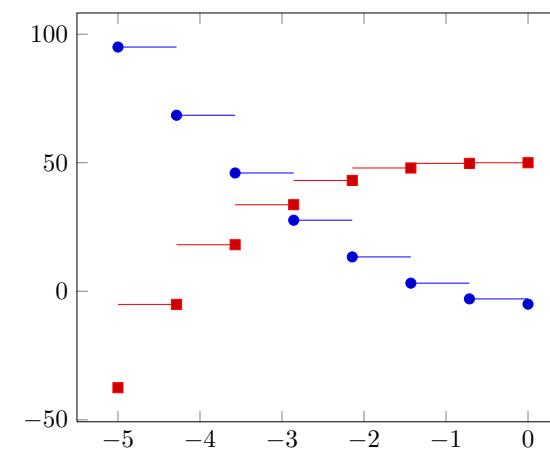


FIGURE: EXAMPLE\_69.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usetikzlibrary{patterns}
\begin{document}
\begin{tikzpicture}
\begin{axis}[xbar,enlargelimits=0.15]
\addplot
[draw=blue,pattern=horizontal lines light blue]
coordinates
{(10,5) (15,10) (5,15) (24,20) (30,25)};
\addplot
[draw=black,pattern=horizontal lines dark blue]
coordinates
{(3,5) (5,10) (15,15) (20,20) (35,25)};
\end{axis}
\end{tikzpicture}
\end{document}
```

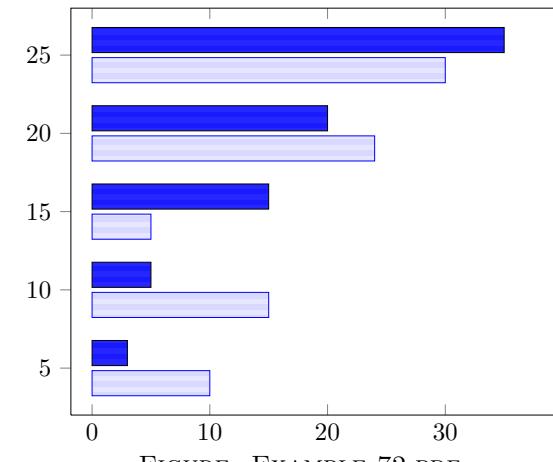


FIGURE: EXAMPLE\_72.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title=Uses lowest  $\$x\$$  coords for xmin,
    xbar,
    width=12cm, height=3.5cm, enlarge y limits=0.5,
    xlabel=\#participants,
    symbolic y coords={no,yes},
    ytick=data,
    nodes near coords, nodes near coords align=horizontal,
]
\addplot coordinates {(1,no) (9,yes)};
\end{axis}
\end{tikzpicture}
\end{document}
```

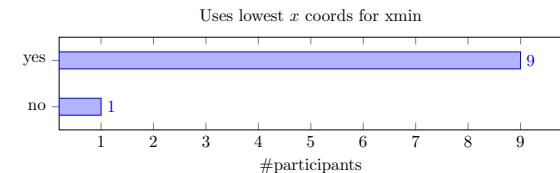


FIGURE: EXAMPLE\_74.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[ybar] plot coordinates
{(0,3) (1,2) (2,4) (3,1) (4,2)};
\end{axis}
\end{tikzpicture}
\end{document}
```

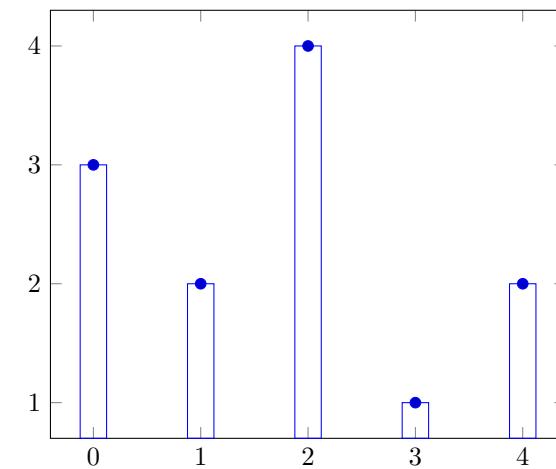


FIGURE: EXAMPLE\_75.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    x tick label style={
        /pgf/number format/1000 sep=},
    ylabel=Population,
    enlargelimits=0.15,
    legend style={at={(0.5,-0.15)},%
        anchor=north,legend columns=-1},
    ybar,
    bar width=7pt,
]
\addplot
    coordinates {(1930,50e6) (1940,33e6)
    (1950,40e6) (1960,50e6) (1970,70e6)};
\addplot
    coordinates {(1930,38e6) (1940,42e6)
    (1950,43e6) (1960,45e6) (1970,65e6)};
\addplot
    coordinates {(1930,15e6) (1940,12e6)
    (1950,13e6) (1960,25e6) (1970,35e6)};
\addplot [red,sharp plot,update limits=false]
    coordinates {(1910,4.3e7) (1990,4.3e7)}
    node[above] at (axis cs:1950,4.3e7) {Houses};
\legend{Far,Near,Here,Annot}
\end{axis}
\end{tikzpicture}
\end{document}
```

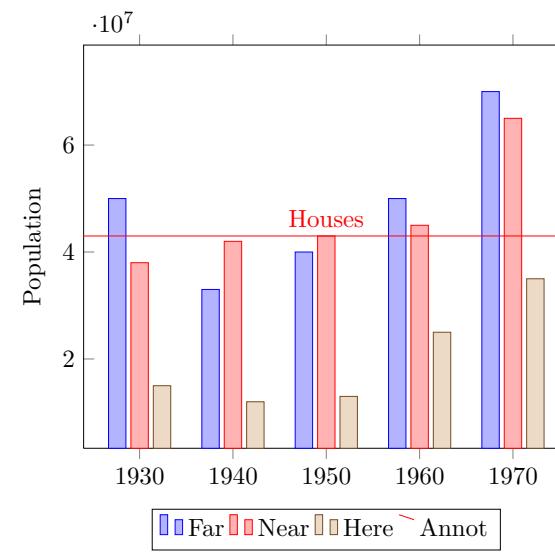


FIGURE: EXAMPLE\_76.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    x tick label style=[
        /pgf/number format/1000 sep=,
    ylabel=Population,
    enlargelimits=0.15,
    legend style={at={(0.5,-0.15)},%
        anchor=north,legend columns=-1},
    ybar=5pt,% configures `bar shift'
    bar width=9pt,
    nodes near coords,
    point meta=y *10^-7 % the displayed number
]
\addplot
coordinates {(1930,50e6) (1940,33e6)
(1950,40e6) (1960,50e6) (1970,70e6)};
\addplot
coordinates {(1930,38e6) (1940,42e6)
(1950,43e6) (1960,45e6) (1970,65e6)};
\legend{Far,Near}
\end{axis}
\end{tikzpicture}
\end{document}
```

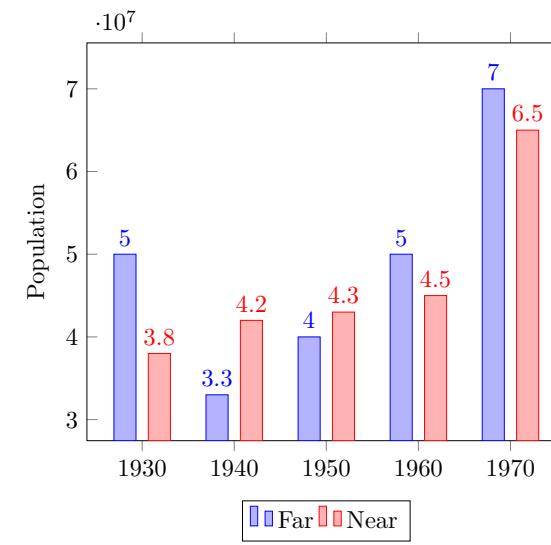


FIGURE: EXAMPLE\_78.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
ybar,
enlargelimits=0.15,
legend style={at={(0.5,-0.2)}, anchor=north,legend columns=-1},
ylabel=\#participants,
symbolic x coords={excellent,good,neutral,%
not good,poor},
xtick=data,
nodes near coords,
nodes near coords align=vertical,
x tick label style={rotate=45,anchor=east},
]
\addplot coordinates {(excellent,0) (good,8)
(neutral,2) (not good,0) (poor,0)};
\end{axis}
\end{tikzpicture}
\end{document}
```

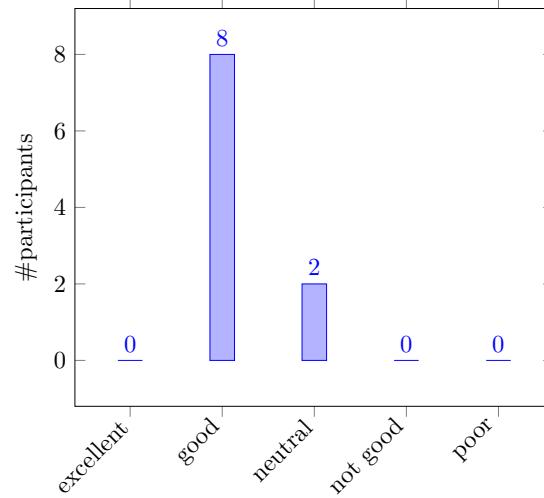


FIGURE: EXAMPLE\_79.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[ybar interval] plot coordinates
{(0,2) (0.1,1) (0.3,0.5) (0.35,4) (0.5,3)
(0.6,2) (0.7,1.5) (1,1.5)};
\end{axis}
\end{tikzpicture}
\end{document}
```

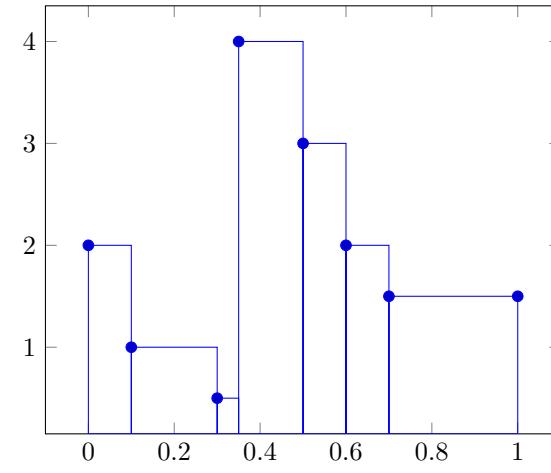


FIGURE: EXAMPLE\_80.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[ybar interval,
    xtick=data,
    xticklabel interval boundaries,
    x tick label style=
        {rotate=90, anchor=east}
]
\addplot coordinates
{(0,2) (0.1,1) (0.3,0.5) (0.35,4) (0.5,3)
(0.6,2) (0.7,1.5) (1,1.5)};
\end{axis}
\end{tikzpicture}
\end{document}
```

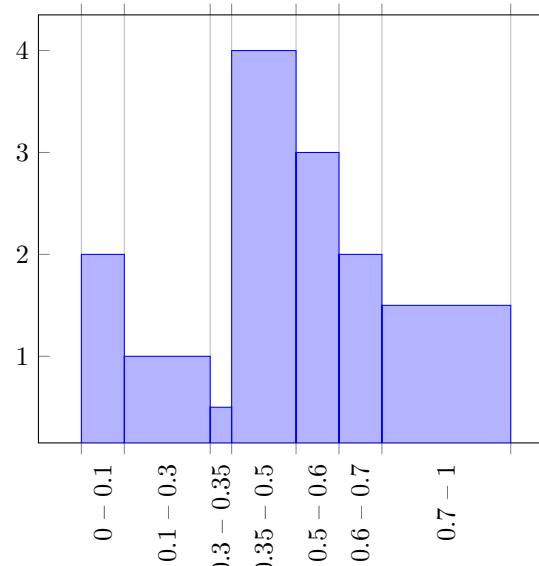


FIGURE: EXAMPLE\_81.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    x tick label style={
        /pgf/number format/1000 sep=},
    ylabel=Population,
    enlargelimits=0.05,
    legend style={at={(0.5,-0.15)},%
        anchor=north,legend columns=-1},
    ybar interval=0.7,
]
\addplot
coordinates {(1930,50e6) (1940,33e6)
(1950,40e6) (1960,50e6) (1970,70e6)};
\addplot
coordinates {(1930,38e6) (1940,42e6)
(1950,43e6) (1960,45e6) (1970,65e6)};
\addplot
coordinates {(1930,15e6) (1940,12e6)
(1950,13e6) (1960,25e6) (1970,35e6)};
\legend{Far,Near,Here}
\end{axis}
\end{tikzpicture}
\end{document}
```

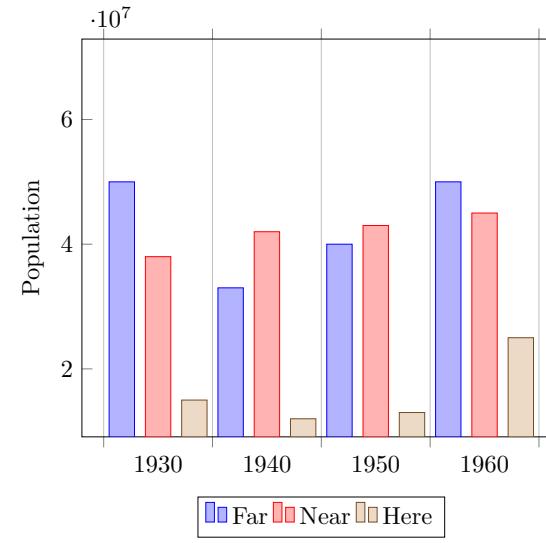


FIGURE: EXAMPLE\_82.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  xmin=0,xmax=53,
  ylabel=Age,
  xlabel=Quantity,
  enlargelimits=false,
  ytick=data,
  yticklabel interval boundaries,
  xbar interval,
]
\addplot
  coordinates {(10,5) (10.5,10) (15,13)
    (24,18) (50,21) (23,25) (10,30)
    (3,50) (3,70)};
\end{axis}
\end{tikzpicture}
\end{document}
```

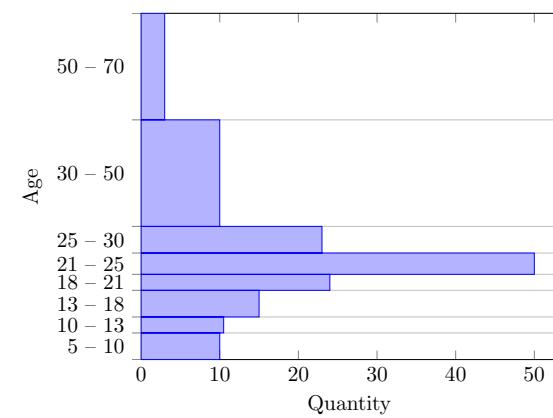


FIGURE: EXAMPLE\_83.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
ybar interval,
xticklabel=
{\pgfmathprintnumber\tick--\pgfmathprintnumber\nexttick
}]
\addplot+[hist={bins=3}]
table[row sep=\\",y index=0] {
  data\\
  1\\ 2\\ 1\\ 5\\ 4\\ 10\\
  7\\ 10\\ 9\\ 8\\ 9\\ 9\\
};
\end{axis}
\end{tikzpicture}
\end{document}
```

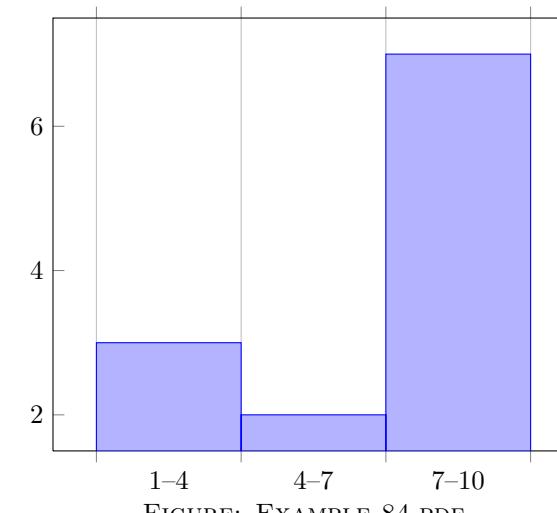


FIGURE: EXAMPLE\_84.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
ybar interval,
xtick=% reset from ybar interval
xticklabel=
{\$[\pgfmathprintnumber\tick,\%
\pgfmathprintnumber\nexttick\$]}
]
% a data file containing 8000 normally distributed
% random numbers of mean 0 and variance 1
\addplot+[hist={data=x}]
file {plotdata/pgfplots.randn.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

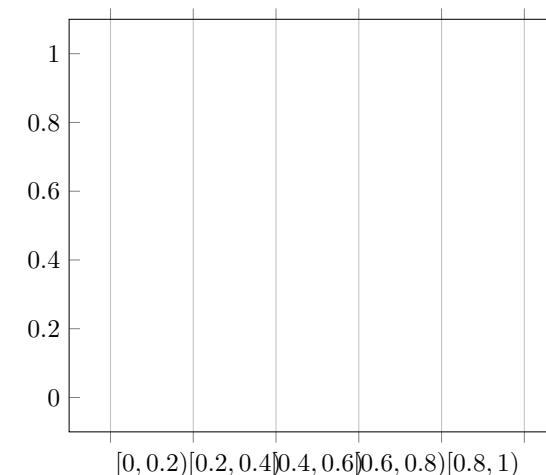


FIGURE: EXAMPLE\_85.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
ybar interval,
xtick=,% reset from ybar interval
xticklabel=
{\$[\pgfmathprintnumber\tick,
\pgfmathprintnumber\nexttick\$}]
]
% a data file containing 8000 normally distributed
% random numbers of mean 0 and variance 1
\addplot+[hist={
  data=x,
  cumulative}]
file {plotdata/pgfplots.randn.dat};

\end{axis}
\end{tikzpicture}
\end{document}
```

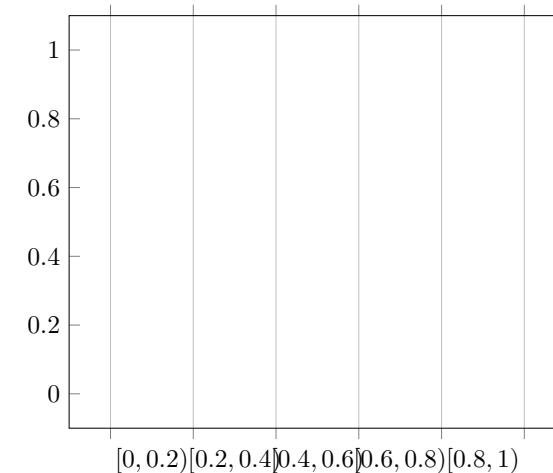


FIGURE: EXAMPLE\_87.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
ybar interval,
hist/symbolic coords={A,B,C,D,E,F,G,H,I,J},
xticklabel={[\tick--\nexttick]},
]
\addplot+[hist=bins=3]
table[row sep=\\",y index=0] {
  data\\
  A\\B\\A\\D\\F\\J\\
  G\\J\\I\\H\\I\\I\\
};
\end{axis}
\end{tikzpicture}
\end{document}
```

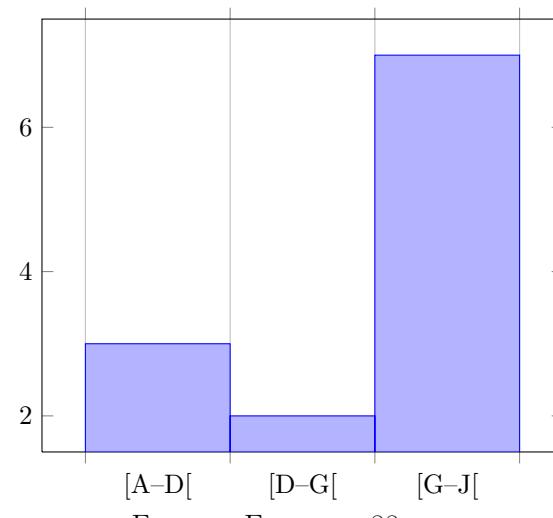


FIGURE: EXAMPLE\_88.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[xcomb] coordinates
{(4,0) (1,1) (2,2)
(5,3) (6,4) (1,5)};
\end{axis}
\end{tikzpicture}
\end{document}
```

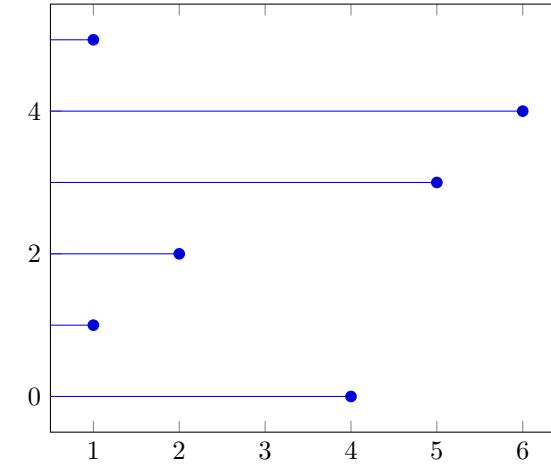


FIGURE: EXAMPLE\_89.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[ycomb] plot coordinates
{(0,3) (1,2) (2,4) (3,1) (4,2)};
\end{axis}
\end{tikzpicture}
\end{document}
```

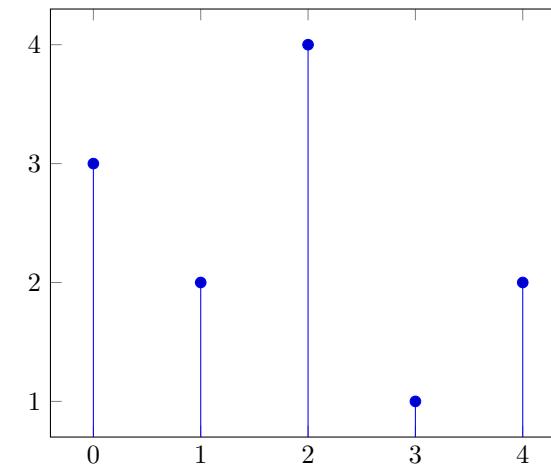


FIGURE: EXAMPLE\_90.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[blue,
    quiver={u=1,v=2*x},
    -stealth,samples=15] {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

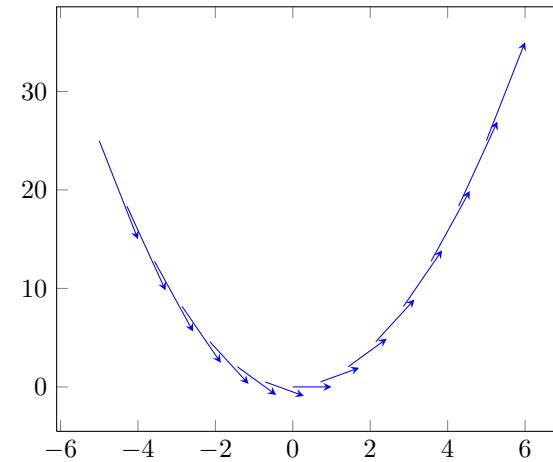


FIGURE: EXAMPLE\_91.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={$x \exp(-x^2 - y^2)$ and its gradient},
    domain=-2:2,
    view={0}{90},
    axis background/.style={fill=white},
]
\addplot3[contour gnuplot={number=9,
    labels=false},thick]
    {\exp(0-x^2-y^2)*x};
\addplot3[blue,
    quiver={
        u={\exp(0-x^2-y^2)*(1-2*x^2)},
        v={\exp(0-x^2-y^2)*(-2*x*y)},
        scale arrows=0.3,
    },
    -stealth,samples=15]
    {\exp(0-x^2-y^2)*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

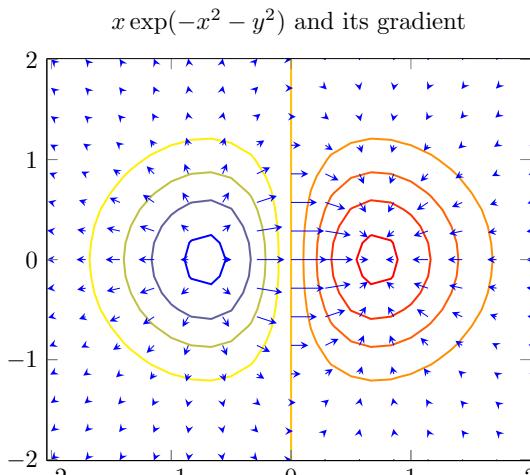


FIGURE: EXAMPLE\_92.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  domain=0:1,
  xmax=1,
  ymax=1,
]
\addplot3[surf] {x*y};
\addplot3[blue,/pgfplots/quiver,
  quiver/u=y,
  quiver/v=x,
  quiver/w=0,
  quiver/scale arrows=0.1,
  -stealth,samples=10] {1};
\end{axis}
\end{tikzpicture}
\end{document}
```

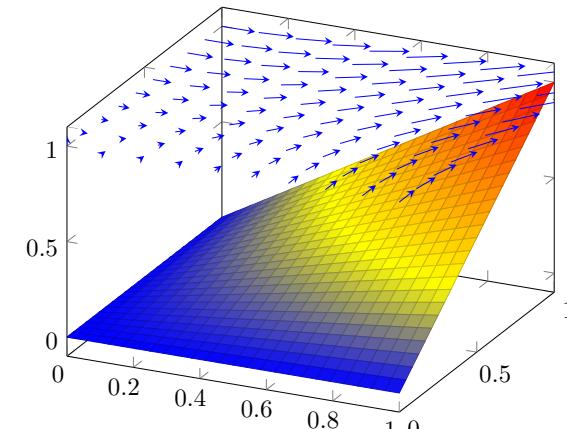


FIGURE: EXAMPLE\_93.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[axis equal,
  axis lines=middle,
  axis line style={->},
  tick style={color=black},
  xtick=\emptyset,
  ytick=\emptyset
]
\addplot[samples=20, domain=0:2*pi,
% the default choice 'variable=\x' leads to
% unexpected results here!
variable=\t,
quiver={
  u={-\sin(deg(t))},
  v={\cos(deg(t))},
  scale arrows=0.5,
  ->,blue
}({\cos(deg(t))}, {\sin(deg(t))});
\addplot[samples=100, domain=0:2*pi]
  ({\cos(deg(x))}, {\sin(deg(x))});
\end{axis}
\end{tikzpicture}
\end{document}
```

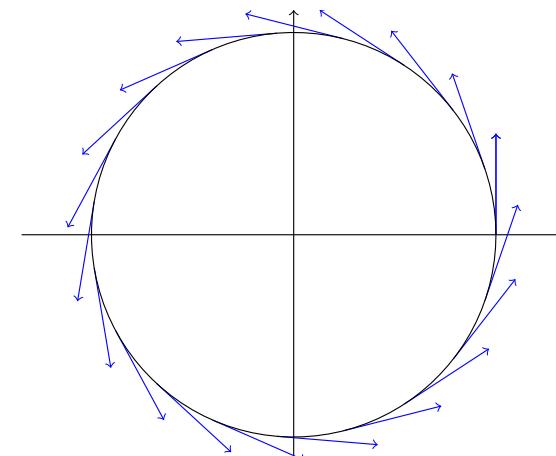


FIGURE: EXAMPLE\_94.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[stack plots=y]
\addplot coordinates {(0,1) (1,1) (2,2) (3,2)};
\addplot coordinates {(0,1) (1,1) (2,2) (3,2)};
\addplot coordinates {(0,1) (1,1) (2,2) (3,2)};
\end{axis}
\end{tikzpicture}
\end{document}
```

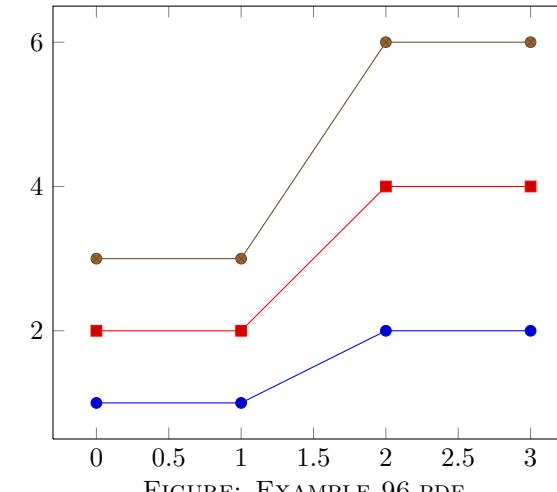


FIGURE: EXAMPLE\_96.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[stack plots=y,/tikz/ybar]
\addplot coordinates {(0,1) (1,1) (2,3) (3,2) (4,1.5)};
\addplot coordinates {(0,1) (1,1) (2,3) (3,2) (4,1.5)};
\addplot coordinates {(0,1) (1,1) (2,3) (3,2) (4,1.5)};
\end{axis}
\end{tikzpicture}
\end{document}
```

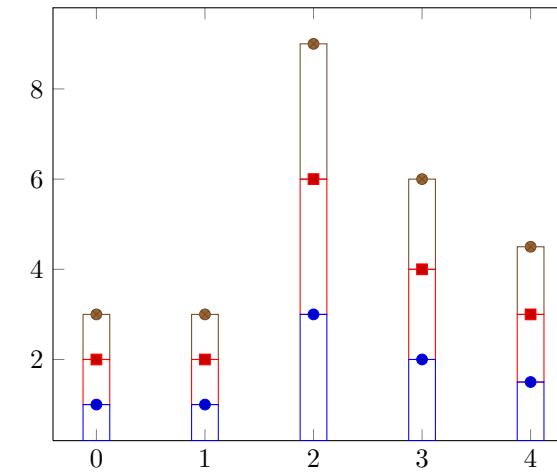


FIGURE: EXAMPLE\_97.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[ybar stacked]
\addplot coordinates {(0,1) (1,1) (2,3) (3,2) (4,1.5)};
\addplot coordinates {(0,1) (1,1) (2,3) (3,2) (4,1.5)};
\addplot coordinates {(0,1) (1,1) (2,3) (3,2) (4,1.5)};
\end{axis}
\end{tikzpicture}
\end{document}
```

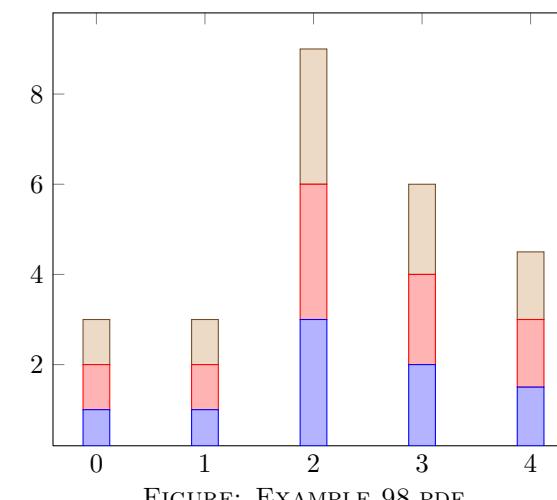


FIGURE: EXAMPLE\_98.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    ybar stacked,
    enlargelimits=0.15,
    legend style={at={(0.5,-0.20)}, anchor=north,legend columns=-1},
    ylabel={\#participants},
    symbolic x coords={tool1, tool2, tool3, tool4, tool5, tool6, tool7},
    xtick=data,
    x tick label style={rotate=45,anchor=east},
    ]
\addplot+[ybar] plot coordinates {(tool1,0) (tool2,2) (tool3,2) (tool4,3) (tool5,0) (tool6,2) (tool7,0)};
\addplot+[ybar] plot coordinates {(tool1,0) (tool2,0) (tool3,0) (tool4,3) (tool5,1) (tool6,1) (tool7,0)};
\addplot+[ybar] plot coordinates {(tool1,6) (tool2,6) (tool3,8) (tool4,2) (tool5,6) (tool6,5) (tool7,6)};
\addplot+[ybar] plot coordinates {(tool1,4) (tool2,2) (tool3,0) (tool4,2) (tool5,3) (tool6,2) (tool7,4)};
\legend{never, rarely, sometimes, often}
\end{axis}
\end{tikzpicture}
\end{document}
```

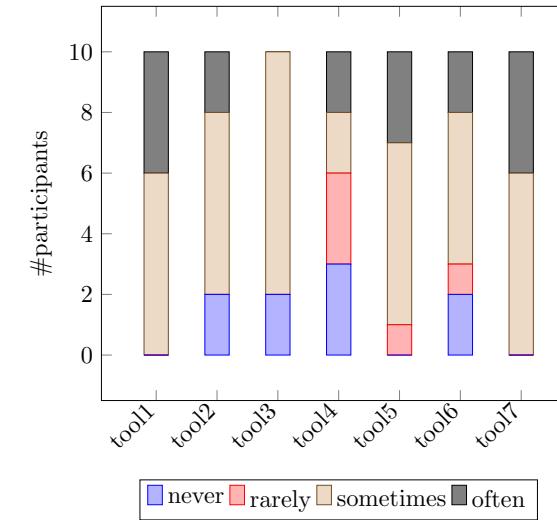


FIGURE: EXAMPLE\_99.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[xbar stacked]
\addplot coordinates {(1,0) (2,1) (2,2) (3,3)};
\addplot coordinates {(1,0) (2,1) (2,2) (3,3)};
\addplot coordinates {(1,0) (2,1) (2,2) (3,3)};
\end{axis}
\end{tikzpicture}
\end{document}
```

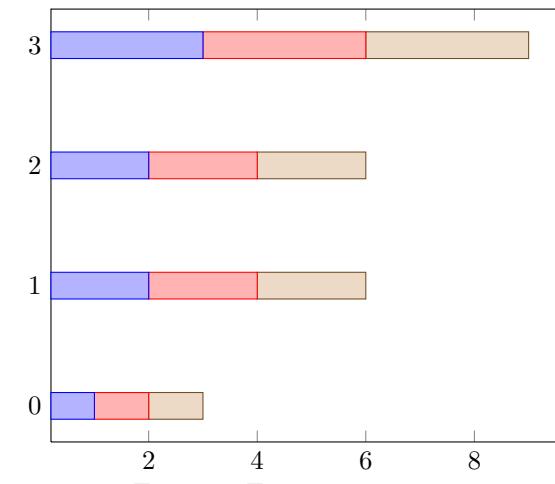


FIGURE: EXAMPLE\_101.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
stack plots=y,
area style,
enlarge x limits=false]
\addplot coordinates {(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\addplot coordinates {(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\addplot coordinates {(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

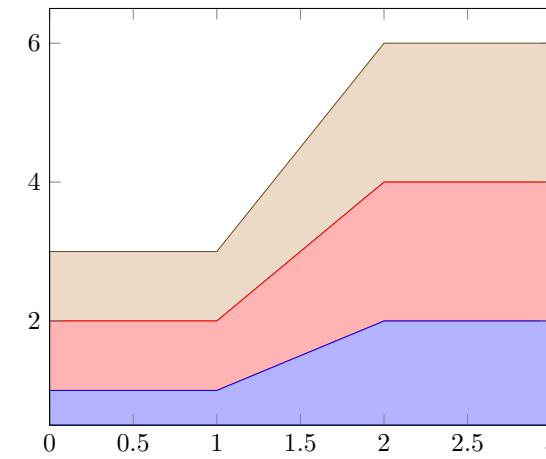


FIGURE: EXAMPLE\_102.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  const plot,
  stack plots=y,
  area style,
  enlarge x limits=false]
\addplot coordinates
{(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\addplot coordinates
{(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\addplot coordinates
{(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

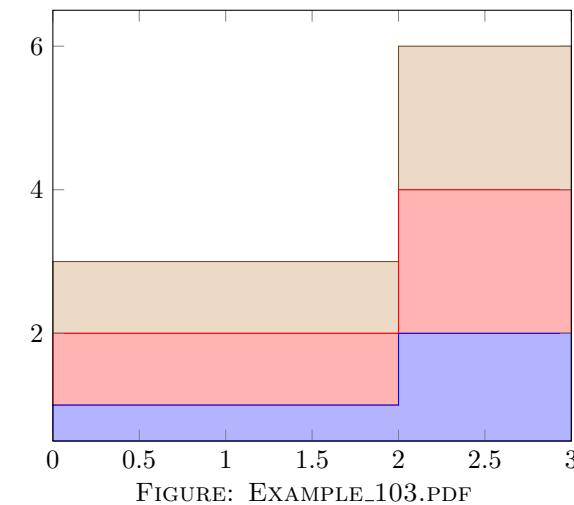


FIGURE: EXAMPLE\_103.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  smooth,
  stack plots=y,
  area style,
  enlarge x limits=false]
\addplot coordinates
{(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\addplot coordinates
{(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\addplot coordinates
{(0,1) (1,1) (2,2) (3,2)}
\closedcycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

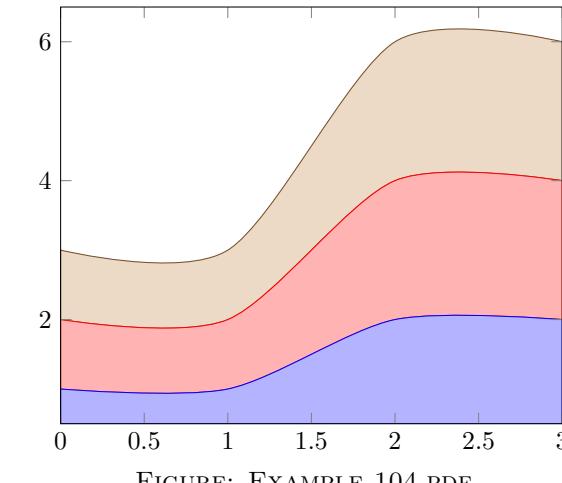


FIGURE: EXAMPLE\_104.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableread{pgfplots.timeseries.dat}\loadedtable
\pgfplotstabletypeset\loadedtable
\end{document}
```

time	1minload	nodes	cpus	processes	memused	memcached	mdbuf	memtotal
0	18	100	200	20	15	45	1	150
1	25	100	200	30	20	45	2	150
2	25	100	200	30	21	42	2	150
3	30	100	200	30	20	40	2	150
4	30	100	200	30	19	40	1	150
5	80	100	200	30	20	40	3	150
6	120	100	200	10	3	40	3	150
7	180	100	200	10	4	41	3	150
8	183	100	200	10	3	42	2	150
9	178	100	200	10	2	41	1	150
10	180	100	200	20	15	45	2	150
11	184	100	200	20	20	45	3	150
12	170	100	200	20	22	47	4	150
13	164	100	200	20	24	50	4	150
14	150	100	200	20	25	52	3	150
15	148	100	200	20	26	53	2	150
16	149	100	200	30	30	54	2	150
17	154	100	200	30	35	55	1	150

FIGURE: EXAMPLE\_105.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis} [enlargelimits=false]
\addplot+[only marks,samples=400]
{rand};
\end{axis}
\end{tikzpicture}
\end{document}
```

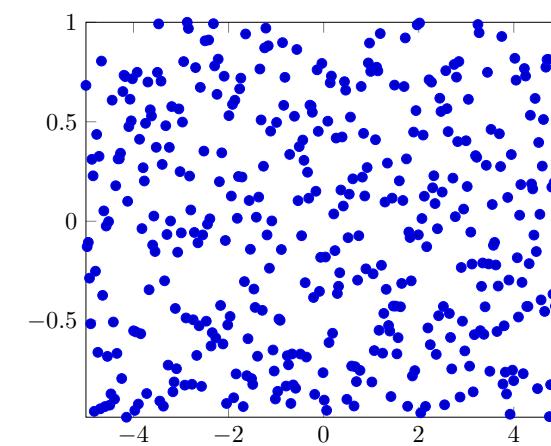


FIGURE: EXAMPLE\_108.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[scatter,only marks,
samples=50,scatter src=y]
{x-x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

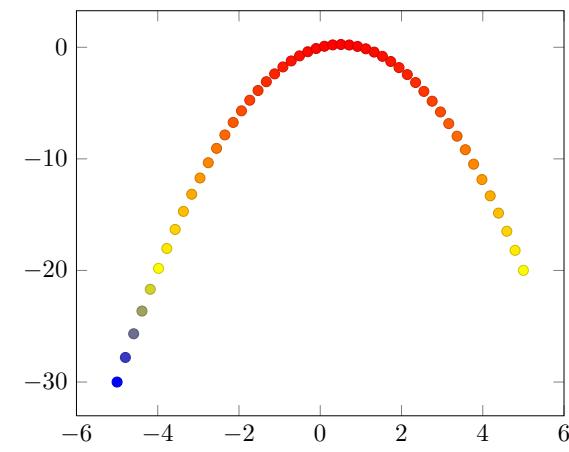


FIGURE: EXAMPLE\_109.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[scatter/classes={
    a={mark=square*,blue},%
    b={mark=triangle*,red},%
    c={mark=o,draw=black}}]
% \addplot[] is better than \addplot+[] here:
% it avoids scalings of the cycle list
\addplot[scatter,only marks,
    scatter src=explicit symbolic]
coordinates {
    (0.1,0.15) [a]
    (0.45,0.27) [c]
    (0.02,0.17) [a]
    (0.06,0.1) [a]
    (0.9,0.5) [b]
    (0.5,0.3) [c]
    (0.85,0.52) [b]
    (0.12,0.05) [a]
    (0.73,0.45) [b]
    (0.53,0.25) [c]
    (0.76,0.5) [b]
    (0.55,0.32) [c]
};
\end{axis}
\end{tikzpicture}
\end{document}
```

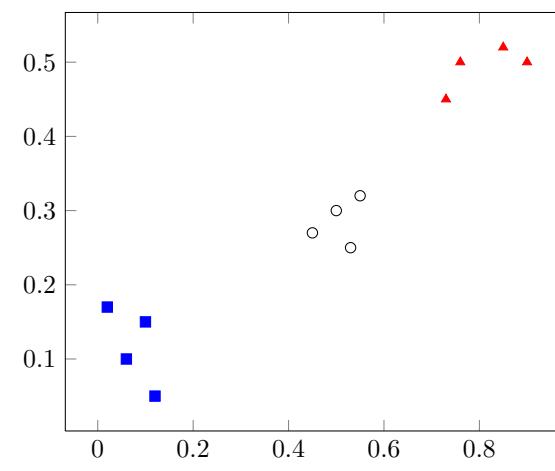


FIGURE: EXAMPLE\_114.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords]
\addplot+[only marks] coordinates {
    (0.5,0.2) (0.2,0.1) (0.7,0.6)
    (0.35,0.4) (0.65,0.1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

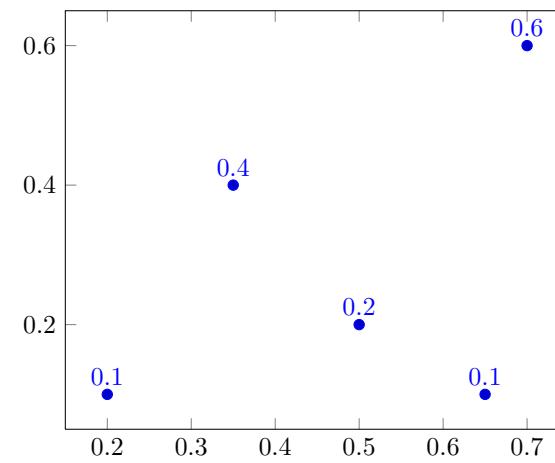


FIGURE: EXAMPLE\_116.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords,enlargelimits=0.2]
\addplot+[only marks,
    point meta=explicit symbolic]
coordinates {
(0.5,0.2) [(1)]
(0.2,0.1) [(2)]
(0.7,0.6) [(3)]
(0.35,0.4) [(4)]
(0.65,0.1) [(5)]
};
\end{axis}
\end{tikzpicture}
\end{document}
```

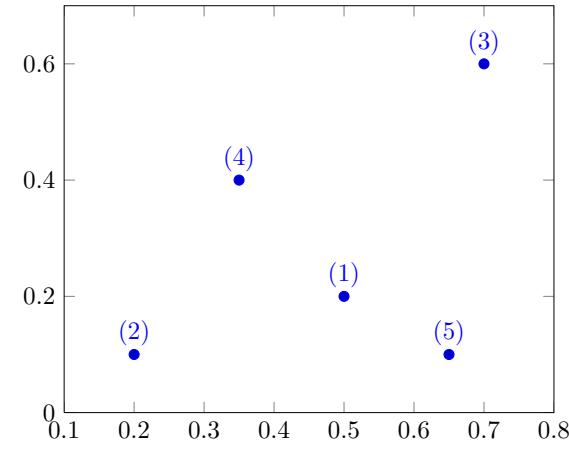


FIGURE: EXAMPLE\_117.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
% Low-Level scatter plot interface Example:
% use three different marker classes
% 0% - 30% : first class
% 30% - 60% : second class
% 60% - 100% : third class
\begin{axis}[
scatter/@pre marker code/.code={%
  \ifdim\pgfplotspointmetatransformed pt<300pt
    \def\markopts{mark=square*,fill=blue}%
  \else
    \ifdim\pgfplotspointmetatransformed pt<600pt
      \def\markopts{mark=triangle*,fill=orange}%
    \else
      \def\markopts{mark=pentagon*,fill=red}%
    \fi
  \fi
},%
scatter/@post marker code/.code={%
  \endscope
}]
\addplot+[scatter,scatter src=y,
samples=40]
{\sin(deg(x))};

\end{axis}
\end{tikzpicture}
\end{document}
```

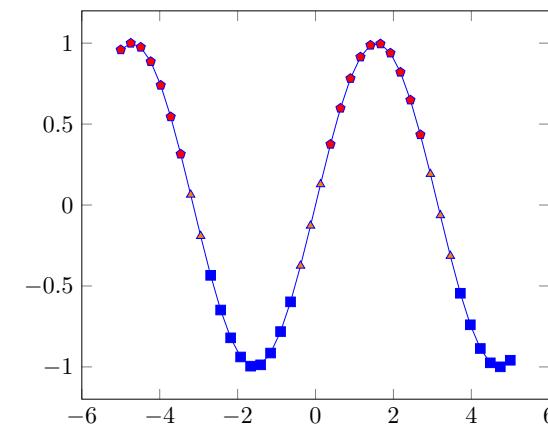


FIGURE: EXAMPLE\_119.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[mesh] {x+sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

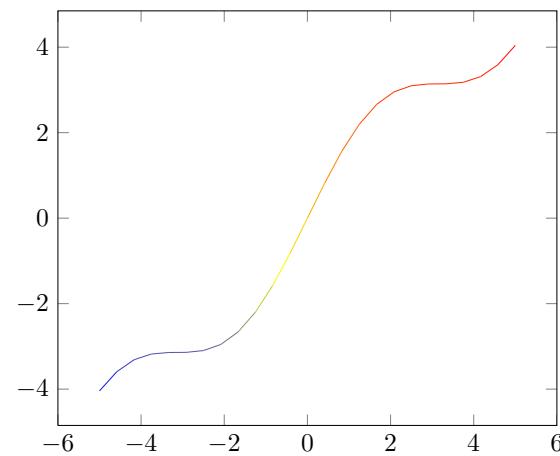


FIGURE: EXAMPLE\_120.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot [mesh,point meta=explicit]
coordinates {
(0,0) [0]
(1,0.1) [1]
(2,0.1) [2]
(3,0.3) [3]
(4,0.3) [4]
};
\end{axis}
\end{tikzpicture}
\end{document}
```

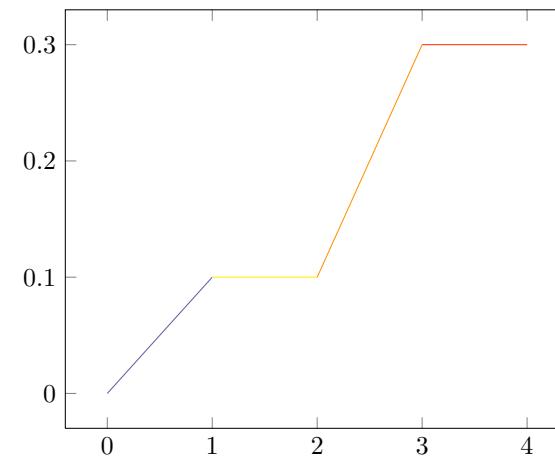


FIGURE: EXAMPLE\_121.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
title=Discarding unbounded coords,
unbounded coords=discard]
\addplot coordinates {
(0,0) (10,50) (20,100) (30,200)
(40,inf) (50,600) (60,800) (80,1000)
};
\end{axis}
\end{tikzpicture}
\begin{tikzpicture}
\begin{axis}[
title=Jumps at unbounded coords,
unbounded coords=jump]
\addplot coordinates {
(0,0) (10,50) (20,100) (30,200)
(40,inf) (50,600) (60,800) (80,1000)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

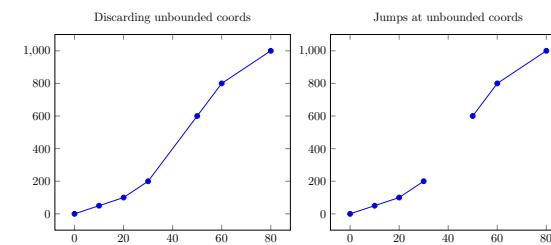


FIGURE: EXAMPLE\_122.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  unbounded coords=jump,
  % A technical filter to cut out
  % the x<0 and y<0 edge.
  filter point/.code=%
    \pgfmathparse
      {\pgfkeysvalueof{/data point/x}<0}%
    \ifpgfmathfloatcomparison
      \pgfmathparse
        {\pgfkeysvalueof{/data point/y}<0}%
      \ifpgfmathfloatcomparison
        \pgfkeyssetvalue{/data point/x}{nan}%
      \fi
    \fi
  ],
]
\addplot3[surf] {exp(-sqrt(x^2 + y^2))};
\end{axis}
\end{tikzpicture}
\end{document}
```

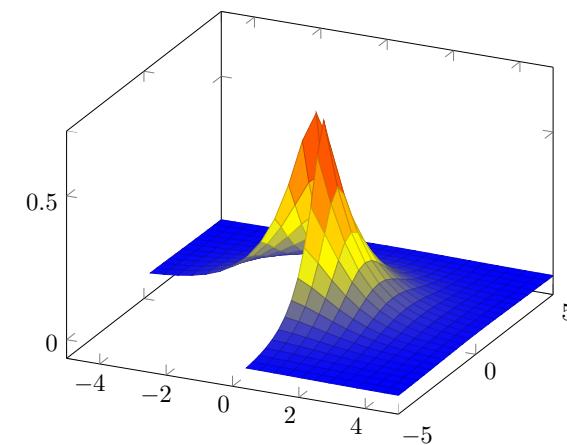


FIGURE: EXAMPLE\_123.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view={-45}{45},
  xlabel=$x$,ylabel=$y$,zlabel=$z$]
\addplot3[surf] {x};
\end{axis}
\end{tikzpicture}
\end{document}
```

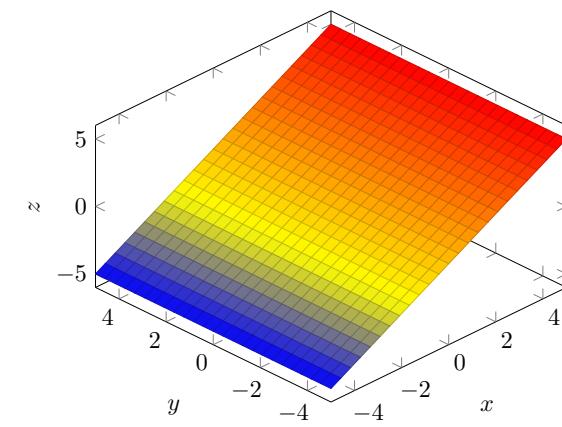


FIGURE: EXAMPLE\_126.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view/h=40,colormap/violet]
\addplot3[
surf,
%shader=interp,
shader=flat,
samples=50,
domain=-3:3,y domain=-2:2
{sin(deg(x+y^2))};
\end{axis}
\end{tikzpicture}
\end{document}
```

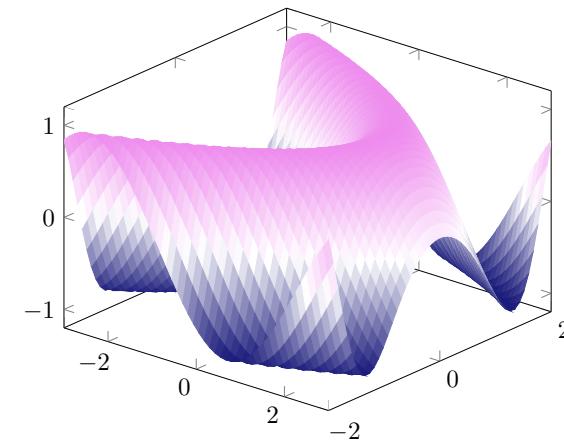


FIGURE: EXAMPLE\_129.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view/h=70]
\addplot3[
surf,
%shader=interp,
shader=flat,
samples=50,
domain=-3:3,y domain=-2:2
{sin(deg(x+y^2))};
\end{axis}
\end{tikzpicture}
\end{document}
```

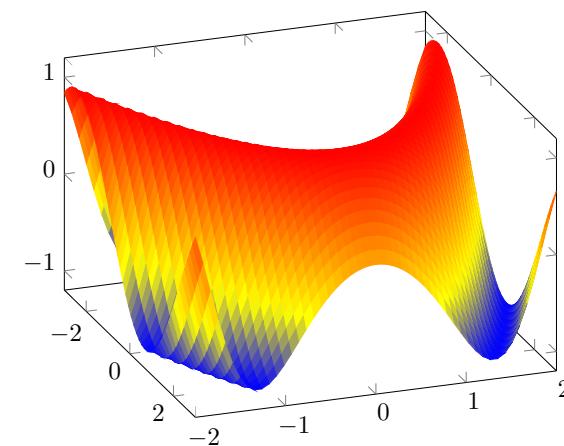


FIGURE: EXAMPLE\_130.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    view/h=60,
    plot box ratio=1 2 1,
    colormap={violet}{[1cm] rgb255(0cm)=(25,25,122)
        color(1cm)=(white) rgb255(5cm)=(238,140,238)},
    xlabel=$x$,
    ylabel=$t$,
    zlabel={$p(x,t)$},
    shader=flat,
    title=\texttt{plot box ratio=1 2 1},
]
\addplot3[surf,y domain=0.02:3.5,samples=81]
    {1/(2*sqrt(pi*y)) * exp(0-x^2/y)};
% the '0' is a work-around for a bug in PGF 2.00
\end{axis}
\end{tikzpicture}
\end{document}
```

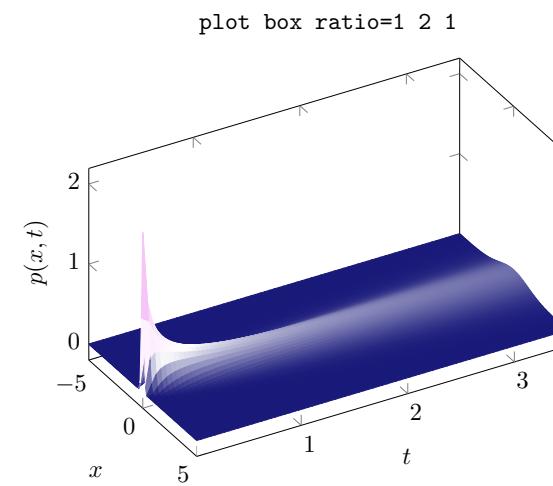


FIGURE: EXAMPLE\_132.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
 3d box=complete,
 grid=major,
 title={3d box=complete},
 samples=5, domain=-4:4,
 xtick=data, ytick=data,
]
 \addplot3[surf] {x*y};
\end{axis}
\end{tikzpicture}%
~

\begin{tikzpicture}
\begin{axis}[
 3d box=complete*,
 grid=major,
 title={3d box=complete*},
 samples=5, domain=-4:4,
 xtick=data, ytick=data,
]
 \addplot3[surf] {x*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

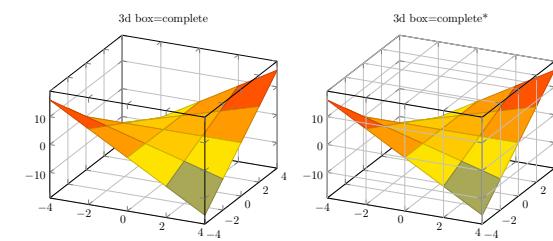


FIGURE: EXAMPLE\_135.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
 axis lines=center,
 axis on top,
 samples=5, domain=-4:4,
 xtick=data, ytick=data,
 ztick=\emptyset, % no z ticks here
]
 \addplot3[surf] {x*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

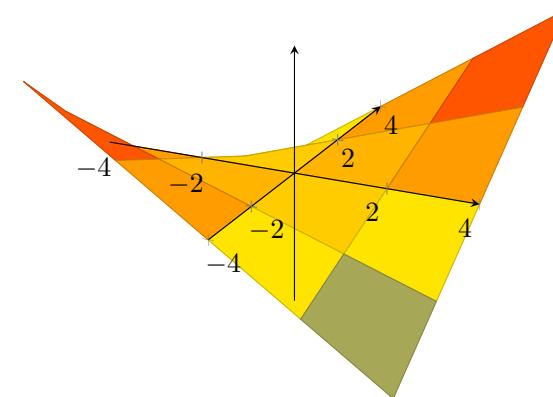


FIGURE: EXAMPLE\_136.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
% We have `plotdata/first3d.dat' with
%-----
% 0 0 0.8
% 1 0 0.56
% 2 0 0.5
% 3 0 0.75
%
% 0 1 0.6
% 1 1 0.3
% 2 1 0.21
% 3 1 0.3
%
% 0 2 0.68
% 1 2 0.22
% 2 2 0.25
% 3 2 0.4
%
% 0 3 0.7
% 1 3 0.5
% 2 3 0.58
% 3 3 0.9
% -> yields a 4x4 matrix:
\addplot3[surf] file {plotdata/first3d.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

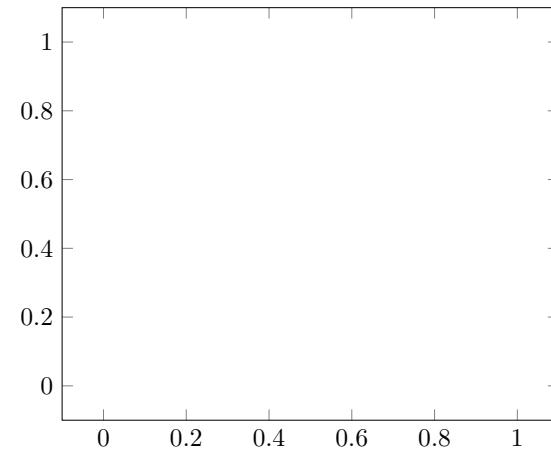


FIGURE: EXAMPLE\_140.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
% this yields also a 3x4 matrix:
\addplot3[surf,mesh/rows=3] coordinates {
(0,0,0) (1,0,0) (2,0,0) (3,0,0)
(0,1,0) (1,1,0.6) (2,1,0.7) (3,1,0.5)
(0,2,0) (1,2,0.7) (2,2,0.8) (3,2,0.5)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

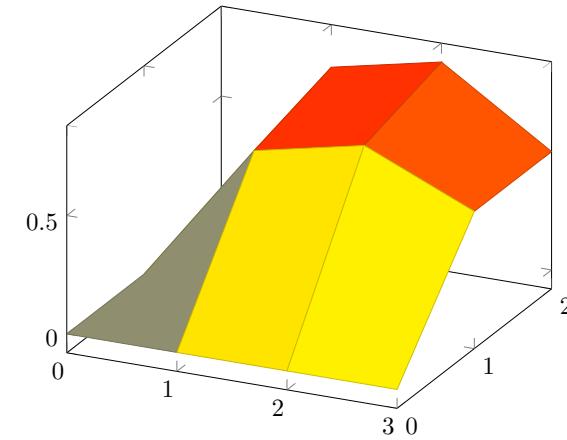


FIGURE: EXAMPLE\_141.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[mesh/ordering=x varies]
% this yields a 3x4 matrix in 'x varies'
% ordering:
\addplot3[surf] coordinates {
(0,0,0) (1,0,0) (2,0,0) (3,0,0)
(0,1,0) (1,1,0.6) (2,1,0.7) (3,1,0.5)
(0,2,0) (1,2,0.7) (2,2,0.8) (3,2,0.5)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

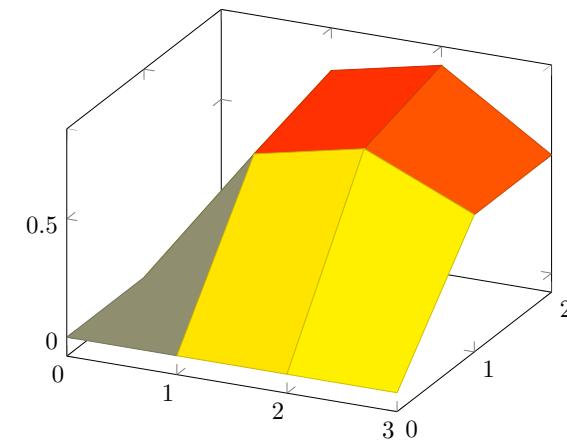


FIGURE: EXAMPLE\_142.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[mesh/ordering=y varies]
% this yields a 3x4 matrix in colwise ordering:
\addplot3[surf] coordinates {
(0,0,0) (0,1,0) (0,2,0)
(1,0,0) (1,1,0.6) (1,2,0.7)
(2,0,0) (2,1,0.7) (2,2,0.8)
(3,0,0) (3,1,0.5) (3,2,0.5)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

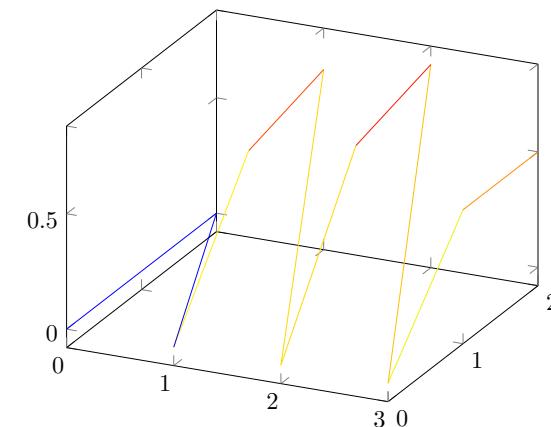


FIGURE: EXAMPLE\_143.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[surf] {y};
\end{axis}
\end{tikzpicture}
\end{document}
```

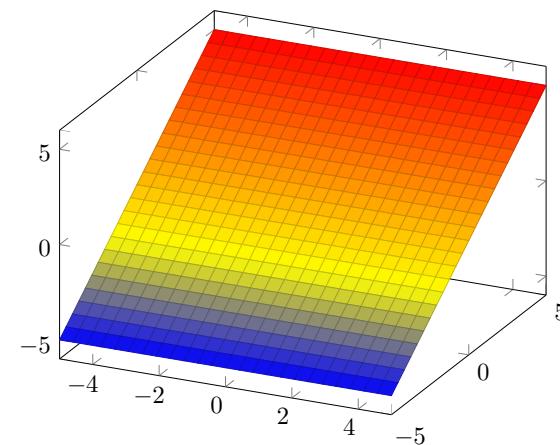


FIGURE: EXAMPLE\_144.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar]
\addplot3
[surf, faceted color=blue,
 samples=15,
 domain=0:1,y domain=-1:1]
{x^2 - y^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

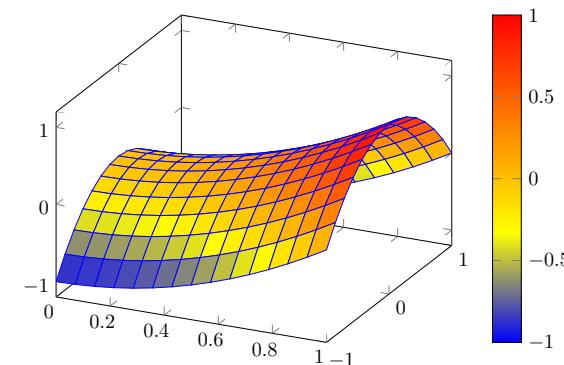


FIGURE: EXAMPLE\_145.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view={60}{30}]
\addplot3+[domain=0:5*pi,samples=60,samples y=0]
({sin(deg(x))},
 {cos(deg(x))},
 {2*x/(5*pi)});
\end{axis}
\end{tikzpicture}
\end{document}
```

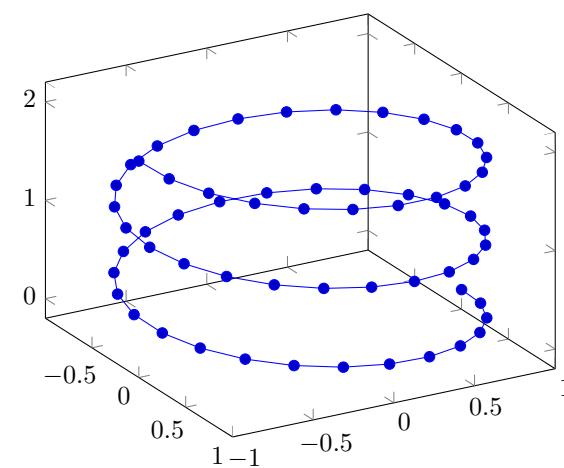


FIGURE: EXAMPLE\_147.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
 xlabel=$x$,
 ylabel=$y$,
 zlabel={$f(x,y) = x \cdot y$},
 title=A Scatter Plot Example]
% `pgfplotsexample4_grid.dat' contains a
% large sequence of input points of the form
% x_0 x_1 f(x)
% 0 0 0
% 0 0.03125 0
% 0 0.0625 0
% 0 0.09375 0
% 0 0.125 0
% 0 0.15625 0
\addplot3+[only marks] table
{plotdata/pgfplotsexample4_grid.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

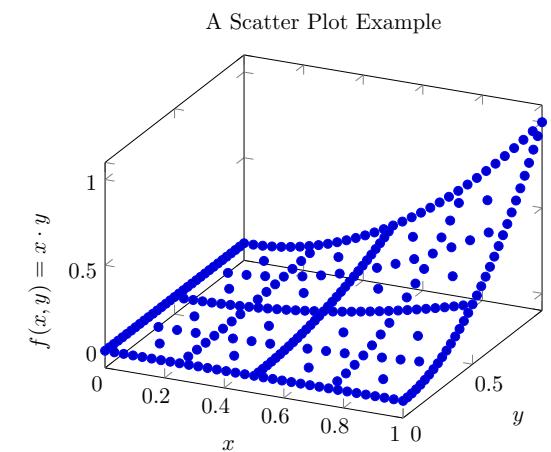


FIGURE: EXAMPLE\_148.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
 xlabel=$x$,
 ylabel=$y$,
 zlabel={$f(x,y) = x \cdot y$},
 title=A Scatter Plot Example]
\addplot3+[only marks,scatter] table
{plotdata/pgfplotsexample4_grid.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

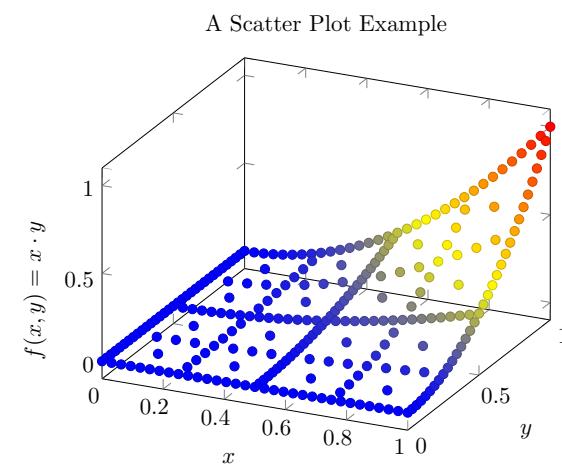


FIGURE: EXAMPLE\_149.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    view={120}{40},
    width=220pt,
    height=220pt,
    grid=major,
    z buffer=sort,
    xmin=-1,xmax=9,
    ymin=-1,ymax=9,
    zmin=-1,zmax=9,
    enlargelimits=upper,
    xtick={-1,1,...,19},
    ytick={-1,1,...,19},
    ztick={-1,1,...,19},
    xlabel={$l_1$},
    ylabel={$l_2$},
    zlabel={$l_3$},
    point meta={x+y+z+3},
    colormap={summap}{%
        color=(black); color=(blue);
        color=(black); color=(white)
        color=(orange) color=(violet)
        color=(red)
    },
    scatter/use mapped color={%
        draw=mapped color,fill=mapped color!70},
]
% `pgfplots_scatter4.dat' contains a large sequence of
% the form
% l_0   l_1   l_2
% 1     6     -1
% -1    -1    -1
% 0     -1    -1
% -1    0     -1
% -1    -1    0
% 1     -1    -1
% 0     0     -1
% 0     -1    0
\addplot3[only marks,scatter,mark=cube*,mark size=7]
    table [plotdata/pgfplots_scatterdata4.dat];
\end{axis}
\end{tikzpicture}
\end{document}
```

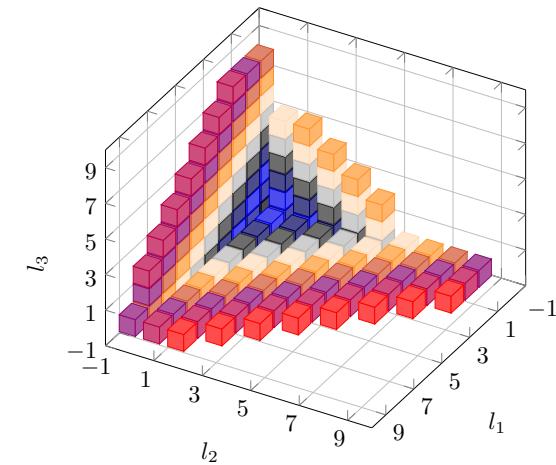


FIGURE: EXAMPLE\_151.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[mesh] {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

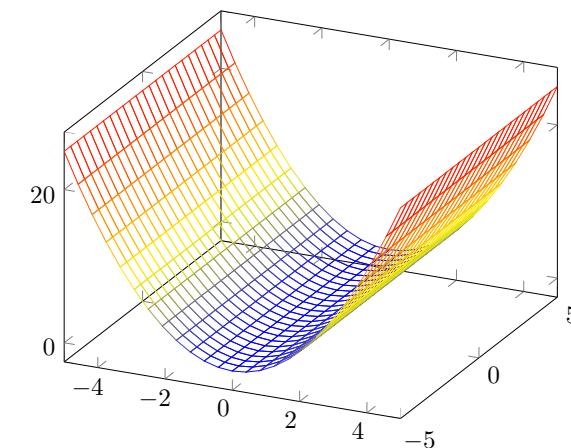


FIGURE: EXAMPLE\_152.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3+[mesh,scatter,samples=10,domain=0:1]
{x*(1-x)*y*(1-y)};
\end{axis}
\end{tikzpicture}
\end{document}
```

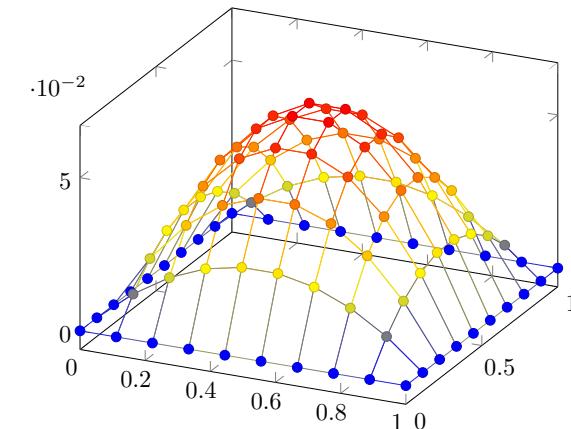


FIGURE: EXAMPLE\_153.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[grid=major,view={210}{30}]
\addplot3+[mesh,scatter,samples=10,domain=0:1]
{5*x*sin(2*deg(x)) * y*(1-y)};
\end{axis}
\end{tikzpicture}
\end{document}
```

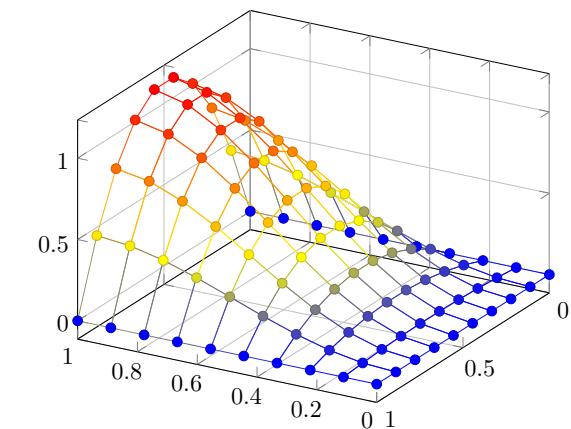


FIGURE: EXAMPLE\_154.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    grid=major,
    colormap/greenyellow]
\addplot3[surf,samples=30,domain=0:1]
    {5*x*sin(2*deg(x)) * y};
\end{axis}
\end{tikzpicture}
\end{document}
```

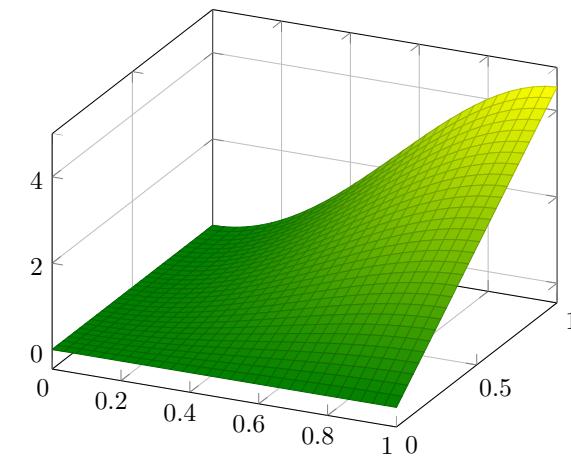


FIGURE: EXAMPLE\_158.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[surf, faceted color=blue] {x+y};
\end{axis}
\end{tikzpicture}
\end{document}
```

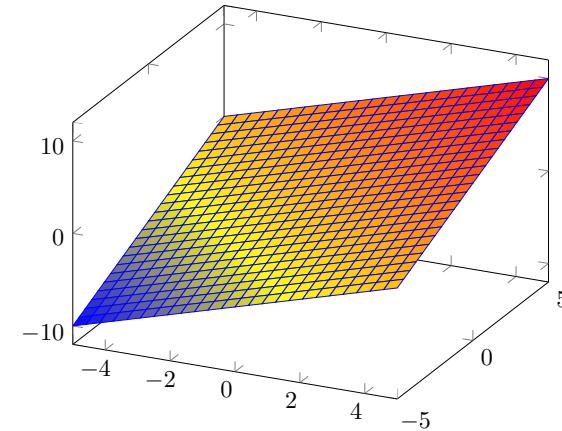


FIGURE: EXAMPLE\_159.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
  \begin{axis}[colormap/cool]
    \addplot3[surf,samples=10,domain=0:1,
      shader=interp
      {x*(1-x)*y*(1-y)};
    \end{axis}
  \end{tikzpicture}
\begin{tikzpicture}
  \begin{axis}[colormap/cool]
    \addplot3[surf,samples=25,domain=0:1,
      shader=flat
      {x*(1-x)*y*(1-y)};
    \end{axis}
  \end{tikzpicture}
\end{document}
```

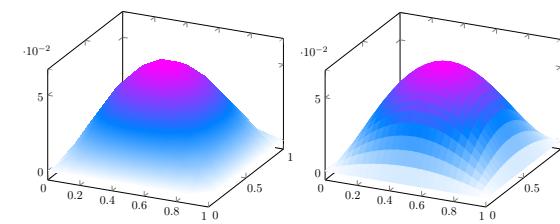


FIGURE: EXAMPLE\_160.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
  \begin{axis}[grid=major]
    \addplot3[surf,shader=interp,
      samples=25,domain=0:2,y domain=0:1
      {\exp(-x) * sin(pi*deg(y))};
    \end{axis}
  \end{tikzpicture}
\end{document}
```

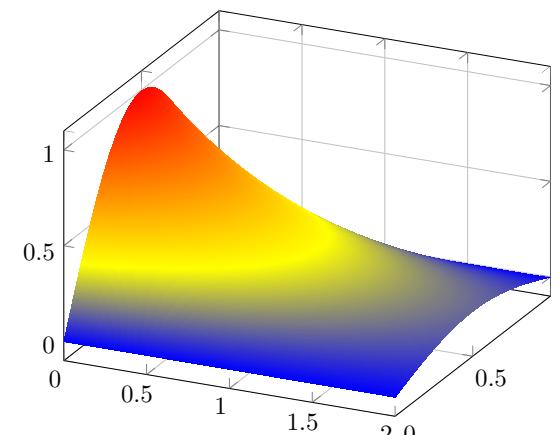


FIGURE: EXAMPLE\_161.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[surf,shader=flat,
samples=10,domain=0:1]
{x^2*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

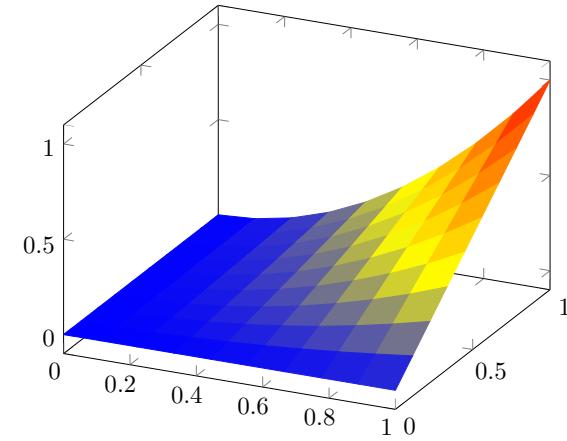


FIGURE: EXAMPLE\_163.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[surf,shader=faceted,
samples=10,domain=0:1]
{x^2*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

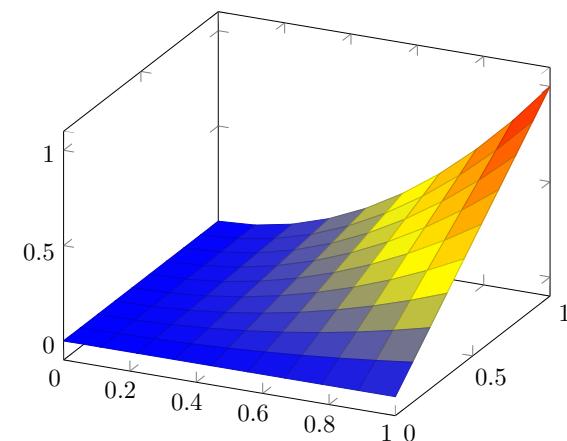


FIGURE: EXAMPLE\_165.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[surf,shader=faceted interp,
samples=10,domain=0:1]
{x^2*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

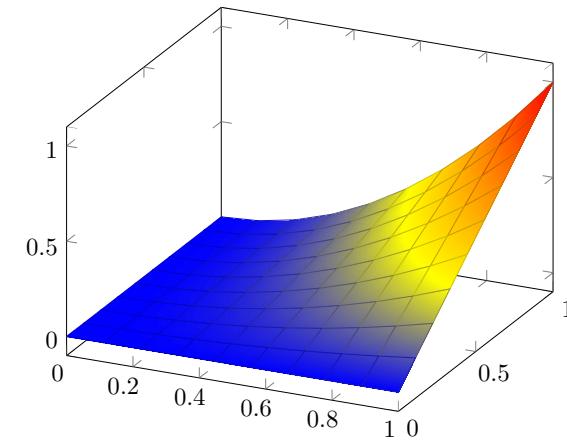


FIGURE: EXAMPLE\_166.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[surf,shader=flat,
draw=black,
samples=10,domain=0:1]
{x^2*y};
\end{axis}
\end{document}
```

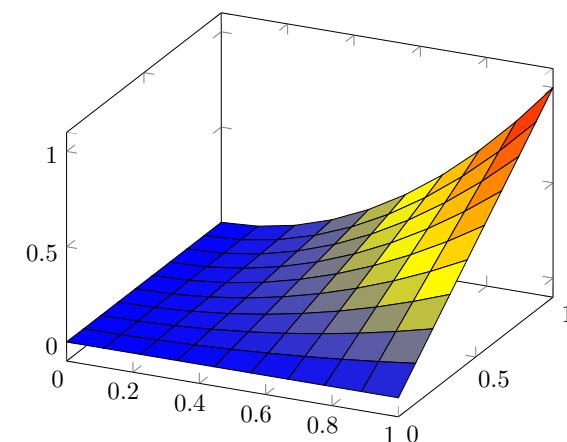


FIGURE: EXAMPLE\_167.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    axis lines=center,
    axis on top,
    xlabel={$x$}, ylabel={$y$}, zlabel={$z$},
    domain=0:1,
    y domain=0:2*pi,
    xmin=-1.5, xmax=1.5,
    ymin=-1.5, ymax=1.5, zmin=0.0,
    mesh/interior colormap=
        {blueblack}{color=(black) color=(blue)},
    colormap/blackwhite,
    samples=10,
    samples y=40,
    z buffer=sort,
]
\addplot3[surf]
    ({x*cos(deg(y))},{x*sin(deg(y))},{x});
\end{axis}
\end{tikzpicture}
\end{document}
```

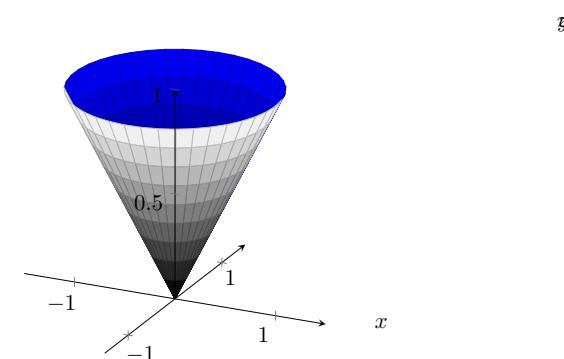


FIGURE: EXAMPLE\_169.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    hide axis,
    xlabel=$x$,ylabel=$y$,
    mesh/interior colormap name=hot,
    colormap/blackwhite,
]
\addplot3[domain=-1.5:1.5,surf]
    {-exp(-x^2-y^2)};
\end{axis}
\end{tikzpicture}
\end{document}
```

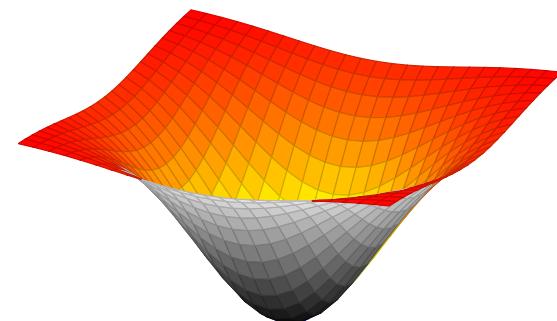


FIGURE: EXAMPLE\_170.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title=Example of before with fine-tuning,
    xlabel=$x$,
    ylabel=$y$]
\addplot3[surf,
    mesh/interior colormap=
        {blueblack}{color=(black) color=(blue)},
    % slightly increase sampling quality (was 25):
    samples=31,
    % avoids overshooting corners:
    miter limit=1,
    % move boundary between inner and outer:
    mesh/interior colormap thresh=0.1,
    colormap/blackwhite,
    domain=0:1]
    {sin(deg(8*pi*x))* exp(-20*(y-0.5)^2)
    + exp(-(x-0.5)^2*30
    - (y-0.25)^2 - (x-0.5)*(y-0.25))};
\end{axis}
\end{tikzpicture}
\end{document}
```

Example of before with fine-tuning

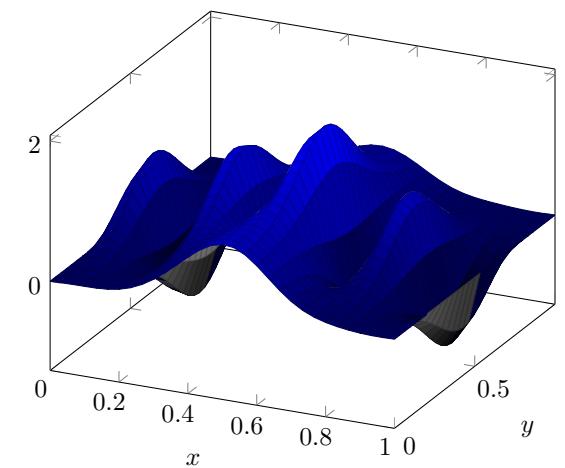


FIGURE: EXAMPLE\_172.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view={0}{90}]
\addplot3[contour gnuplot
    {x*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

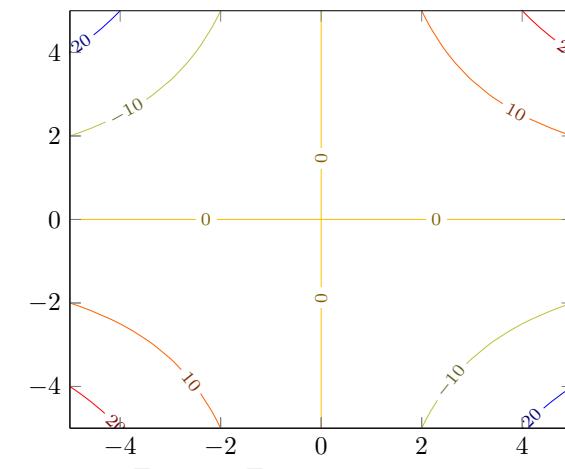


FIGURE: EXAMPLE\_173.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[contour gnuplot]
{exp(-x^2-y^2)};
\end{axis}
\end{tikzpicture}
\end{document}
```

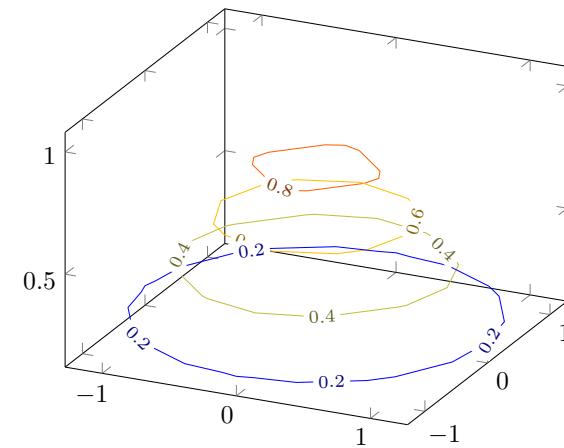


FIGURE: EXAMPLE\_174.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
title={$x \exp(-x^2 - y^2)$},
domain=-2:2, enlarge x limits,
view={0}{90},
]
\addplot3[contour gnuplot={number=14}, thick]
{exp(-x^2-y^2)*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

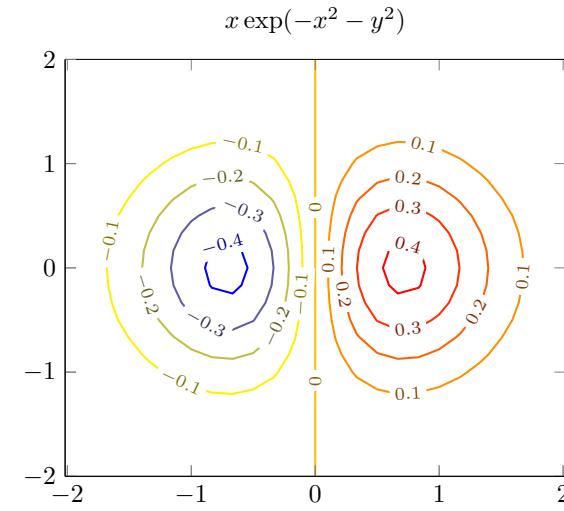
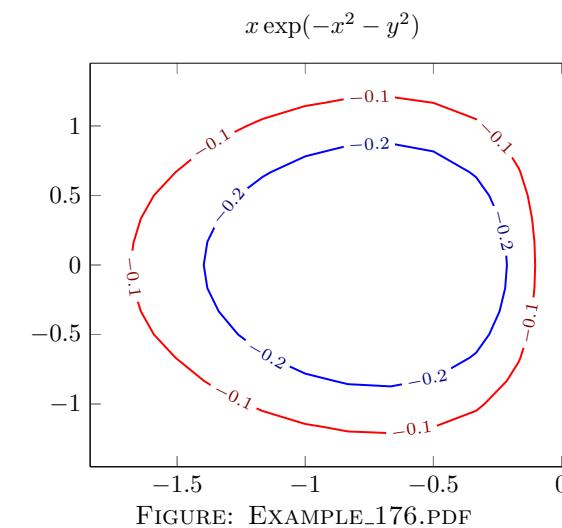


FIGURE: EXAMPLE\_175.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={$x \exp(-x^2 - y^2)$},
    domain=-2:2,
    enlargelimits,
    view={0}{90},
]
\addplot3[
    contour gnuplot=[levels={-0.1,-0.2,-0.6}],
    thick
    {exp(0-x^2-y^2)*x};
\end{axis}
\end{tikzpicture}
\end{document}
```



```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[contour prepared,
contour prepared format=matlab]
table {
% (0.2,5) ==> contour `0.2' (x), 5 points follow (y):
  2.000000e-01    5.000000e+00
  3.000000e+00    4.000000e-01
  2.000000e+00    2.8571429e-01
  1.000000e+00    3.333333e-01
  3.333333e-01    1.000000e+00
  2.8571429e-01   2.000000e+00
% (0.4,5) ==> contour `0.4', consists of 5 points
  4.000000e-01    5.000000e+00
  3.000000e+00    8.000000e-01
  2.000000e+00    5.7142857e-01
  1.000000e+00    6.6666667e-01
  6.6666667e-01   1.000000e+00
  5.7142857e-01   2.000000e+00
% (0.6,6) ==> contour `0.6', has 6 points
  6.000000e-01    6.000000e+00
  2.6666667e+00   2.000000e+00
  2.500000e+00    1.000000e+00
  2.000000e+00    8.5714286e-01
  1.000000e+00    1.000000e+00
  1.000000e+00    1.000000e+00
  8.5714286e-01   2.000000e+00
};
\end{axis}
\end{tikzpicture}
\end{document}

```

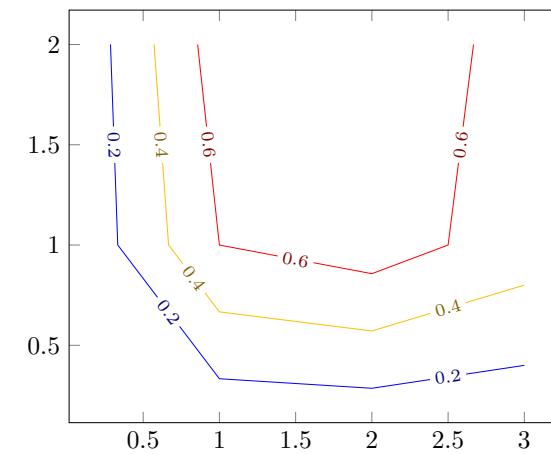


FIGURE: EXAMPLE\_178.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title=Separating  $z$  from Color Value,
    xlabel= $x$ ,
    ylabel= $y$ ,
]
\addplot3[contour prepared,
    point meta=\thisrow{level}]
    table {
        x      y      z      level
        0.857143 2     0.4    0.6
        1       1     0.6    0.6
        2     0.857143 0.6    0.6
        2.5   1       0.6    0.6
        2.66667 2     0.4    0.6

        0.571429 2     0.2    0.4
        0.666667 1     0.4    0.4
        1     0.666667 0.4    0.4
        2     0.571429 0.4    0.4
        3     0.8       0.2    0.4

        0.285714 2     0      0.2
        0.333333 1     0.2    0.2
        1     0.333333 0.2    0.2
        2     0.285714 0.2    0.2
        3     0.4       0      0.2
    };
\end{axis}
\end{tikzpicture}
\end{document}
```

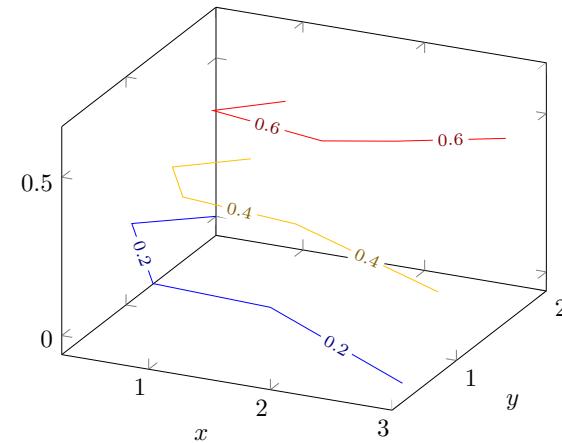
Separating  $z$  from Color Value

FIGURE: EXAMPLE\_179.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={$x \exp(-x^2 - y^2)$},
    domain=-2:2, enlarge x limits,
    view={0}{90},
]
\addplot3[
    contour gnuplot={
        scanline marks=required,
        number=14,
        contour label style={
            /pgf/number format/fixed,
            /pgf/number format/precision=1,
        },
    },
    thick
]
    {exp(0-x^2-y^2)*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

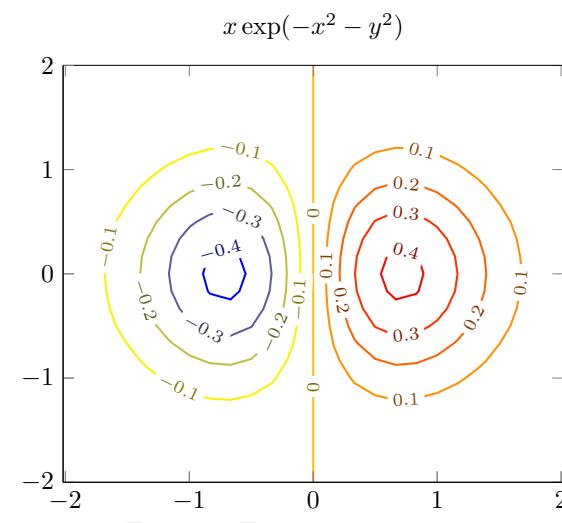


FIGURE: EXAMPLE\_180.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view={60}{30}]
\addplot3[mesh,z buffer=sort,
    samples=20,domain=-1:0,y domain=0:2*pi]
    ({sqrt(1-x^2) * cos(deg(y))},
     {sqrt( 1-x^2 ) * sin(deg(y))},
     x);
\end{axis}
\end{tikzpicture}
\end{document}
```

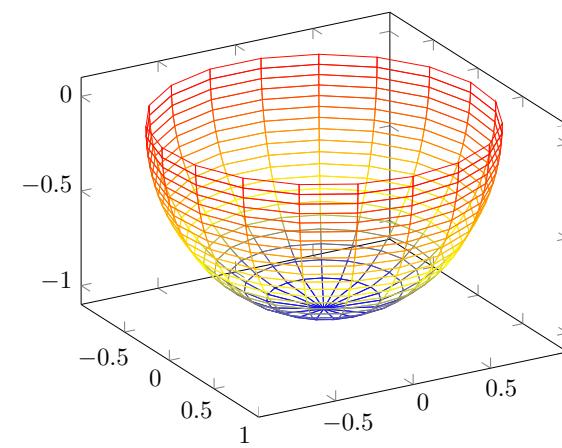


FIGURE: EXAMPLE\_183.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view={60}{30}]
\addplot3[mesh,z buffer=sort,
scatter,only marks,scatter src=z,
samples=30,domain=-1:1,y domain=0:2*pi]
({sqrt(1-x^2) * cos(deg(y))},
 {sqrt( 1-x^2 ) * sin(deg(y))},
 x);
\end{axis}
\end{tikzpicture}
\end{document}
```

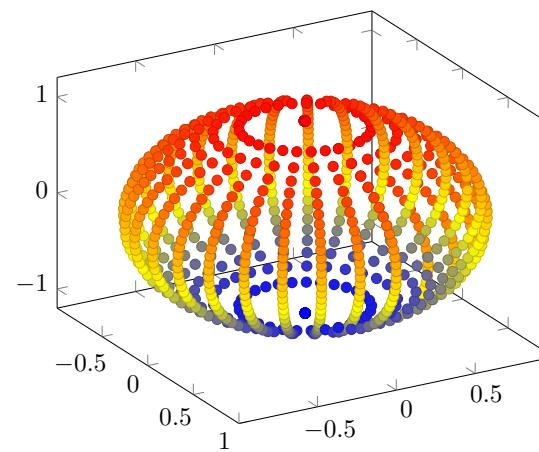


FIGURE: EXAMPLE\_184.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[patch,shader=interp]
table[point meta=\thisrow{c}] {
x y c
0 0 0.2
1 1 0
2 0 1

1 1 0
2 0 1
3 1 0

2 0 1
3 1 0
4 0 0.5
};
\end{axis}
\end{tikzpicture}
\end{document}
```

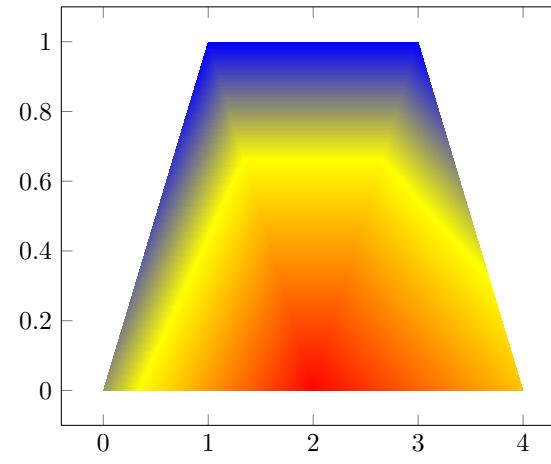


FIGURE: EXAMPLE\_188.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[patch,shader=interp]
table[point meta=\thisrow{c}] {
x y c
0 0 0.2
1 1 0
2 0 1
1 1 0
2 0 -1
3 1 0
2 0 0.5
3 1 1
4 0 0.5
};
\end{axis}
\end{tikzpicture}
\end{document}
```

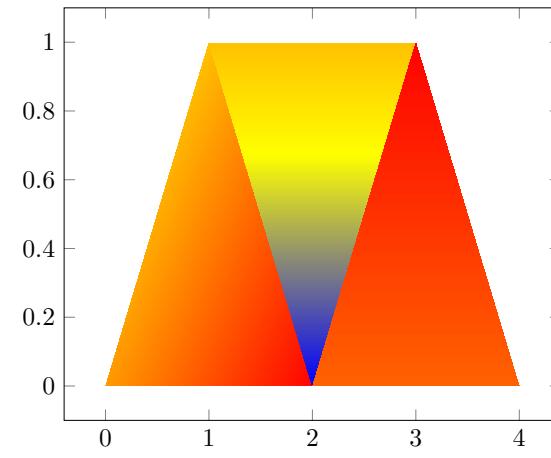


FIGURE: EXAMPLE\_189.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[patch,table/row sep=\\",patch table={%
  0 1 2\\
  1 2 3\\
  4 3 5\\
}]
table[row sep=\\",point meta=\thisrow{c}] {
  x y c \\
  0 0 0.2\\% 0
  1 1 0 \\% 1
  2 0 1 \\% 2
  3 1 0 \\% 3
  2 0 0.5\\% 4
  4 0 0.5\\% 5
};
\end{axis}
\end{tikzpicture}
\end{document}
```

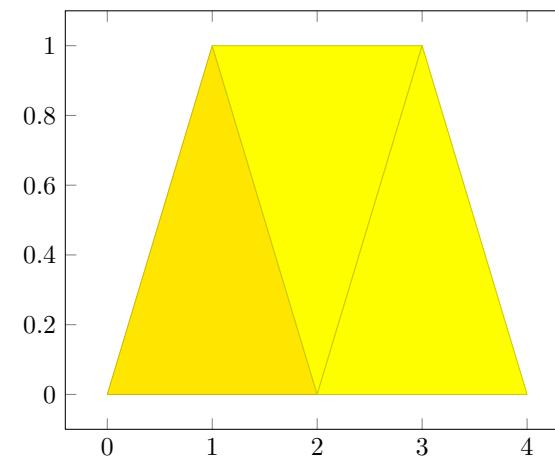


FIGURE: EXAMPLE\_190.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
% this uses per-patch color data:
\addplot[patch,table/row sep=\\
patch table with point meta=%
0 1 2 100\\
1 2 3 10\\
4 3 5 0\\
]
table[row sep=\\
] {
x y \\
0 0 \\% 0
1 1 \\% 1
2 0 \\% 2
3 1 \\% 3
2 0 \\% 4
4 0 \\% 5
};
\end{axis}
\end{tikzpicture}
\end{document}
```

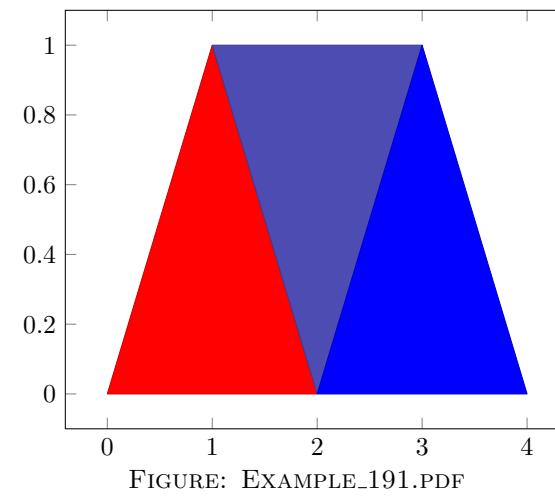


FIGURE: EXAMPLE\_191.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
% this uses n per-patch color values:
\addplot [patch,shader=interp,
table/row sep=\\",
patch table with individual point meta=%
0 1 2 100 100 100\\% V_0 V_1 V_2 C_0 C_1 C_2
1 2 3 10 0 50\\
4 3 5 0 0 100\\
]
table[row sep=\\" ] {
x y \\
0 0 \\
1 1 \\
2 0 \\
3 1 \\
2 0 \\
4 0 \\
};
\end{axis}
\end{tikzpicture}
\end{document}
```

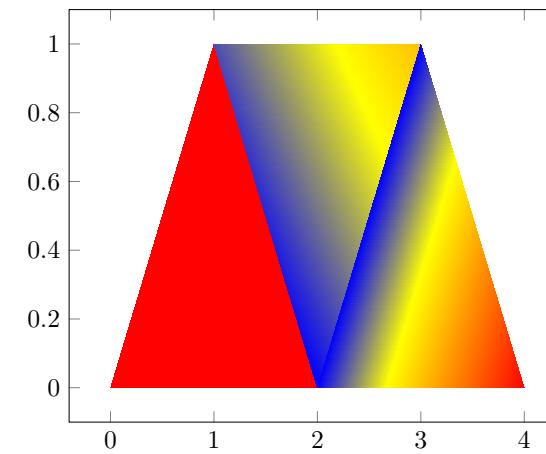


FIGURE: EXAMPLE\_192.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[axis equal]
% FokkerDrI_layer_0.patches.dat contains:
% # each row is one vertex; three consecutive
% # vertices make one triangle (patch)
% 105.577 -19.7332 2.85249
% 88.9233 -21.1254 13.0359
% 89.2104 -22.1547 1.46467
% # end of facet 0
% 105.577 -19.7332 2.85249
% 105.577 -17.2161 12.146
% 88.9233 -21.1254 13.0359
% # end of facet 1
\addplot3[patch]
file
{plotdata/FokkerDrI_layer_0.patches.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

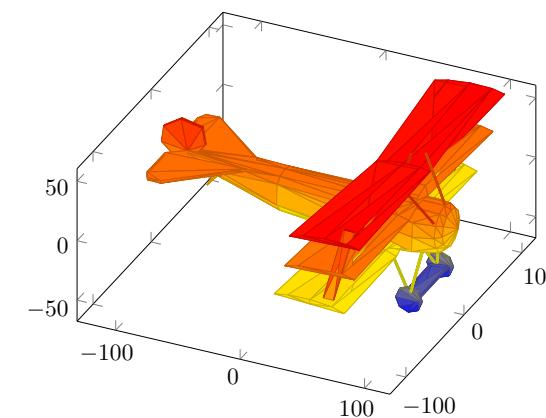


FIGURE: EXAMPLE\_193.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
% FokkerDrI_layer_0.facetIdx.dat contains:
% # each row makes up one facet; it
% # consists of 0-based indices into
% # the vertex array
% 0 1 2 % triangle of vertices #0,#1 and #2
% 0 3 1 % triangle of vertices #0,#3 and #1
% 3 4 1
% 5 6 7
% 6 8 7
% 8 9 7
% 8 10 9
%
% ...
% while FokkerDrI_layer_0.vertices.dat contains
% 105.577 -19.7332 2.85249 % vertex #0
% 88.9233 -21.1254 13.0359 % vertex #1
% 89.2104 -22.1547 1.46467 % vertex #2
% 105.577 -17.2161 12.146
% 105.577 -10.6054 18.7567
% 105.577 7.98161 18.7567
% 105.577 14.5923 12.146
%
\addplot3[patch,shader=interp,
 patch table=
 {plotdata/FokkerDrI_layer_0.facetIdx.dat}]
 file
 {plotdata/FokkerDrI_layer_0.vertices.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

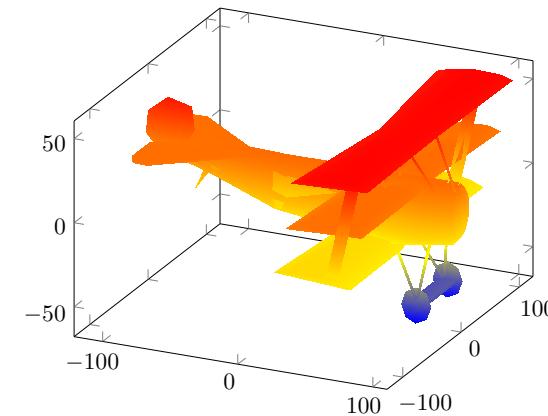


FIGURE: EXAMPLE\_194.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[view/h=70]
% FokkerDrI_layer_0.patches.dat contains:
% # each row is one vertex; three consecutive
% # vertices make one triangle (patch)
% 105.577 -19.7332 2.85249
% 88.9233 -21.1254 13.0359
% 89.2104 -22.1547 1.46467
% # end of facet 0
% 105.577 -19.7332 2.85249
% 105.577 -17.2161 12.146
% 88.9233 -21.1254 13.0359
% # end of facet 1
\addplot3[patch, mesh]
  file
  {plotdata/FokkerDrI_layer_0.patches.dat};
\end{axis}
\end{tikzpicture}
\end{document}
```

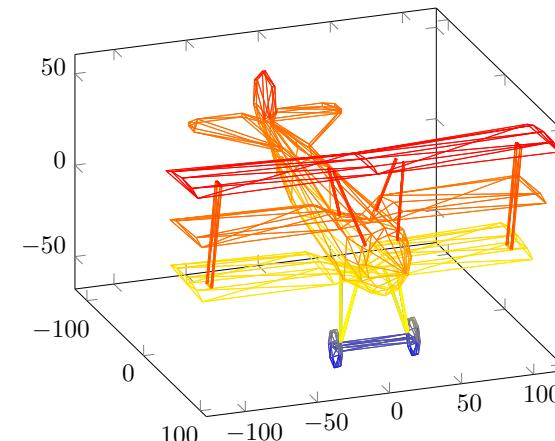


FIGURE: EXAMPLE\_195.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)}, title=Rectangle from matrix input]
% note that surf implies 'patch type=rectangle'
\addplot[surf, mesh/rows=2, patch type=rectangle]
coordinates {
  (0,0) (1,0)
  (0,1) (1,1)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

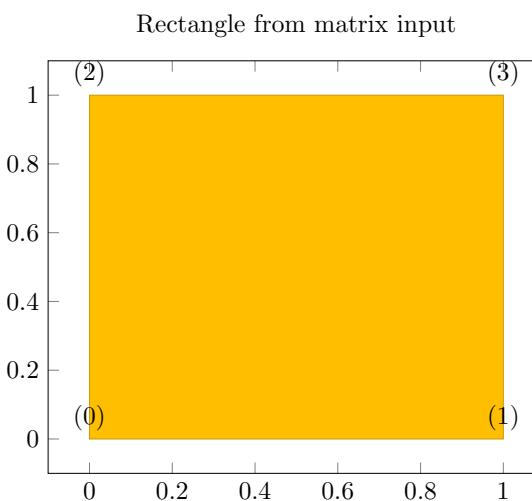


FIGURE: EXAMPLE\_196.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[nodes near coords={(\coordindex)},
    title=Rectangle from patch input]
\addplot[patch,patch type=rectangle]
coordinates {
    (0,0) (1,0) (1,1) (0,1)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

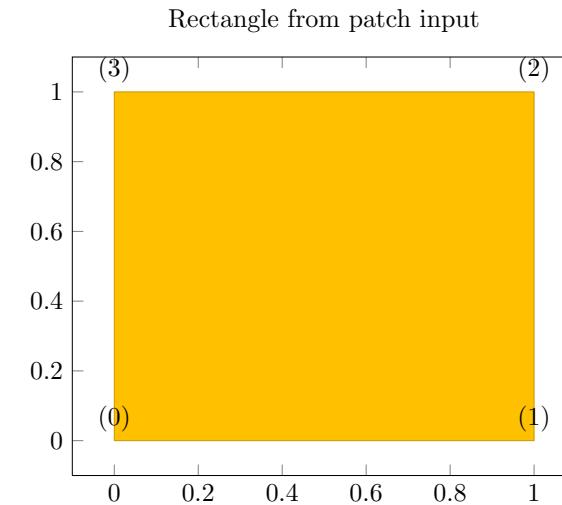


FIGURE: EXAMPLE\_197.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
Aligning at .....
\begin{tikzpicture}[baseline]
\begin{axis}[small,anchor=aninnernode.center]
\addplot {\sin(deg(x))};
\node
    [pin=-90:(aninnernode),fill=black,circle,scale=0.3]
    (aninnernode) at (axis cs:-2,0.75) \textcolor{red}{\textbf{\$}};
\draw[help lines] (axis cs:-6,0.75) -- (axis cs:6,0.75);
\end{axis}
\end{tikzpicture}
\end{document}
```

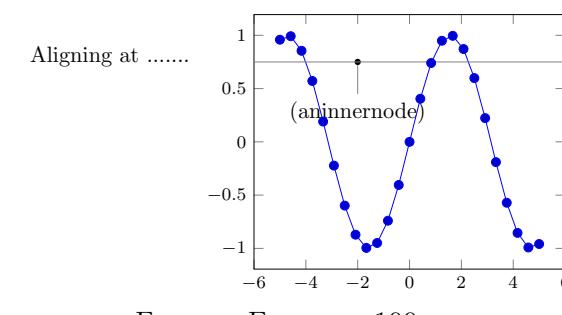


FIGURE: EXAMPLE\_199.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
Aligning at .....
\begin{tikzpicture}[baseline]
\begin{axis}[
    small,
    title={The function  $\sin x$  is very pretty.},
    title style={name=MyTitleNode},
    anchor=MyTitleNode.base,
]
    \addplot {sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

Aligning at ..... The function  $\sin x$  is very pretty.

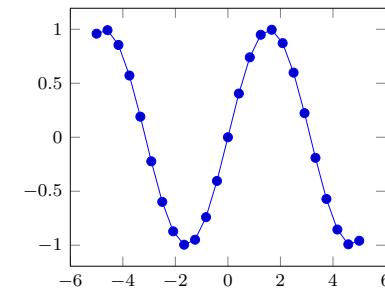


FIGURE: EXAMPLE\_200.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
% 2. Aligned:
\pgfplotsset{domain=-1:1}
\begin{tikzpicture}[baseline]
\begin{axis}[ xlabel=A normal sized $x$ label]
\addplot[smooth,blue,mark=*] {x^2};
\end{axis}
\end{tikzpicture}%
\hspace{0.15cm}
\begin{tikzpicture}[baseline]
\begin{axis}[ xlabel={$\sum_{i=0}^N n_i$}]
\addplot[smooth,blue,mark=*] {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

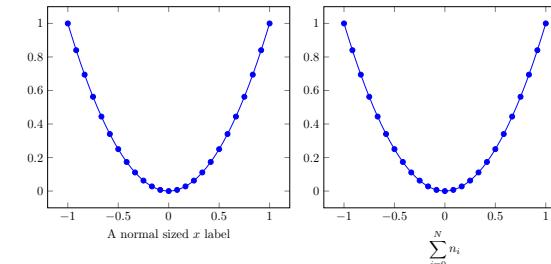


FIGURE: EXAMPLE\_202.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\pgfplotsset{
    small,
    title=Trimmed bounding boxes
}
\begin{center}
\begin{tabular}{rl}
\begin{tikzpicture}[baseline,trim axis left]
\begin{axis}
\addplot {x};
\end{axis}
\end{tikzpicture} &
\begin{tikzpicture}[baseline,trim axis right]
\begin{axis}[
    ylabel={$f(x)=x^2$},
    yticklabel pos=right,
    ylabel style={font=\Huge},
    \addplot {x^2};
]
\end{axis}
\end{tikzpicture} \\
&
\begin{tikzpicture}[baseline,trim axis left]
\begin{axis}[
    xlabel=$x$,
    xlabel style={font=\Huge}
]
\addplot {x^3};
\end{axis}
\end{tikzpicture} \% \\
&
\begin{tikzpicture}[baseline,trim axis right]
\begin{axis}[
    yticklabel pos=right]
\addplot {x^4};
\end{axis}
\end{tikzpicture} \% \\
\end{tabular}%
\end{center}
\end{document}

```

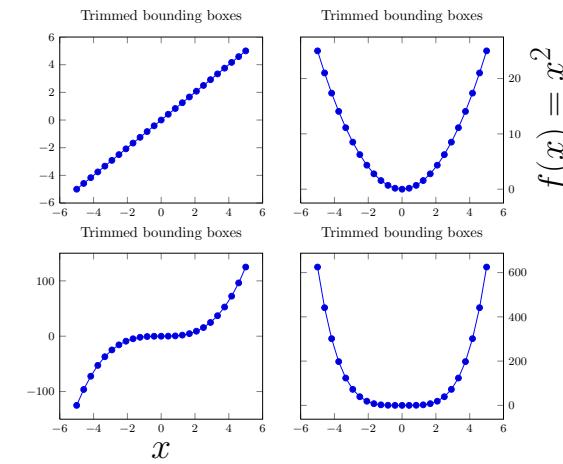
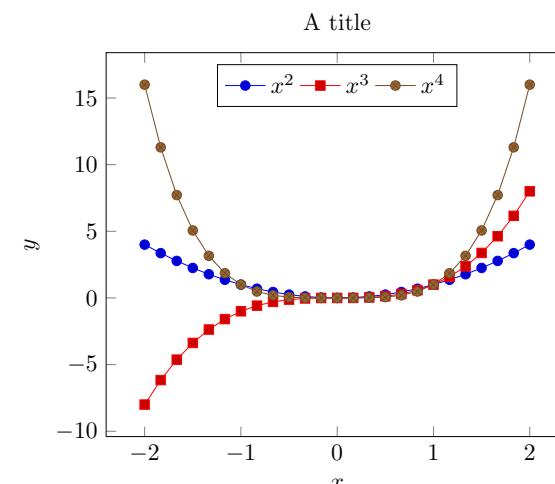
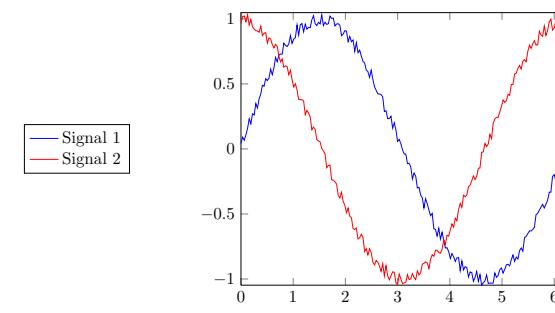


FIGURE: EXAMPLE\_204.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}%
\begin{axis}[
    title=A title,
    ylabel style={overlay},
    yticklabel style={overlay},
    xlabel={$x$},
    ylabel={$y$},
    legend style={at={(0.5,0.97)}, anchor=north,legend columns=-1},
    domain=-2:2
]
\addplot {x^2};
\addplot {x^3};
\addplot {x^4};
\legend{$x^2$, $x^3$, $x^4$}
\end{axis}
\end{tikzpicture}%
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    domain=0:6.2832,samples=200,
    legend style={
        overlay,
        at={(-0.5,0.5)},
        anchor=center},
    every axis plot post/.append style={mark=none},
    enlargelimits=false]
\addplot {sin(deg(x)+3)+rand*0.05};
\addplot {cos(deg(x)+2)+rand*0.05};
\legend{Signal 1,Signal 2}
\end{axis}
\end{tikzpicture}
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[ymin=0,ymax=1,enlargelimits=false]
\addplot [blue!80!black,fill=blue,fill opacity=0.5]
coordinates
{(0,0.1) (0.1,0.15) (0.2,0.5) (0.3,0.62)
(0.4,0.56) (0.5,0.58) (0.6,0.65) (0.7,0.6)
(0.8,0.58) (0.9,0.55) (1,0.52)};
\draw (axis cs:0,0) -- cycle;
\addplot [red,fill=red!90!black,opacity=0.5]
coordinates
{(0,0.25) (0.1,0.27) (0.2,0.24) (0.3,0.24)
(0.4,0.26) (0.5,0.3) (0.6,0.23) (0.7,0.2)
(0.8,0.15) (0.9,0.1) (1,0.1)};
\draw (axis cs:0,0) -- cycle;
\addplot [green!20!black] coordinates
{(0,0.4) (0.2,0.75) (1,0.75)};
\end{axis}
\end{tikzpicture}
\end{document}
```

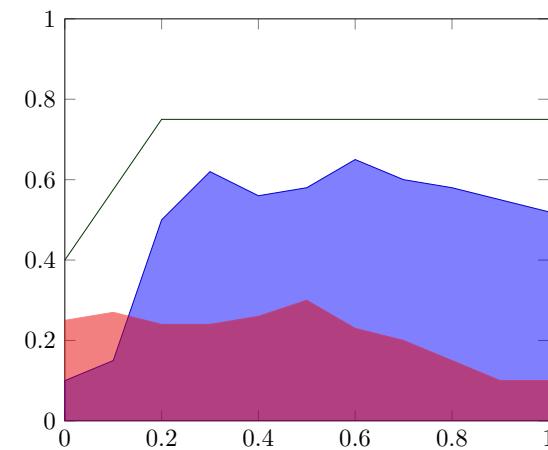


FIGURE: EXAMPLE\_210.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot {\sin(deg(x))};
\end{axis}
\end{tikzpicture}
\begin{tikzpicture}
\begin{axis}
\addplot+[only marks] {\sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

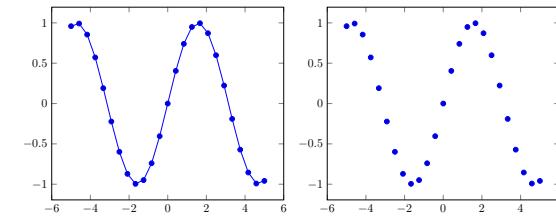


FIGURE: EXAMPLE\_216.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot coordinates {
(0,0)
(0.5,1)
(1,2)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

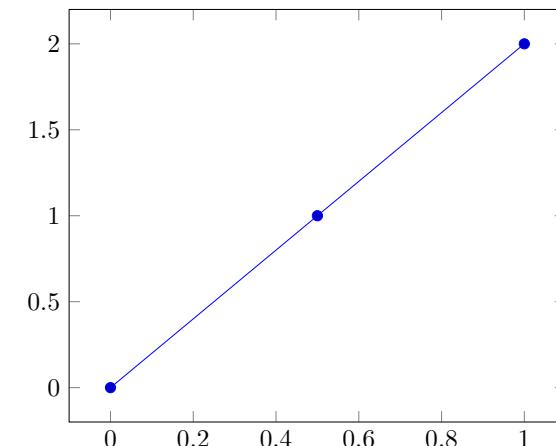


FIGURE: EXAMPLE\_217.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[scatter,scatter src=explicit] coordinates {
(900,1e-6) [1]
(2600,5e-7) [2]
(4000,7e-8) [3]
};
\end{axis}
\end{tikzpicture}
\end{document}
```

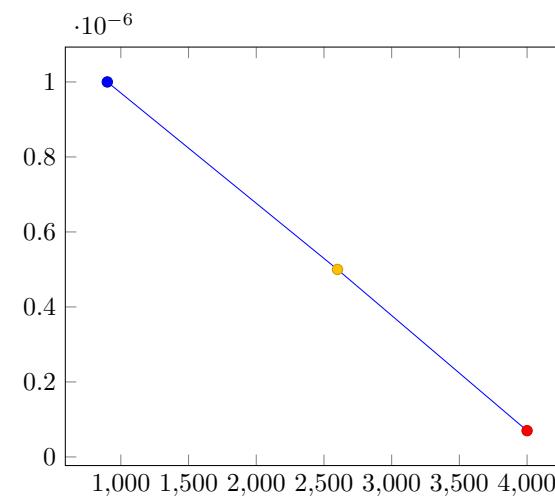


FIGURE: EXAMPLE\_219.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[
  title={$\frac{1}{x^2}$}
]
\addplot[blue,domain=1:1e30]
{x^-2};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

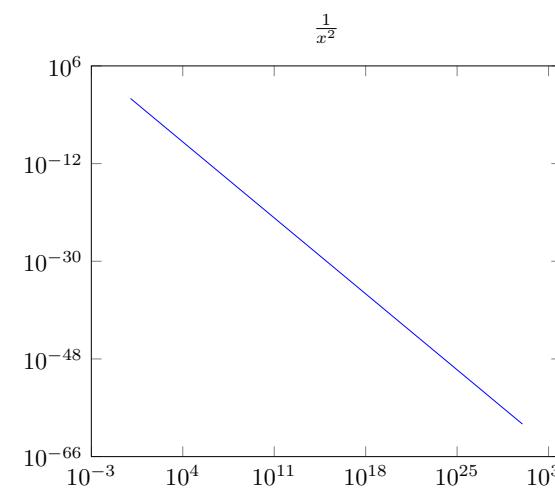


FIGURE: EXAMPLE\_223.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetwotypeset[columns={maxlevel,L2}]{plotdata/newexperiment1.dat}
\begin{tikzpicture}
\begin{semilogyaxis}[
  xlabel=\texttt{maxlevel} + 10
]
\addplot table
  [x expr=\thisrow{maxlevel}+10, y=L2]
  {plotdata/newexperiment1.dat};
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

maxlevel	L2
2	$2.97 \cdot 10^{-2}$
2	$2.97 \cdot 10^{-2}$
4	$5.27 \cdot 10^{-3}$
5	$3.8 \cdot 10^{-3}$
6	$8.41 \cdot 10^{-4}$
6	$5.01 \cdot 10^{-4}$
7	$1.11 \cdot 10^{-4}$
8	$5.41 \cdot 10^{-5}$
9	$1.25 \cdot 10^{-5}$
10	$6.01 \cdot 10^{-6}$
11	$1.11 \cdot 10^{-6}$
11	$5.9 \cdot 10^{-7}$
12	$1.03 \cdot 10^{-7}$

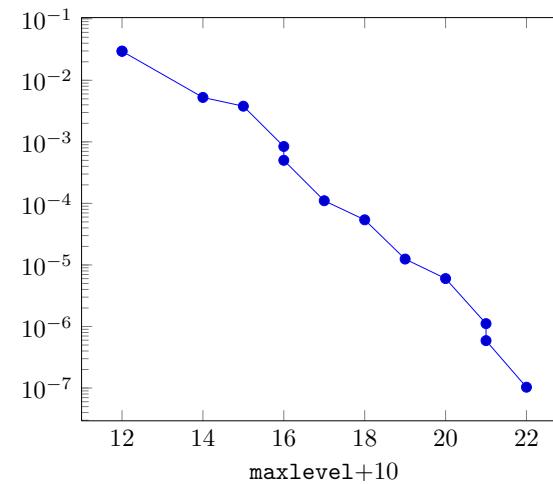


FIGURE: EXAMPLE\_225.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[shell[prefix=pgfshell_,id=cos]{awk 'BEGIN{
pi=3.14159; N=10;
for(i=0;i<=N;i++) print i,cos(i/N*pi);}' }];
\end{axis}
\end{tikzpicture}
\end{document}
```

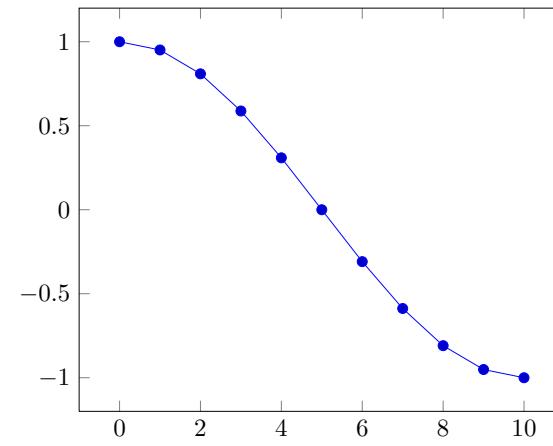


FIGURE: EXAMPLE\_228.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\graphicspath{ {figs/} }
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[axis on top,title=Graphics Import]
% provide options for the legend:
\addplot[red,only marks,mark=*,mark size=1pt]
graphics
[xmin=0,xmax=1,ymin=0,ymax=1,
% trim=left bottom right top
includegraphics={trim=12 9 12 8,clip}]
{external2};
\addplot coordinates {(0,0) (1,1)};
\legend{Scatter,Line}
\end{axis}
\end{tikzpicture}
\end{document}
```

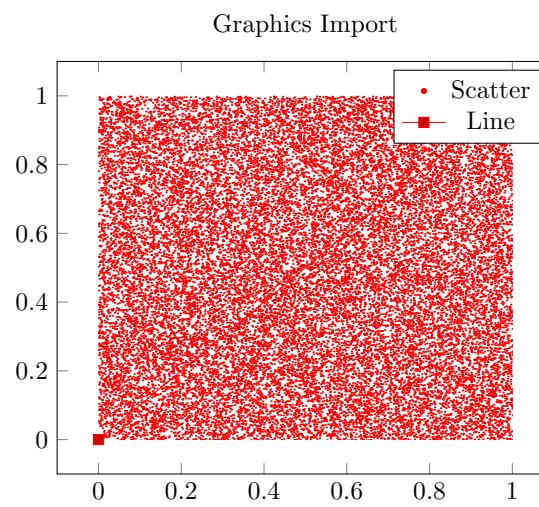


FIGURE: EXAMPLE\_232.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[axis on top,title=Graphics Import]
\addplot graphics
% instead of the min/max things:
[points={(0,1) (1,0)},
% trim=left bottom right top
includegraphics={trim=12 9 12 8,clip}]
{external2};
\addplot coordinates {(0,0) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

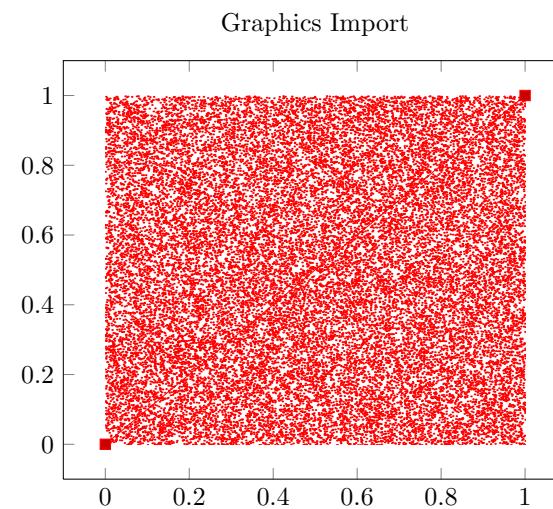


FIGURE: EXAMPLE\_233.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    xmax=1.5,% extra limits
    grid=both,minor tick num=1,
    xlabel=$x$,ylabel=$y$,
]
\addplot3[surf] % 'surf' is only used for the legend.
graphics[
    points=[%
        (0,1,0) => (0,207-112)
        (1,0,0) => (446,207-133)
        (0.5546,0.5042,1.825) => (236,207)
        (0,0,0) => (194,207-202)
    ]
];
\plotdata/plotgraphics3dsurf.png;
\addlegendentry{Graphics}
\addplot3+[only marks] coordinates {
    (0,1,0) (1,0,0)
    (0.5546,0.5042,1.825) (0,0,0)
};
\addlegendentry{Scatter}
\end{axis}
\end{tikzpicture}
\end{document}
```

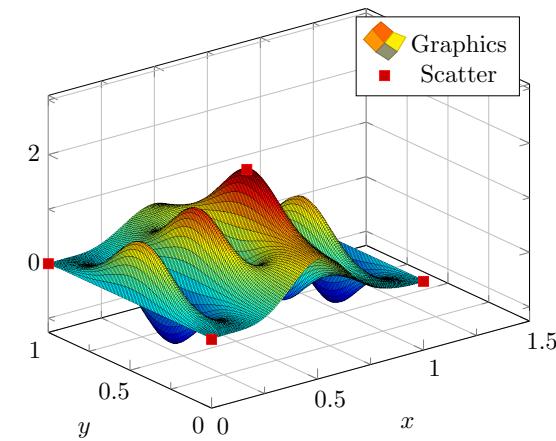


FIGURE: EXAMPLE\_235.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{hyperref}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    grid=both,minor tick num=1,
    xlabel=$x$,ylabel=$y$,
    title={\centering
        Geometry provided by Sven Groß, Bonn\\
        \url{http://www.igpm.rwth-aachen.de/DROPS}\\"},
    title style=[text width=6cm,font=\tiny],
]
\addplot3 graphics[
    points={
        (-0.002625,0.002625,0) => (140,234)
        (0,0.00263,0.00263)     => (230,364)
        (0,-0.00263,-0.00263)   => (366,81)
        (0,-0.00263,0.00263)   => (366,276)
        (0.002625,0.002625,0.002625)
    }
]
{plotdata/risingdrop3d.png};
\end{axis}
\end{tikzpicture}
\end{document}
```

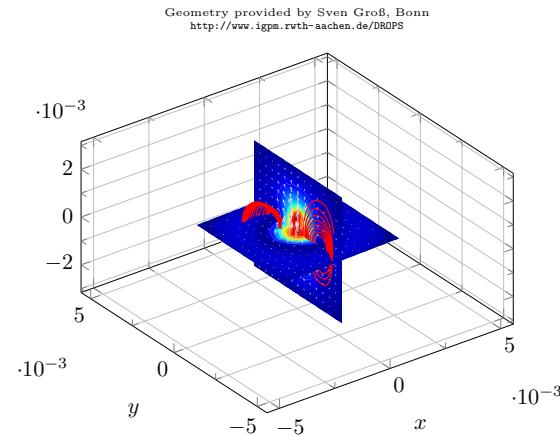


FIGURE: EXAMPLE\_236.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
% [See the TikZ manual if you'd like to learn about nodes and pins]
\begin{tikzpicture}
\tikzset{
  every pin/.style={fill=yellow!50!white,rectangle,rounded
corners=3pt,font=\tiny},
  small dot/.style={fill=black,circle,scale=0.3}
}
\begin{axis}[
  clip=false,
  title=How \texttt{axis description cs} works
]
\addplot {x};
\node[small dot,pin=120:{(0,0)}] at (axis description cs:0,0) {};
\node[small dot,pin=-30:{(1,1)}] at (axis description cs:1,1) {};
\node[small dot,pin=-90:{(1.03,0.5)}] at (axis description
cs:1.03,0.5) {};
\node[small dot,pin=125:{(0.5,0.5)}] at (axis description
cs:0.5,0.5) {};
\end{axis}
\end{tikzpicture}
\end{document}

```

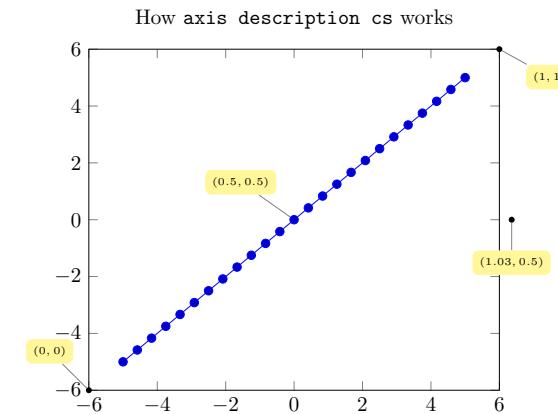


FIGURE: EXAMPLE\_239.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\tikzset{
  every pin/.style={fill=yellow!50!white,rectangle,rounded
    corners=3pt,font=\tiny},
  small dot/.style={fill=black,circle,scale=0.3}
}
\begin{tikzpicture}
\begin{axis}[
  clip=false,
  ticklabel style={draw=red},
  title=Positioning with \texttt{xlabel cs}]
\addplot {x};
\node[small dot,pin=-90:{\texttt{xlabel cs:0}}] at (xticklabel cs:0) {};
\node[small dot,pin=-90:{\texttt{xlabel cs:0.5}}] at (xticklabel cs:0.5) {};
\node[small dot,pin=-90:{\texttt{xlabel cs:1}}] at (xticklabel cs:1) {};
\node[small dot,pin=180:{\texttt{ylabel cs:0}}] at (yticklabel cs:0) {};
\node[small dot,pin=180:{\texttt{ylabel cs:0.5}}] at (yticklabel cs:0.5) {};
\node[small dot,pin=180:{\texttt{ylabel cs:1}}] at (yticklabel cs:1) {};
\end{axis}
\end{tikzpicture}
\end{document}

```

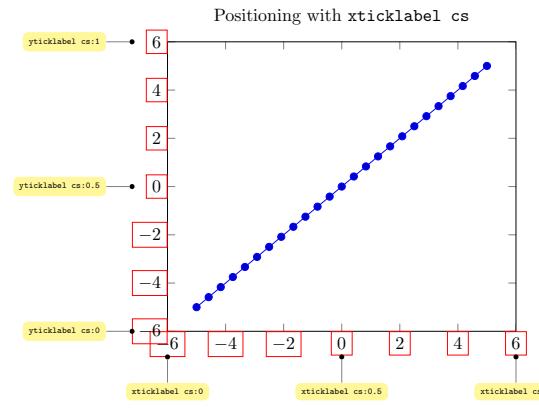


FIGURE: EXAMPLE\_242.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
% the same as above for 3D ...
\begin{tikzpicture}
\tikzset{
  every pin/.style={fill=yellow!50!white,rectangle,rounded
    corners=3pt,font=\tiny},
  small dot/.style={fill=black,circle,scale=0.3}
}
\begin{axis}[
  ticklabel style=[draw=red],
  clip=false,
  title=Positioning with \texttt{ticklabel cs} in 3D
]
\addplot3 coordinates {(-5,-5,-5) (5,5,5)};
\node[small dot,pin=-90:{\texttt{xticklabel cs:0}}] at (xticklabel cs:0) {};
\node[small dot,pin=-90:{\texttt{xticklabel cs:0.5}}] at (xticklabel cs:0.5) {};
\node[small dot,pin=-90:{\texttt{xticklabel cs:1}}] at (xticklabel cs:1) {};
\node[small dot,pin=-45:{\texttt{yticklabel cs:0}}] at (yticklabel cs:0) {};
\node[small dot,pin=-45:{\texttt{yticklabel cs:0.5}}] at (yticklabel cs:0.5) {};
\node[small dot,pin=-45:{\texttt{yticklabel cs:1}}] at (yticklabel cs:1) {};
\node[small dot,pin=180:{\texttt{zticklabel cs:0}}] at (zticklabel cs:0) {};
\node[small dot,pin=180:{\texttt{zticklabel cs:0.5}}] at (zticklabel cs:0.5) {};
\node[small dot,pin=180:{\texttt{zticklabel cs:1}}] at (zticklabel cs:1) {};
\end{axis}
\end{tikzpicture}
\end{document}

```

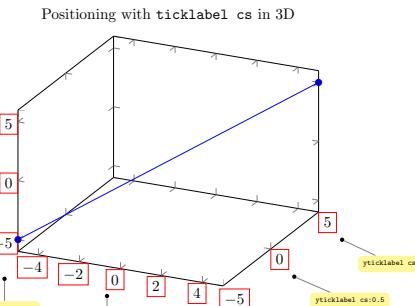


FIGURE: EXAMPLE\_243.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\tikzset{
  every pin/.style={fill=yellow!50!white,rectangle,rounded
    corners=3pt,font=\tiny},
  small dot/.style={fill=black,circle,scale=0.3}
}
\begin{tikzpicture}
\begin{axis}[
  ticklabel style=[draw=red],
  clip=false,
  title=\texttt{xticklabel cs} and its optional shift
]
\addplot3 coordinates {(-5,-5,-5) (5,5,5)};
\draw[blue,thick,->] (xticklabel cs:0,0) -- (xticklabel cs:1,0);
\draw[red,thick,->] (xticklabel cs:0,5pt) -- (xticklabel cs:1,5pt);
\draw[magenta,thick,->] (xticklabel cs:0,10pt) -- (xticklabel
  cs:1,10pt);
\draw[green,thick,->] (xticklabel cs:0,15pt) -- (xticklabel
  cs:1,15pt);
\node[small dot,pin=0:{\texttt{xticklabel cs:1,0}}] at (xticklabel
  cs:1,0) {};
\node[small dot,pin=0:{\texttt{xticklabel cs:1,15pt}}] at (xticklabel
  cs:1,15pt) {};
\draw[blue,thick,->] (xticklabel cs:0,0) -- (xticklabel
  cs:0,15pt);
\draw[blue,thick,->] (xticklabel cs:1,0) -- (xticklabel
  cs:1,15pt);
\end{axis}
\end{tikzpicture}
\end{document}

```

ticklabel cs and its optional shift

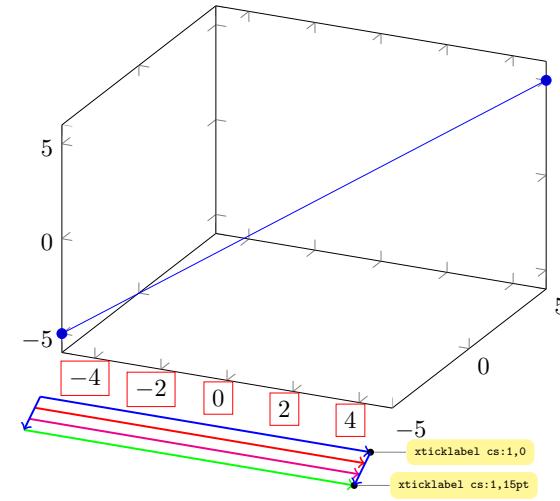


FIGURE: EXAMPLE\_244.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    xlabel=Variable 1,
    ylabel=Variable 2,
    zlabel=value,
    xlabel style={sloped like x axis},
    ylabel style={sloped}
]
\addplot3[surf] {y*x*(1-x)};
\end{axis}
\end{tikzpicture}
\end{document}
```

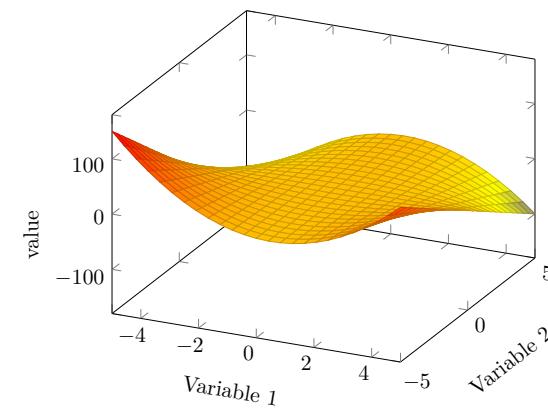


FIGURE: EXAMPLE\_246.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[
 xlabel=Dof, ylabel=Error,
 title={$\mu=0.1$, $\sigma=0.2$}]
 \addplot coordinates {
 (5, 8.312e-02)
 (17, 2.547e-02)
 (49, 7.407e-03)
 (129, 2.102e-03)
 (321, 5.874e-04)
 (769, 1.623e-04)
 (1793, 4.442e-05)
 (4097, 1.207e-05)
 (9217, 3.261e-06)
};
\end{loglogaxis}
\end{tikzpicture}%
\end{document}
```

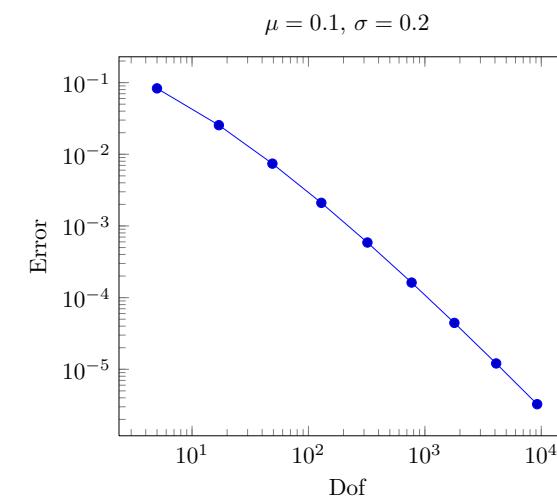


FIGURE: EXAMPLE\_247.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\pgfplotsset{every axis/.append style={
 extra description/.code={%
 \node at (0.5,0.5) {Center!};%
 }}}
\begin{tikzpicture}
 \begin{axis}
 \addplot {x^2};
 \end{axis}
\end{tikzpicture}
\end{document}
```

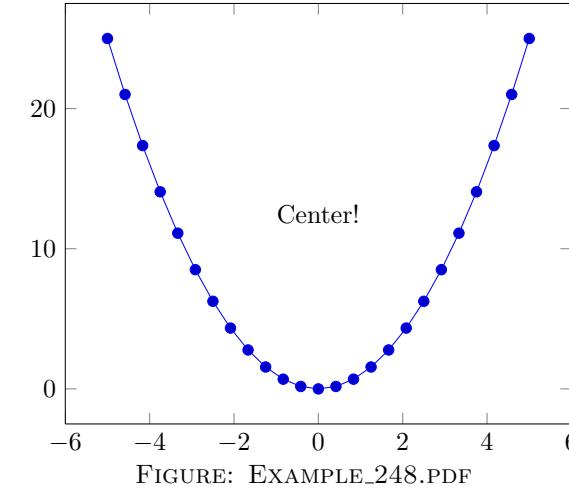


FIGURE: EXAMPLE\_248.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[smooth,mark=*,blue] coordinates {
(0,2)
(2,3)
(3,1)
};
\addlegendentry{Case 1}
\addplot[smooth,color=red,mark=x]
coordinates {
(0,0)
(1,1)
(2,1)
(3,2)
};
\addlegendentry{Case 2}
\end{axis}
\end{tikzpicture}
\end{document}
```

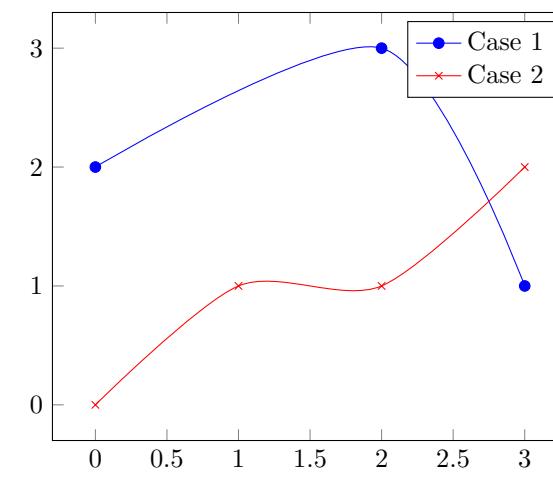


FIGURE: EXAMPLE\_249.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\foreach \p in {1,2,3} {
\addplot {x^{\p}};
\addlegendentryexpanded{$x^{\p}$}
}
\end{axis}
\end{tikzpicture}
\end{document}
```

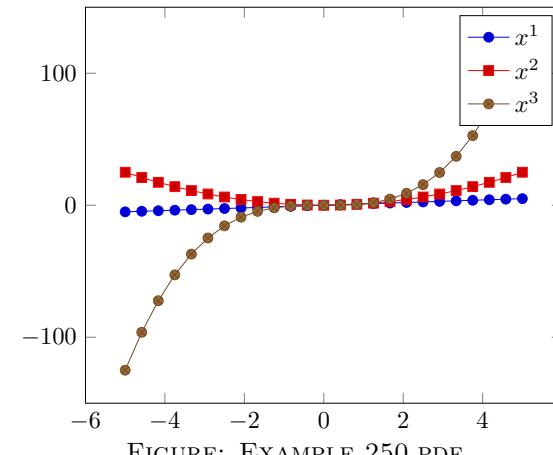


FIGURE: EXAMPLE\_250.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend entries={$x$,$x^2$}]
\addplot {x};
\addplot {x^2};
\legend{a,b}% overrides the option
\end{axis}
\end{tikzpicture}
\end{document}
```

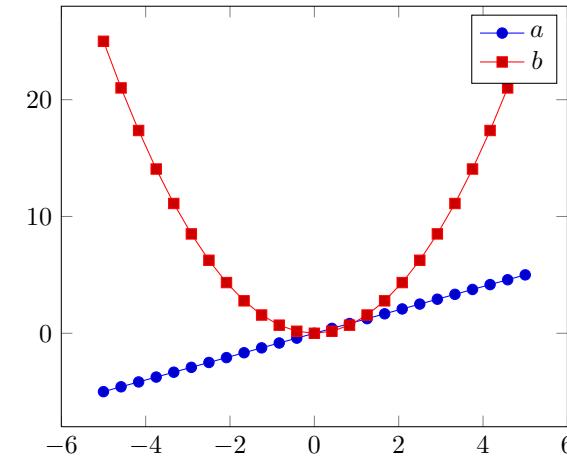


FIGURE: EXAMPLE\_252.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    % this modifies 'every axis legend':
    legend style={font=\large}
]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{l_1,l_2,l_3}
\end{axis}
\end{tikzpicture}
\end{document}
```

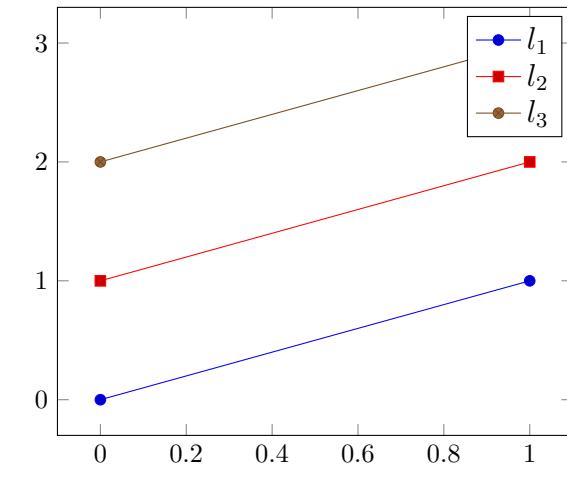


FIGURE: EXAMPLE\_254.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    % align right:
    legend style={
        cells={anchor=east},
        legend pos=outer north east,
    }
]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{$l_1$, legend $l_2$, $l_3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

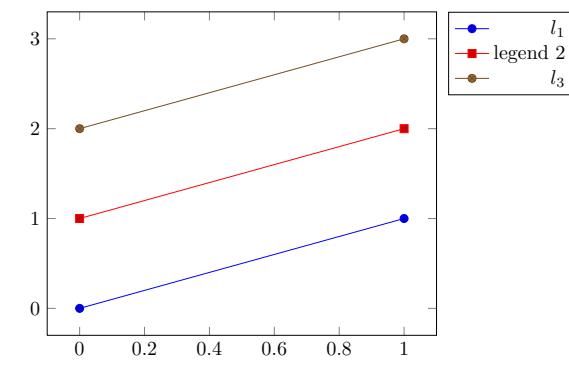


FIGURE: EXAMPLE\_255.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    legend style={
        at={(1,0.5)},
        anchor=east
    }
]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{$l_1$,$l_2$,$l_3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

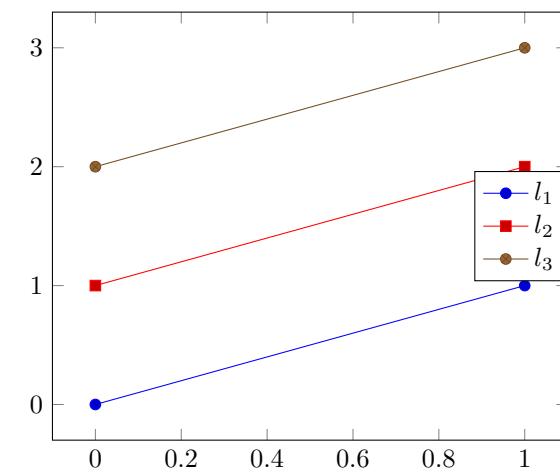


FIGURE: EXAMPLE\_258.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[tiny,title=With legend box]
\addplot[blue]{x};
\addplot[red]{2*x};
\legend{$x$,$2x$}
\end{axis}
\end{tikzpicture}
\end{document}
```

With legend box

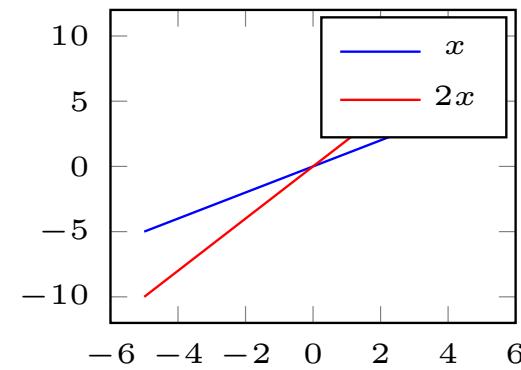


FIGURE: EXAMPLE\_259.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend pos=south west]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{$l_1$,$l_2$,$l_3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

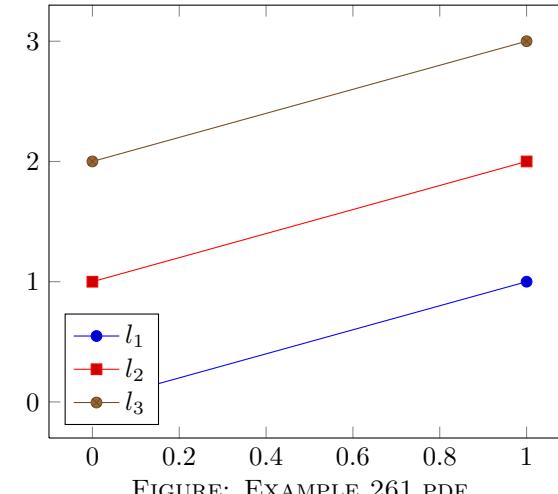


FIGURE: EXAMPLE\_261.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend pos=north east]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{$l_1$,$l_2$,$l_3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

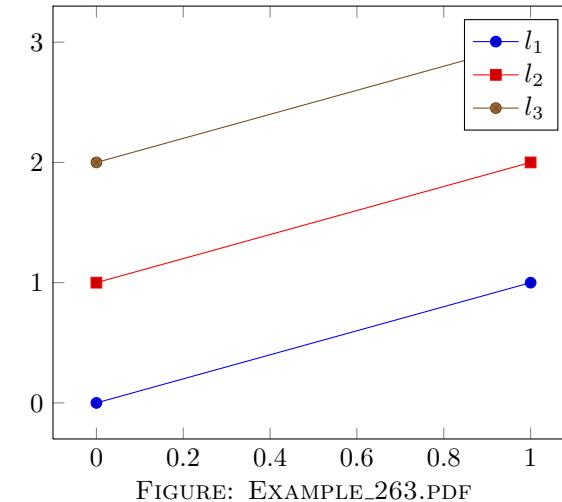


FIGURE: EXAMPLE\_263.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend pos=north west]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{$l_1$,$l_2$,$l_3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

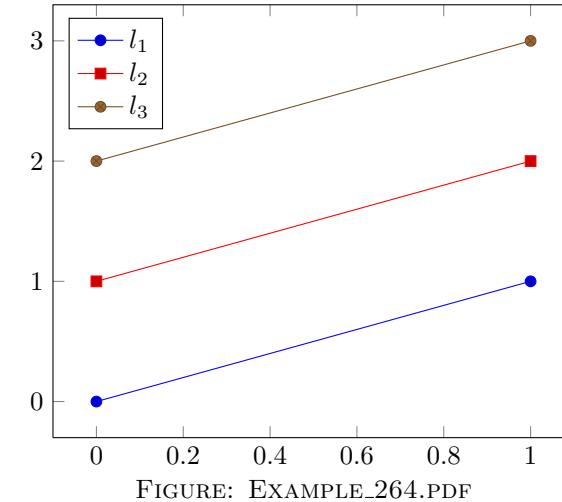


FIGURE: EXAMPLE\_264.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend pos=outer north east]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{$l_1$,$l_2$,$l_3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

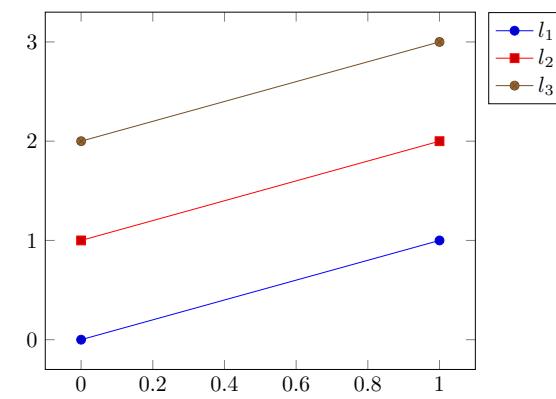


FIGURE: EXAMPLE\_265.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend cell align=left,
            legend pos=outer north east]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{a,fine,legend}
\end{axis}
\end{tikzpicture}
\end{document}
```

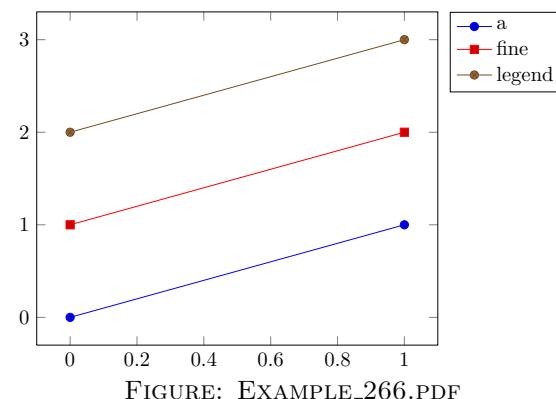


FIGURE: EXAMPLE\_266.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend cell align=center,
            legend pos=outer north east]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{a,fine,legend}
\end{axis}
\end{tikzpicture}
\end{document}
```

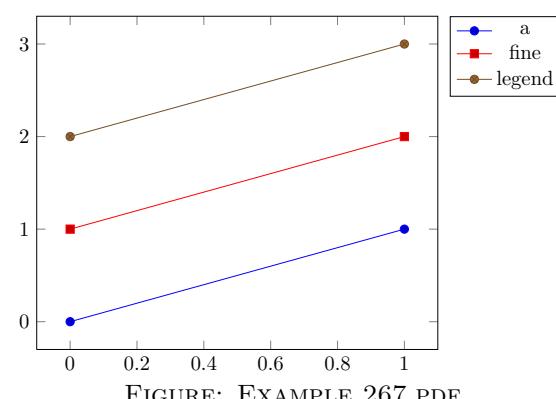


FIGURE: EXAMPLE\_267.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend cell align=right,
    legend pos=outer north east]
\addplot coordinates {(0,0) (1,1)};
\addplot coordinates {(0,1) (1,2)};
\addplot coordinates {(0,2) (1,3)};
\legend{a,fine,legend}
\end{axis}
\end{tikzpicture}
\end{document}
```

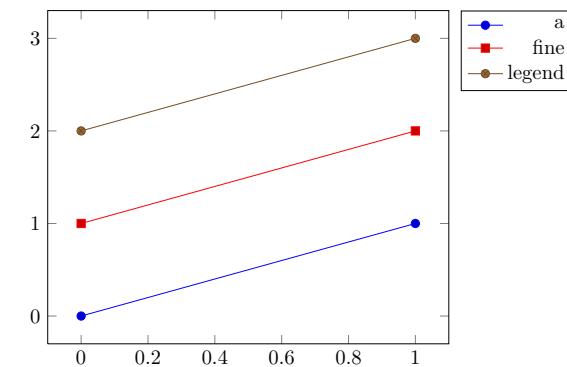


FIGURE: EXAMPLE\_268.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend image post style={mark=*}]
\addplot+[only marks,forget plot]
coordinates {(0.5,0.75) (1,1) (1.5,0.75)};
\addplot+[mark=none,smooth,domain=0:2]
{-x*(x-2)};
\addlegendentry{Parabola}
\end{axis}
\end{tikzpicture}
\end{document}
```

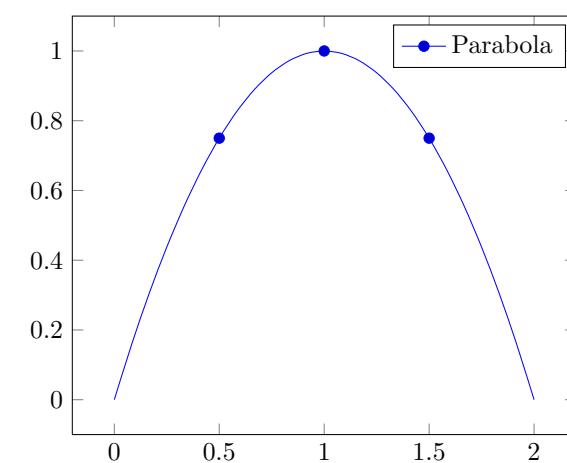


FIGURE: EXAMPLE\_269.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usetikzlibrary{patterns}
\begin{document}
% \usetikzlibrary{patterns}
\begin{tikzpicture}[area legend,
axis x line=bottom,
axis y line=left,
domain=0:1,
legend style={at={(0.03,0.97)},
anchor=north west,
axis on top,xmin=0}
\addplot [pattern=crosshatch dots,
pattern color=blue,draw=blue,
samples=500]
{\sqrt{x}} \closedcycle;
\addplot [pattern=crosshatch,
pattern color=blue!30!white,
draw=blue!30!white]
{x^2} \closedcycle;
\addplot [red,line legend] coordinates {(0,0) (1,1)};
\legend{$\sqrt{x}$,$x^2$,$x$}
\end{axis}
\end{tikzpicture}
\end{document}
```

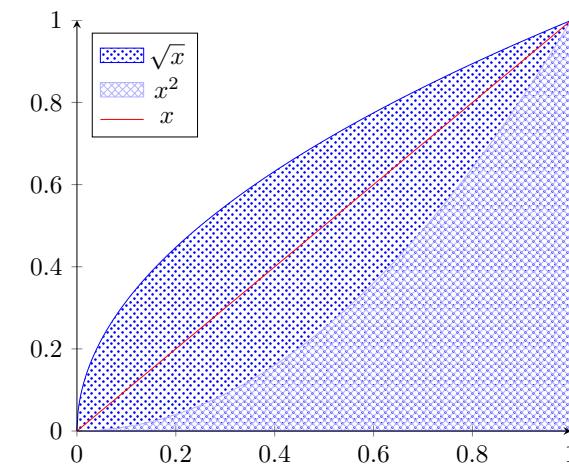


FIGURE: EXAMPLE\_270.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}[reverse legend]
\begin{axis}
\addplot {x};
\addlegendentry{$x$}
\addplot {x^2};
\addlegendentry{$x^2$}
\addplot {x^3};
\addlegendentry{$x^3$}
\end{axis}
\end{tikzpicture}
\end{document}
```

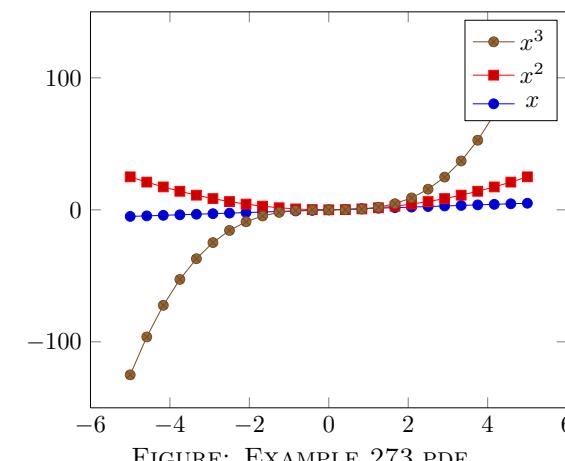


FIGURE: EXAMPLE\_273.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  legend columns=2,
  legend pos=outer north east,
  cycle multi list={%
    color list\nextlist
    [2 of]mark list
  }]
\addplot {-x}; \addlegendentry{A1}
\addplot {-x+1}; \addlegendentry{A2}
\addplot {-1.2*x + 4}; \addlegendentry{B1}
\addplot {-1.2*x + 5}; \addlegendentry{B2}
\addplot {-1.3*x + 9}; \addlegendentry{C1}
\addplot {-1.4*x + 10}; \addlegendentry{C2}
\end{axis}
\end{tikzpicture}
\end{document}
```

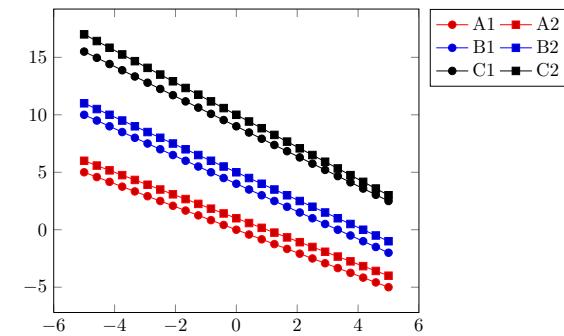


FIGURE: EXAMPLE\_274.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    transpose legend,
    legend columns=2,
    legend style={at={(0.5,-0.1)}, anchor=north},
    cycle multi list={%
        color list\nextlist
        [2 of]mark list
    }]
\addplot {-x}; \addlegendentry{A1}
\addplot {-x+1}; \addlegendentry{A2}
\addplot {-1.2*x + 4}; \addlegendentry{B1}
\addplot {-1.2*x + 5}; \addlegendentry{B2}
\addplot {-1.3*x + 9}; \addlegendentry{C1}
\addplot {-1.4*x + 10}; \addlegendentry{C2}
\end{axis}
\end{tikzpicture}
\end{document}
```

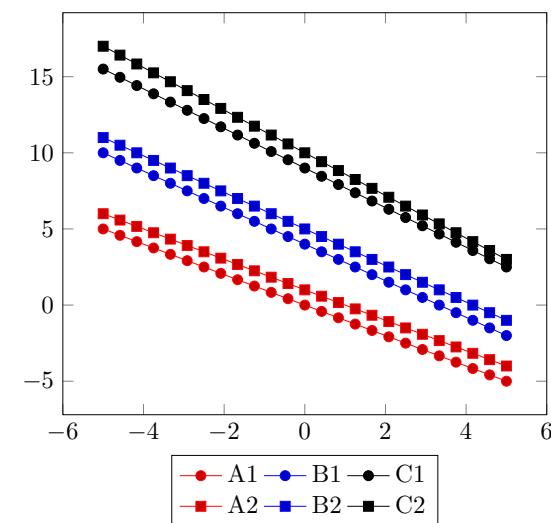


FIGURE: EXAMPLE\_275.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[
  domain=0:4,
]
\addplot {x}; \addlegendentry{$x$}
\addplot {x^2}; \addlegendentry{$x^2$}
\addplot {x^3}; \addlegendentry{$x^3$}
\addlegendimage{empty legend}
\addlegendentry{---}
\addplot {x^{(-1)}}; \addlegendentry{$x^{-1}$}
\addplot {x^{(-2)}}; \addlegendentry{$x^{-2}$}
\addplot {x^{(-3)}}; \addlegendentry{$x^{-3}$}
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

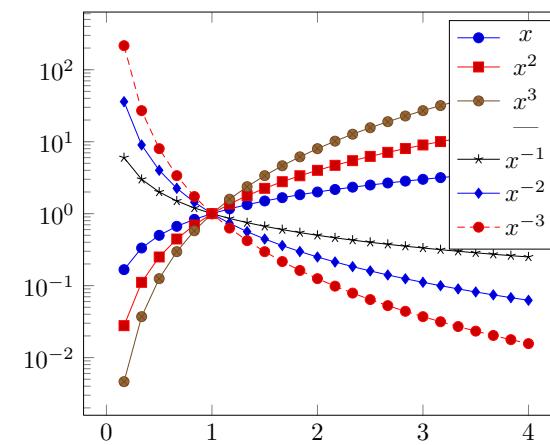


FIGURE: EXAMPLE\_278.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[
  domain=0:4,
]
\addplot {x}; \addlegendentry{$x$}
\addplot {x^2}; \addlegendentry{$x^2$}
\addplot {x^3}; \addlegendentry{$x^3$}
\addlegendimage{empty legend}
\addlegendentry[text width=25pt, text depth=]{Neg. Sign:}
\addplot {x^{(-1)}}; \addlegendentry{$x^{-1}$}
\addplot {x^{(-2)}}; \addlegendentry{$x^{-2}$}
\addplot {x^{(-3)}}; \addlegendentry{$x^{-3}$}
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

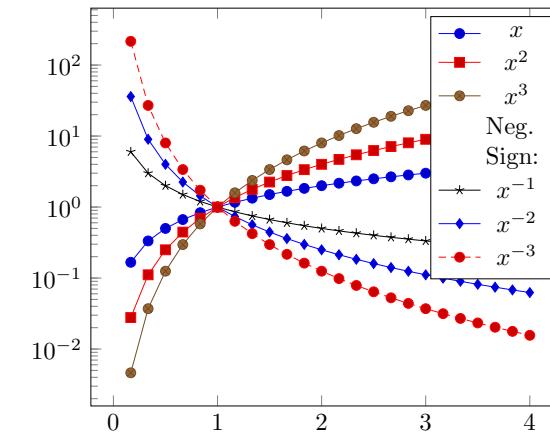


FIGURE: EXAMPLE\_279.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    xlabel=$x$,ylabel=$\sin x$]
\addplot[blue,mark=none,
    domain=-10:0,samples=40]
{\sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

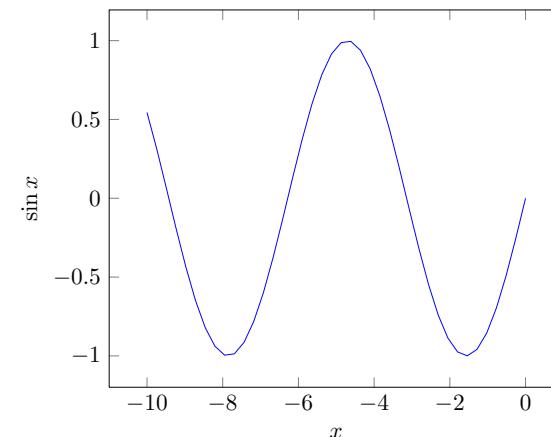


FIGURE: EXAMPLE\_281.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    axis x line=middle,
    axis y line=right,
    ymax=1.1, ymin=-1.1,
    xlabel=$x$,ylabel=$\sin x$]
\addplot[blue,mark=none,
    domain=-10:0,samples=40]
{\sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

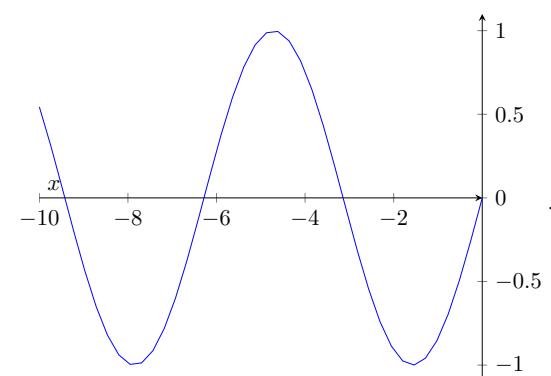


FIGURE: EXAMPLE\_282.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    axis x line=bottom,
    axis y line=left,
    xlabel=$x$,ylabel=$\sqrt{|x|}$
]
\addplot[blue,mark=none,
    domain=-4:4,samples=501]
    {\sqrt{abs(x))}};
\end{axis}
\end{tikzpicture}
\end{document}
```

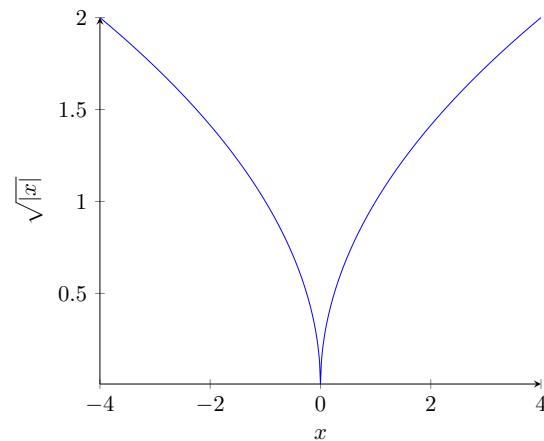


FIGURE: EXAMPLE\_283.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    minor tick num=3,
    axis y line=center,
    axis x line=middle,
    xlabel=$x$,ylabel=$\sin x$]
\addplot[smooth,blue,mark=none,
    domain=-5:5,samples=40]
    {\sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

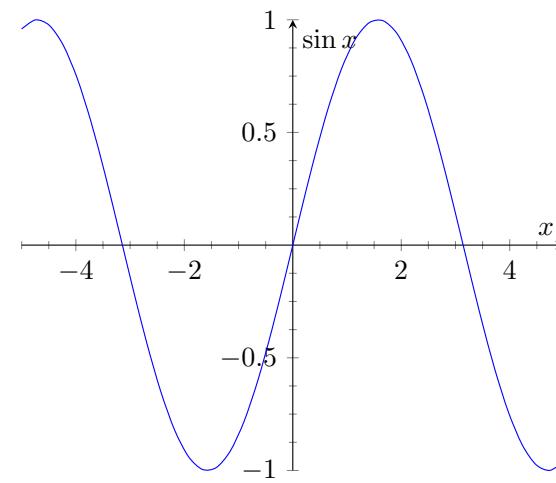


FIGURE: EXAMPLE\_284.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    minor tick num=1,
    axis x line=middle,
    axis y line=middle,
    every inner x axis line/.append style=
        {|->},
    every inner y axis line/.append style=
        {|->},
    xlabel=$x$,ylabel=$y^3$]
\addplot[blue,domain=-3:5] {x^3};
\end{axis}
\end{tikzpicture}
\end{document}
```

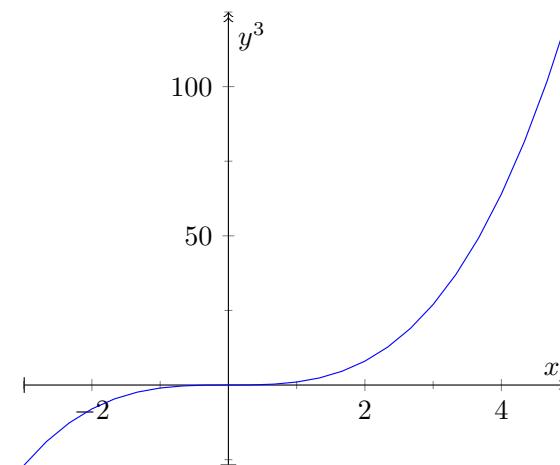


FIGURE: EXAMPLE\_286.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    separate axis lines, % important !
    every outer x axis line/.append style=
        {-stealth},
    every outer y axis line/.append style=
        {-stealth},
]
\addplot[blue,id=DoG,
    samples=100,
    domain=-15:15]
    gnuplot{1.3*exp(-x**2/10) - exp(-x**2/20)};
\end{axis}
\end{tikzpicture}
\end{document}
```

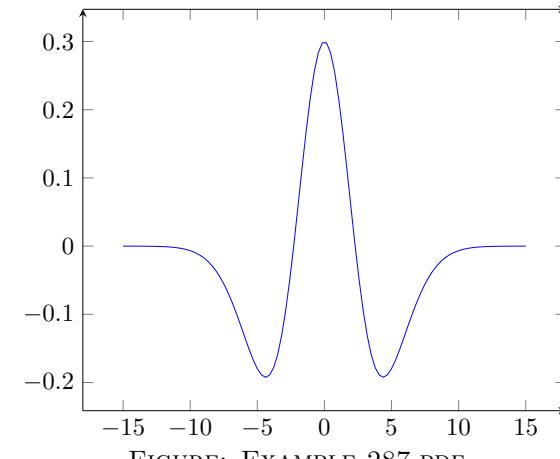


FIGURE: EXAMPLE\_287.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    separate axis lines,
    every outer x axis line/.append style=
        {-stealth,red},
    every outer y axis line/.append style=
        {-stealth,green!30!black},
]
\addplot[blue,
    samples=100,
    domain=-15:15]
{1.3*exp(0-x^2/10) - exp(0-x^2/20)};
% Unfortunately, there is a bug in PGF 2.00
% something like exp(-10^2)
% must be written as exp(0-10^2) :-( 
\end{axis}
\end{tikzpicture}
\end{document}
```

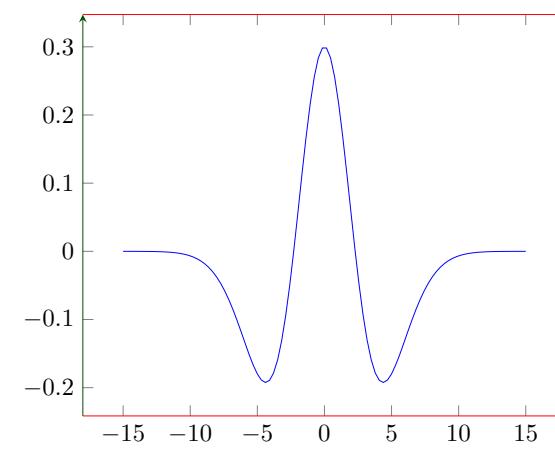


FIGURE: EXAMPLE\_288.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    separate axis lines=false,
    every outer x axis line/.append style={-stealth,red},
    every outer y axis line/.append style={-stealth,green!30!black},
]
\addplot[blue,id=DoG,
    samples=100,
    domain=-15:15]
    gnuplot{1.3*exp(-x**2/10) - exp(-x**2/20)};
\end{axis}
\end{tikzpicture}
\end{document}
```

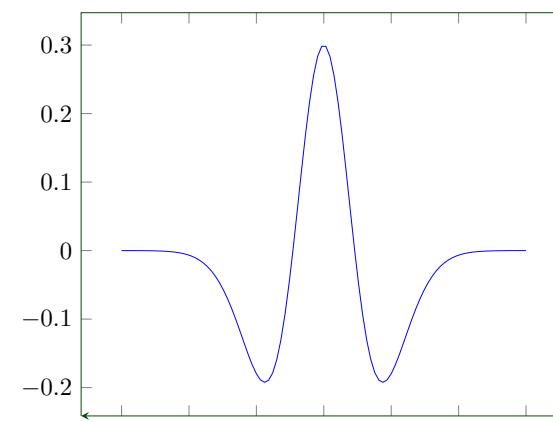


FIGURE: EXAMPLE\_289.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    scale only axis,
    xmin=-5,xmax=5,
    axis y line*=left,\% the '*' avoids arrow heads
    xlabel=$x$,
    ylabel=First ordinate]
\addplot [x^2];
\end{axis}
\begin{axis}[
    scale only axis,
    xmin=-5,xmax=5,
    axis y line*=right,
    axis x line=none,
    ylabel=Second ordinate]
\addplot[red] {3*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

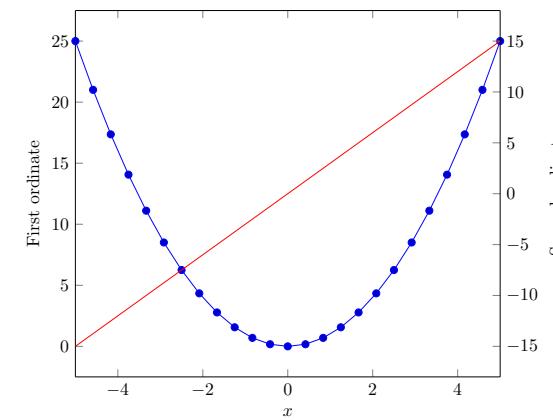


FIGURE: EXAMPLE\_290.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{textcomp}
\begin{document}
% \usepackage{textcomp}
\begin{tikzpicture}
\begin{axis}[
  scale only axis,
  xmin=-5,xmax=5,
  axis y line*=left,%'*' avoids arrow heads
  xlabel=$x$,
  ylabel=Absolute]
\addplot {x^2};
\end{axis}

\begin{axis}[
  scale only axis,
  xmin=-5,xmax=5,
  ymin=0,ymax=1000,
  yticklabel={
    \pgfmathprintnumber{\tick}\text{per thousand},
    axis y line*=right,
    axis x line=none,
    xlabel=per thousand}
  \end{axis}
\end{tikzpicture}
\end{document}
```

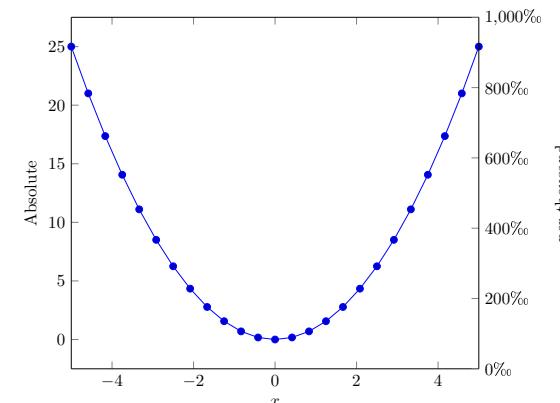


FIGURE: EXAMPLE\_291.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  axis x line=bottom,
  axis x discontinuity=parallel,
  axis y line=left,
  xmin=360, xmax=600,
  ymin=0, ymax=7,
  enlargelimits=false
]
\addplot coordinates {
  (420,2)
  (500,6)
  (590,4)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

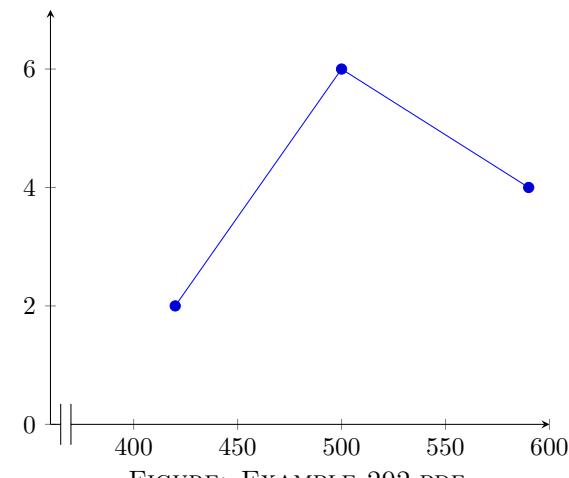


FIGURE: EXAMPLE\_292.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    axis x line=bottom,
    axis y line=center,
    tick align=outside,
    axis y discontinuity=crunch,
    ymin=95, enlargelimits=false
]
\addplot[blue,mark=none,
    domain=-4:4,samples=20]
    {x*x+x+104};
\end{axis}
\end{tikzpicture}
\end{document}
```

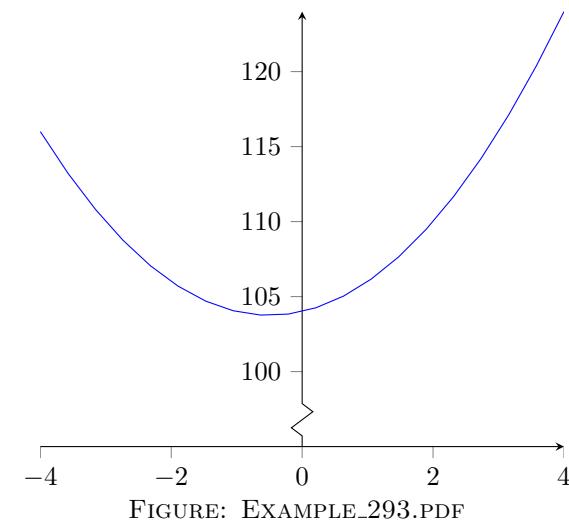


FIGURE: EXAMPLE\_293.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    axis x line=bottom,
    axis y line=center,
    tick align=outside,
    axis y discontinuity=crunch,
    xtickmax=3,
    ytickmin=110,
    ymin=95, enlargelimits=false
]
\addplot[blue,mark=none,
    domain=-4:4,samples=20]
    {x*x+x+104};
\end{axis}
\end{tikzpicture}
\end{document}
```

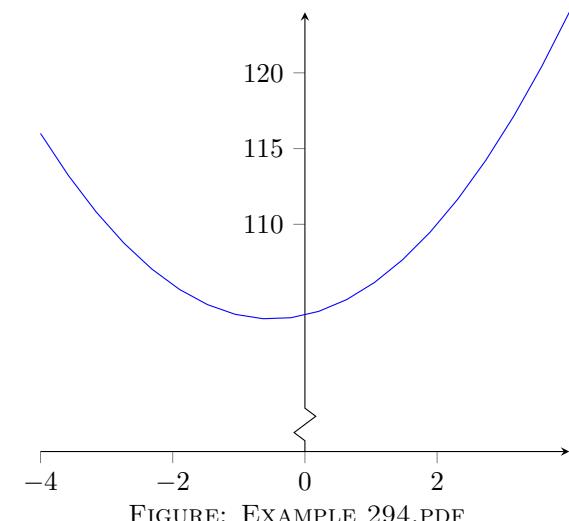


FIGURE: EXAMPLE\_294.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar]
\addplot [mesh, ultra thick] {x};
\end{axis}
\end{tikzpicture}
\end{document}
```

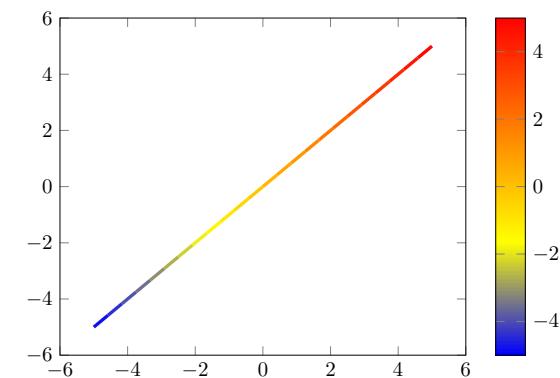


FIGURE: EXAMPLE\_297.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar right]
\addplot [mesh, thick, samples=150, domain=0.1:3]
{1/x};
\end{axis}
\end{tikzpicture}
\end{document}
```

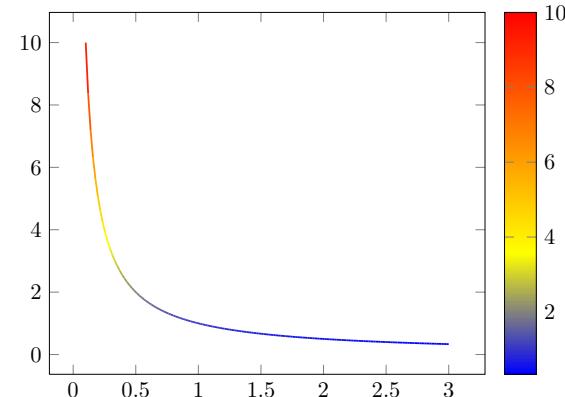


FIGURE: EXAMPLE\_300.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar horizontal]
\addplot[only marks,scatter,
scatter src={mod(\coordindex,15)},samples=150]
{rand};
\end{axis}
\end{tikzpicture}
\end{document}
```

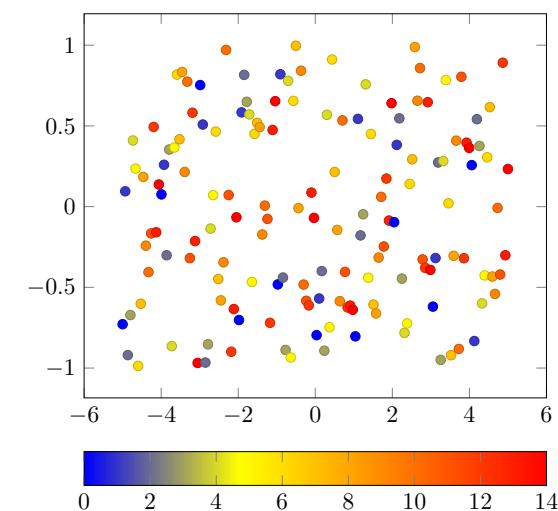


FIGURE: EXAMPLE\_302.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
colorbar horizontal,
colorbar style={
at={(1,1.03)}, anchor=south east,
width=0.5* \pgfkeysvalueof{/pgfplots/parent axis width},
xticklabel pos=upper,
},
title style={yshift=1cm},
title=More Customization: ``colorbar top'']
\addplot[mesh,thick,samples=150,domain=0.1:3]
{x};
\end{axis}
\end{tikzpicture}
\end{document}
```

More Customization: "colorbar top"

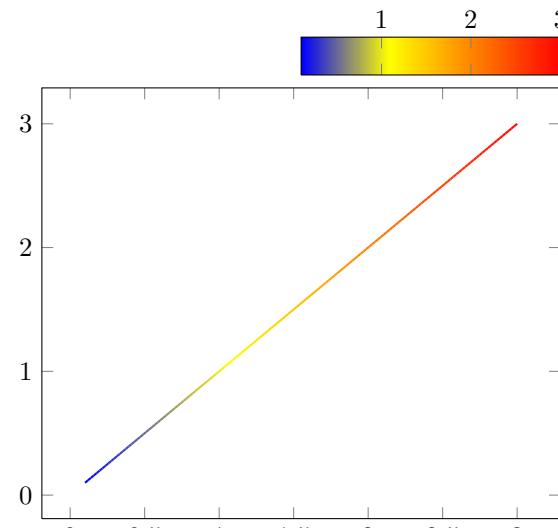


FIGURE: EXAMPLE\_304.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar sampled]
\addplot [mesh,samples=40] {sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

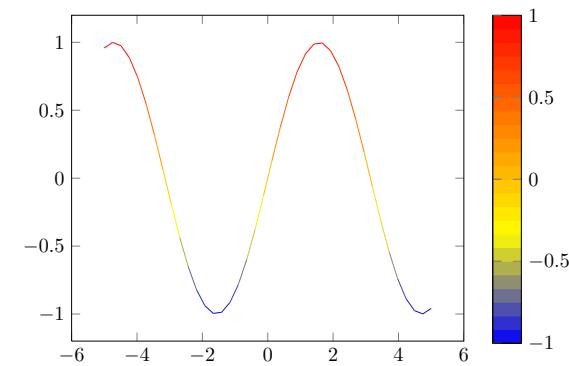


FIGURE: EXAMPLE\_306.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar sampled,colorbar style={samples=8}]
\addplot [mesh,samples=40] {sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

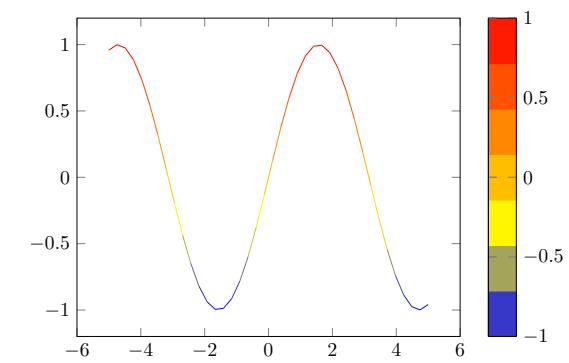


FIGURE: EXAMPLE\_307.PDF

```
\documentclass{article}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\pgfplotsset{footnotetext,samples=10, domain=0:1,point meta min=0, point
meta max=1} % note that \centering uses less vspace...
\begin{tikzpicture}
\begin{axis}[colorbar,colorbar horizontal,colorbar to
name={storedcolorbar}]
\addplot[scatter,only marks,mark=*] {rnd};
\end{axis}
\end{tikzpicture}
%
\begin{tikzpicture}
\begin{axis}
\addplot+[domain=0:1,mark=none,mesh] {x^2};
\end{axis}
\end{tikzpicture}
%
\begin{tikzpicture}
\begin{axis}[view={0}{90}]
\addplot3[surf] {x*y};
\end{axis}
\end{tikzpicture}
\\
\ref{storedcolorbar}
\end{center}
\end{document}
```

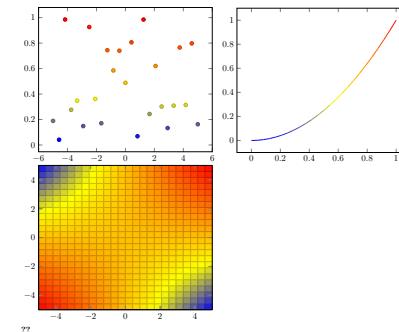


FIGURE: EXAMPLE\_309.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[normalsize,
title=A ``normalsize'' figure,
xlabel=The $x$ axis,
ylabel=The $y$ axis,
minor tick num=1,
legend entries=[Leg]]
\addplot {max(4*x,7*x)};
\end{axis}
\end{tikzpicture}
\end{document}
```

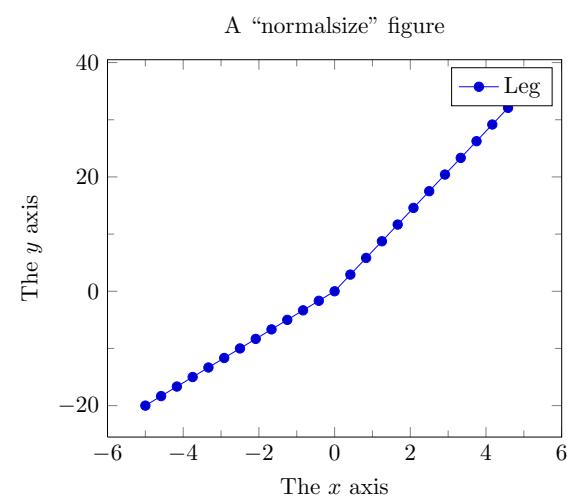


FIGURE: EXAMPLE\_310.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[small,
    title=A ``small'' figure,
    xlabel=The $x$ axis,
    ylabel=The $y$ axis,
    minor tick num=1,
    legend entries={Leg}]
    \addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

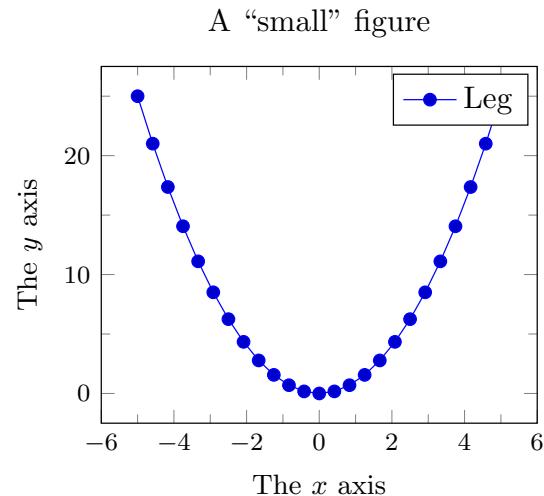


FIGURE: EXAMPLE\_311.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[footnotesize,
    title=A ``footnotesize'' figure,
    xlabel=The $x$ axis,
    ylabel=The $y$ axis,
    minor tick num=1,
    legend entries={Leg}]
    \addplot+[const plot]
    coordinates {
        (0,0) (1,1) (3,3) (5,10)
    };
\end{axis}
\end{tikzpicture}
\end{document}
```

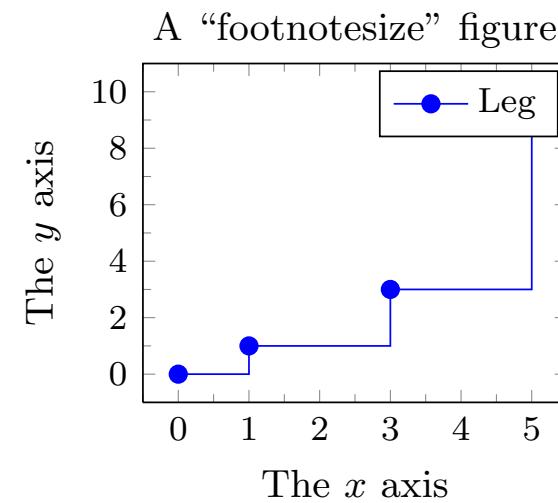
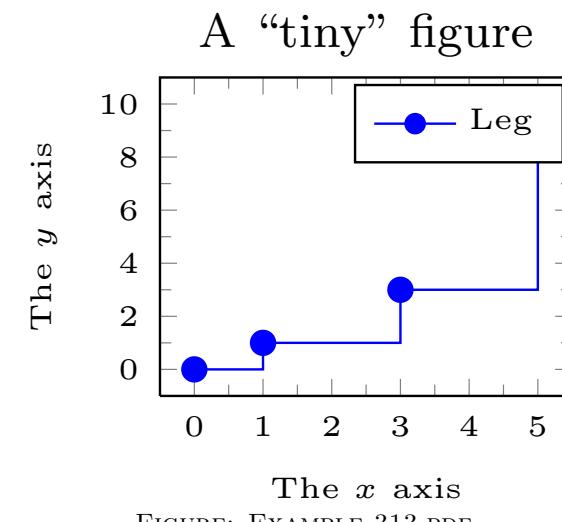
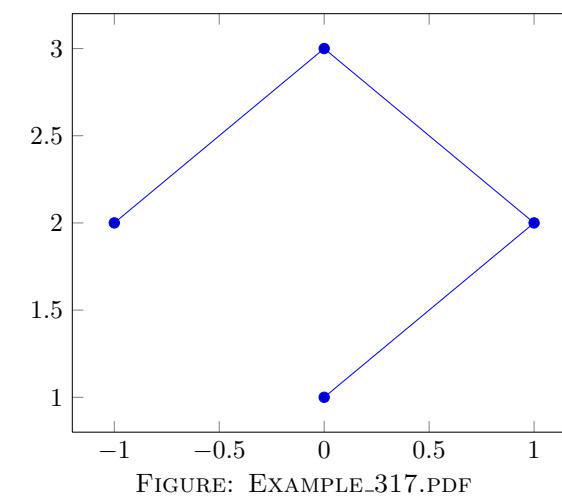


FIGURE: EXAMPLE\_312.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[tiny,
    title=A ``tiny'' figure,
    xlabel=The  $x$  axis,
    ylabel=The  $y$  axis,
    minor tick num=1,
    legend entries={Leg}]
\addplot+[const plot]
coordinates {
(0,0) (1,1) (3,3) (5,10)
};
\end{axis}
\end{tikzpicture}
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot coordinates
{(0,1) (1,2) (0,3) (-1,2)};
\end{axis}
\end{tikzpicture}
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot coordinates
{(0,1) (1,2) (0,3) (-1,2)} --cycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

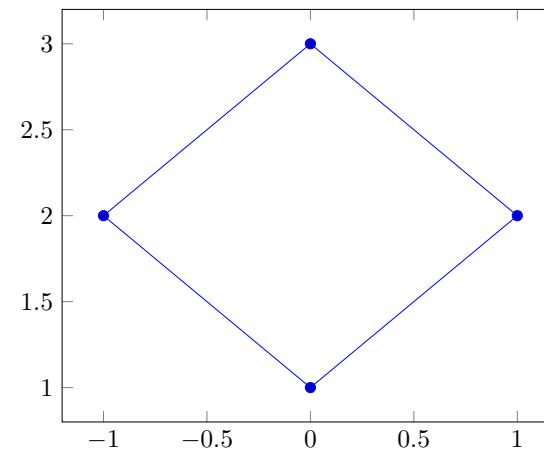


FIGURE: EXAMPLE\_318.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[fill] coordinates
{(0,1) (1,2) (0,3) (-1,2)} --cycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

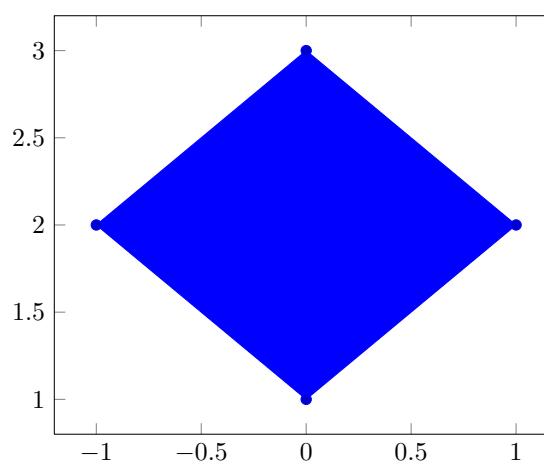


FIGURE: EXAMPLE\_319.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  samples=20,
  x filter/.code={
    \ifnum\coordindex>4
      \ifnum\coordindex<11
        \def\pgfmathresult{}
      \fi
    \fi
  }]
\addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

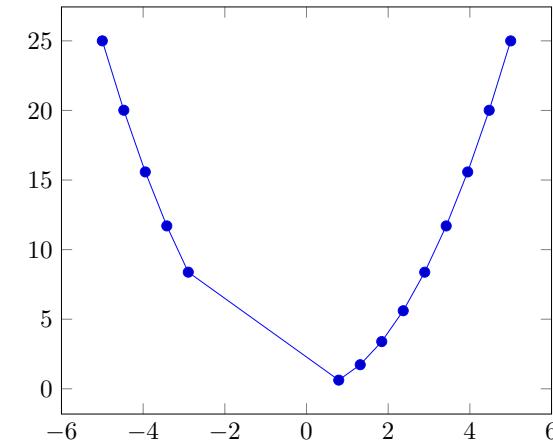


FIGURE: EXAMPLE\_321.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  samples=20,
  skip coords between index={5}{11},
  skip coords between index={15}{18}]
\addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

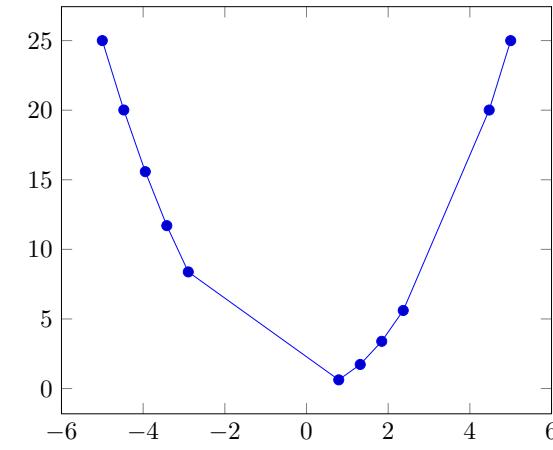


FIGURE: EXAMPLE\_322.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    restrict y to domain=-10:10,
    samples=1000,
    % some fine-tuning for the display:
    width=10cm, height=210pt,
    xmin=-4.7124, xmax=4.7124,
    xtick={-4.7124,-1.5708,...,10},
    xticklabels={$-\frac{3}{2}\pi$,$-\frac{\pi}{2}$,$\frac{\pi}{2}$,$\frac{3}{2}\pi$},
    axis x line=center,
    axis y line=center]
\addplot[blue] gnuplot[id=tangens,domain=-1.5*pi:1.5*pi] {tan(x)};
\legend{$\tan(x)$}
\end{axis}
\end{tikzpicture}
\end{document}
```

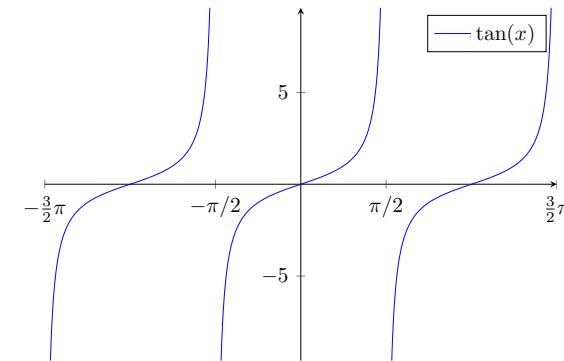


FIGURE: EXAMPLE\_323.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    addplot+[error bars/.cd,
        y dir=plus,y explicit]
coordinates {
    (0,0)      +- (0.5,0.1)
    (0.1,0.1)  +- (0.05,0.2)
    (0.2,0.2)  +- (0,0.05)
    (0.5,0.5)  +- (0.1,0.2)
    (1,1)       +- (0.3,0.1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

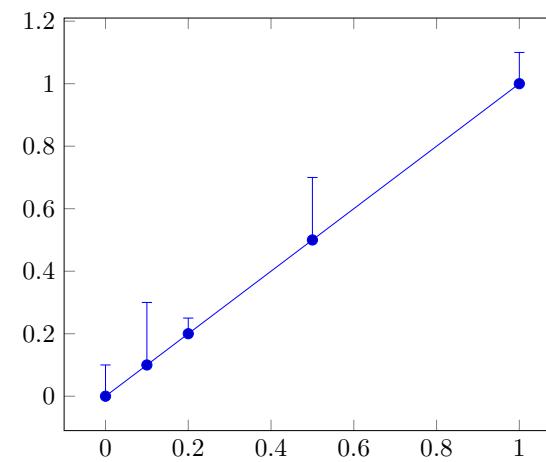


FIGURE: EXAMPLE\_324.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[error bars/.cd,
y dir=both,y explicit,
x dir=both,x fixed=0.05,
error mark=diamond*]
coordinates {
(0,0)    +- (0.5,0.1)
(0.1,0.1) +- (0.05,0.2)
(0.2,0.2) +- (0,0.05)
(0.5,0.5) +- (0.1,0.2)
(1,1)    +- (0.3,0.1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

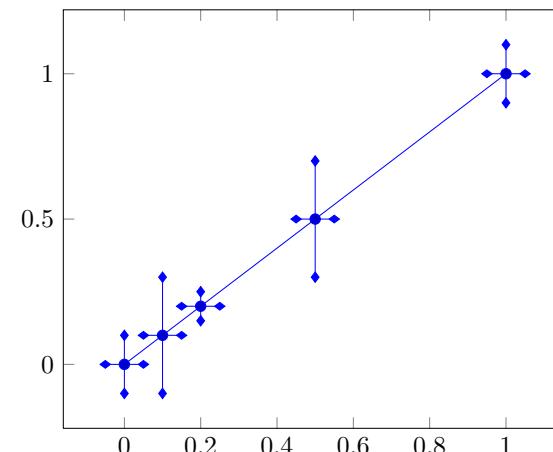


FIGURE: EXAMPLE\_325.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstabletypeset{pgfplots.testtable2.dat}
\begin{tikzpicture}
\begin{loglogaxis}
\addplot+[error bars/.cd,
x dir=both,x fixed relative=0.5,
y dir=both,y explicit relative,
error mark=triangle*]
table[x=x,y=y,y error=errory]
{pgfplots.testtable2.dat};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

x	y	errorx	errory
32	32	0	0
64	64	0	0
128	128	0	0.3
1,024	1,024	0	0.2
32,068	32,068	0	0.6
64,000	64,000	0	0.6
$1.28 \cdot 10^5$	$1.28 \cdot 10^5$	0	0.6

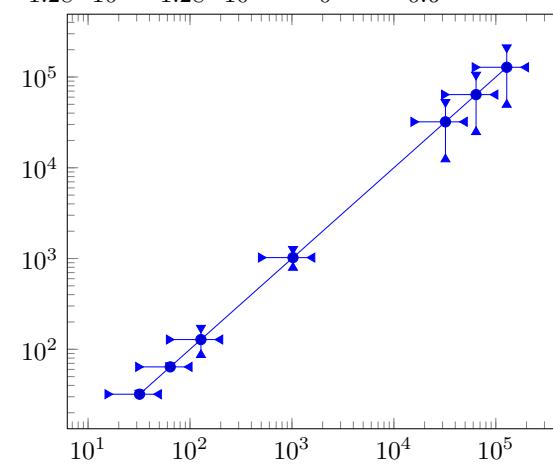
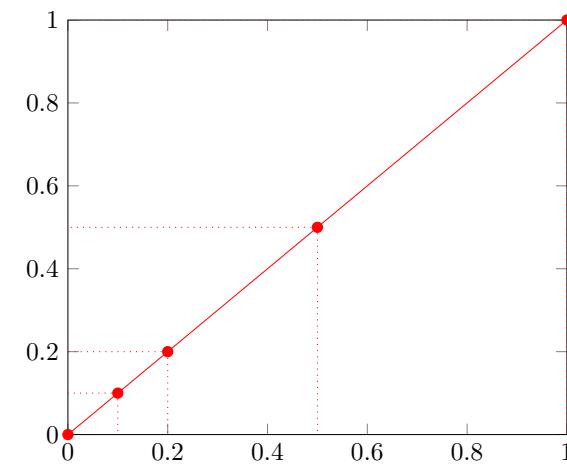
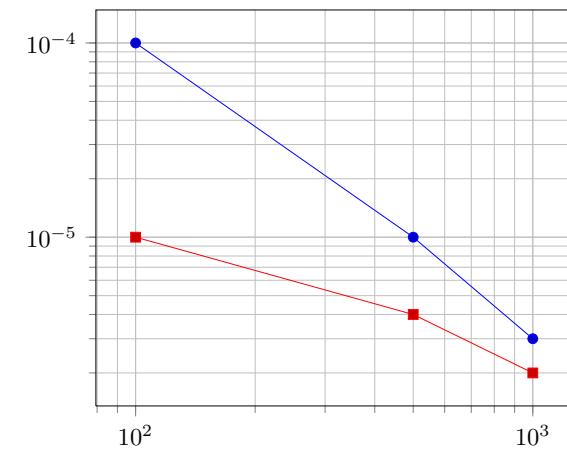


FIGURE: EXAMPLE\_326.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[enlargelimits=false]
\addplot[red,mark=*]
  plot[error bars/.cd,
    y dir=minus,y fixed relative=1,
    x dir=minus,x fixed relative=1,
    error mark=none,
    error bar style={dotted}]
coordinates
  {(0,0) (0.1,0.1) (0.2,0.2)
  (0.5,0.5) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[
  grid=both,
  tick align=outside,
  tickpos=left]
\addplot coordinates
  {(100,1e-4) (500,1e-5) (1000,3e-6)};
\addplot coordinates
  {(100,1e-5) (500,4e-6) (1000,2e-6)};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```



```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[
  xlabel=\textsc{Dof},
  ylabel=$L_2$ Error
]
\draw
  (axis cs:1793,4.442e-05)
  |- (axis cs:4097,1.207e-05)
  node[near start, left]
  { $\frac{dy}{dx} = -1.58$ };
\addplot coordinates {
  (5, 8.312e-02)
  (17, 2.547e-02)
  (49, 7.407e-03)
  (129, 2.102e-03)
  (321, 5.874e-04)
  (769, 1.623e-04)
  (1793, 4.442e-05)
  (4097, 1.207e-05)
  (9217, 3.261e-06)
};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

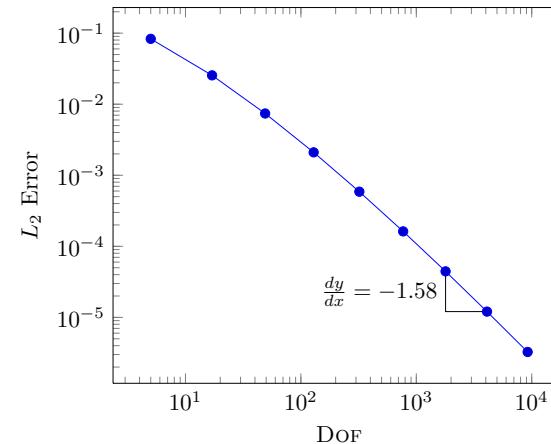


FIGURE: EXAMPLE\_330.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
 xlabel=$x$,
 ylabel=$y$,
 zlabel=$z$,
 every axis x label/.style={
 at={(rel axis cs:0.5,-0.15,-0.15)}},
 every axis y label/.style={
 at={(rel axis cs:1.15,0.5,-0.15)}},
 every axis z label/.style={
 at={(rel axis cs:-0.15,-0.15,0.5)}},
]
 \addplot3[surf] {x*(1-x)*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

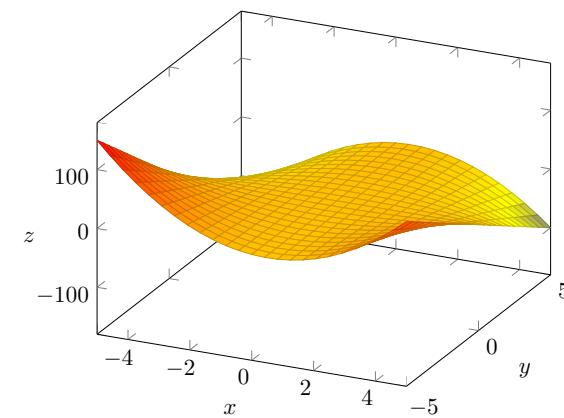


FIGURE: EXAMPLE\_333.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot [blue,domain=0:360] {sin(x)};
[yshift=8pt]
\node [pos=0] {$0$};
\node [pos=0.25] {$\pi/2$};
\node [pos=0.5] {$\pi$};
\node [pos=0.75] {$3/2\pi$};
\node [pos=1] {$2\pi$};
;
\end{axis}
\end{tikzpicture}
\end{document}
```

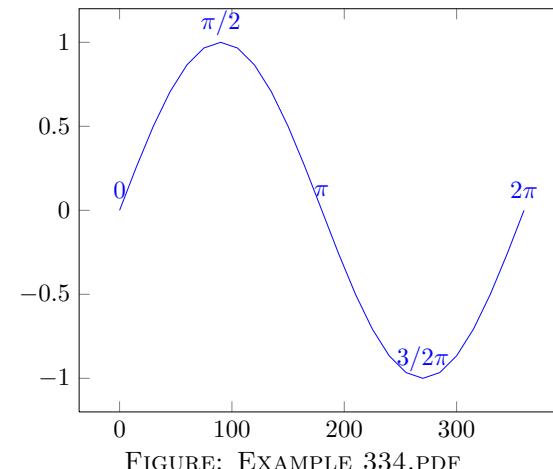


FIGURE: EXAMPLE\_334.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[title=Snap to nearest for scatter plots]
\addplot+[only marks]
coordinates {(0,0) (1,1) (2,2) (3,3)};
\node [pos=0, pin=0 :0 ] {};
\node [pos=0.1, pin=90 :0.1 ] {};
\node [pos=0.2, pin=200:0.2 ] {};
\node [pos=0.3, pin=135:0.3 ] {};
\node [pos=0.4, pin=0 :0.4 ] {};
\node [pos=0.5, pin=60 :0.5 ] {};
\node [pos=0.75,pin=180:0.75] {};
\node [pos=1, pin=90 :1 ] {};
;
\end{axis}
\end{tikzpicture}
\end{document}
```

Snap to nearest for scatter plots

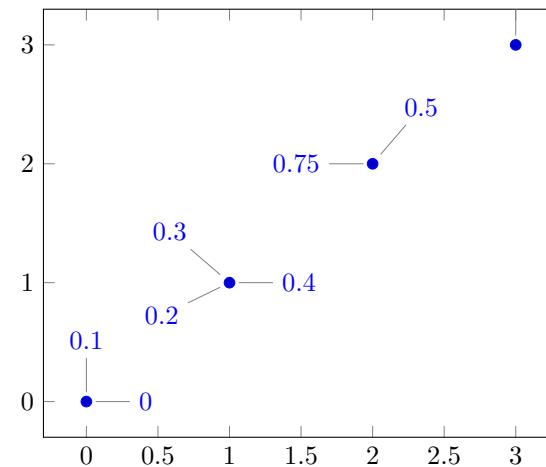


FIGURE: EXAMPLE\_335.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot[blue,domain=0:360,samples=31] {sin(x)}
[every node/.style={yshift=8pt},sloped]
node[pos=0] {$0$}
node[pos=0.25] {$\frac{\pi}{2}$}
node[pos=0.5] {$\pi$}
node[pos=0.75] {$\frac{3}{2}\pi$}
node[pos=1] {$2\pi$}
;
\end{axis}
\end{tikzpicture}
\end{document}
```

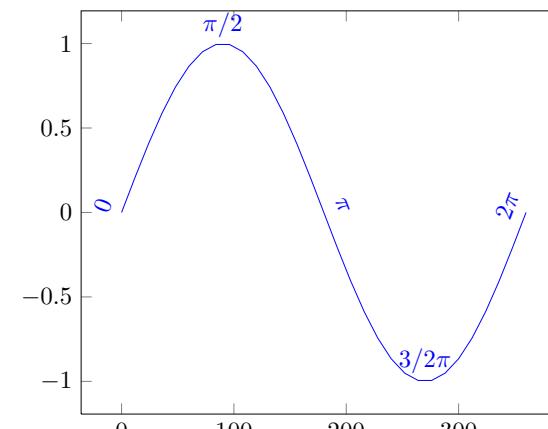


FIGURE: EXAMPLE\_336.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
% same as above with different number of samples
\begin{tikzpicture}
\begin{axis}
\addplot[blue,domain=0:360,samples=25] {sin(x)}
[every node/.style={yshift=8pt},sloped]
node[pos=0] {$0$}
node[pos=0.25] {$\frac{\pi}{2}$}
node[pos=0.5] {$\pi$}
node[pos=0.75] {$\frac{3}{2}\pi$}
node[pos=1] {$2\pi$}
;
\end{axis}
\end{tikzpicture}
\end{document}
```

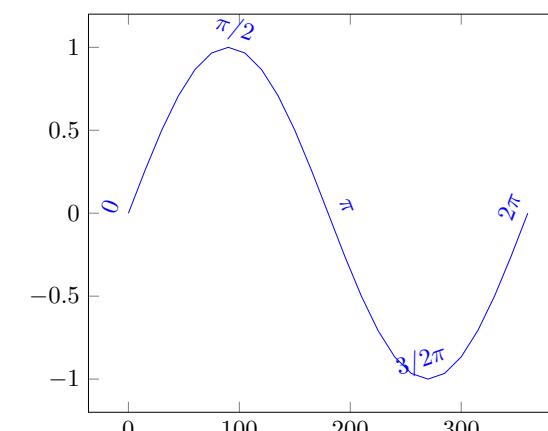


FIGURE: EXAMPLE\_337.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[tiny]
\addplot coordinates {
(0,0) (1,0)
(1,1) (2,1)}
[pos segment=0,yshift=7pt,font=\footnotesize]
node[pos=0] {0}
node[pos=0.5] {0.5}
node[pos=1] {1};
\end{axis}
\end{tikzpicture}
\end{document}
```

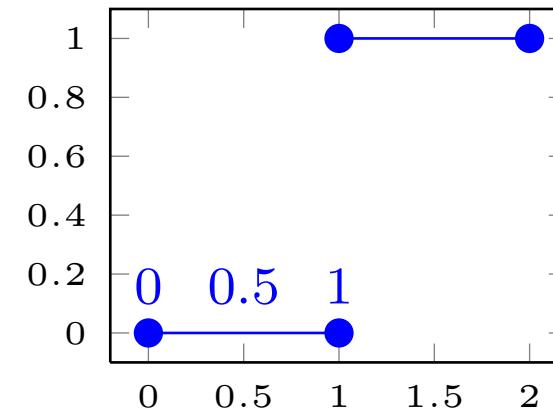


FIGURE: EXAMPLE\_338.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot3[contour gnuplot,domain=0:1] {x*y}
[sloped,
 allow upside down,
 pos segment=2,
 every node/.style={yshift=7pt}]
node[pos=0] {0}
node[pos=0.5] {0.5}
node[pos=1] {1}
;
\end{axis}
\end{tikzpicture}
\end{document}
```

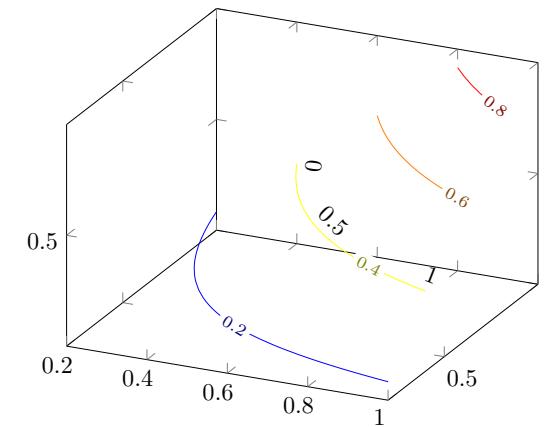


FIGURE: EXAMPLE\_339.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
  \begin{axis}[symbolic x coords={A,B,C,D}]
    \addplot coordinates {(A,0) (B,1) (C,1) (D,2)}
      [left]
    node[pos=0.3] {%
      \pgfplotspointplotattime
      ${(\pgfkeysvalueof{/data point/x},
        \pgfmathprintnumber
        {\pgfkeysvalueof{/data point/y}})}$}
    node[pos=0.7,pin=180:{%
      \pgfplotspointplotattime{0.7}
      ${(\pgfkeysvalueof{/data point/x},
        \pgfmathprintnumber
        {\pgfkeysvalueof{/data point/y}})}$}
    } {}
    ;
  \end{axis}
\end{tikzpicture}
\end{document}
```

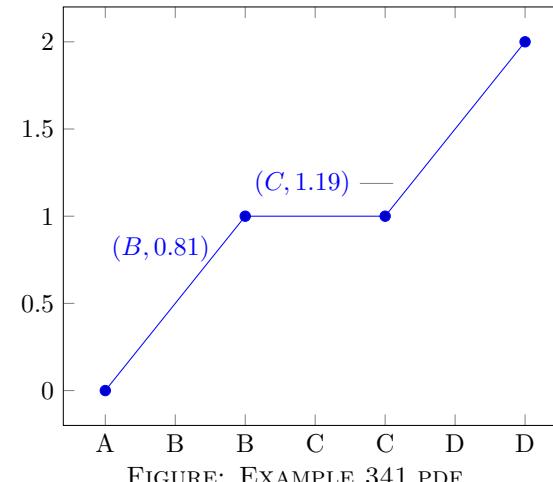


FIGURE: EXAMPLE\_341.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usetikzlibrary{decorations.markings}
\begin{document}
% requires \usetikzlibrary{decorations.markings}
\begin{tikzpicture}[]
% Same as in previous example, but with decorations:
\begin{axis}[axis lines=middle,
    title=Decorated Graphics,
    xmin=-2, xmax=2, ymin=-2, ymax=2,
    xtick={-1,1}, ytick={-1,1},
    % this disables the standard
    % tick label *text* (but not the line)
    yticklabel=|,
    extra description/.code= {
        % this generates custom y labels to implement
        % individual styles for every tick:
        \node[below left] at (axis cs:0,-1) {-1$};
        \node[above left] at (axis cs:0,1) {1$};
    },
    axis line style={->},
]
\addplot[blue,samples=100,domain=0:2*pi,
postaction={decorate},%
decoration={markings, %
mark=at position 0.25 with {\arrow{stealth}},
mark=at position 0.5 with {\arrow{stealth}},
mark=at position 0.75 with {\arrow{stealth}}}
]
(\sin(deg(2*x)), \sin(deg(x)));
\end{axis}
\end{tikzpicture}
\end{document}

```

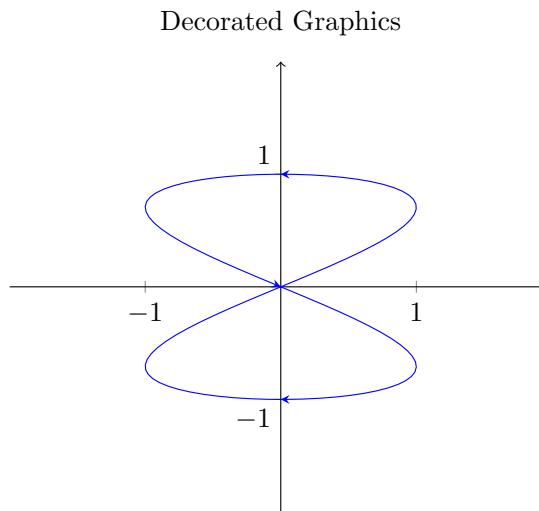


FIGURE: EXAMPLE\_343.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\begin{document}
\begin{tikzpicture}
\begin{axis}[legend pos=outer north east]
\addplot table {%
    X Y
    1 1
    2 4
    3 9
    4 16
    5 25
    6 36
};
\addplot table[
    y={create col/linear regression={y=Y}}] % compute a linear regression ↴
    from the input table
{
    X Y
    1 1
    2 4
    3 9
    4 16
    5 25
    6 36
};
%\xdef\slope{\pgfplotstableregressiona} %-- might be handy occasionally
\addlegendentry{$y(x)$}
\addlegendentry{%
    $\pgfmathprintnumber{\pgfplotstableregressiona}\cdot x$%
    \pgfmathprintnumber[print sign]{\pgfplotstableregressionb}}
\end{axis}
\end{tikzpicture}
\end{document}

```

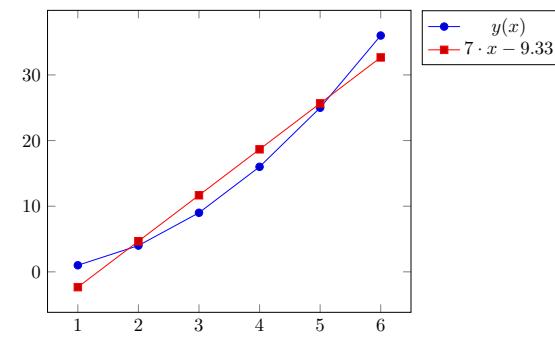


FIGURE: EXAMPLE\_344.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}
\addplot table[x=dof,y=error2]
  {pgfplotstable.example1.dat};
 \addlegendentry{$y(x)$}
\addplot table[
  x=dof,
  y={create col/linear regression={y=error2}}]
  {pgfplotstable.example1.dat};
% might be handy occasionally:
% \xdef\slope{\pgfplotstableresultslope}
\addlegendentry{slope
  $\pgfmathprintnumber{\pgfplotstableresultslope}$}
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

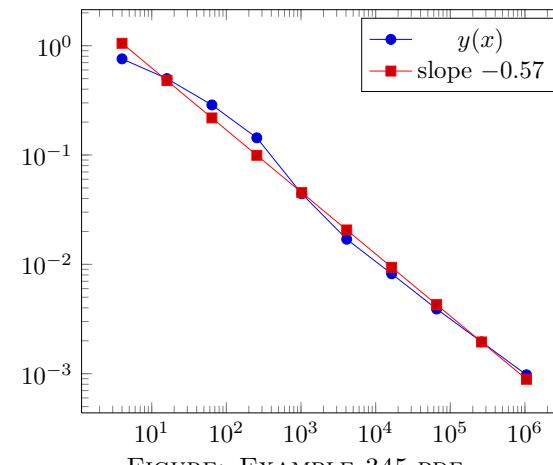


FIGURE: EXAMPLE\_345.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}
\addplot table[x=dof,y=error2]
{pgfplotstable.example1.dat};
\addlegendentry{$y(x)$}
\addplot table[
    x=dof,
    y={create col/linear regression={
        y=error2,
        variance list={1000,800,600,500,400}}}
]
{pgfplotstable.example1.dat};
\addlegendentry{slope
\$ \pgfmathprintnumber{\pgfplotstableresult@regressiona} \$}
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

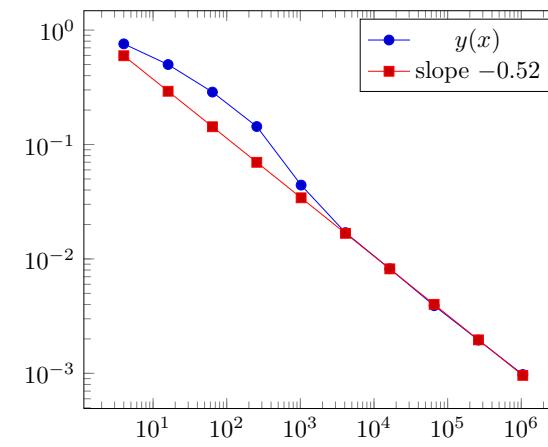


FIGURE: EXAMPLE\_346.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[y=2cm]
\addplot coordinates
{(-2,0) (-1,1) (0,0) (1,1) (2,0)};
\end{axis}
\end{tikzpicture}
\end{document}
```

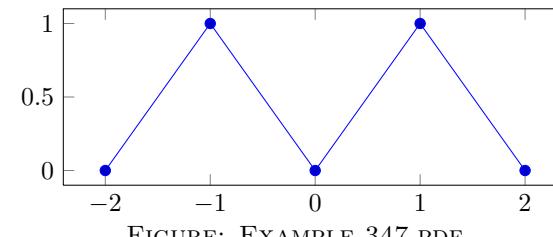


FIGURE: EXAMPLE\_347.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\tikzset{every mark/.append style={scale=2}}
\begin{tikzpicture}
\begin{axis}[y=2cm]
\addplot coordinates
{(-2,0) (-1,1) (0,0) (1,1) (2,0)};
\end{axis}
\end{tikzpicture}
\end{document}
```

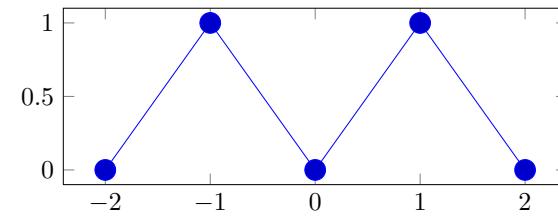


FIGURE: EXAMPLE\_348.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[y=2cm]
\addplot[
blue,mark color=blue!50!white,
mark=halfcircle*]
coordinates
{(-2,0) (-1,1) (0,0) (1,1) (2,0)};
\addplot[
red,mark color=red!50!white,
mark=halfsquare*]
coordinates
{(-2,-0.1) (-1,0.9) (0,-0.1) (1,0.9) (2,-0.1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

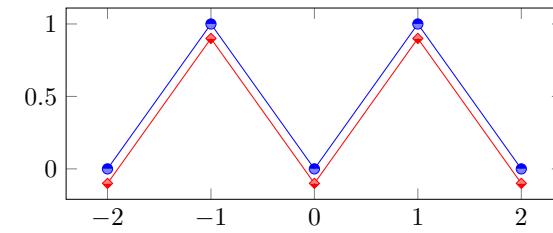


FIGURE: EXAMPLE\_350.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
% Overwrite any cycle list:
\pgfplotsset{
  every axis plot post/.append style={
    mark=triangle,
    every mark/.append style={rotate=90}}}
\begin{tikzpicture}
\begin{axis}[y=2cm]
\addplot coordinates
{(-2,0) (-1,1) (0,0) (1,1) (2,0)};
\end{axis}
\end{tikzpicture}
\end{document}
```

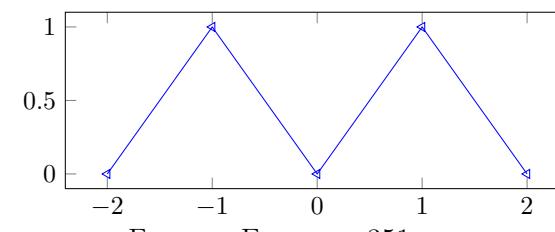


FIGURE: EXAMPLE\_351.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usetikzlibrary{spy}
\begin{document}
% requires \usetikzlibrary{spy}
\begin{tikzpicture}[spy using outlines=
 {circle, magnification=6, connect spies}]
\begin{axis}[no markers,grid=major,
 every axis plot post/.append style={thick}]
\addplot coordinates
 {(0, 0.0) (0, 0.9) (1, 0.9) (2, 1) (3, 0.9) (80, 0)};
\addplot +[line join=round] coordinates
 {(0, 0.0) (0, 0.9) (2, 0.9) (3, 1) (4, 0.9) (80, 0)};
\addplot +[line join=bevel] coordinates
 {(0, 0.0) (0, 0.9) (3, 0.9) (4, 1) (5, 0.9) (80, 0)};
\addplot +[miter limit=5] coordinates
 {(0, 0.0) (0, 0.9) (4, 0.9) (5, 1) (6, 0.9) (80, 0)};
 \coordinate (spypoint) at (axis cs:3,1);
 \coordinate (magnifyglass) at (axis cs:60,0.7);
\end{axis}
\spy [blue, size=2.5cm] on (spypoint)
 in node[fill=white] at (magnifyglass);
\end{tikzpicture}
\end{document}
```

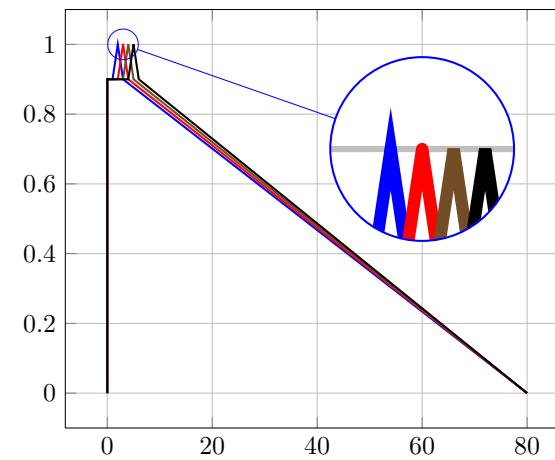


FIGURE: EXAMPLE\_352.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[enlarge x limits=false]
\addplot[red,samples=500] {sin(deg(x))};
\addplot[orange,samples=7] {sin(deg(x))};
\addplot[teal,const plot,
samples=14] {sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

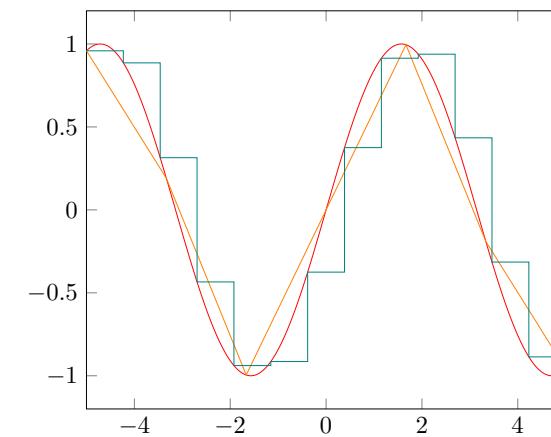


FIGURE: EXAMPLE\_353.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
colormap={bw}{gray(0cm)=(0); gray(1cm)=(1)}
]
\addplot+[scatter,only marks,
domain=0:8,samples=100]
{\exp(x)};
\end{axis}
\end{tikzpicture}
\end{document}
```

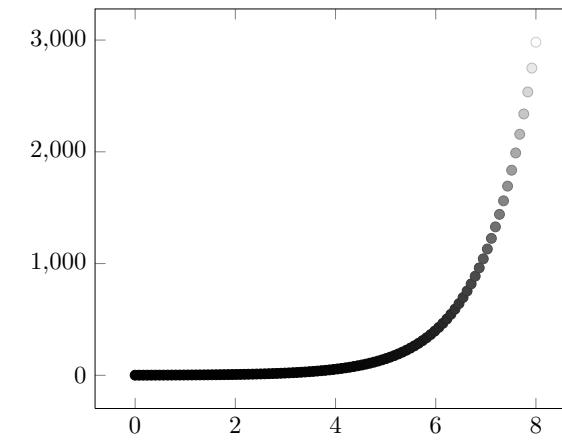


FIGURE: EXAMPLE\_354.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colormap/bluered]
\addplot+[scatter,
scatter src=x,samples=50]
{sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

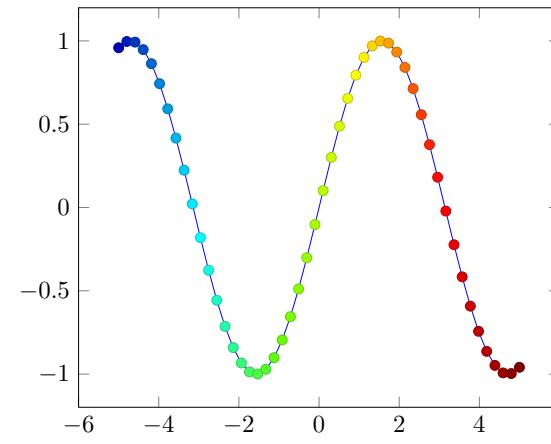


FIGURE: EXAMPLE\_355.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  stack plots=y,stack dir=minus,
  cycle list name=color]
\addplot coordinates {(0,1) (0.5,1) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

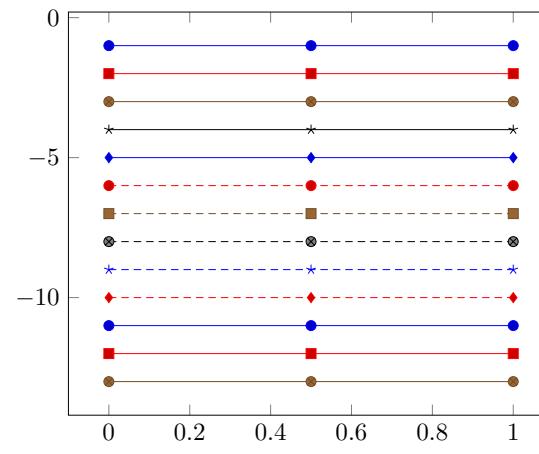


FIGURE: EXAMPLE\_356.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  stack plots=y,stack dir=minus,
  cycle list name=exotic]
\addplot coordinates {(0,1) (0.5,1) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

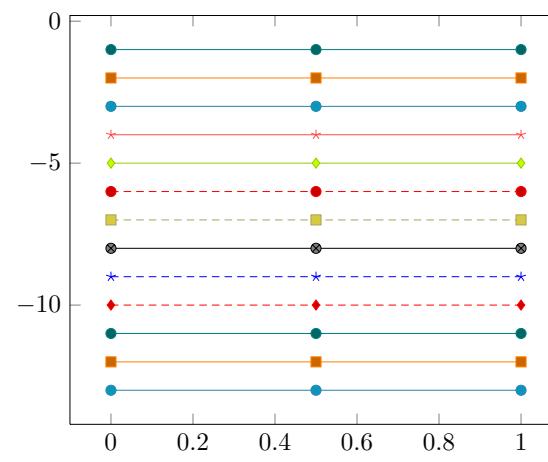


FIGURE: EXAMPLE\_357.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  stack plots=y,stack dir=minus,
  cycle list name=black white]
\addplot coordinates {(0,1) (0.5,1) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

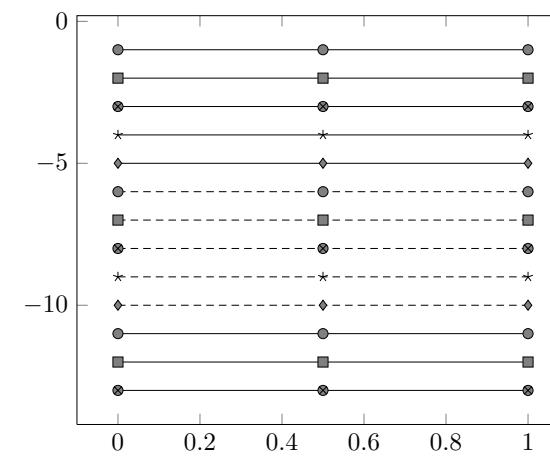


FIGURE: EXAMPLE\_358.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  stack plots=y,stack dir=minus,
  cycle list name=mark list]
\addplot+[blue] coordinates {(0,1) (0.5,1) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

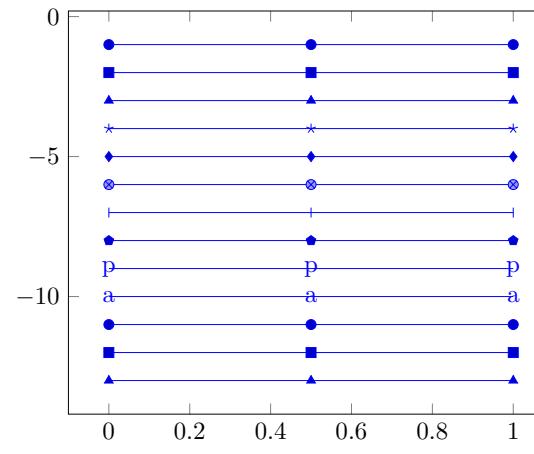


FIGURE: EXAMPLE\_359.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    stack plots=y,stack dir=minus,
    cycle list name=color list]
\addplot coordinates {(0,1) (0.5,1) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

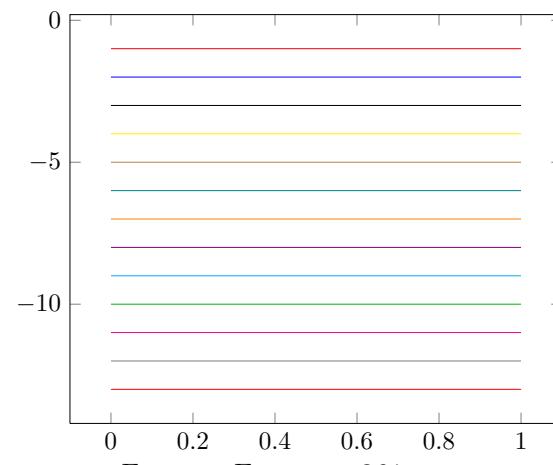


FIGURE: EXAMPLE\_361.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  stack plots=y,stack dir=minus,
  cycle list name=linestyles]
\addplot coordinates {(0,1) (0.5,1) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

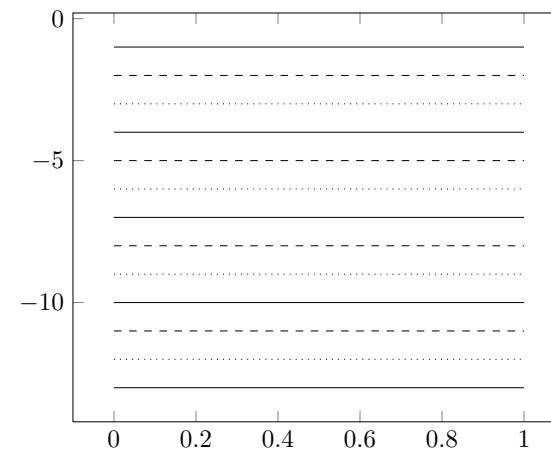


FIGURE: EXAMPLE\_362.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title={Cycle color between successive plots, then marks},
    cycle multi list={
        mark list\nextlist
        blue,red%
    },
    samples=3,
    legend entries={0,\dots,20},
    legend pos=outer north east
]
\addplot {x};
\addplot {x-1};
\addplot {x-2};
\addplot {x-3};
\addplot {x-4};
\addplot {x-5};
\addplot {x-6};
\addplot {x-7};
\addplot {x-8};
\addplot {x-9};
\addplot {x-10};
\addplot {x-11};
\end{axis}
\end{tikzpicture}
\end{document}
```

Cycle color between successive plots, then marks

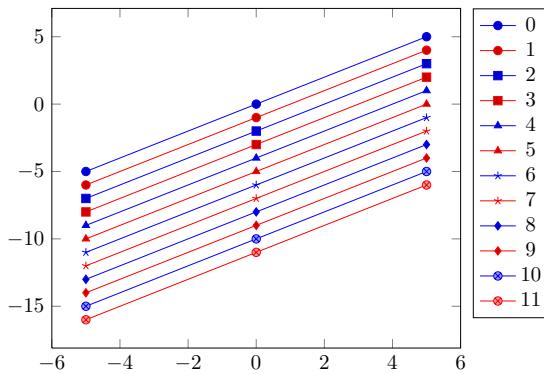


FIGURE: EXAMPLE\_365.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[colorbar]
\addplot[mesh,point meta=y,thick] {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

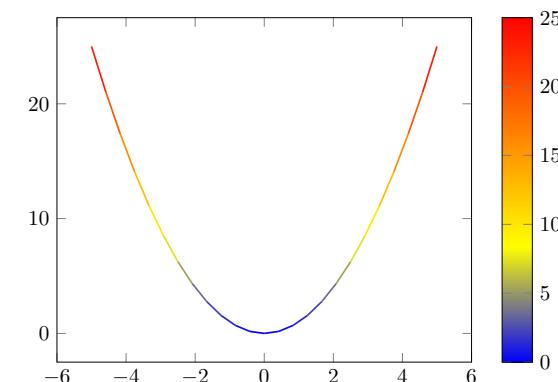


FIGURE: EXAMPLE\_369.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage[pdftex]{pgfplots_ocg_copy}
\begin{document}
% requires \usepackage[pdftex]{ocg}
\begin{tikzpicture}
\begin{axis}[
title=Dynamic PDF Layer Support (see Acrobat Layers),
view={110}{35}]
\addplot3+[
execute at begin plot visualization=\begin{ocg}{FirstLayer}{FirstLayer}{0},
execute at end plot visualization=\end{ocg},
] coordinates {(0,0,12) (0,1,2) (1,0,6) (0,0,12)};
\addplot3+[
execute at begin plot visualization=\begin{ocg}{SecondLayer}{SecondLayer}{0},
execute at end plot visualization=\end{ocg},
] coordinates {(0,0,9) (0,1,8) (1,0,4) (0,0,9)};
\addplot3+[
execute at begin plot visualization=\begin{ocg}{ThirdLayer}{ThirdLayer}{0},
execute at end plot visualization=\end{ocg},
] coordinates {(0,0,1) (0,1,7) (1,0,3) (0,0,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

Dynamic PDF Layer Support (see Acrobat Layers)

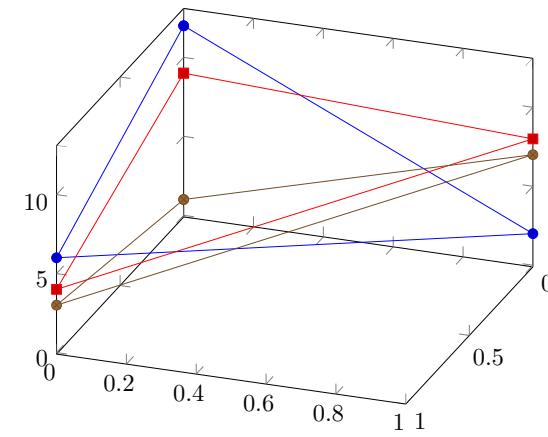


FIGURE: EXAMPLE\_371.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
  \begin{loglogaxis}[
    forget plot style={opacity=0.2},
    % same as above:
    table/x=Basis,
    table/y={L2/r},
    xlabel=Degrees of Freedom,
    ylabel=relative Error,
    title=New Experiments (old in transparent),
    legend entries={$e_1$,$e_2$,$e_3$},
  ]
  \foreach \exp in {1,2,3} {
    \addplot+[forget plot]
    table {plotdata/oldexperiment\exp.dat};
    \addplot table {plotdata/newexperiment\exp.dat};
  }
  \end{loglogaxis}
\end{tikzpicture}
\end{document}
```

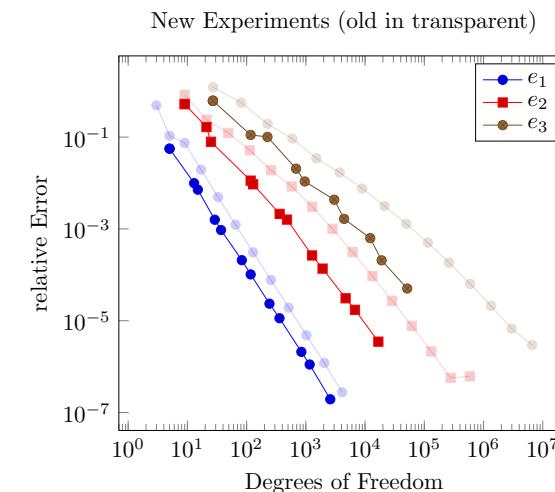


FIGURE: EXAMPLE\_373.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\pgfplotsset{every axis/.append style={
  after end axis/.code={
    \fill[red] (axis cs:1,10) circle(5pt);
    \node at (axis cs:-4,10)
      {\large This text has been inserted using \texttt{after end axis}.};
  }}}
\begin{tikzpicture}
  \begin{axis}
    \addplot {x^2};
  \end{axis}
\end{tikzpicture}
\end{document}
```

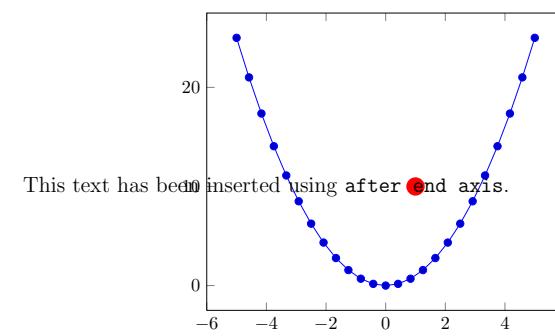


FIGURE: EXAMPLE\_375.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
axis on top=false,
axis x line=middle,
axis y line=middle]
\addplot+[fill] {x^3} \closedcycle;
\end{axis}
\end{tikzpicture}
\end{document}
```

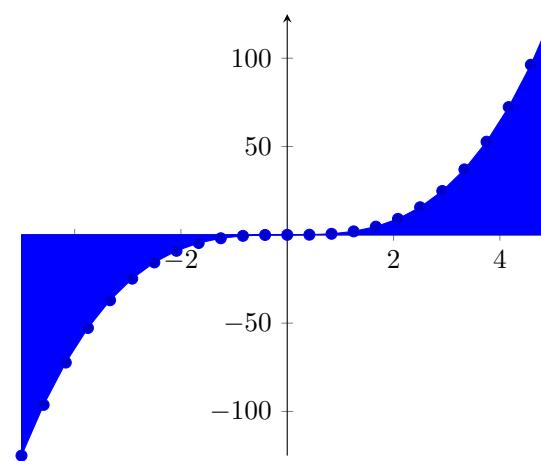


FIGURE: EXAMPLE\_377.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[log ticks with fixed point]
\addplot+[domain=0:10] {exp(x)};
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

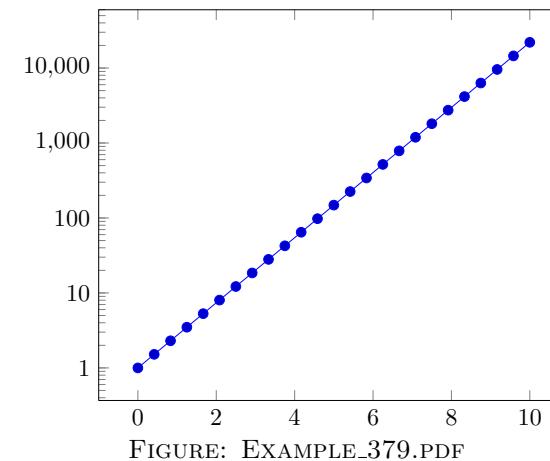


FIGURE: EXAMPLE\_379.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}%
\begin{loglogaxis}[
  title=Standard options,
  width=6cm]
\addplot coordinates {
  (1e-2,10)
  (3e-2,100)
  (6e-2,200)
};
\end{loglogaxis}
\end{tikzpicture}%
\end{document}
```

Standard options

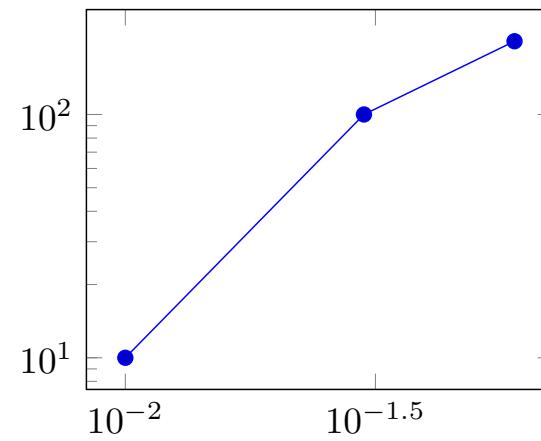


FIGURE: EXAMPLE\_383.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\pgfplotsset{every axis/.append style={%
    width=6cm,
    xmin=7e-3,xmax=7e-2,
    extra x ticks={3e-2,6e-2},
    extra x tick style={major tick length=0pt,font=\footnotesize}
}%
\begin{tikzpicture}%
\begin{loglogaxis}[
    xtick={1e-2},
    title=with minor tick identification,
    extra x tick style={
        log identify minor tick positions=true}]
\addplot coordinates {
    (1e-2,10)
    (3e-2,100)
    (6e-2,200)
};
\end{loglogaxis}
\end{tikzpicture}%
\begin{tikzpicture}%
\begin{loglogaxis}[
    xtick={1e-2},
    title=without minor tick identification,
    extra x tick style={
        log identify minor tick positions=false}]
\addplot coordinates {
    (1e-2,10)
    (3e-2,100)
    (6e-2,200)
};
\end{loglogaxis}
\end{tikzpicture}%
\end{document}
```

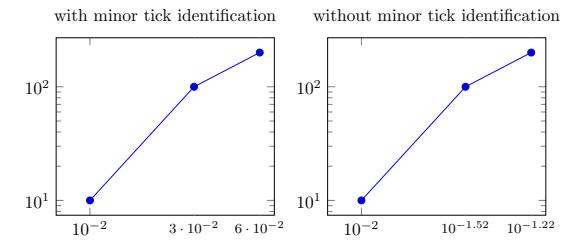


FIGURE: EXAMPLE\_384.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[x=1cm,y=1cm]
\addplot expression[domain=0:3] {2*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

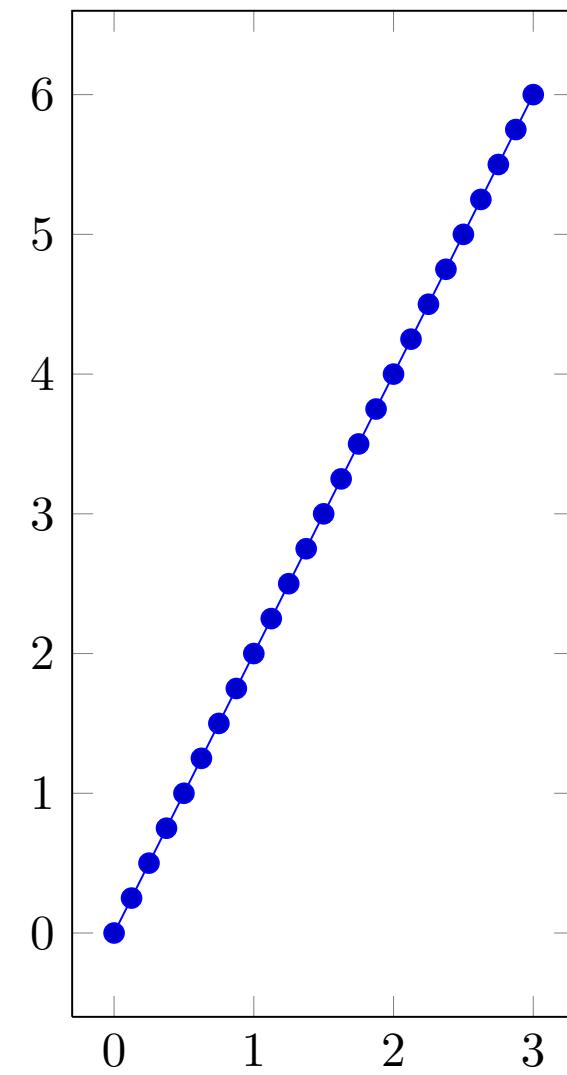


FIGURE: EXAMPLE\_385.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
x={(1cm,-0.5cm)},
y=1cm,
z=0cm,
axis on top,
scale mode=scale uniformly,
]
\addplot3[surf,shader=interp] {x*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

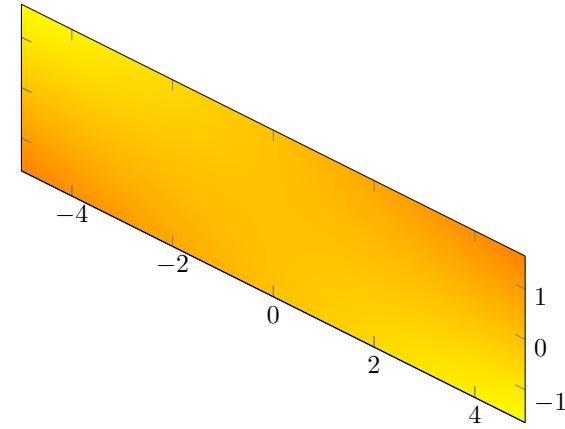


FIGURE: EXAMPLE\_389.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[axis equal=false,grid=major]
\addplot expression[domain=1:10000] {x^-2};
\end{loglogaxis}
\end{tikzpicture}
\hspace{1cm}
\begin{tikzpicture}
\begin{loglogaxis}[axis equal=true,grid=major]
\addplot expression[domain=1:10000] {x^-2};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

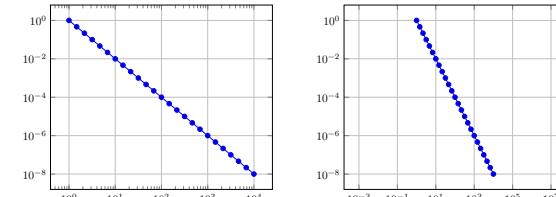


FIGURE: EXAMPLE\_391.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[axis equal image=false,grid=major]
\addplot[blue] expression [domain=0:2*pi,samples=300]
{\sin(deg(x))*sin(2*deg(x))};
\end{axis}
\end{tikzpicture}
\hspace{1cm}
\begin{tikzpicture}
\begin{axis}[axis equal image=true,grid=major]
\addplot[blue] expression [domain=0:2*pi,samples=300]
{\sin(deg(x))*sin(2*deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

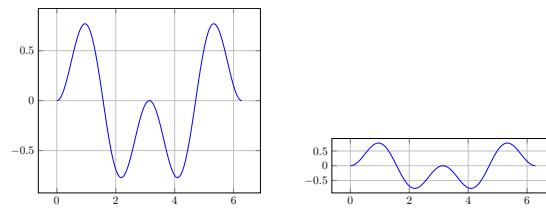


FIGURE: EXAMPLE\_392.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[unit vector ratio=2 1,small]
\addplot coordinates {(0,0) (1,1)};
\addplot table[row sep=\\", col sep=&] {
x & y \\
0 & 1 \\
1 & 0 \\
};
\end{axis}
\end{tikzpicture}
\end{document}
```

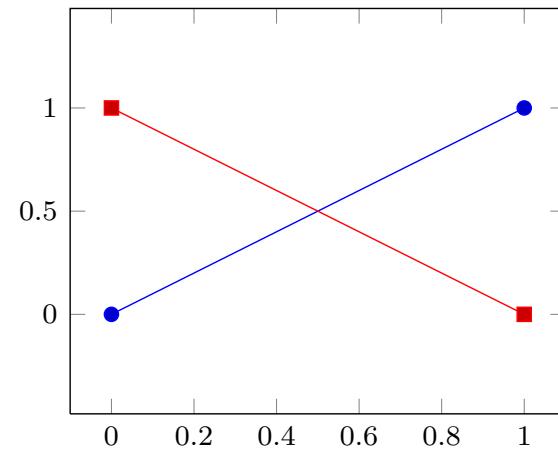


FIGURE: EXAMPLE\_394.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[footnotesize,xlabel=$x$,ylabel=$y$,unit vector ratio=]
\addplot3[surf,samples=10,domain=0:1] {(1-x)*y};
\end{axis}
\end{tikzpicture}
\begin{tikzpicture}
\begin{axis}[footnotesize,xlabel=$x$,ylabel=$y$,
  unit rescale keep size=false,
  unit vector ratio=1 1 1]
\addplot3[surf,samples=10,domain=0:1] {(1-x)*y};
\end{axis}
\end{tikzpicture}
\begin{tikzpicture}
\begin{axis}[footnotesize,xlabel=$x$,ylabel=$y$,
  unit vector ratio*=0.25 0.5, % the '*' implies 'unit rescale keep
  size=false'
]
\addplot3[surf,samples=10,domain=0:1] {(1-x)*y};
\end{axis}
\end{tikzpicture}
\end{document}
```

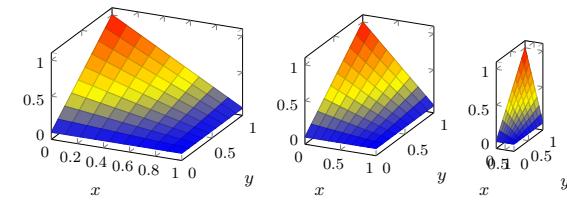


FIGURE: EXAMPLE\_396.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
  \begin{axis}[y post scale=1]
    \addplot {x};
  \end{axis}
\end{tikzpicture}
\begin{tikzpicture}
  \begin{axis}[y post scale=2]
    \addplot {x};
  \end{axis}
\end{tikzpicture}
\end{document}
```

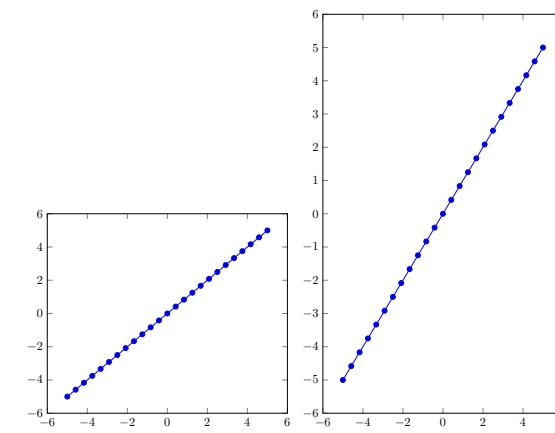


FIGURE: EXAMPLE\_397.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
  \begin{axis}[z post scale=1]
    \addplot3[surf] {x*y};
  \end{axis}
\end{tikzpicture}
\begin{tikzpicture}
  \begin{axis}[z post scale=2]
    \addplot3[surf] {x*y};
  \end{axis}
\end{tikzpicture}
\end{document}
```

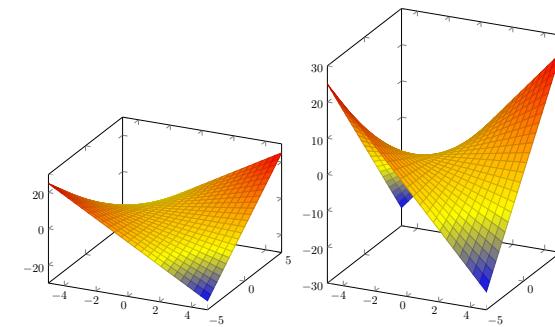


FIGURE: EXAMPLE\_398.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[title=Auto Limits]
\addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

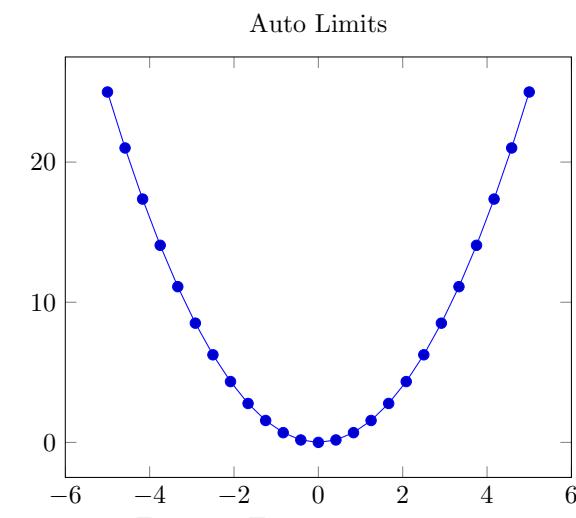


FIGURE: EXAMPLE\_399.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[title={\texttt{xmin=0}},xmin=0]
\addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

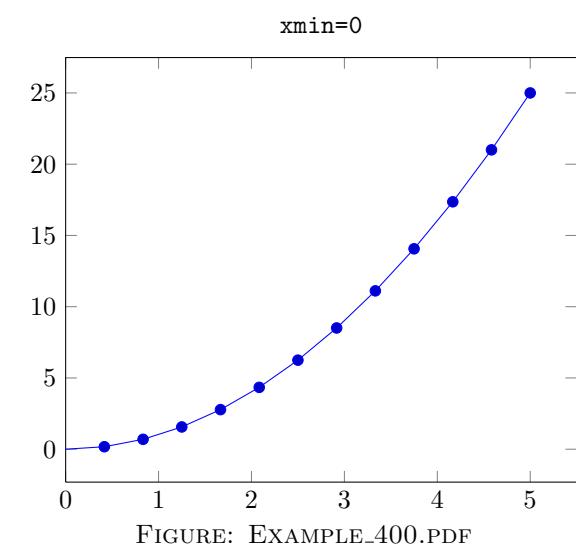


FIGURE: EXAMPLE\_400.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
% Show (automatically) computed limits:
title={%
  Axis limits are
  $%
  [\pgfmathprintnumber{\pgfkeysvalueof{/pgfplots/xmin}}%
  : \pgfmathprintnumber{\pgfkeysvalueof{/pgfplots/xmax}}%
  ] \times %
  [\pgfmathprintnumber{\pgfkeysvalueof{/pgfplots/ymin}}%
  : \pgfmathprintnumber{\pgfkeysvalueof{/pgfplots/ymax}}%
  ]$ },
]
\addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

Axis limits are  $[-6 : 6] \times [-2.5 : 27.5]$

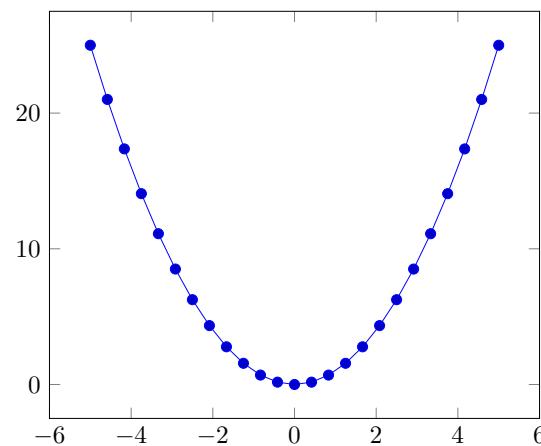


FIGURE: EXAMPLE\_402.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
 xlabel={$x$ \textbf{decreasing} $\rightarrow$},
 x dir=reverse,
]
\addplot {x+rand*0.3};
\end{axis}
\end{tikzpicture}
\end{document}
```

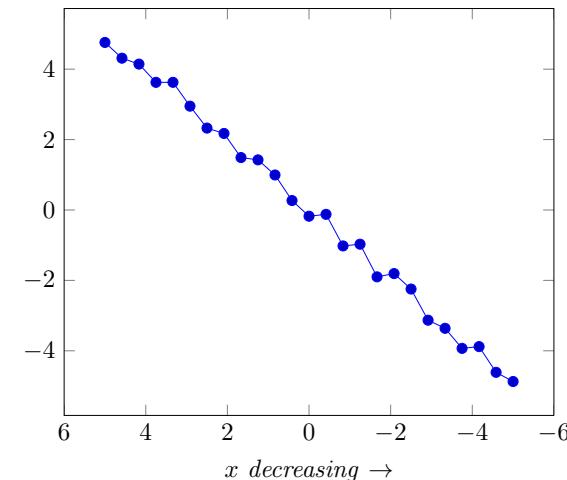


FIGURE: EXAMPLE\_403.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    ylabel=$y$ \textcolor{red}{decreasing} $\rightarrow$,
    xlabel=$x$ normal,
    title=reversed axis,
    y dir=reverse,
    colorbar,
    colorbar style=[y dir=reverse]]
    \addplot+[mesh,scatter] {x^15};
\end{axis}
\end{tikzpicture}
\end{document}
```

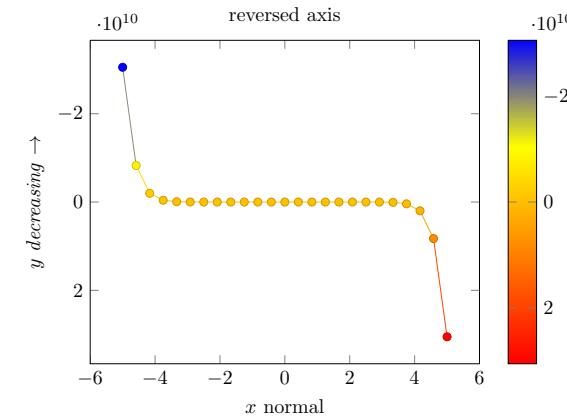


FIGURE: EXAMPLE\_405.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[enlarge x limits=0.2]
    \addplot {5 * x^3 - x^2 + 4*x -2};
\end{axis}
\end{tikzpicture}
\end{document}
```

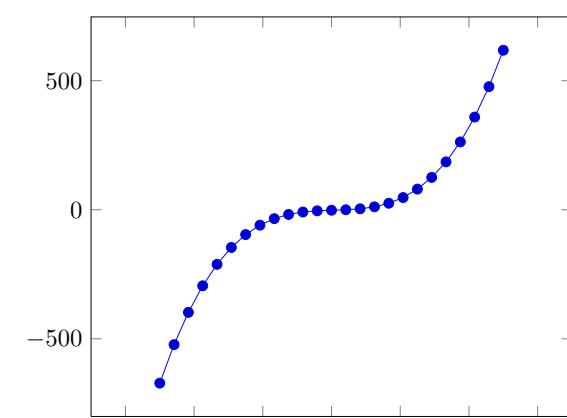


FIGURE: EXAMPLE\_407.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor x tick num=4,
  enlarge x limits={rel=0.5,upper}]
\addplot {5 * x^3 - x^2 + 4*x -2};
\end{axis}
\end{tikzpicture}
\end{document}
```

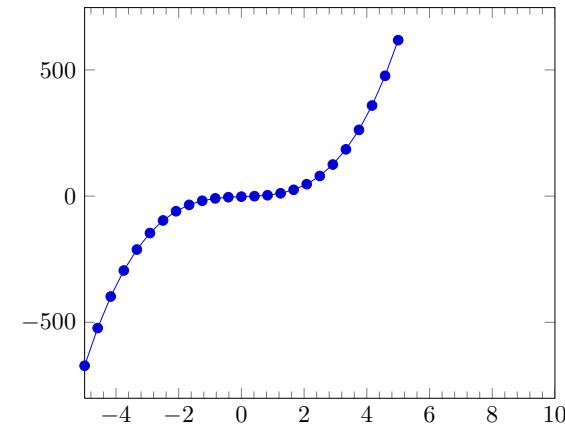


FIGURE: EXAMPLE\_408.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor x tick num=4,
  enlarge x limits={abs=3}]
\addplot {5 * x^3 - x^2 + 4*x -2};
\end{axis}
\end{tikzpicture}
\end{document}
```

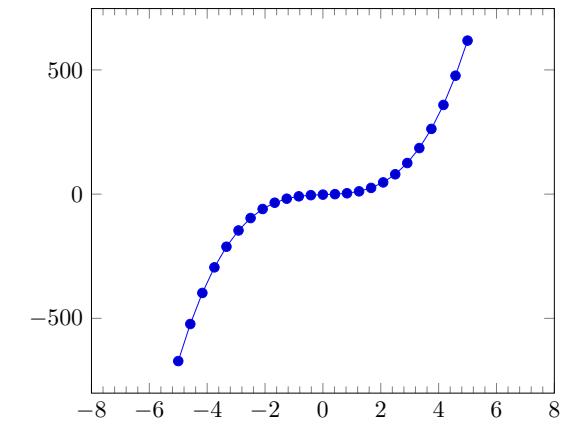


FIGURE: EXAMPLE\_409.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{loglogaxis}[enlarge x limits=abs=11]
\addplot+[domain=1:100000] {x^-2};
\end{loglogaxis}
\end{tikzpicture}
\end{document}
```

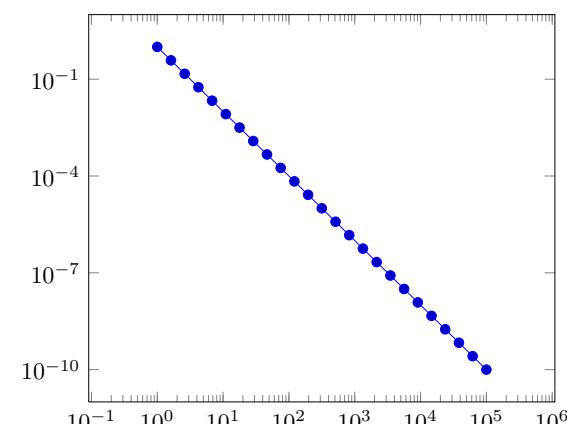


FIGURE: EXAMPLE\_410.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\pgfplotsset{
    every axis plot post/.append style=
    {mark=none}}
\begin{axis}[
legend style={
at={(0.03,0.97)}, anchor=north west,
domain=0:1}
\addplot {x^2};
\addplot {exp(x)};
\legend{$x^2$,$e^x$}
\end{axis}
\end{tikzpicture}
\end{document}
```

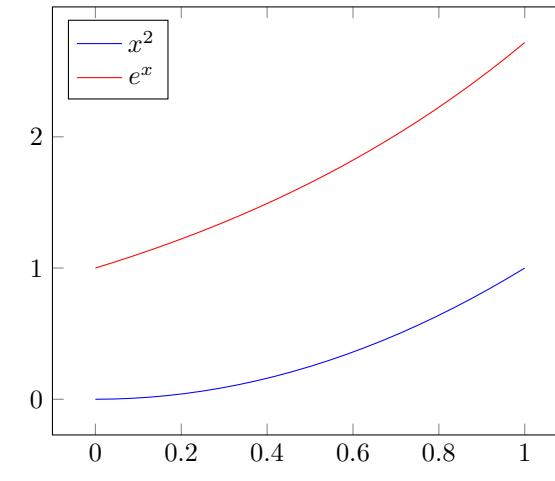


FIGURE: EXAMPLE\_411.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\pgfplotsset{my personal style/.style=
  {grid=major,font=\large}}
\begin{tikzpicture}
\begin{axis}[my personal style]
\addplot coordinates {(0,0) (1,1)};
\end{axis}
\end{tikzpicture}
\end{document}
```

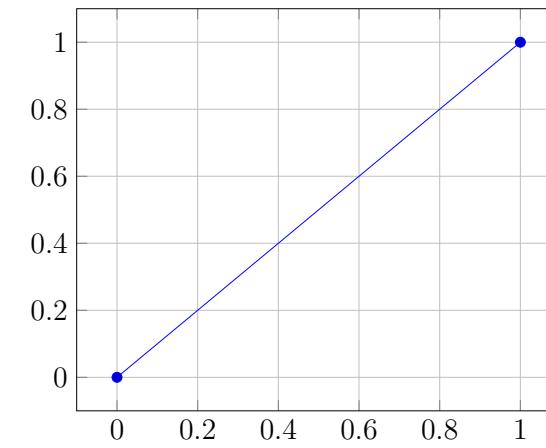


FIGURE: EXAMPLE\_412.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepgfplotslibrary{dateplot}\usepackage{eurosym}
\begin{document}
% requires \usepgfplotslibrary{dateplot} !
\pgfplotstabletypeset[string type]{plotdata/accounts.dat}
\begin{tikzpicture}
\begin{axis}[
  date coordinates in=x,
  xticklabel={\day.\month.},
  xlabel={2008},
  stack plots=y,
  yticklabel={\pgfmathprintnumber{\tick}\EUR{}}, % <- requires
  \usepackage{eurosym}
  ylabel=Total credit,
  ylabel style={yshift=10pt},
  legend style={
    at={(0.5,-0.3)}, anchor=north, legend columns=-1}
]
\addplot table[x=date,y=account1] {plotdata/accounts.dat};
\addplot table[x=date,y=account2] {plotdata/accounts.dat};
\addplot table[x=date,y=account3] {plotdata/accounts.dat};
\legend{Giro,Tagesgeld,Sparbuch}
\end{axis}
\end{tikzpicture}
\end{document}
```

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

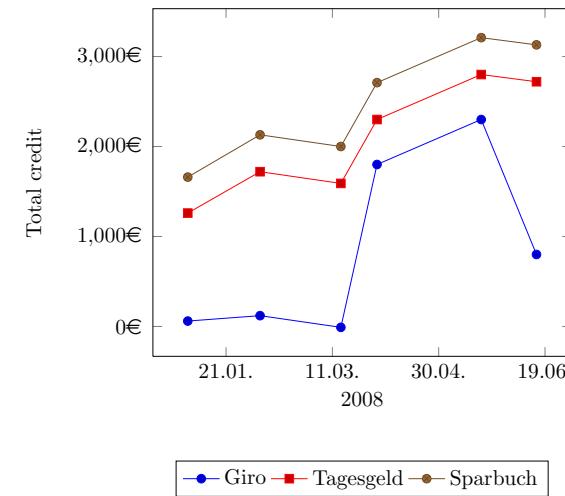


FIGURE: EXAMPLE\_414.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepgfplotslibrary{dateplot}\usepackage{eurosym}
\begin{document}
% requires \usepgfplotslibrary{dateplot} !
\pgfplotstabletypeset[string type]{plotdata/accounts.dat}
\begin{tikzpicture}
\begin{axis}[
    date coordinates in=x,
    xticklabel={\day.\month.},
    xlabel={2008},
    stack plots=y,
    yticklabel={\pgfmathprintnumber{\tick}\EUR{}}, % <- requires
    \usepackage{eurosym}
    ylabel=Total credit,
    ylabel style={yshift=10pt},
    legend style={
        at={(0.5,-0.3)}, anchor=north, legend columns=-1}]
    ↗

\addplot table[x=date,y=account1] {plotdata/accounts.dat};
\addplot table[x=date,y=account2] {plotdata/accounts.dat};
\addplot table[x=date,y=account3] {plotdata/accounts.dat};
\legend{Giro,Tagesgeld,Sparbuch}
\end{axis}
\end{tikzpicture}
\end{document}

```

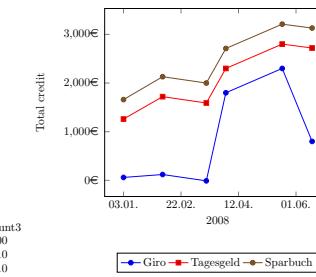


FIGURE: EXAMPLE\_417.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  xtick=\emptyset,
  ytick={-2,0.3,3,3.7,4.5}]
\addplot+[smooth] coordinates {
  (-2,3) (-1.5,2) (-0.3,-0.2)
  (1,1.2) (2,2) (3,5)};
\end{axis}
\end{tikzpicture}
\end{document}
```

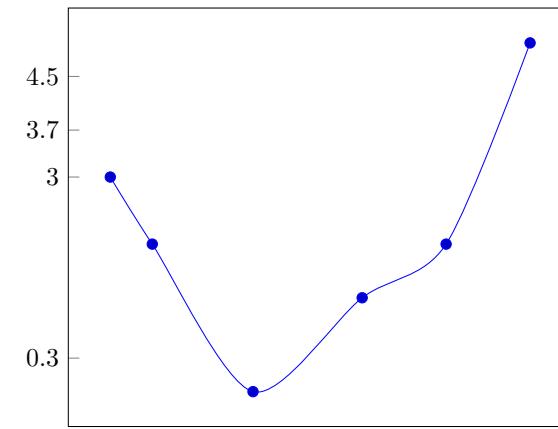


FIGURE: EXAMPLE\_419.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor tick num=1]
\addplot {x^3};
\addplot {-20*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

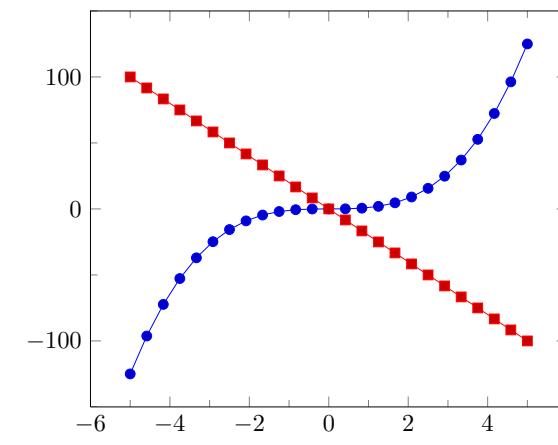


FIGURE: EXAMPLE\_422.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor tick num=3]
\addplot {x^3};
\addplot {-20*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

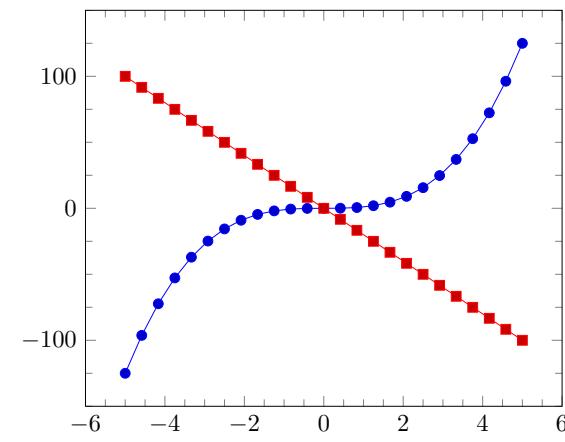


FIGURE: EXAMPLE\_423.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor x tick num=1,
           minor y tick num=3]
\addplot {x^3};
\addplot {-20*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

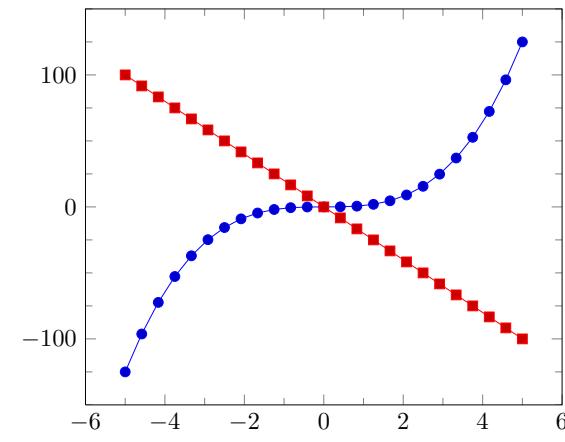


FIGURE: EXAMPLE\_424.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor xtick={-3,1},grid=minor]
\addplot {x^3};
\addplot {-20*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

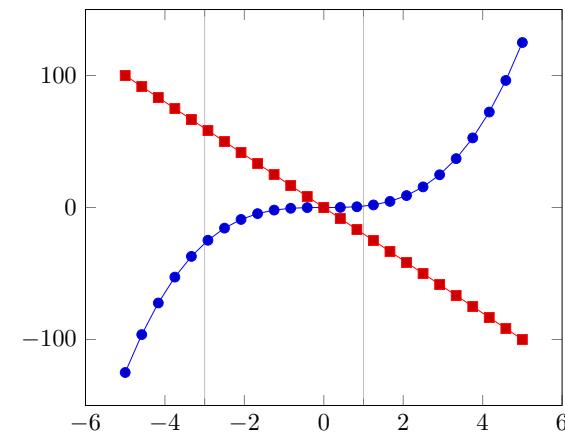


FIGURE: EXAMPLE\_425.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[minor ytick=data]
\addplot {x^2};
\end{axis}
\end{tikzpicture}
\end{document}
```

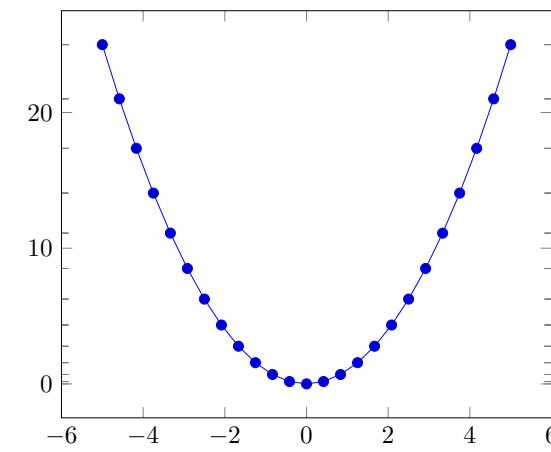


FIGURE: EXAMPLE\_426.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
xmin=0,xmax=3,ymin=0,ymax=15,
extra y ticks={2.71828},
extra y tick labels={$e$},
extra x ticks={2.2},
extra x tick style=[grid=major,
tick label style={
rotate=90,anchor=east}],
extra x tick labels={Cut},
]
\addplot {exp(x)};
\addlegendentry{$e^x$}
\end{axis}
\end{tikzpicture}
\end{document}
```

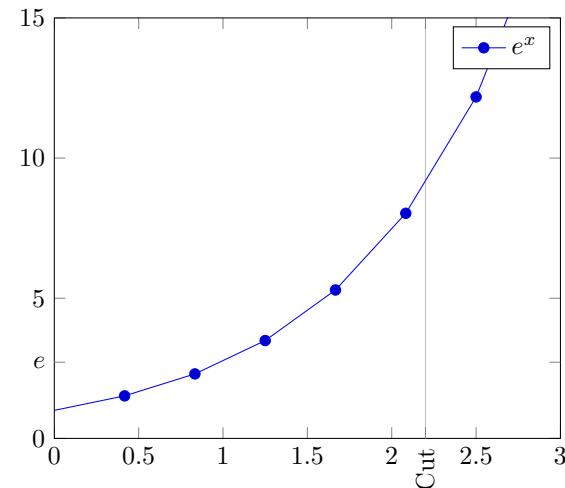


FIGURE: EXAMPLE\_427.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[
  samples=8,
  ytickten={-6,-4,...,4},
  domain=0:10]
\addplot {2^{(-2*x + 6)}};
\addlegendentry{$2^{-2x+6}$}
% or invoke gnuplot to generate coordinates:
\addplot gnuplot[id=pow2]
  {2**(-1.5*x -3)};
\addlegendentry{$2^{-1.5x-3}$}
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

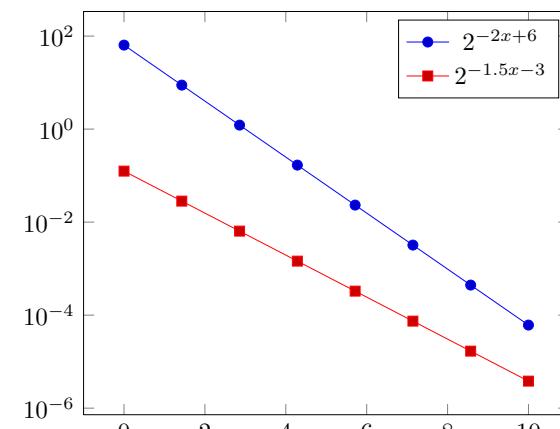


FIGURE: EXAMPLE\_429.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  xtick={-1.5,-1,...,1.5},
  xticklabels={%
    $-\frac{1}{2}$,
    $-1$,
    $\frac{-1}{2}$,
    $0$,
    $\frac{1}{2}$,
    $1$},
  % note: \frac can be done automatically:
  % xticklabel style={/pgf/number format/frac},
]
\addplot [smooth,blue,mark=*]
coordinates {
  (-1,      1)
  (-0.75,  0.5625)
  (-0.5,   0.25)
  (-0.25,  0.0625)
  (0,       0)
  (0.25,   0.0625)
  (0.5,   0.25)
  (0.75,  0.5625)
  (1,      1)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

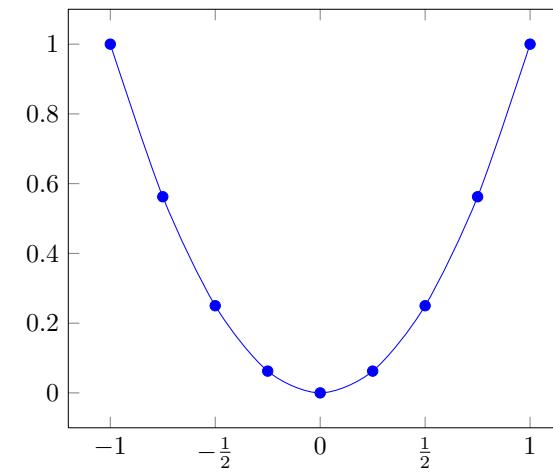


FIGURE: EXAMPLE\_430.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[
  ytickten=[-2,-1,0,1,2],
  yticklabels={$\frac{1}{100}$,%  

  $\frac{1}{10}$,%  

  $\frac{1}{1}$,%  

  1,%  

  10,100},
]
\addplot {\exp(x)};
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

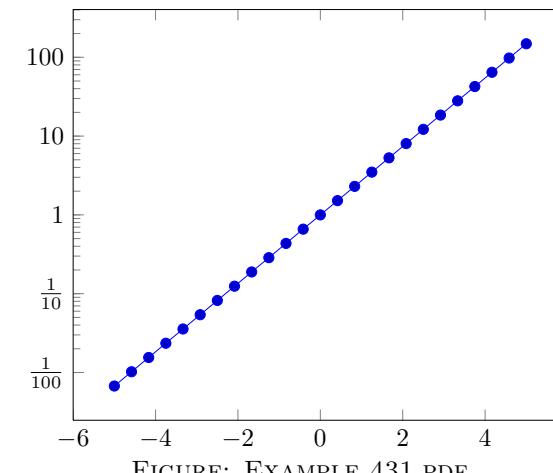


FIGURE: EXAMPLE\_431.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[
    yticklabel style={/pgf/number format/fixed},
    % changes tick labels to a number instead
    % of exponential notation:
    yticklabel=%
        \pgfmathfloatparsenumber{\tick}%
        \pgfmathfloatexp{\pgfmathresult}%
        \pgfmathprintnumber{\pgfmathresult}%
    ],
]
\addplot {exp(x)};
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

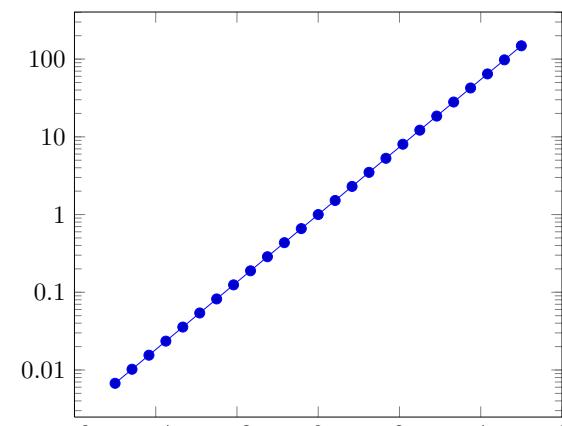


FIGURE: EXAMPLE\_432.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[x tick label as interval]
\addplot {3*x};
\end{axis}
\end{tikzpicture}
\end{document}
```

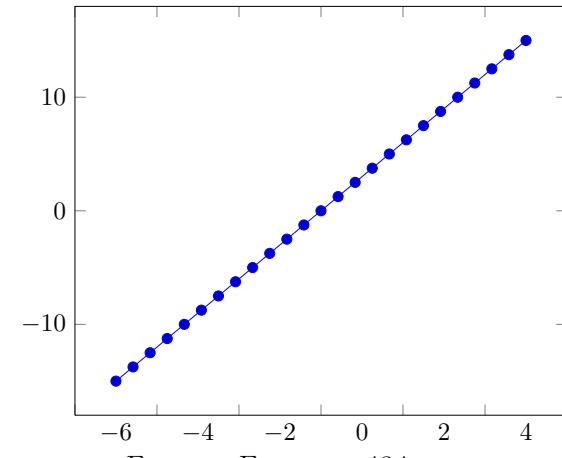


FIGURE: EXAMPLE\_434.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  xtick=data,ytick=data,
  xtick align=center]
\addplot coordinates
{(-3,0) (-2,0.1) (-1,-0.6)
 (0,1)
 (1,-0.6) (2,0.1) (3,0)};
\end{axis}
\end{tikzpicture}
\end{document}
```

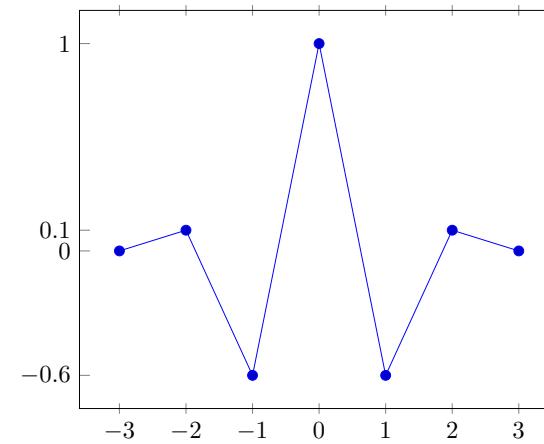


FIGURE: EXAMPLE\_436.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  xtick=data,
  axis x line=center,
  xticklabels={,,},
  ytick={-0.6,0,0.1,1},
  yticklabels={
    $-\frac{6}{10}$,
    $\frac{1}{10}$,
    $1$},
  ymajorgrids,
  axis y line=left,
  enlargelimits=0.05]
\addplot coordinates
{(-3,0) (-2,0.1) (-1,-0.6)
 (0,1)
 (1,-0.6) (2,0.1) (3,0)};
\end{axis}
\end{tikzpicture}
\end{document}
```

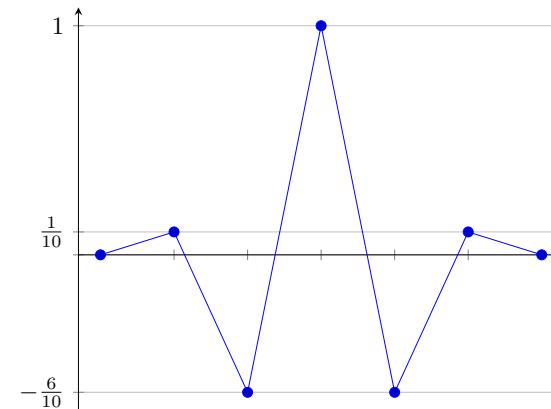


FIGURE: EXAMPLE\_438.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[scaled ticks=false]
\addplot coordinates {
(20000,0.0005)
(40000,0.0010)
(60000,0.0020)
};
\end{axis}
\end{tikzpicture}
\end{document}
```

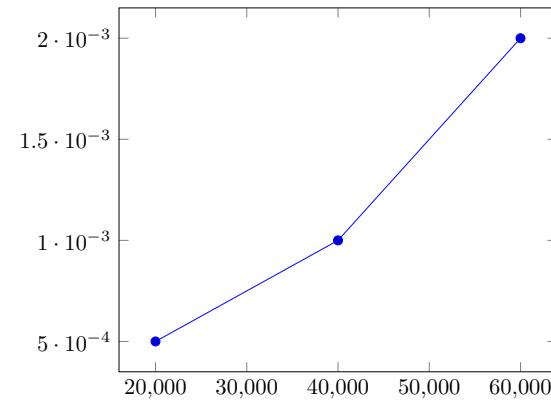


FIGURE: EXAMPLE\_440.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[scaled ticks=base 10:3,
/pgf/number format/sci subscript]
\addplot coordinates
{(-0.00001,2e12) (-0.00005,4e12)};
\end{axis}
\end{tikzpicture}
\end{document}
```

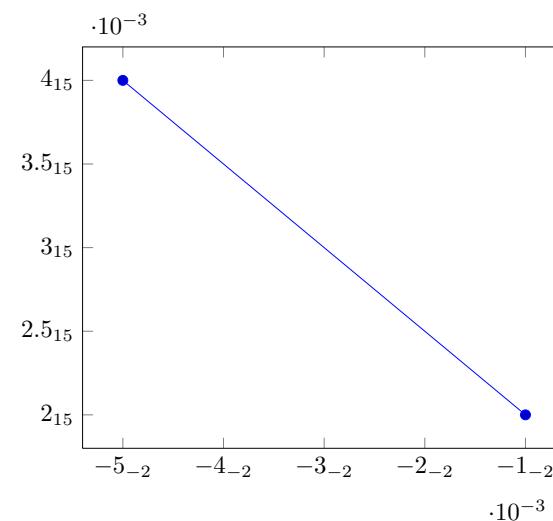


FIGURE: EXAMPLE\_441.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}[
xtick={0,1.5708,...,10},
domain=0:2*pi,
scaled x ticks=[real:3.1415],
xtick scale label code/.code={$\cdot \pi$}]
\addplot {\sin(deg(x))};
\end{axis}
\end{tikzpicture}
\end{document}
```

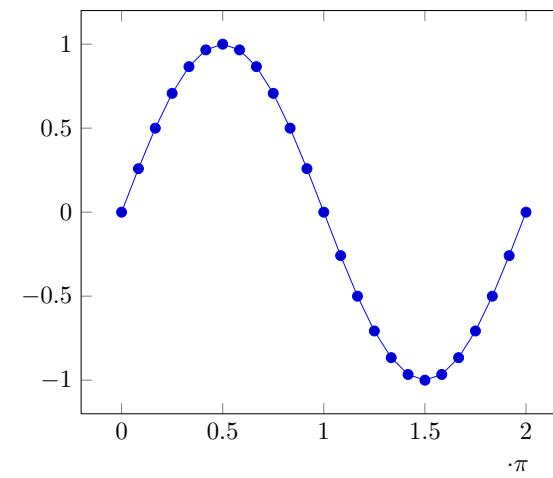


FIGURE: EXAMPLE\_442.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
  title=\texttt{title scale binop=\textbackslash times},
  tick scale binop=\times]
\addplot
  [mark=none,blue,samples=250,
  domain=0:5]
  {exp(10*x)};
\end{axis}
\end{tikzpicture}
\end{document}
```

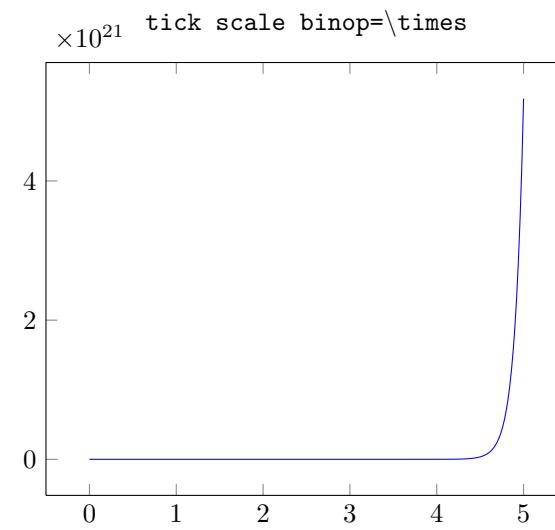


FIGURE: EXAMPLE\_446.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{semilogyaxis}[log basis y=2,grid=major,samples at={-4,...,4}]
\addplot {2^x};
\end{semilogyaxis}
\end{tikzpicture}
~

\begin{tikzpicture}
\begin{semilogyaxis}[log basis y=10,samples at={-4,...,4}]
\addplot {2^x};
\end{semilogyaxis}
\end{tikzpicture}
\end{document}
```

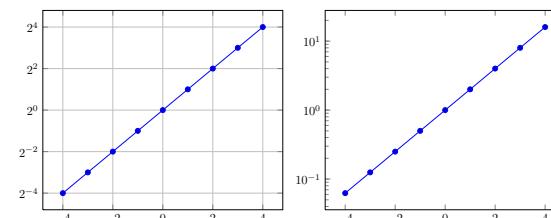


FIGURE: EXAMPLE\_447.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}
\addplot+[data cs=polar,domain=0:360] (\x,1);
\end{axis}
\end{tikzpicture}
\end{document}
```

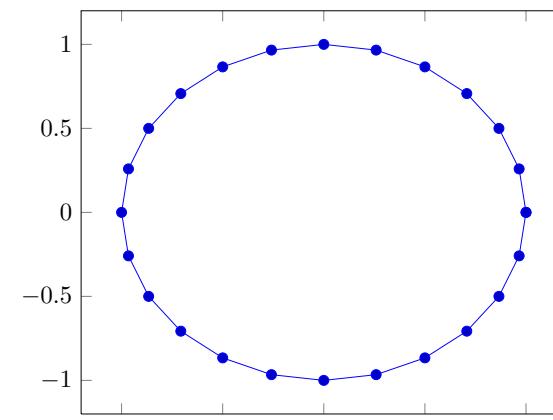


FIGURE: EXAMPLE\_449.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepgfplotslibrary{polar}
\begin{document}
% requires \usepgfplotslibrary{polar}
\begin{tikzpicture}
\begin{polaraxis}
\addplot coordinates {(90,1) (180,1)};
\addplot+[data cs=cart]
coordinates {(1,0) (0.5,0.5)};
\end{polaraxis}
\end{tikzpicture}
\end{document}
```

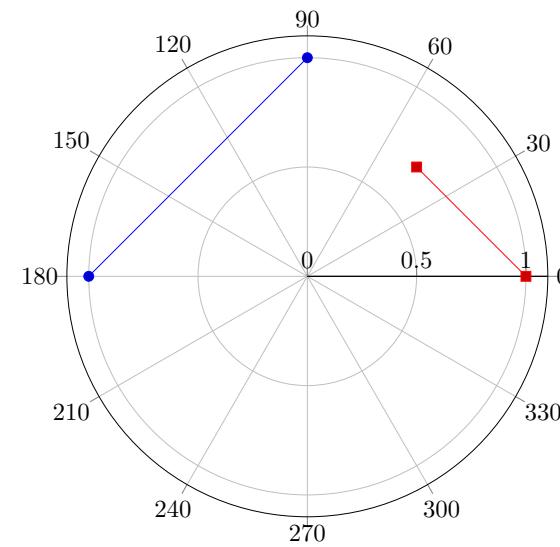


FIGURE: EXAMPLE\_451.PDF

```
%% TIME OUT WARNING
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\begin{document}
\begin{tikzpicture}
\begin{axis}[
    title=$120 \times 120$ Smooth Surface,
    xlabel=$x$,
    ylabel=$y$]
\addplot3[surf,samples=120,shader=interp,domain=0:1]
    {sin(deg(8*pi*x))* exp(-20*(y-0.5)^2)
    + exp(-(x-0.5)^2*30
    - (y-0.25)^2 - (x-0.5)*(y-0.25))};
\end{axis}
\end{tikzpicture}
\end{document}
```

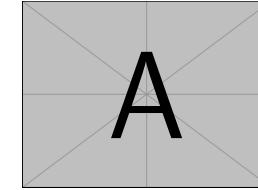


FIGURE: EXAMPLE\_454.PDF MISSING

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenumerset[sci zerofill]{
    a b
    5000 1.234e5
    6000 1.631e5
    7000 2.1013e5
    9000 1000000
}
\end{document}
```

a	b
5,000	$1.23 \cdot 10^5$
6,000	$1.63 \cdot 10^5$
7,000	$2.10 \cdot 10^5$
9,000	$1.00 \cdot 10^6$

FIGURE: EXAMPLE\_455.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset{pgfplotstable.example1.dat}
\end{document}
```

level	dof	error1	error2	info	grad(log(dof),log(error2))	quot(error1)
1	4	0.25	0.76	48	0	0
2	16	$6.25 \cdot 10^{-2}$	0.5	25	-0.3	4
3	64	$1.56 \cdot 10^{-2}$	0.29	41	-0.4	4
4	256	$3.91 \cdot 10^{-3}$	0.14	8	-0.5	4
5	1,024	$9.77 \cdot 10^{-4}$	$4.42 \cdot 10^{-2}$	22	-0.85	4
6	4,096	$2.44 \cdot 10^{-4}$	$1.7 \cdot 10^{-2}$	46	-0.69	4
7	16,384	$6.1 \cdot 10^{-5}$	$8.2 \cdot 10^{-3}$	40	-0.52	4
8	65,536	$1.53 \cdot 10^{-5}$	$3.91 \cdot 10^{-3}$	48	-0.54	4
9	$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	$1.95 \cdot 10^{-3}$	33	-0.5	4
10	$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	$9.77 \cdot 10^{-4}$	2	-0.5	4

FIGURE: EXAMPLE\_456.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset[% global config, for example in the preamble
% these columns/<colname>/.style={<options>} things define a style
% which applies to <colname> only.
columns/dof/.style={int detect,column type=r,column name=\textsc{Dof}},
columns/error1/.style={
    sci,sci zerofill,sci sep align,precision=1,sci superscript,
    column name=$e_1$,
},
columns/error2/.style={
    sci,sci zerofill,sci sep align,precision=2,sci 10e,
    column name=$e_2$,
},
columns/[grad(log(dof),log(error2))]/.style={
    string replace={0}{}, % erase '0'
    column name={$\nabla e_2$},
    dec sep align,
},
columns/[quot(error1)]/.style={
    string replace={0}{}, % erase '0'
    column name={$\frac{e_1^{(n)}}{e_1^{(n-1)}}$}
},
empty cells with={--}, % replace empty cells with '--'
every head row/.style={before row=\toprule,after row=\midrule},
every last row/.style={after row=\bottomrule}
}
\pgfplotstabletypeset[ % local config, applies only for this table
1000 sep={,},
columns/info/.style={
    fixed,fixed zerofill,precision=1,showpos,
    column type=r,
}
]
{pgfplotstable.example1.dat}
\end{document}
```

level	Dof	$e_1$	$e_2$	info	$\nabla e_2$	$\frac{e_1^{(n)}}{e_1^{(n-1)}}$
1	4	$2.5^{-1}$	$7.58 \cdot 10^{-1}$	+48.0	—	—
2	16	$6.3^{-2}$	$5.00 \cdot 10^{-1}$	+25.0	-0.3	4
3	64	$1.6^{-2}$	$2.87 \cdot 10^{-1}$	+41.0	-0.4	4
4	256	$3.9^{-3}$	$1.44 \cdot 10^{-1}$	+8.0	-0.5	4
5	1024	$9.8^{-4}$	$4.42 \cdot 10^{-2}$	+22.0	-0.85	4
6	4096	$2.4^{-4}$	$1.70 \cdot 10^{-2}$	+46.0	-0.69	4
7	16384	$6.1^{-5}$	$8.20 \cdot 10^{-3}$	+40.0	-0.52	4
8	65536	$1.5^{-5}$	$3.91 \cdot 10^{-3}$	+48.0	-0.54	4
9	262144	$3.8^{-6}$	$1.95 \cdot 10^{-3}$	+33.0	-0.5	4
10	1048576	$9.5^{-7}$	$9.77 \cdot 10^{-4}$	+2.0	-0.5	4

FIGURE: EXAMPLE\_457.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset
  [col sep=&,row sep=\\,sci zerofill]
{
  level & dof & error \\
  1 & 4 & 2.5000000e-01 \\
  2 & 16 & 6.2500000e-02 \\
  3 & 64 & 1.5625000e-02 \\
  4 & 256 & 3.9062500e-03 \\
  5 & 1024 & 9.76562500e-04 \\
  6 & 4096 & 2.44140625e-04 \\
  7 & 16384 & 6.10351562e-05 \\
  8 & 65536 & 1.52587891e-05 \\
  9 & 262144 & 3.81469727e-06 \\
  10 & 1048576 & 9.53674316e-07 \\
}
\end{document}
```

level	dof	error
1	4	0.25
2	16	$6.25 \cdot 10^{-2}$
3	64	$1.56 \cdot 10^{-2}$
4	256	$3.91 \cdot 10^{-3}$
5	1,024	$9.77 \cdot 10^{-4}$
6	4,096	$2.44 \cdot 10^{-4}$
7	16,384	$6.10 \cdot 10^{-5}$
8	65,536	$1.53 \cdot 10^{-5}$
9	$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$
10	$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$

FIGURE: EXAMPLE\_458.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableread{pgfplotstable.example1.dat}\loadedtable
\pgfplotstablenetypeset[columns={dof,error1}]\loadedtable
\hspace{2cm}
\pgfplotstablenetypeset[columns={dof,error2}]\loadedtable
\end{document}
```

dof	error1	dof	error2
4	0.25	4	0.76
16	$6.25 \cdot 10^{-2}$	16	0.5
64	$1.56 \cdot 10^{-2}$	64	0.29
256	$3.91 \cdot 10^{-3}$	256	0.14
1,024	$9.77 \cdot 10^{-4}$	1,024	$4.42 \cdot 10^{-2}$
4,096	$2.44 \cdot 10^{-4}$	4,096	$1.7 \cdot 10^{-2}$
16,384	$6.1 \cdot 10^{-5}$	16,384	$8.2 \cdot 10^{-3}$
65,536	$1.53 \cdot 10^{-5}$	65,536	$3.91 \cdot 10^{-3}$
$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	$2.62 \cdot 10^5$	$1.95 \cdot 10^{-3}$
$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	$1.05 \cdot 10^6$	$9.77 \cdot 10^{-4}$

FIGURE: EXAMPLE\_459.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[col sep=comma]{pgfplotstable.example1.csv}
\end{document}
```

level	dof	error1	error2	info	grad(log(dof),log(error2))	quot(error1)
1	4	0.25	0.76	48	0	0
2	16	$6.25 \cdot 10^{-2}$	0.5	25	-0.3	4
3	64	$1.56 \cdot 10^{-2}$	0.29	41	-0.4	4
4	256	$3.91 \cdot 10^{-3}$	0.14	8	-0.5	4
5	1,024	$9.77 \cdot 10^{-4}$	$4.42 \cdot 10^{-2}$	22	-0.85	4
6	4,096	$2.44 \cdot 10^{-4}$	$1.7 \cdot 10^{-2}$	46	-0.69	4
7	16,384	$6.1 \cdot 10^{-5}$	$8.2 \cdot 10^{-3}$	40	-0.52	4
8	65,536	$1.53 \cdot 10^{-5}$	$3.91 \cdot 10^{-3}$	48	-0.54	4
9	$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	$1.95 \cdot 10^{-3}$	33	-0.5	4
10	$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	$9.77 \cdot 10^{-4}$	2	-0.5	4

FIGURE: EXAMPLE\_460.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset
  [col sep=comma,ignore chars={(,),\ ,\#}]
  {pgfplotstable.example5.dat}
\end{document}
```

first	second
10	212
30	413
50	613

FIGURE: EXAMPLE\_461.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[comment chars=!]{
! Some comments
1 0
2 -10
! another comment line
3 0
}
\end{document}
```

0	1
1	0
2	-10
3	0

FIGURE: EXAMPLE\_462.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[skip first n=4]{%<- this '%' is important.
Otherwise, the
newline here would delimit an
(empty) row.
}
XYZ Format,
Version 1.234
Date 2010-09-01
@author Mustermann
A B C
1 2 3
4 5 6
}
\end{document}
```

A	B	C
1	2	3
4	5	6

FIGURE: EXAMPLE\_463.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetupset[columns={dof,level,[index]4}]{pgfplotstable.example 1.dat}
\end{document}
```

dof	level	info
4	1	48
16	2	25
64	3	41
256	4	8
1,024	5	22
4,096	6	46
16,384	7	40
65,536	8	48
$2.62 \cdot 10^5$	9	33
$1.05 \cdot 10^6$	10	2

FIGURE: EXAMPLE\_464.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% in preamble:
\pgfplotstablenetup{
  alias/newname/.initial=b,
}
% in document:
\pgfplotstablenetupset[
  columns={a,newname},% access to `newname' is the same as to `b'
]{%
  a b
  1 2
  3 4
  5 6
}%
\end{document}
```

a	newname
1	2
3	4
5	6

FIGURE: EXAMPLE\_465.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[
  columns/error1/.style={
    column name=$L_2$,
    sci,sci zerofill,sci subscript,
    precision=3},
  columns/error2/.style={
    column name=A,
    sci,sci zerofill,sci subscript,
    precision=2},
  columns/dof/.style={
    int detect,
    column name=\textsc{Dof}}
]
{pgfplotstable.example1.dat}
\end{document}
```

level	Dof	$L_2$	A	info	grad(log(dof),log(error2))	quot(error1)
1	4	2.500 $_{-1}$	7.58 $_{-1}$	48	0	0
2	16	6.250 $_{-2}$	5.00 $_{-1}$	25	-0.3	4
3	64	1.563 $_{-2}$	2.87 $_{-1}$	41	-0.4	4
4	256	3.906 $_{-3}$	1.44 $_{-1}$	8	-0.5	4
5	1,024	9.766 $_{-4}$	4.42 $_{-2}$	22	-0.85	4
6	4,096	2.441 $_{-4}$	1.70 $_{-2}$	46	-0.69	4
7	16,384	6.104 $_{-5}$	8.20 $_{-3}$	40	-0.52	4
8	65,536	1.526 $_{-5}$	3.91 $_{-3}$	48	-0.54	4
9	262,144	3.815 $_{-6}$	1.95 $_{-3}$	33	-0.5	4
10	1,048,576	9.537 $_{-7}$	9.77 $_{-4}$	2	-0.5	4

FIGURE: EXAMPLE\_466.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[
  columns={dof,error1,info},
  column type/.add={|}{|}{% results in '/c'
}
]
{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	info
4	0.25	48
16	$6.25 \cdot 10^{-2}$	25
64	$1.56 \cdot 10^{-2}$	41
256	$3.91 \cdot 10^{-3}$	8
1,024	$9.77 \cdot 10^{-4}$	22
4,096	$2.44 \cdot 10^{-4}$	46
16,384	$6.1 \cdot 10^{-5}$	40
65,536	$1.53 \cdot 10^{-5}$	48
$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	33
$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	2

FIGURE: EXAMPLE\_468.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstablenetup[%
  columns={dof,error1,error2,info,\grad{\log(dof),\log(error2)}},%
  columns/error1/.style={dec sep align},%
  columns/error2/.style={sci,sci subscript,sci zerofill,dec sep align},%
  columns/info/.style={fixed,dec sep align},%
  columns/\grad{\log(dof),\log(error2)}/.style={fixed,dec sep align}%
]
{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	error2	info	\grad{\log(dof),\log(error2)}
4	0.25	7.58 <sub>-1</sub>	48	0
16	$6.25 \cdot 10^{-2}$	5.00 <sub>-1</sub>	25	-0.3
64	$1.56 \cdot 10^{-2}$	2.87 <sub>-1</sub>	41	-0.4
256	$3.91 \cdot 10^{-3}$	1.44 <sub>-1</sub>	8	-0.5
1,024	$9.77 \cdot 10^{-4}$	4.42 <sub>-2</sub>	22	-0.85
4,096	$2.44 \cdot 10^{-4}$	1.70 <sub>-2</sub>	46	-0.69
16,384	$6.1 \cdot 10^{-5}$	8.20 <sub>-3</sub>	40	-0.52
65,536	$1.53 \cdot 10^{-5}$	3.91 <sub>-3</sub>	48	-0.54
$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	1.95 <sub>-3</sub>	33	-0.5
$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	9.77 <sub>-4</sub>	2	-0.5

FIGURE: EXAMPLE\_469.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstablenetup[%
  use comma,%
  columns={dof,error1,error2,info,\grad{\log(dof),\log(error2)}},%
  columns/error1/.style={dec sep align},%
  columns/error2/.style={sci,sci subscript,sci zerofill,dec sep align},%
  columns/info/.style={fixed,dec sep align},%
  columns/\grad{\log(dof),\log(error2)}/.style={fixed,dec sep align}%
]
{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	error2	info	\grad{\log(dof),\log(error2)}
4	0,25	7,58 <sub>-1</sub>	48	0
16	$6,25 \cdot 10^{-2}$	5,00 <sub>-1</sub>	25	-0,3
64	$1,56 \cdot 10^{-2}$	2,87 <sub>-1</sub>	41	-0,4
256	$3,91 \cdot 10^{-3}$	1,44 <sub>-1</sub>	8	-0,5
1,024	$9,77 \cdot 10^{-4}$	4,42 <sub>-2</sub>	22	-0,85
4,096	$2,44 \cdot 10^{-4}$	1,70 <sub>-2</sub>	46	-0,69
16,384	$6,1 \cdot 10^{-5}$	8,20 <sub>-3</sub>	40	-0,52
65,536	$1,53 \cdot 10^{-5}$	3,91 <sub>-3</sub>	48	-0,54
$2,62 \cdot 10^5$	$3,81 \cdot 10^{-6}$	1,95 <sub>-3</sub>	33	-0,5
$1,05 \cdot 10^6$	$9,54 \cdot 10^{-7}$	9,77 <sub>-4</sub>	2	-0,5

FIGURE: EXAMPLE\_470.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstablenumset[
  use comma,
  columns={dof,error1,error2,info,grad(log(dof),log(error2))},
  columns/error1/.style={dec sep align,sci zerofill},
  columns/error2/.style={sci,sci subscript,sci zerofill,dec sep align},
  columns/info/.style={fixed,dec sep align},
  columns/{grad(log(dof),log(error2))}/.style={fixed,dec sep align,fixed
  zerofill}
]
{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	error2	info	grad(log(dof),log(error2))
4	0,25	7,58 <sub>-1</sub>	48	0,00
16	6,25 · 10 <sup>-2</sup>	5,00 <sub>-1</sub>	25	-0,30
64	1,56 · 10 <sup>-2</sup>	2,87 <sub>-1</sub>	41	-0,40
256	3,91 · 10 <sup>-3</sup>	1,44 <sub>-1</sub>	8	-0,50
1,024	9,77 · 10 <sup>-4</sup>	4,42 <sub>-2</sub>	22	-0,85
4,096	2,44 · 10 <sup>-4</sup>	1,70 <sub>-2</sub>	46	-0,69
16,384	6,10 · 10 <sup>-5</sup>	8,20 <sub>-3</sub>	40	-0,52
65,536	1,53 · 10 <sup>-5</sup>	3,91 <sub>-3</sub>	48	-0,54
2,62 · 10 <sup>5</sup>	3,81 · 10 <sup>-6</sup>	1,95 <sub>-3</sub>	33	-0,50
1,05 · 10 <sup>6</sup>	9,54 · 10 <sup>-7</sup>	9,77 <sub>-4</sub>	2	-0,50

FIGURE: EXAMPLE\_471.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenumset[
  sort,sort key=error2,
  columns={dof,error1,error2},
  columns/error1/.style={sci,sci subscript,sci zerofill,dec sep align},
  columns/error2/.style={sci,sci subscript,sci zerofill,dec sep align},
]
{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	error2
1,05 · 10 <sup>6</sup>	9,54 <sub>-7</sub>	9,77 <sub>-4</sub>
2,62 · 10 <sup>5</sup>	3,81 <sub>-6</sub>	1,95 <sub>-3</sub>
65,536	1,53 <sub>-5</sub>	3,91 <sub>-3</sub>
16,384	6,10 <sub>-5</sub>	8,20 <sub>-3</sub>
4,096	2,44 <sub>-4</sub>	1,70 <sub>-2</sub>
1,024	9,77 <sub>-4</sub>	4,42 <sub>-2</sub>
256	3,91 <sub>-3</sub>	1,44 <sub>-1</sub>
64	1,56 <sub>-2</sub>	2,87 <sub>-1</sub>
16	6,25 <sub>-2</sub>	5,00 <sub>-1</sub>
4	2,50 <sub>-1</sub>	7,58 <sub>-1</sub>

FIGURE: EXAMPLE\_472.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{colortbl}
\pgfplotstablenetypeset[
  every even column/.style={
    column type/.add={>{\color{gray}.8}}{}{}}
]
{pgfplotstable.example1.dat}
\end{document}
```

level	dof	error1	error2	info	grad(log(dof),log(error2))	quot(error1)
1	4	0.25	0.76	48	0	0
2	16	$6.25 \cdot 10^{-2}$	0.5	25	-0.3	4
3	64	$1.56 \cdot 10^{-2}$	0.29	41	-0.4	4
4	256	$3.91 \cdot 10^{-3}$	0.14	8	-0.5	4
5	1,024	$9.77 \cdot 10^{-4}$	$4.42 \cdot 10^{-2}$	22	-0.85	4
6	4,096	$2.44 \cdot 10^{-4}$	$1.7 \cdot 10^{-2}$	46	-0.69	4
7	16,384	$6.1 \cdot 10^{-5}$	$8.2 \cdot 10^{-3}$	40	-0.52	4
8	65,536	$1.53 \cdot 10^{-5}$	$3.91 \cdot 10^{-3}$	48	-0.54	4
9	$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	$1.95 \cdot 10^{-3}$	33	-0.5	4
10	$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	$9.77 \cdot 10^{-4}$	2	-0.5	4

FIGURE: EXAMPLE\_474.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\newcolumntype{C}{>{\centering\arraybackslash}p{6mm}}% a centered
fixed-width column
\pgfplotstablenetypeset[
  col sep=&,
  row sep=\|,
  every head row/.style={
    % as in the previous example, this patches the first row:
    before row={
      \hline
      \rowcolor{lightgray}
      \multicolumn{3}{|>{\columncolor{lightgray}}c|}{Quantenzahlen} &
      Term--\|
      \rowcolor{lightgray}
    },
    after row=\hline,
  },
  every last row/.style={
    after row=\hline},
  % define column-specific styles:
  columns/n/.style={column type=|C,column name=$n$},
  columns/l/.style={column type=|C,column name=$\ell$},
  columns/lambda/.style={column type=|C,column name=$\lambda$},
  columns/text/.style={column type=|c|,column name=bezeichnung,
    string type % <-it contains formatted data
  },
]
{
n & l & lambda & text\\
1 & 0 & 0 & $1 s\sigma$ \\
2 & 0 & 0 & $2 s\sigma$ \\
2 & 1 & 0 & $2 p\sigma$ \\
2 & 1 & 1 & $2 p\pi$ \\
3 & 2 & 0 & $3 d\sigma$ \\
3 & 2 & 2 & $3 d\delta$ \\
}
\end{document}

```

Quantenzahlen			Term–bezeichnung
$n$	$\ell$	$\lambda$	
1	0	0	$1s\sigma$
2	0	0	$2s\sigma$
2	1	0	$2p\sigma$
2	1	1	$2p\pi$
3	2	0	$3d\sigma$
3	2	2	$3d\delta$

FIGURE: EXAMPLE\_476.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[
    % suppress the leading row 'col1 col2 col3':
    every head row/.style={output empty row},
    col sep=comma,
    columns/col1/.style={string type,column type=r},
    columns/col2/.style={string type,column type=l},
    columns/col3/.style={string type,column type=l},
]
{
    col1,col2,col3
    Col A,B,C
    The first column,E,F
}
\end{document}
```

	Col A	B	C
The first column	E	F	

FIGURE: EXAMPLE\_479.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[
  every nth row={3}{before row=\midrule},
  every head row/.style={
    before row=\toprule,after row=\midrule},
  every last row/.style={
    after row=\bottomrule},
]
{
  a b
  0 0
  1 1
  2 2
  3 3
  4 4
  5 5
  6 6
  7 7
  8 8
}
\end{document}
```

a	b
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[
  every row 1 column colB/.style={string replace*={2}{4}},
  every row 0 column colA/.style={preproc/expr={##1*8}},
  col sep=&,row sep=\]
  colA & colB & colC \\
  11 & 12 & 13 \\
  21 & 22 & 23 \\
]
\end{document}
```

colA	colB	colC
88	12	13
21	44	23

FIGURE: EXAMPLE\_484.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\usepackage{listings}
\usepackage{listings}
\begin{document}
\pgfplotstabletypeset[
  begin table={\begin{table}},
  end table={\end{table}},
  typeset cell/.style={
    /pgfplots/table/@cell content={\#1}
  },
  before row=\begin{tr}, after row=\end{tr},
  skip coltypes, typeset=false,
  verbatim, % configures number printer
  TeX comment=,
  columns={level,dof,error1},
  outfile=pgfplotstable.example1.out.html,
]{pgfplotstable.example1.dat}
\lstinputlisting
[basicstyle=\ttfamily\footnotesize]
{pgfplotstable.example1.out.html}
\end{document}
```

level	dof	error1
1	4	0.25
2	16	6.25e-2
3	64	1.56e-2
4	256	3.91e-3
5	1024	9.77e-4
6	4096	2.44e-4
7	16384	6.1e-5
8	65536	1.53e-5
9	2.62e5	3.81e-6
10	1.05e6	9.54e-7

FIGURE: EXAMPLE\_486.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\usepackage{listings}
\usepackage{multirow}
\begin{document}
% An example how to use
% \usepackage{multirow} and
% \usepackage{booktabs}:
\pgfplotstablenetypeset[
columns/Z/.style={
    column name={},
    assign cell content/.code={% use \multirow for Z column:
        \ifnum\pgfplotstablerow=0
            \pgfkeyssetvalue{/pgfplots/table/@cell content}{\multirow{4}{*}{\#1}}
        \else
            \pgfkeyssetvalue{/pgfplots/table/@cell content}{}
        \fi
    },
},
% use \booktabs as well (compare examples above):
every head row/.style={before row=\toprule,after row=\midrule},
every last row/.style={after row=\bottomrule},
row sep=\textbackslash, col sep=&,
outfile=pgfplotstable.multirow.out,% write it to file
]{% here: inline data in tabular format:
Z & a & b \\
data & 1 & 2 \\
& 3 & 4 \\
& 5 & 6 \\
& 7 & 8 \\
}
% ... and show the generated file:
\lstinputlisting[basicstyle=\footnotesize\ttfamily]{pgfplotstable.multirow.out}
\end{document}
```

	a	b
	1	2
data	3	4
	5	6
	7	8

FIGURE: EXAMPLE\_487.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenet[columns={level,dof}]
  {pgfplotstable.example1.dat}
\pgfplotstablenet[
  columns={level,dof},
  columns/level/.style={string replace={A}{B}}, % does nothing because
  there is no cell 'A'
  columns/dof/.style={string replace={256}{-42}}] % replace cell '256'
  with '-42'
  {pgfplotstable.example1.dat}
\end{document}
```

level	dof	level	dof
1	4	1	4
2	16	2	16
3	64	3	64
4	256	4	-42
5	1,024	5	1,024
6	4,096	6	4,096
7	16,384	7	16,384
8	65,536	8	65,536
9	$2.62 \cdot 10^5$	9	$2.62 \cdot 10^5$
10	$1.05 \cdot 10^6$	10	$1.05 \cdot 10^6$

FIGURE: EXAMPLE\_489.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenet[
  string replace*={2}{6},
  col sep=&,row sep=\|,
  colA & colB & colC \\
  11 & 12 & 13 \\
  21 & 22 & 23 \\
]
\end{document}
```

colA	colB	colC
11	16	13
61	66	63

FIGURE: EXAMPLE\_490.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenetypeset[
  columns={level},
  columns/level/.style={
    column name={$2\cdot \text{level} + 4$},
    preproc/expr=2*##1 + 4
  }
]
{pgfplotstable.example1.dat}
\end{document}
```

$$\begin{aligned} & 2 \cdot \text{level} + 4 \\ & 6 \\ & 8 \\ & 10 \\ & 12 \\ & 14 \\ & 16 \\ & 18 \\ & 20 \\ & 22 \\ & 24 \end{aligned}$$

FIGURE: EXAMPLE\_491.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset{
    columns={error1,sqrterror1},
    create on use/sqrterror1/.style={create col/copy=error1},
    columns/error1/.style={column name=$\epsilon$},
    columns/sqrterror1/.style={sqrt,column name=$\sqrt{\epsilon}$},
    sci,sci 10e,precision=3,sci zerofill
}
\pgfplotstablename{pgfplotstable.example1.dat}
\end{document}
```

$\epsilon$	$\sqrt{\epsilon}$
$2.500 \cdot 10^{-1}$	$5.000 \cdot 10^{-1}$
$6.250 \cdot 10^{-2}$	$2.500 \cdot 10^{-1}$
$1.563 \cdot 10^{-2}$	$1.250 \cdot 10^{-1}$
$3.906 \cdot 10^{-3}$	$6.250 \cdot 10^{-2}$
$9.766 \cdot 10^{-4}$	$3.125 \cdot 10^{-2}$
$2.441 \cdot 10^{-4}$	$1.562 \cdot 10^{-2}$
$6.104 \cdot 10^{-5}$	$7.813 \cdot 10^{-3}$
$1.526 \cdot 10^{-5}$	$3.906 \cdot 10^{-3}$
$3.815 \cdot 10^{-6}$	$1.953 \cdot 10^{-3}$
$9.537 \cdot 10^{-7}$	$9.766 \cdot 10^{-4}$

FIGURE: EXAMPLE\_492.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset{
    columns={dof,error2,slopes2},
    columns/error2/.style={sci,sci zerofill},
    columns/slopes2/.style={dec sep align,empty cells with=\ensuremath{-}},
    create on use/slopes2/.style=
        {create col/gradient loglog={dof}{error2}}
\pgfplotstablenet[pgfplotstable.example1.dat]
\pgfplotstablenet[columns/slopes2/.append style={multiply -1}]
    {pgfplotstable.example1.dat}
\end{document}
```

dof	error2	slopes2
4	$7.58 \cdot 10^{-1}$	—
16	$5.00 \cdot 10^{-1}$	-0.3
64	$2.87 \cdot 10^{-1}$	-0.4
256	$1.44 \cdot 10^{-1}$	-0.5
1,024	$4.42 \cdot 10^{-2}$	-0.85
4,096	$1.70 \cdot 10^{-2}$	-0.69
16,384	$8.20 \cdot 10^{-3}$	-0.52
65,536	$3.91 \cdot 10^{-3}$	-0.54
$2.62 \cdot 10^5$	$1.95 \cdot 10^{-3}$	-0.5
$1.05 \cdot 10^6$	$9.77 \cdot 10^{-4}$	-0.5
dof	error2	slopes2
4	$7.58 \cdot 10^{-1}$	—
16	$5.00 \cdot 10^{-1}$	0.3
64	$2.87 \cdot 10^{-1}$	0.4
256	$1.44 \cdot 10^{-1}$	0.5
1,024	$4.42 \cdot 10^{-2}$	0.85
4,096	$1.70 \cdot 10^{-2}$	0.69
16,384	$8.20 \cdot 10^{-3}$	0.52
65,536	$3.91 \cdot 10^{-3}$	0.54
$2.62 \cdot 10^5$	$1.95 \cdot 10^{-3}$	0.5
$1.05 \cdot 10^6$	$9.77 \cdot 10^{-4}$	0.5

FIGURE: EXAMPLE\_493.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset{
  create on use/slopes1/.style=
    {create col/gradient loglog={dof}{error1}}}
\pgfplotstablenet[
  columns={dof,error1,slopes1},
  columns/error1/.style={sci,sci zerofill},
  columns/slopes1/.style={
    postproc cell content/.append code={%
      \ifnum\pgfplotstablerow=0
        \pgfkeyssetvalue{/pgfplots/table/@cell content}{\ensuremath{-}}%
      \fi
    }%
  }
]
{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	slopes1
4	$2.50 \cdot 10^{-1}$	—
16	$6.25 \cdot 10^{-2}$	-1
64	$1.56 \cdot 10^{-2}$	-1
256	$3.91 \cdot 10^{-3}$	-1
1,024	$9.77 \cdot 10^{-4}$	-1
4,096	$2.44 \cdot 10^{-4}$	-1
16,384	$6.10 \cdot 10^{-5}$	-1
65,536	$1.53 \cdot 10^{-5}$	-1
$2.62 \cdot 10^5$	$3.81 \cdot 10^{-6}$	-1
$1.05 \cdot 10^6$	$9.54 \cdot 10^{-7}$	-1

FIGURE: EXAMPLE\_498.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\usepackage{pgfcalendar}
\begin{document}
% Requires
% \usepackage{pgfcalendar}
% plotdata/accounts.dat contains:
%
% date      account1  account2  account3
% 2008-01-03    60       1200      400
% 2008-02-06   120       1600      410
% 2008-03-15   -10       1600      410
% 2008-04-01   1800       500      410
% 2008-05-20   2300       500      410
% 2008-06-15    800      1920      410
\pgfplotstabletypeset[
  columns={date,account1},
  column type=r,
  columns/date/.style={date type={\monthname\ \year}},
  columns/account1/.style={fonts by sign={}{{\color{red}}}}
]
{plotdata/accounts.dat}
\end{document}
```

	date	account1
	January 2008	60
	February 2008	120
	March 2008	-10
	April 2008	1,800
	May 2008	2,300
	June 2008	800

FIGURE: EXAMPLE\_499.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% this key setting could be provided in the document's preamble:
\pgfplotstableset{
    % define how the 'new' column shall be filled:
    create on use/new/.style={create col/set list={4,5,6,7,\dots,10}}}
% create a new table with 11 rows and column 'new':
\pgfplotstablenew[columns={new}]{11}\loadedtable
% show it:
\pgfplotstabletypeset[empty cells with={---}]\loadedtable
\end{document}
```

new

4

5

6

7

8

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableread{pgfplotstable.example1.dat}\loadedtable
\pgfplotstablecreatecol[
  create col/assign/.code={%
    \getthisrow{level}\entry
    \getnextrow{level}\nextentry
    \edef\entry{thisrow=\entry; nextrow=\nextentry.
      (\#\pgfplotstablerow/\pgfplotstablerows)}%
    \pgfkeyslet{/pgfplots/table/create col/next content}\entry
  }]
  {new}\loadedtable
\pgfplotstabletypeset[
  column type=l,
  columns={level,new},
  columns/new/.style={string type}
]\loadedtable
\end{document}
```

level	new
1	thisrow=1; nextrow=2. (#0/10)
2	thisrow=2; nextrow=3. (#1/10)
3	thisrow=3; nextrow=4. (#2/10)
4	thisrow=4; nextrow=5. (#3/10)
5	thisrow=5; nextrow=6. (#4/10)
6	thisrow=6; nextrow=7. (#5/10)
7	thisrow=7; nextrow=8. (#6/10)
8	thisrow=8; nextrow=9. (#7/10)
9	thisrow=9; nextrow=10. (#8/10)
10	thisrow=10; nextrow=. (#9/10)

FIGURE: EXAMPLE\_502.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstableset{%
    create on use/quot1/.style=
        {create col/quotient={error1}}}
\pgfplotstablenetypeset[
    columns={error1,quot1},
    columns/error1/.style={sci,sci zerofill},
    columns/quot1/.style={dec sep align}]
{pgfplotstable.example1.dat}
\end{document}
```

	error1	quot1
	$2.50 \cdot 10^{-1}$	
	$6.25 \cdot 10^{-2}$	4
	$1.56 \cdot 10^{-2}$	4
	$3.91 \cdot 10^{-3}$	4
	$9.77 \cdot 10^{-4}$	4
	$2.44 \cdot 10^{-4}$	4
	$6.10 \cdot 10^{-5}$	4
	$1.53 \cdot 10^{-5}$	4
	$3.81 \cdot 10^{-6}$	4
	$9.54 \cdot 10^{-7}$	4

FIGURE: EXAMPLE\_503.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset{
  create on use/my new col/.style={create col/set={--empty--}},
  columns/my new col/.style={string type}
}
\pgfplotstablenetypeset[
  columns=[level,my new col],
]{pgfplotstable.example1.dat}
\end{document}
```

level	my new col
1	--empty--
2	--empty--
3	--empty--
4	--empty--
5	--empty--
6	--empty--
7	--empty--
8	--empty--
9	--empty--
10	--empty--

FIGURE: EXAMPLE\_504.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset{
  create on use/my new col/.style={
    create col/set list={A,B,C,4,50,55,\dots,100},
    columns/my new col/.style={string type}
}
\pgfplotstablenetypeset[
  columns={level,my new col},
]{pgfplotstable.example1.dat}
\end{document}
```

level	my new col
1	A
2	B
3	C
4	4
5	50
6	55
7	60
8	65
9	70
10	75

FIGURE: EXAMPLE\_505.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableset{
  create on use/new/.style={create col/copy={level}}
}
\pgfplotstablenetypeset[
  columns={level,new},
  columns/new/.style={column name=Copy of level}
]{pgfplotstable.example1.dat}
\end{document}
```

level	Copy of level
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

FIGURE: EXAMPLE\_506.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstableset{%
    configuration, for example, in preamble:
    create on use/quot1/.style={create col/quotient=error1},
    create on use/quot2/.style={create col/quotient=error2},
    columns={error1,error2,quot1,quot2},
    %
    % display styles:
    columns/error1/.style={sci,sci zerofill},
    columns/error2/.style={sci,sci zerofill},
    columns/quot1/.style={dec sep align},
    columns/quot2/.style={dec sep align}
}
\pgfplotstablename{pgfplotstable.example1.dat}
\end{document}

```

	error1	error2	quot1	quot2
	$2.50 \cdot 10^{-1}$	$7.58 \cdot 10^{-1}$		
	$6.25 \cdot 10^{-2}$	$5.00 \cdot 10^{-1}$	4	1.52
	$1.56 \cdot 10^{-2}$	$2.87 \cdot 10^{-1}$	4	1.74
	$3.91 \cdot 10^{-3}$	$1.44 \cdot 10^{-1}$	4	2
	$9.77 \cdot 10^{-4}$	$4.42 \cdot 10^{-2}$	4	3.25
	$2.44 \cdot 10^{-4}$	$1.70 \cdot 10^{-2}$	4	2.6
	$6.10 \cdot 10^{-5}$	$8.20 \cdot 10^{-3}$	4	2.07
	$1.53 \cdot 10^{-5}$	$3.91 \cdot 10^{-3}$	4	2.1
	$3.81 \cdot 10^{-6}$	$1.95 \cdot 10^{-3}$	4	2
	$9.54 \cdot 10^{-7}$	$9.77 \cdot 10^{-4}$	4	2

FIGURE: EXAMPLE\_509.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstableset{%
    % configuration, for example in preamble:
    create on use/slopes1/.style={create col/gradient loglog={dof}{error1}},
    create on use/slopes2/.style={create col/gradient loglog={dof}{error2}},
    columns={dof,error1,error2,slopes1,slopes2},
    % display styles:
    columns/dof/.style={int detect},
    columns/error1/.style={sci,sci zerofill},
    columns/error2/.style={sci,sci zerofill},
    columns/slopes1/.style={dec sep align},
    columns/slopes2/.style={dec sep align}
}
\pgfplotstablename{pgfplotstable.example1.dat}
\end{document}
```

dof	error1	error2	slopes1	slopes2
4	$2.50 \cdot 10^{-1}$	$7.58 \cdot 10^{-1}$	-1	-0.3
16	$6.25 \cdot 10^{-2}$	$5.00 \cdot 10^{-1}$	-1	-0.4
64	$1.56 \cdot 10^{-2}$	$2.87 \cdot 10^{-1}$	-1	-0.5
256	$3.91 \cdot 10^{-3}$	$1.44 \cdot 10^{-1}$	-1	-0.5
1,024	$9.77 \cdot 10^{-4}$	$4.42 \cdot 10^{-2}$	-1	-0.85
4,096	$2.44 \cdot 10^{-4}$	$1.70 \cdot 10^{-2}$	-1	-0.69
16,384	$6.10 \cdot 10^{-5}$	$8.20 \cdot 10^{-3}$	-1	-0.52
65,536	$1.53 \cdot 10^{-5}$	$3.91 \cdot 10^{-3}$	-1	-0.54
262,144	$3.81 \cdot 10^{-6}$	$1.95 \cdot 10^{-3}$	-1	-0.5
1,048,576	$9.54 \cdot 10^{-7}$	$9.77 \cdot 10^{-4}$	-1	-0.5

FIGURE: EXAMPLE\_511.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% requires \usepackage{array}
\pgfplotstableset{%
    % configuration, for example in preamble:
    create on use/slopes1/.style={create col/gradient
        semilogy={level}{error1}},
    columns={level,error1,slopes1},
    % display styles:
    columns/level/.style={int detect},
    columns/error1/.style={sci,sci zerofill,sci subscript},
    columns/slopes1/.style={dec sep align}
}
\pgfplotstablename{pgfplotstable.example1.dat}
\end{document}
```

level	error1	slopes1
1	$2.50_{-1}$	
2	$6.25_{-2}$	-1.39
3	$1.56_{-2}$	-1.39
4	$3.91_{-3}$	-1.39
5	$9.77_{-4}$	-1.39
6	$2.44_{-4}$	-1.39
7	$6.10_{-5}$	-1.39
8	$1.53_{-5}$	-1.39
9	$3.81_{-6}$	-1.39
10	$9.54_{-7}$	-1.39

FIGURE: EXAMPLE\_512.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
% load table from somewhere:
\pgfplotstableread{
  x y
  1 1
  2 4
  3 9
  4 16
  5 25
  6 36
}\loadedtbl
% create the `regression' column:
\pgfplotstablecreatecol[linear regression]
  {regression}
  {\loadedtbl}
% store slope
\xdef\slope{\pgfplotstablegetelem{0}{regression}\loadedtbl}
\pgfplotstabletypeset\loadedtbl\\
The slope is `\slope'.
\end{document}

```

x	y	regression
1	1	-2.33
2	4	4.67
3	9	11.67
4	16	18.67
5	25	25.67
6	36	32.67

The slope is '7.0e0'.

FIGURE: EXAMPLE\_513.PDF

```

\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenew[%
  create on use/cut/.style={create col/function graph cut y= {2.5e-4} % search for fixed L2 = 2.5e-4
  {x=Basis,y=L2,ymode=log,xmode=log} % double log, each function is L2(Basis)
  % now, provide each single function f_i(Basis):
  {{table=plotdata/newexperiment1.dat},{table=plotdata/newexperiment2.dat}}%
},
columns={cut}]
{2}
\loadedtable
% Show the data:
\pgfplotstabletypeset{\loadedtable}
\begin{tikzpicture}
\begin{loglogaxis}
\addplot table[x=Basis,y=L2] {plotdata/newexperiment1.dat};
\addplot table[x=Basis,y=L2] {plotdata/newexperiment2.dat};
\draw[blue!30!white] (axis cs:1,2.5e-4) -- (axis cs:1e5,2.5e-4);
\node[pin=-90:{$x=53.66$}] at (axis cs:53.66,2.5e-4) {};
\node[pin=45:{$x=601.83$}] at (axis cs:601.83,2.5e-4) {};
\end{loglogaxis}
\end{tikzpicture}
\end{document}

```

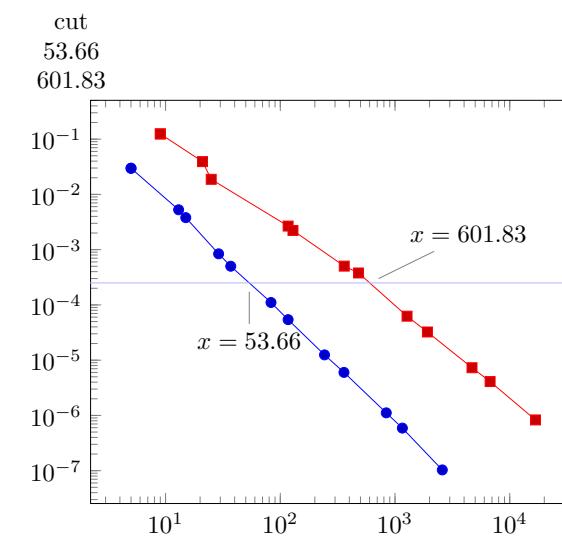


FIGURE: EXAMPLE\_514.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablenew[
    % same as above...
    create on use/cut/.style={create col/function graph cut y=
        {2.5e-4}\% search for fixed L2 = 2.5e-4
        {x=Basis,y=L2,ymode=log,xmode=log,
        foreach=\i in {1,2}\{plotdata/newexperiment\i.dat\}\%
        {}% just leave this empty.
    },
    columns={cut}]
{2}
\loadedtable
% Show the data:
\pgfplotstabletypeset{\loadedtable}
\end{document}
```

cut  
53.66  
601.83

FIGURE: EXAMPLE\_515.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstableread{pgfplotstable.example1.dat}\loadedtable
\pgfplotstablemodifyeachcolumnelement{error1}\of{\loadedtable}{\as{\cell}{%
  \edef\cell{\#1\pgfplotstablerow: \cell}%
}}
\pgfplotstabletypeset[columns=error1,string type]{\loadedtable}
\end{document}
```

error1

#0:	2.5000000e-01
#1:	6.2500000e-02
#2:	1.5625000e-02
#3:	3.9062500e-03
#4:	9.76562500e-04
#5:	2.44140625e-04
#6:	6.10351562e-05
#7:	1.52587891e-05
#8:	3.81469727e-06
#9:	9.53674316e-07

FIGURE: EXAMPLE\_516.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstabletypeset[string type]{pgfplotstable.example3.dat}
\end{document}
```

a	b	c	d
0	1	2	3
4	5	6	7
8	9	10	11
12	13	14	15
16	17	18	19
20	21	22	23

FIGURE: EXAMPLE\_517.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstabletranspose\loadedtable{\pgfplotstableexample3.dat}
\pgfplotstablenet[string type]\loadedtable
\end{document}
```

colnames	0	1	2	3	4	5
a	0	4	8	12	16	20
b	1	5	9	13	17	21
c	2	6	10	14	18	22
d	3	7	11	15	19	23

FIGURE: EXAMPLE\_518.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstabletranspose[colnames
from=c]\loadedtable{\pgfplotstableexample3.dat}
\pgfplotstablenet[string type]\loadedtable
\end{document}
```



colnames	2	6	10	14	18	22
a	0	4	8	12	16	20
b	1	5	9	13	17	21
d	3	7	11	15	19	23

FIGURE: EXAMPLE\_519.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstabletranspose[input colnames
to=\loadedtable{pgfplotstable.example3.dat}]
\pgfplotstablenetypeset[string type]\loadedtable
\end{document}
```



0	1	2	3	4	5
0	4	8	12	16	20
1	5	9	13	17	21
2	6	10	14	18	22
3	7	11	15	19	23

FIGURE: EXAMPLE\_521.PDF

```
\documentclass{standalone}
\usepackage{pgfplots}
\pgfplotsset{compat=newest}
\usepackage{pgfplotstable}
\usepackage{array}
\usepackage{colortbl}
\usepackage{booktabs}
\usepackage{eurosym}
\usepackage{amsmath}
\usepackage{pgfplotstable}
\begin{document}
\pgfplotstablesort[sort cmp=string <]\result{\% 'Header' is the column name:
  Header
  the
  quick
  brown
  fox
  jumps
  over
  the
  lazy
  dog
}
\pgfplotstabletypeset[string type]{\result}%
\end{document}
```

Header  
brown  
dog  
fox  
jumps  
lazy  
over  
quick  
the

FIGURE: EXAMPLE\_524.PDF