TikZ Reference Card

PICTURE COMMANDS/ENVIRONMENTS

- `\tikzpicture[⟨options⟩]` … `\endtikzpicture`
- `\begin{tikzpicture}[⟨options⟩]` … `\end{tikzpicture}`
- `\starttikzpicture[⟨options⟩]` … `\stoptikzpicture`
- `\tikz[⟨options⟩]{` … `}`

PICTURE OPTIONS

- `every picture/.style=⟨key list⟩`
- `baseline=⟨ycoord⟩`
- `trim left=⟨xcoord⟩`
- `trim right=⟨xcoord⟩`
- `remember picture`
- `execute at begin picture=⟨code⟩`
- `execute at end picture=⟨code⟩`

SCOPE COMMANDS/ENVIRONMENTS

- `\scope[⟨options⟩]` … `\endscope`
- `\begin{scope}[⟨options⟩]` … `\end{scope}`
- `\startscope[⟨options⟩]` … `\stopscope`
- `\scoped[⟨options⟩]{` … `}`

SCOPE OPTIONS

- `every scope/.style=⟨key list⟩`
- `execute at begin scope=⟨code⟩`
- `execute at end scope=⟨code⟩`

PATH CONSTRUCTION

`\path[⟨options⟩]` … ⟨operation⟩ … ;

- `foreach⟨variables⟩[⟨options⟩] in{⟨code⟩}`
- `let⟨assignments⟩in`
  - `\n{⟨number register⟩}`
  - `\p{⟨point register⟩}`
- ⟨coord⟩ move to
- `--`⟨coord⟩ line to
- `-|`⟨coord⟩ hor./ver. line to
- `|-`⟨coord⟩ ver./hor. line to
- `..controls⟨coord1⟩ and⟨coord2⟩..`⟨coord⟩ Bézier cubic curve to
- `rectangle`⟨coord⟩
- `grid[⟨options⟩]`⟨coord⟩
  - `xstep=⟨dimen⟩`
  - `ystep=⟨dimen⟩`
  - `step=⟨dimen⟩`
- `circle[⟨options⟩]` circle/ellipse
  - `x radius=⟨dimen⟩`
  - `y radius=⟨dimen⟩`
  - `radius=⟨dimen⟩`
  - `at=⟨coord⟩`
- `arc[⟨options⟩]` elliptical arc
  - `x radius=⟨dimen⟩`
  - `y radius=⟨dimen⟩`
  - `radius=⟨dimen⟩`
  - `start angle=⟨angle⟩`
  - `end angle=⟨angle⟩`
  - `delta angle=⟨angle⟩`
- `sin⟨coord⟩` sine in $[0, \pi/2]$
- `cos⟨coord⟩` cosine in $[0, \pi/2]$
- `parabola[⟨options⟩]⟨coord⟩`
  - `bend=⟨bcoord⟩`
  - `bend at start`
  - `bend at end`
  - `bend pos=⟨bposcoord⟩`
  - `parabola height=⟨dimen⟩`
- `to[⟨options⟩]⟨coord⟩`
  - `out=⟨angle⟩`
  - `in=⟨angle⟩`
  - `edge node=⟨nodespec⟩`
  - `edge label=⟨text⟩`
  - `edge label'=⟨text⟩`
  - `at=⟨coord⟩`
- `{plot|--plot}[⟨options⟩]⟨further arguments⟩`
  - `coordinates{⟨coord1⟩⟨coord2⟩` … `⟨coordn⟩}`
  - `file{⟨filename⟩}`
  - ⟨coordinate expression⟩
  - `function{⟨gnuplot formula⟩}`
- `node⟨foreach statements⟩[⟨node-options⟩](⟨name⟩)at⟨coord⟩{⟨text⟩}`
- `coordinate[⟨options⟩](⟨name⟩)at(⟨coord⟩)`
- `node also[⟨options⟩](⟨name⟩)`
- `edge[⟨options⟩]⟨nodes⟩⟨coord⟩`
- `child[⟨options⟩]⟨foreach statements⟩{⟨code⟩}`
  - `edge from parent[⟨options⟩]`
- `pic⟨foreach statements⟩[⟨options⟩](⟨prefix⟩)at⟨coord⟩{⟨pic type⟩}`

OPTIONS & KEY HANDLING

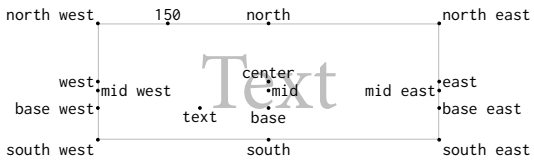
- `\tikzset{⟨options⟩}`
- ⟨key⟩`/.cd`
- ⟨key⟩`/.style=`⟨key list⟩
- ⟨key⟩`/.prefix style=`⟨key list⟩
- ⟨key⟩`/.append style=`⟨key list⟩
- ⟨key⟩`/.pic={`⟨code⟩`}`

COORDINATE SPECIFICATION

- `(`⟨xdimen⟩`,`⟨ydimen⟩`)` canvas
- `(`⟨x⟩`,`⟨y⟩`,`⟨z⟩`)` xyz
- `(`⟨angle⟩`:`⟨dimen⟩`)` canvas polar
- `(`⟨angle⟩`:`⟨r⟩`)` xyz polar
- `(`⟨node name⟩`.{`⟨anchor⟩`|`⟨angle⟩`})`
- `+`⟨coord⟩ rel. current position; no 'update'
- `++`⟨coord⟩ rel. current position; 'updates'
- `(`⟨coord1⟩`-|`⟨coord2⟩`)` intersection of hor. and ver. lines
- `(`⟨coord1⟩`|-`⟨coord2⟩`)` intersection of ver. and hor. lines
- `($`⟨computation⟩`$)`
  - ⟨factor⟩`*`⟨coord⟩⟨modifiers⟩`{+|-}`⟨computation⟩
  - `!`⟨number⟩`!`⟨angle⟩`:`⟨coord2⟩ position ⟨number⟩ from ⟨coord⟩ to ⟨coord2⟩
  - `!`⟨dimen⟩`!`⟨angle⟩`:`⟨coord2⟩ distance ⟨dimen⟩ from ⟨coord⟩ to ⟨coord2⟩
  - `!`⟨pr-coord⟩`!`⟨angle⟩`:`⟨coord2⟩ project ⟨pr-coord⟩ to line from ⟨coord⟩ to ⟨coord2⟩

[Library: calc]

NODE ANCHORS & REFERENCES

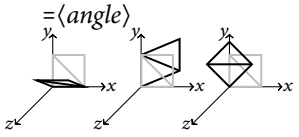


PREDEFINED NODES

- `current bounding box`
- `current path bounding box`
- `current subpath start` (coordinate)
- `current page`

TRANSFORMATIONS

- `{x|y|z}=`{⟨dimen⟩|⟨coord⟩}
- `shift=`⟨coord⟩
- `shift only`
- `xshift=`⟨dimen⟩
- `yshift=`⟨dimen⟩
- `scale=`⟨factor⟩
- `scale around` ={⟨factor⟩`:`⟨coord⟩}
- `xscale=`⟨factor⟩
- `yscale=`⟨factor⟩
- `xslant=`⟨factor⟩
- `yslant=`⟨factor⟩
- `rotate=`⟨angle⟩
- `rotate around` ={⟨angle⟩`:`⟨coord⟩}
- `rotate around {x|y|z}` =⟨angle⟩



PATH OPTIONS

- `every path/.style=`⟨key list⟩
- `draw=`⟨color⟩
  - `line width=`⟨w⟩
  - `ultra thin` — 0.1 pt
  - `very thin` — 0.2 pt
  - `thin` — 0.4 pt
  - `semithick` — 0.6 pt
  - `thick` — 0.8 pt
  - `very thick` — 1.2 pt
  - `ultra thick` — 1.6 pt
  - `rounded corners=`⟨dimen⟩
    - `sharp corners`
  - `line cap={butt|rect|round}`
  - `line join={bevel|miter|round}`
    - `miter limit=`⟨ratio⟩
  - `dash pattern=`⟨pattern⟩ e.g. on 2pt off 3pt
  - `dash phase=`⟨length⟩
  - `dotted`
  - `densely dotted`
  - `loosely dotted`
  - `dashed`
  - `densely dashed`
  - `loosely dashed`
  - `dash dot`
  - `densely dash dot`
  - `loosely dash dot`
  - `dash dot dot`
  - `densely dash dot dot`
  - `loosely dash dot dot`
- `clip`
- `path picture={`⟨code⟩`}` ⟨code⟩ clipped to curr. path
- `use as bounding box`
- `overlay` no effect on bbox calc.
- `preaction=`⟨options⟩
- `postaction=`⟨options⟩
- `late options={name=`⟨node name⟩`,`⟨options⟩`}`
- ⟨arrow spec.⟩`-`⟨arrow spec.⟩
- `double=`⟨color⟩
  - `double distance=`⟨dim.⟩ dist. between inner borders
  - `double between line centers` =⟨dim.⟩
  - `double equal sign distance` dist. matches =
- `fill=`⟨color⟩
  - `{nonzero|even odd} rule` (for fill area calc.)
  - `pattern=`⟨name⟩
  - `pattern color=`⟨color⟩
- `shade` (using curr. shading)
  - `shading angle=`⟨angle⟩
  - `shading=`⟨name⟩
    - `axis`
      - `{top|bottom|middle|left|right}color` =⟨color⟩
    - `ball`
      - `ball color=`⟨color⟩
    - `radial`
      - `{inner|outer} color` =⟨color⟩

CHILD OPTIONS

- level distance=⟨*dimen*⟩
- sibling distance=⟨*dimen*⟩
- grow={⟨*angle*⟩|⟨*direction*⟩}
  - {down|up|left|right
    |north {west|east}
    |south {west|east}}
- grow'={⟨*angle*⟩|⟨*direction*⟩}
- missing=⟨*bool*⟩
- growth parent anchor=⟨*anchor*⟩
- edge from parent path=⟨*path*⟩
- child anchor=⟨*anchor*⟩
- parent anchor=⟨*anchor*⟩
- every child/.style=⟨*key list*⟩
- every child node/.style=⟨*key list*⟩
- level/.style=⟨*key list*⟩
- level ⟨*number*⟩/.style=⟨*key list*⟩
- edge from parent/.style=⟨*key list*⟩

PLOT OPTIONS

- variable=⟨*macro name*⟩
- samples=⟨*number*⟩
- domain=⟨*start*⟩:⟨*end*⟩
- samples at={⟨*sample list*⟩}
  - ⟨*number*⟩,⟨*sample list*⟩
- parametric=⟨*bool*⟩ [function only]
- {range|xrange|yrange}
  =⟨*start*⟩:⟨*end*⟩
- id=⟨*plot id*⟩
- prefix=⟨*prefix*⟩
- raw gnuplot
- every plot/.style=⟨*key list*⟩
- mark={*|+|x|ball} ● + × ●
- mark repeat=⟨*number*⟩
- mark phase=⟨*number*⟩
- mark indices=⟨*list*⟩
- mark size=⟨*dimen*⟩
- every mark/.style=⟨*key list*⟩
- mark options={⟨*options*⟩}
- no {marks|markers}
- sharp plot
- smooth
- tension=⟨*number*⟩
- smooth cycle
- const plot
- const plot mark left
- const plot mark right
- const plot mark mid
- jump mark left
- jump mark right
- jump mark mid
- ycomb
- xcomb
- polar comb
- ybar
- xbar
- ybar interval
- xbar interval
- only marks

PIC OPTIONS

- every pic/.style=⟨*key list*⟩
- pic type=⟨*pic type*⟩
- pics/code=⟨*code*⟩
- pics/foreground code=⟨*code*⟩
- pics/background code=⟨*code*⟩
- pic text=⟨*text*⟩
- pic text options=⟨*options*⟩
- pic action
- name prefix

NODE OPTIONS

- every node/.style=⟨*key list*⟩
- node contents=⟨*text*⟩
- at={⟨*coord*⟩}
- behind path
- in front of path
- name=⟨*name*⟩
- alias=⟨*name*⟩
- name prefix=⟨*text*⟩
- name suffix=⟨*text*⟩
- inner sep=⟨*dimen*⟩
- inner xsep=⟨*dimen*⟩
- inner ysep=⟨*dimen*⟩
- outer sep=⟨*dimen*⟩
- outer xsep=⟨*dimen*⟩
- outer ysep=⟨*dimen*⟩
- minimum width=⟨*dimen*⟩
- minimum height=⟨*dim.*⟩
- minimum size=⟨*dimen*⟩
- shape aspect=⟨*ratio*⟩
- text=⟨*color*⟩
- node font=⟨*commands*⟩
  sets ex & em dimens
- font=⟨*commands*⟩
  does not set ex & em
- text width=⟨*dimen*⟩
- align=⟨*alignment*⟩
  - left
  - flush left
  - right
  - flush right
  - center
  - flush center
  - justify
  - none
- transform shape
  apply curr. transform. to node
- shape={rectangle|circle
  |coordinate|⟨*name*⟩}
- anchor=⟨*name*⟩
- {above|below|left|right}
  =⟨*shift-part*⟩⟨*of-part*⟩
- {above|mid|base|below}
  {left|right}=⟨*shift-part*⟩⟨*of-part*⟩
  - of{⟨*coord*⟩|⟨*node name*⟩}
  - ⟨*dimen*⟩, ⟨*number*⟩ } offset
  - {⟨*number1*⟩|⟨*dimen1*⟩}
    and{⟨*number2*⟩|⟨*dimen2*⟩}
- on grid
- node distance=⟨*shift-part*⟩
  default ⟨*shift-part*⟩
- pos=⟨*num.*⟩
- at start — pos=0
- very near start — pos=0.125
- near start — pos=0.25
- midway — pos=0.5
- near end — pos=0.75
- very near end — pos=0.875
- at end — pos=1
- auto={left|right}
- {swap|'} swaps right & left
- sloped rotated to tangent
- allow upside down=⟨*bool*⟩
- label={[⟨*options*⟩]
  {⟨*angle*⟩|center}:⟨*text*⟩}
- label distance=⟨*angle*⟩
- label position=⟨*angle*⟩

- pin={[⟨*options*⟩]
  {⟨*angle*⟩|center}:⟨*text*⟩}
- pin distance=⟨*angle*⟩
- pin position=⟨*angle*⟩
- pin edge={⟨*options*⟩}
- absolute=⟨*bool*⟩
  label/pin positions
- matrix
  - every matrix/.style=⟨*key list*⟩
  - every cell/.style=⟨*key list*⟩
  - column sep={⟨*dimen*⟩|⟨*spacing list*⟩}
  - row sep={⟨*dimen*⟩|⟨*spacing list*⟩}
    - {{⟨*dimen*⟩|between origins,
      |between borders},⟨*spacing list*⟩}
  - cells={⟨*options*⟩}
  - nodes={⟨*options*⟩}
  - {column|row} ⟨*number*⟩={⟨*options*⟩}
  - every odd {column|row}={⟨*options*⟩}
  - every even {column|row}={⟨*options*⟩}
  - matrix anchor=⟨*anchor*⟩
  - anchor={⟨*anchor*⟩|⟨*node*⟩.⟨*anchor*⟩}
  - ampersand replacement={⟨*macro name*⟩|⟨*empty*⟩}

[Library: positioning]

OPACITY

- draw opacity=⟨*number*⟩
- fill opacity=⟨*number*⟩
- text opacity=⟨*number*⟩
- opacity=⟨*number*⟩

- transparent
- ultra nearly transparent
- very nearly transparent
- nearly transparent
- semitransparent
- nearly opaque
- very nearly opaque
- ultra nearly opaque
- opaque

ABBREVIATIONS

- \draw
- \fill
- \filldraw
- \pattern
- \shade
- \shadedraw
- \clip
- \useasboundingbox
- \node
- \matrix

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ver. 0.4.2 (2016-04-15) www-groups.mcs.st-and.ac.uk/~alanc/pub/c_tikzref/