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*⟩
- `{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*⟩`}`

- `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*⟩

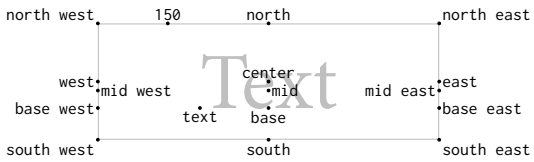
OPTIONS & KEY HANDLING

- `\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*⟩

NODE ANCHORS & REFERENCES

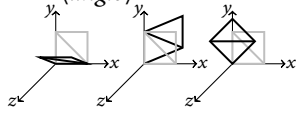


PREDEFINED NODES

- `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*⟩

[Library: calc]

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

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