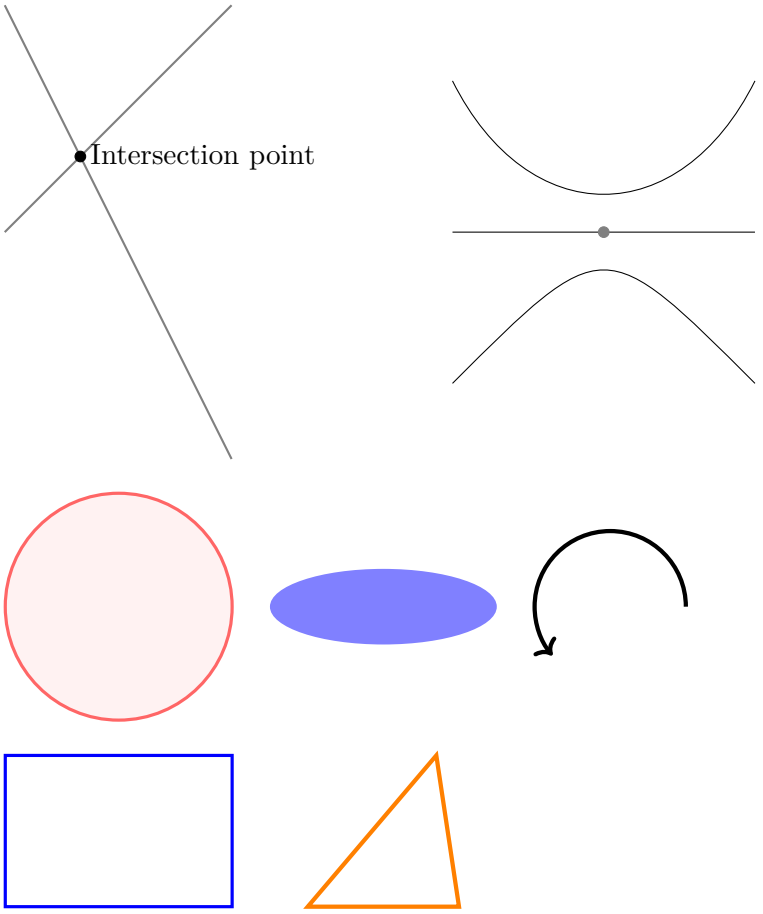
Tikz

`Template document for learning purposes`

Tikz package is a powerful package allowing to draw pictures to visualise author's ideas.
Note: The tikzfigure environment can be enclosed inside a figure or similar environment.

Geometric shapes



Legend

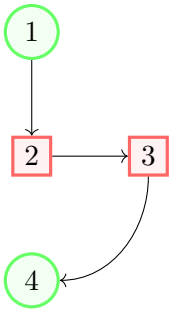
We use **\filldraw** for specifying outer and inner styles, **\draw** when it's not needed.

\draw (-2,0) – (2,0); ... defines a line with endpoints,
\filldraw [gray] (0,0) circle (2pt); ... creates a gray point at a given location with given radius,
\draw (-2,2) .. controls (-1,0) and (1,0) .. (2,2); ... draws a Beyiér curve with control points in the middle of the command (can be only one),
\filldraw[color=red!60, fill=red!5, very thick](-1,0) circle (1.5); ...

- **color=red!60** ... stets 60% red for the outer ting,
- **fill=red!5** ... fills the ring with 5% red,
- **very thick** ... thickness of the stroke (can be also used for the fill),

\fill[blue!50] (2.5,0) ellipse (1.5 and 0.5); ... defines an elipse with provided centre point and two radii,
\draw[ultra thick, ->] (6.5,0) arc (0:220:1); ... draws an arc, where the last extra parameter **->** indicates an arrow at the end; provided are: centre point, starting angle, ending angle, radius ... in format (x,y) arc (start angle, end angle, radius),
\draw[blue, very thick] (0,0) rectangle (3,2); ... draws a rectangle, provided a starting point and a diagonal one,
\draw[orange, ultra thick] (4,0) – (6,0) – (5.7,2) – cycle; ... is a way of drawing a polygon (triangle here) while provided with individual points of the drawing path and the the **cycle** connects the last and the first point.

Diagrams



Here, we essentially do main three processes: node declaration, node definition, drawing lines to connect the nodes:
roundnode/.style={circle, draw=green!60, fill=green!5, very thick, minimum size=7mm} ... passes a circuitkz, which we're already familiar with, as a parameter to the declaration of a node later referred to as a *roundnode*; *squarenode* is created similarly,
\node[squarednode] (maintopic) {2}; ... creates a *squarenode* as defined earlier with id *maintopic* and will contain number 2 (no text if the parameter is left out),
[above=of maintopic] ... requires the **\usepackage{positioning}** and sets the relative position of a node to a node specified by its id; it is possible to do without *positioning* package by doing e.g. **of=maintopic** instead, but it is more flexible to

do with it (e.g. allows to extend to **above=3cm of maintopic** to control the actual position from *maintopic*),
\draw[->] (uppercircle.south) – (maintopic.north); . . . draws an arrow-like (thanks to the addition **->** parameter) line as was explained before.

Additional information

List of possibile values of the parameter **color**: white, black, red, green, blue, cyan, magenta, yellow;

List of possible values of the parameter **thickness**: ultra thin, very thin, thin, thick, very thick, ultra thick.