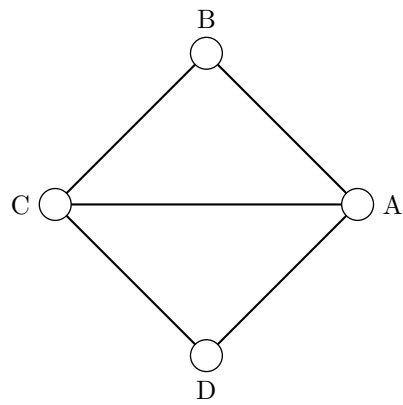


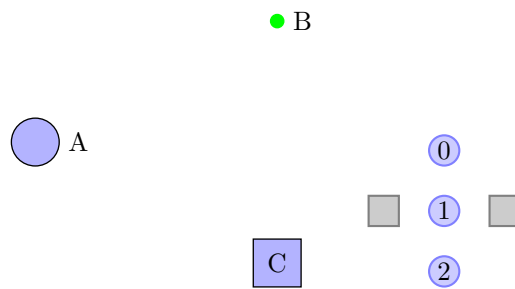
**EXAMPLE 1.**



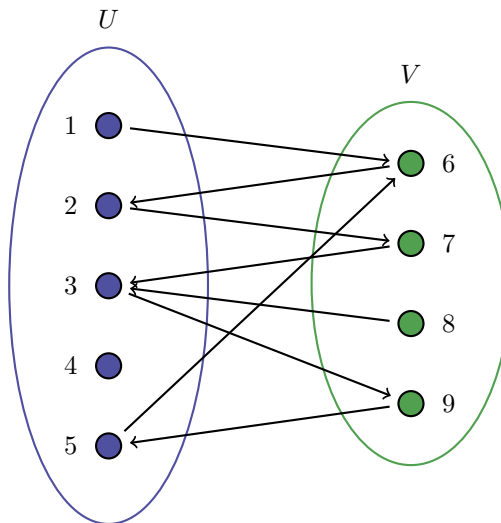
```
\begin{tikzpicture}
  \GraphInit[vstyle=Welsh]
  \SetGraphUnit{2}
  \Vertices{circle}{A,B,C,D}
  \Edges(A,B,C,D,A,C)
  \SetVertexNoLabel
\end{tikzpicture}
```

source: <http://www.hoonzis.com/graph-theory-in-latex/>

**EXAMPLE 2.**



**EXAMPLE 3.**



```
\begin{tikzpicture}[thick,
  every node/.style={draw,circle},
  fsnode/.style={fill=myblue},
  ssnode/.style={fill=mygreen},
  every fit/.style={ellipse,draw,inner sep=-2pt,text width=2cm},
  ->,shorten >= 3pt,shorten <= 3pt
]
% the vertices of U
\begin{scope}[start chain=going below,node distance=7mm]
  \foreach \i in {1,2,...,5}
    \node[fsnode,on chain] (f\i) [label=left: \i] {};
\end{scope}

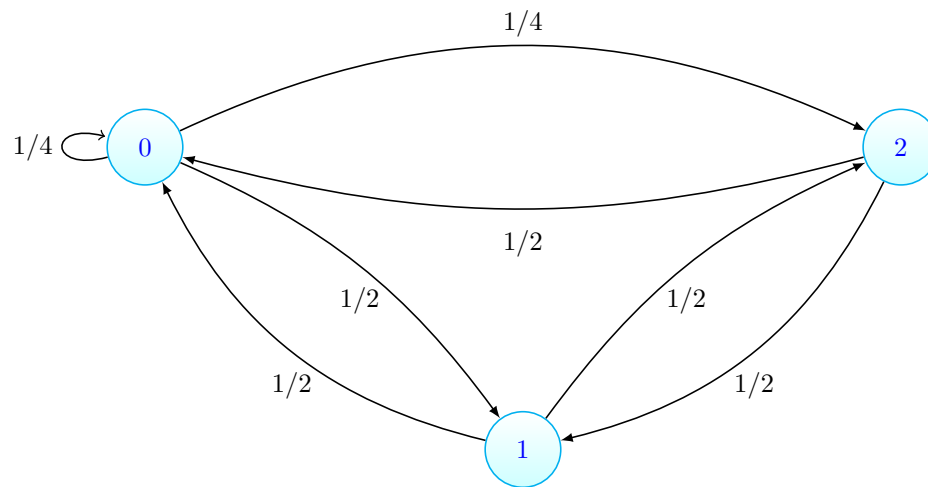
% the vertices of V
\begin{scope}[xshift=4cm,yshift=-0.5cm,start chain=going below,node distance=7mm]
  \foreach \i in {6,7,...,9}
    \node[ssnode,on chain] (s\i) [label=right: \i] {};
\end{scope}

% the set U
\node [myblue,fit=(f1) (f5),label=above:$U$] {};
% the set V
\node [mygreen,fit=(s6) (s9),label=above:$V$] {};

% the edges
\draw (f1) -- (s6); \draw (s6) -- (f2); \draw (f2) -- (s7);
\draw (s7) -- (f3); \draw (s8) -- (f3); \draw (f3) -- (s9);
\draw (s9) -- (f5); \draw (f5) -- (s6);
\end{tikzpicture}
```

source <http://tex.stackexchange.com/questions/15088/bipartite-graphs>

**EXAMPLE 4.**



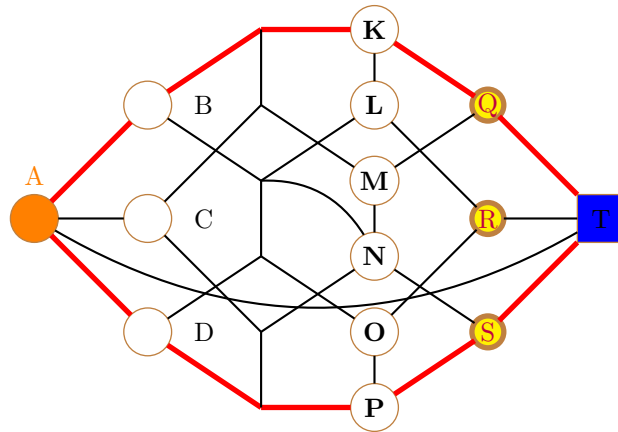
```

\definecolor{processblue}{cmyk}{0.96,0,0,0}
\begin{tikzpicture}[
  -latex,auto,node distance=4 cm and 5cm,on grid,semithick,
  state/.style={circle,top color=white,bottom color=processblue!20,
  draw,processblue,text=blue,minimum width=1cm}
]
\node[state] (C) {$1$};
\node[state] (A) [above left=of C] {$0$};
\node[state] (B) [above right =of C] {$2$};
\path (A) edge [loop left] node[left] {$1/4$} (A);
\path (C) edge [bend left =25] node[below =0.15 cm] {$1/2$} (A);
\path (A) edge [bend right = -15] node[below =0.15 cm] {$1/2$} (C);
\path (A) edge [bend left =25] node[above] {$1/4$} (B);
\path (B) edge [bend left =15] node[below =0.15 cm] {$1/2$} (A);
\path (C) edge [bend left =15] node[below =0.15 cm] {$1/2$} (B);
\path (B) edge [bend right = -25] node[below =0.15 cm] {$1/2$} (C);
\end{tikzpicture}

```

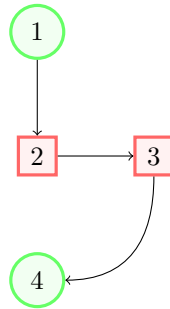
source <http://www.guitex.org/home/images/doc/GuideGuIT/introingtikz.pdf>

**EXAMPLE 5.**

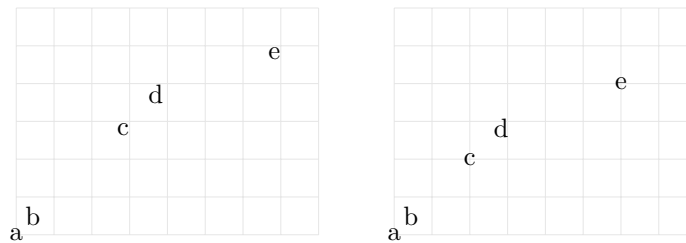


source: <https://graphtheoryinlatex.wordpress.com/>

**EXAMPLE 6.**



**EXAMPLE 7.**

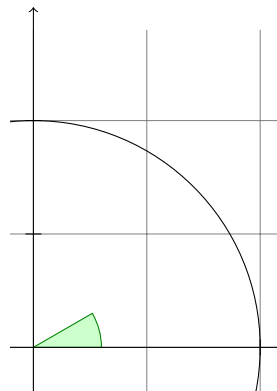


**EXAMPLE 8.** Hello ●

source: pgfmanual (page 115)

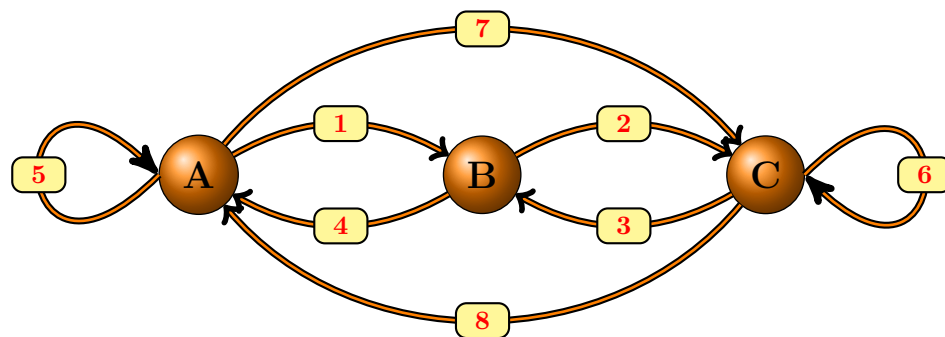
<http://ctan.sharelatex.com/tex-archive/graphics/pgf/base/doc/pgfmanual.pdf#page=41>

**EXAMPLE 9.**

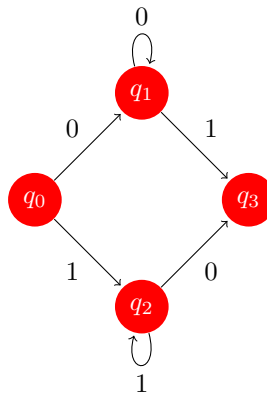


source: pgfmanual (page 41)

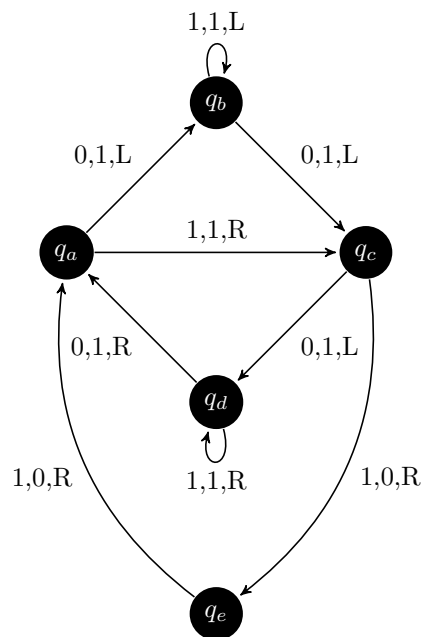
**EXAMPLE 10.**



**EXAMPLE 11.**



**EXAMPLE 12.**



The current candidate for the busy beaver for five states. It is presumed that this Turing machine writes a maximum number of 1s before halting among all Turing machines with five states and the tape alphabet  $\{0, 1\}$ . Proving this conjecture is an open research problem.

**EXAMPLE 13.**

