

Graphs with Tikz

Credit: <https://github.com/HasibLearntogrow/LatexPractice>

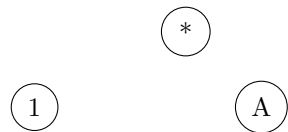
January 21, 2025

Contents

1	Nodes:	2
1.1	Normal Node:	2
1.2	Normal Nodes with various shapes:	2
1.3	Normal Nodes with filled color and face color:	2
1.4	A solid node with outside title:	2
2	Edges:	2
2.1	Normal edge between two or more nodes:	2
2.2	Normal edge with arrow and color between two or among more nodes:	3
2.3	Curved edge with arrow between two or among more node: . . .	3
2.4	Self loop in any node:	3
3	Practice:	3
3.1	Practice 01:	3
3.2	Practice 02:	4
3.3	Practice 3:	4
3.4	Practice 04:	4
3.5	Practice 05:	5

1 Nodes:

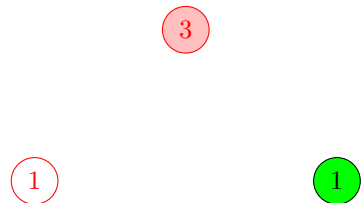
1.1 Normal Node:



1.2 Normal Nodes with various shapes:



1.3 Normal Nodes with filled color and face color:

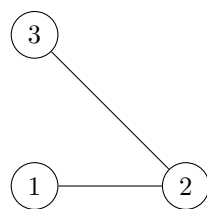


1.4 A solid node with outside title:

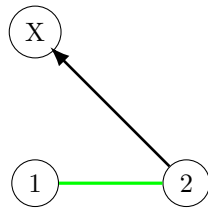


2 Edges:

2.1 Normal edge between two or more nodes:



2.2 Normal edge with arrow and color between two or among more nodes:



2.3 Curved edge with arrow between two or among more node:

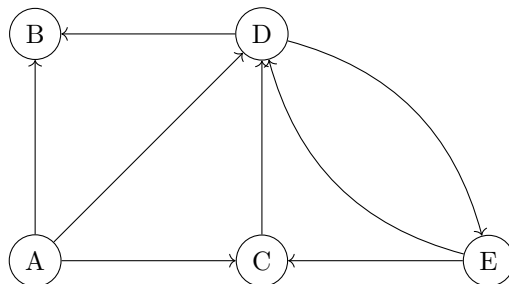


2.4 Self loop in any node:

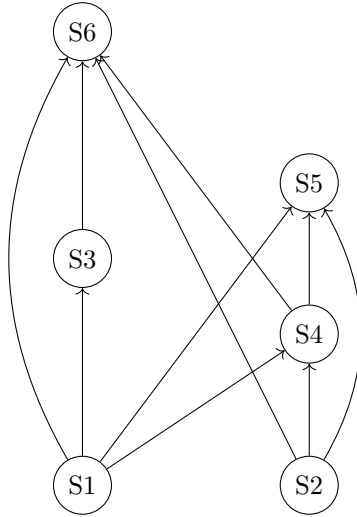


3 Practice:

3.1 Practice 01:



3.2 Practice 02:

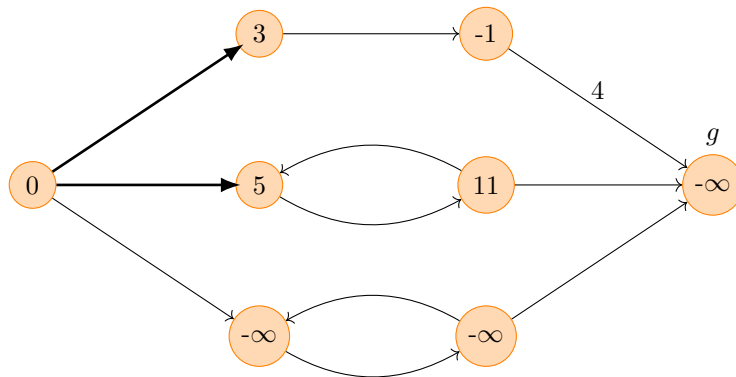


3.3 Practice 3:

```

1 \begin{tikzpicture}
2   \node(0) at (0,0)[circle,orange,fill= orange!30,text=black,draw
3     ]{0};
4   \node(3) at (3,2)[circle,orange,fill= orange!30,text=black,draw
5     ]{3};
6   \node(5) at (3,0)[circle,orange,fill= orange!30,text=black,draw
7     ]{5};
8   \node(i1) at (3,-2)[circle,orange,fill= orange!30,text=black,draw
9     ]{-$\infty$};
10  \node(-1) at (6,2)[circle,orange,fill= orange!30,text=black,draw
11    ]{-1};
12  \node(11) at (6,0)[circle,orange,fill= orange!30,text=black,draw
13    ]{11};
14  \node(i2) at (6,-2)[circle,orange,fill= orange!30,text=black,draw
15    ]{-$\infty$};
16  \node(i3) at (9,0)[circle,orange,fill= orange!30,text=black,label
17    =above:$g$,draw]{-$\infty$};
18  %\usetikzlibrary{arrows.meta}
19  \draw[->, >=Latex, line width=1pt, shorten >=-2pt] (0) to (3);
20  \draw[->, >=Latex, line width=1pt, shorten >=-2pt] (0) -- (5);
21  \draw[->] (0) to (i1);
22  \draw[->] (3) to (-1);
23  \draw[->, bend right =30] (5) to (11);
24  \draw[->, bend right =30] (11) to (5);
25  \draw[->, bend right =30] (i1) to (i2);
26  \draw[->, bend right =30] (i2) to (i1);
27  \draw[->] (-1) to node[midway, above]{4}(i3);
28  \draw[->] (11) to (i3);
29  \draw[->] (i2) to (i3);
30 \end{tikzpicture}

```



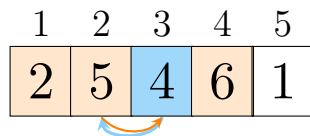
3.4 Practice 04:

```

1 \begin{tikzpicture}
2   \node(2) at (0,0)[text=black,fill=orange!20,label=\Large 1,draw,
3     scale=2]{2};
4   \node(5) at (0.8,0)[text=black,fill=orange!20,label=\Large 2,draw,
5     scale=2]{5};
6   \node(4) at (1.6,0)[text=black,fill=skyblue!80,label=\Large 3,
7     draw,scale=2]{4};
8   \node(6) at (2.4,0)[text=black,fill=orange!20,label=\Large 4,draw,
9     scale=2]{6};
10  \node(1) at (3.2,0)[text=black,label=\Large 5,draw,scale=2]{1};

11  \draw[->,>=stealth,very thick,skyblue,bend angle=80,bend left](4.
12    south) to (5.south);
13  \draw[->,>=stealth,thick,orange,bend angle=50,bend right](5.south
14    ) to (4.south);
15 \end{tikzpicture}

```



3.5 Practice 05:

```

1 \begin{tikzpicture}
2   \node(0) at (0,0)[text=black,fill=skyblue!80,draw,scale=4]{};
3   \node at (0.95,0)[text=black,fill=skyblue!80,draw,scale=4]{};
4   \node(1) at (1.9,0)[text=black,fill=skyblue!80,draw,scale=4]{};
5
6   \node(2) at (4,0)[text=black,fill=orange!40,draw,scale=4]{};
7   \node at (4.95,0)[text=black,fill=orange!40,draw,scale=4]{};
8   \node(3) at (5.9,0)[text=black,fill=orange!40,draw,scale=4]{};
9
10  \node(4) at (8,0)[text=black,fill=skyblue!80,draw,scale=4]{};
11  \node at (8.95,0)[text=black,fill=skyblue!80,draw,scale=4]{};
12  \node(5) at (9.9,0)[text=black,fill=skyblue!80,draw,scale=4]{};
13
14  \node(6) at (12,0)[text=black,fill=orange!40,draw,scale=4]{};
15  \node at (12.95,0)[text=black,fill=orange!40,draw,scale=4]{};
16  \node(7) at (13.9,0)[text=black,fill=orange!40,draw,scale=4]{};
17
18
19  \draw[->,>=stealth,pos=1](2.35,0.2) to (3.5,0.2);
20  \draw[->,>=stealth,thick] (3.5,-0.2)to(2.35,-0.2) ;
21  \draw[->,>=stealth,pos=1](6.35,0.2) to (7.5,0.2);
22  \draw[->,>=stealth,pos=1](7.5,-0.2) to (6.35,-0.2);
23  \draw[->,>=stealth,pos=1](10.35,0.2) to (11.5,0.2);
24  \draw[->,>=stealth,pos=1](11.5,-0.2) to (10.35,-0.2);
25
26  \draw[->](0.south) to(0,-1)to(15,-1) to (15,0)to(7.east);
27  \draw[->](7.north) to(13.9,1)to(-1,1) to (-1,0)to(0.west);

```

