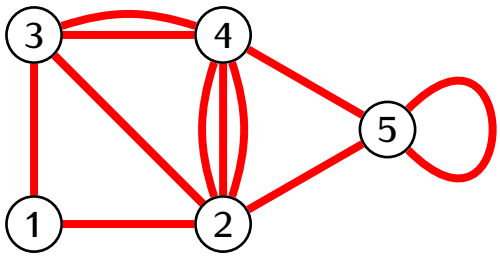
Recall:

Definition

A *graph* (or a *network*) is a pair $G = (V, E)$ where:

- V is the set of *vertices* (or *nodes*);
- E is the set of *edges*;
- each edge connects two vertices.

Note. We will usually denote vertices of a graph by positive integers: 1, 2, 3, etc.

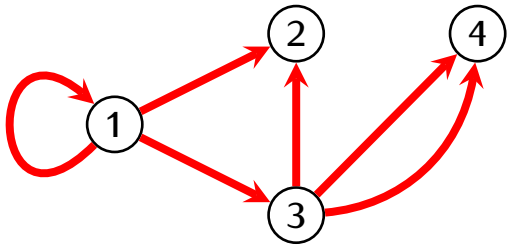


Examples:

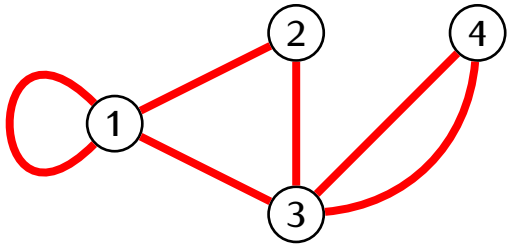
- computer networks
- social networks
- transportation networks
- citation networks
- ecological networks

Some types of graphs

Directed graphs. Every edge has a direction pointing from one vertex to another.



Undirected graphs. Edges do not have a direction.



Simple graphs. There is at most one edge between any two vertices and there are no self-edges (i.e. edges that start and end in the same vertex).