 Year 12 Mathematics Standard

Networks

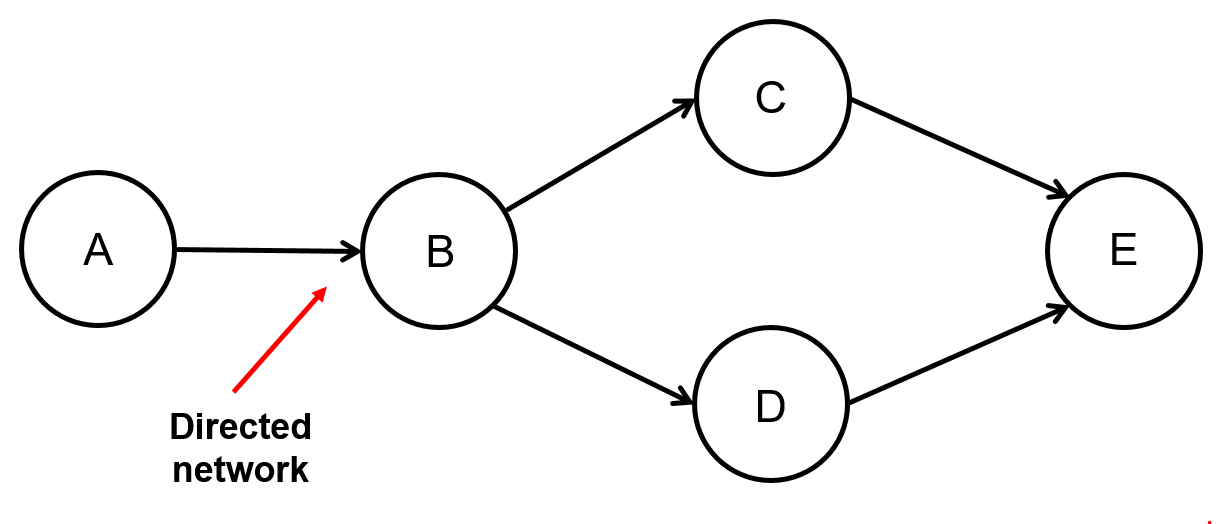
Glossary of terms

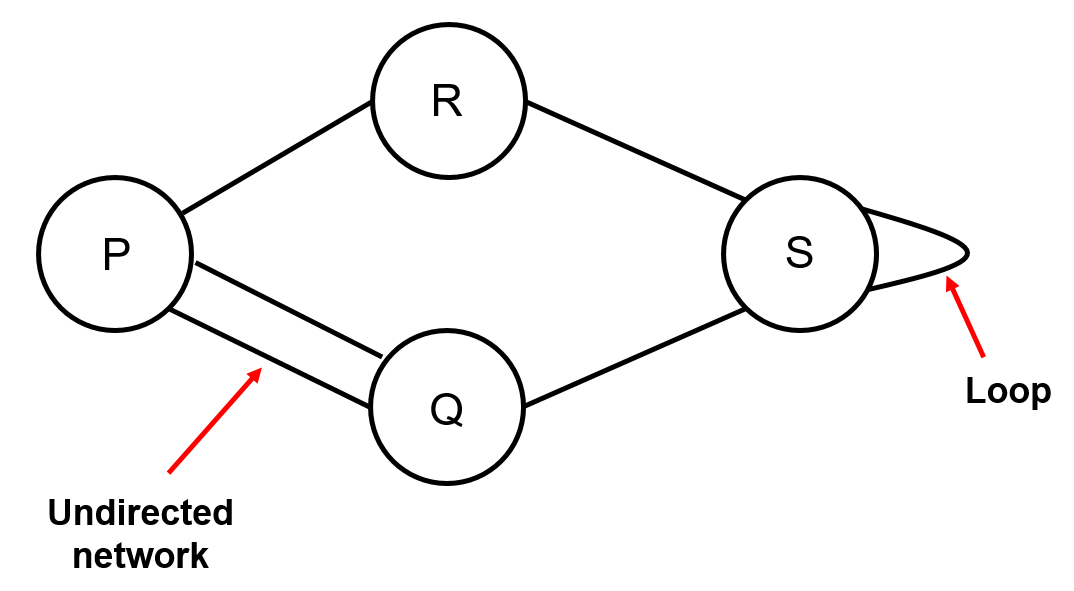
Vertices

A **vertex** is represented by a circle or dot in a network diagram. It may also be called a **node**. **Vertices** are often given labels to indicate what is being represented.

Edge

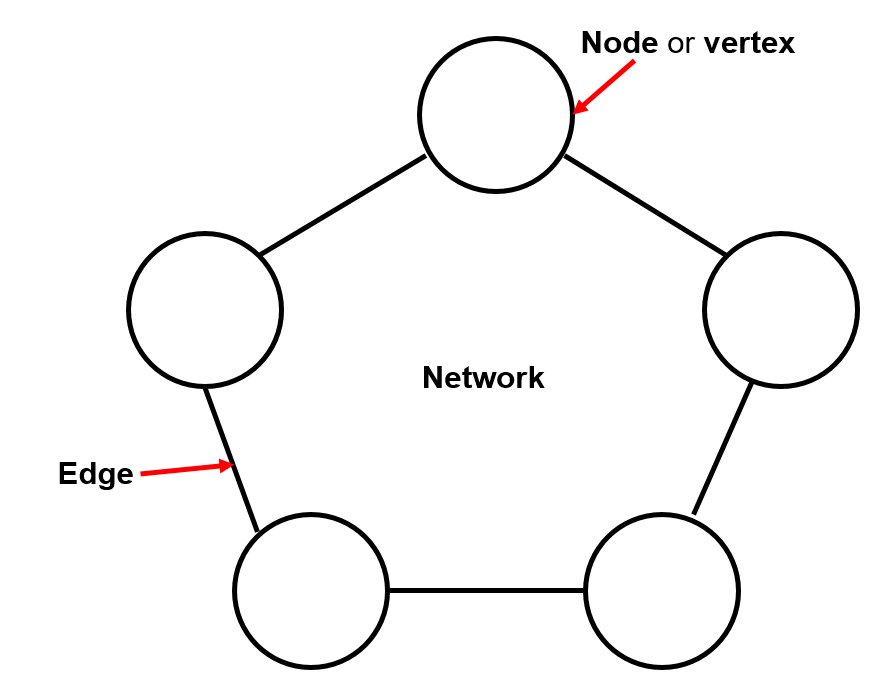
An **edge** is the line segment that joins vertex to vertex. The line segments may be **directed** or **undirected**. If the line segment begins and ends at the same vertex, it is called a **loop**.





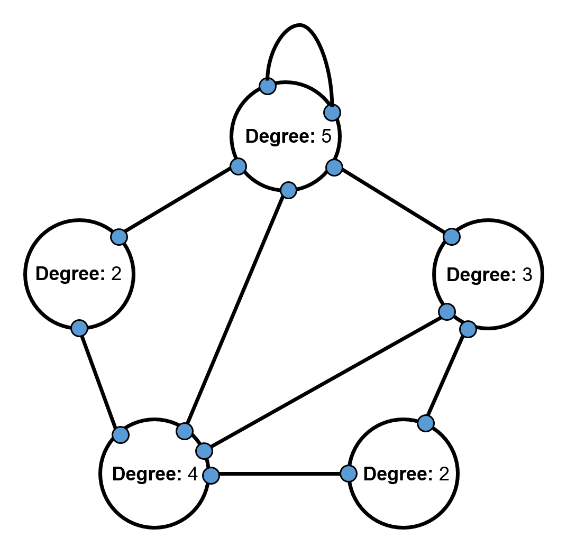
Network

A **network** is a collection of vertices and edges. If no two vertices are joined by more than one edge and there are no loops, the network is called **simple**.



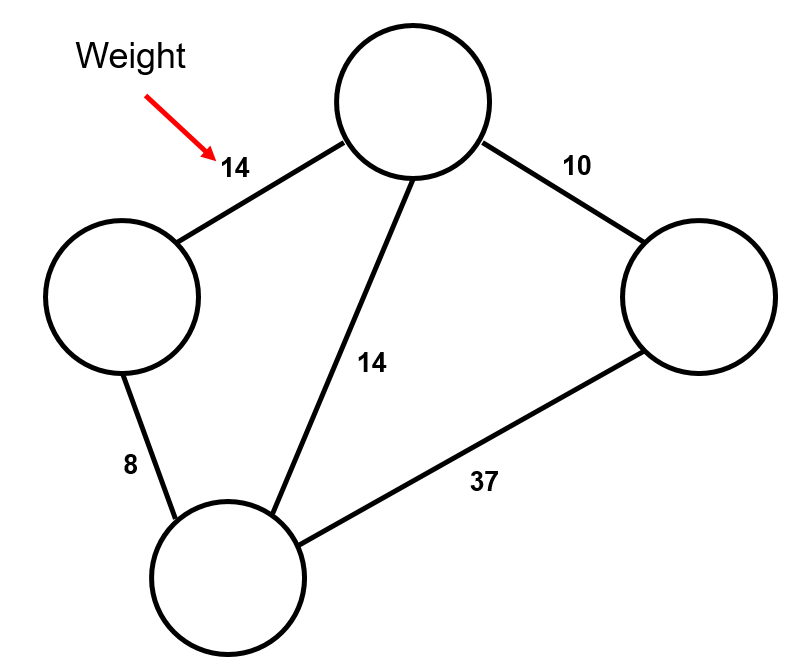
Degree

The **degree** of a vertex is the total number of edges that go into or out of it. Loops are counted twice.



Weight

The **weight** of each edge is a numerical value which represents the relationship between two nodes. The weights may describe the distance, travel times or costs of connecting two nodes in the network.

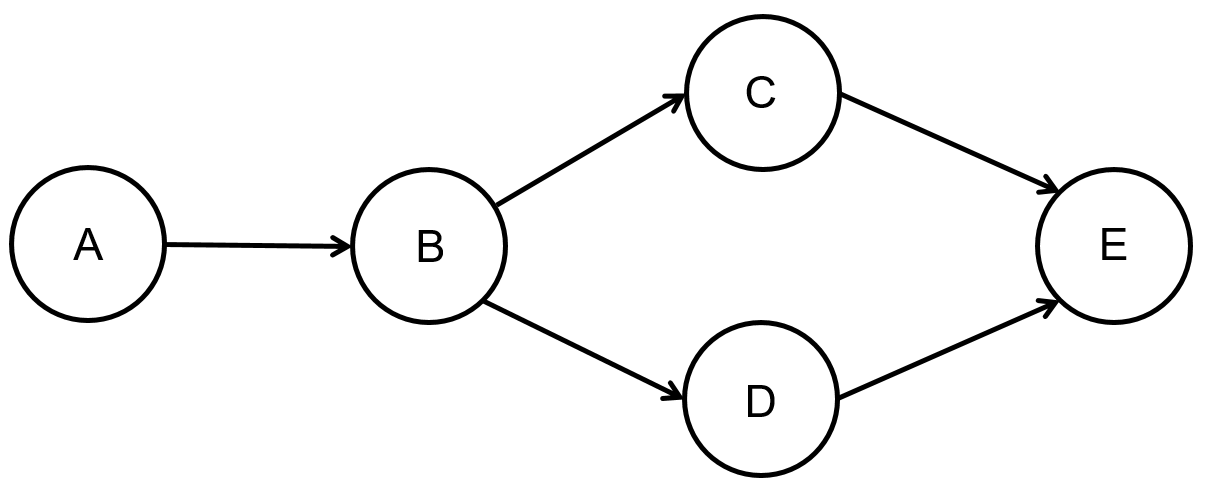


Walk

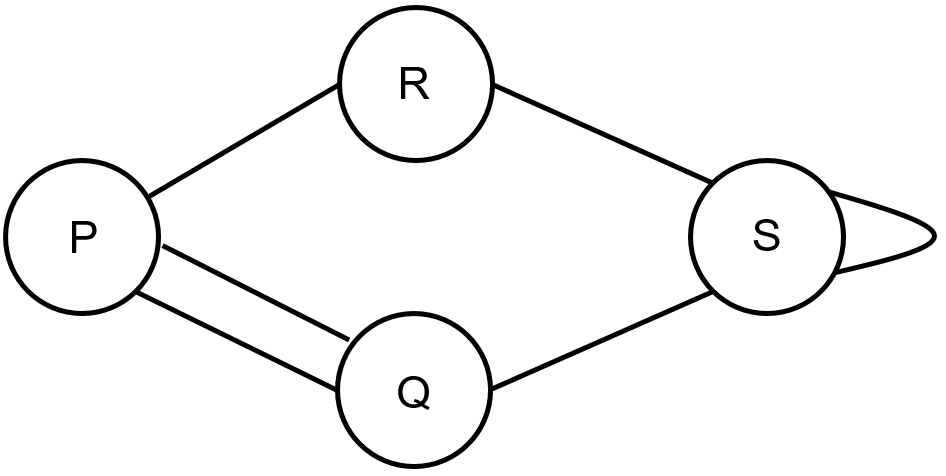
A **walk** is the sequence of moving from one vertex to another in a network.

Path

A **path** is a walk where no vertex is passed through twice, except for the beginning and end.



For example, **B-C-E** and **B-D-E** are walks, **A-B-C-E** is a path.



For example, **P-Q-P-R-S-S** is a walk, **P-Q-S-R** is a path.