

Appendix

The *degree* of a vertex is the number of edges ending in that very vertex. *Directed* and *undirected* graphs are defined based on whether the edges can be traversed in both directions or not, respectively. *Walks* are ways to get from one vertex to another, for example, a walk $(ahkjs\dots z)$ is a walk between a and z . A *path* is defined as a walk where all edges and nodes are different and a *cycle* is a closed path. The shortest path from one vertex to another is called a *geodesic path*, whereas the *average distance* is the average of the minimal path length between all pairs of vertices. The *coordination number* is the average degree in a graph, and the *network diameter* represents the maximum degree of separation between all pairs of vertices. In other words, is the longest geodesic path between any two vertices. A *clique* is a fully connected sub-graph. More formally, a

clique is a set of nodes where every node is connected to every other in the set and where no node outside of it is connected to all the nodes that are members of it. Further essential definitions include the *clustering coefficient* of a vertex, defined as the average ratio between the vertex's degree and the number of neighbours that are also connected to each other, and the degree distribution p_k which, for a graph with N nodes and X_k being the number of nodes having degree k , is equal to $\frac{X_k}{N}$. A *complete graph* is such that each pair of vertices are adjacent, which means there is an edge joining them and the vertices are incident with such an edge. Finally, two graphs are *isomorphic* if there is an injective mapping (one-to-one) between the vertices on one graph and the vertices of the other, such that the number of edges linking any two vertices in one graph is equal to the number of edges linking the corresponding vertices in the other graph.