Term	Definition
Adjacency matrix	A square matrix whose entries indicate whether pairs of vertices are adjacent or not in the graph. The $(i, j)_{th}$ entry of A_k gives the number of walks from i to j that traverse exactly k edges.
Adjacent edges	Two edges that share a common vertex.
Adjacent vertices	Two vertices joined by an edge.
Circuit	A walk that begins and ends at the same vertex and has no repeated edges.
Complete graph	A simple graph in which each pair of vertices is joined by an edge.
Connected graph	A graph in which each pair of vertices is joined by a path.
Cycle	A walk that begins and ends at the same vertex and has no other repeated vertices.
Degree of a vertex	The number of edges joined to the vertex.
Directed graph	A graph whose edges have an indicated direction.
Eulerian circuit	A circuit that contains every edge of a graph.
Eulerian trail	A trail that contains every edge of a graph.
Graph	Consists of a set of vertices and a set of edges.
Hamiltonian cycle	A cycle that contains all the vertices of a graph.
Hamiltonian path	A path that contains all the vertices of a graph.
In degree and out degree of a vertex	For a vertex of a directed graph, "in degree" refers to the number of edges leading **to** the vertex, and "out degree" refers to the number of edges leading **from** the vertex.

Loop	An edge joining a vertex to itself.
Minimum spanning tree	A spanning tree of a weighted graph that has the minimum total weight.
Path	A walk with no repeated vertices.
Simple graph	An undirected graph without loops, and one edge at most, between any pair of vertices.
Spanning tree of a graph	A subgraph that is a tree, containing every vertex of the graph.
Strongly connected graph	A directed graph in which every vertex can be reached from every other vertex.
Subgraph	A graph within a graph.
Trail	A walk in which no edge appears more than once.
Transition matrix	A matrix whose $(i, j)_{th}$ entry gives the probability that an element moves from the j_{th} state to the i_{th} state in a single step of the process.
Tree	A connected graph that contains no cycles.
Undirected graph	A graph whose edges are bidirectional.
Walk	A sequence of linked edges.
Weighted adjacency table	A table in which the $(i, j)_{th}$ entry gives the weight of the edge connecting vertex i and vertex j in the corresponding graph.
Weighted graph	A graph in which each edge is allocated a number or weight.