

## Graph Theory Key Terms Match-Up

1	2	3	4	5	6	7	8
Weighted Graph	Subgraph	Degree / Valency / Order	Complete Graph	Walk	Path	Tree	Trail

9	10	11	12	13	14	15	16
Loop	Isomorphic Graphs	Cycle	Hamiltonian Cycle	Simple Graph	Digraph	Handshake Lemma	Spanning Tree

<b>A</b>	A walk with no repeated vertices.
<b>B</b>	A graph in which every vertex is connected to every other vertex by a single edge.
<b>C</b>	The number of edges incident to a node.
<b>D</b>	An edge that starts and end at the same vertex.
<b>E</b>	A connected graph with no cycles.
<b>F</b>	A graph formed from a subset of vertices and edges of another graph.
<b>G</b>	A closed path - starts and ends at the same vertex with no other repeats.
<b>H</b>	A graph with at least one direction on an edge.
<b>I</b>	Versions of the same graph drawn differently.

<b>J</b>	In an undirected graph, the total of the order of vertices is $2 \times$ the number of edges. Therefore, the number of odd nodes must be even.
<b>K</b>	A subgraph including all vertices of a main graph. Must be a tree.
<b>L</b>	A cycle that visits every node exactly once.
<b>M</b>	A graph in which edges have values associated with them.
<b>N</b>	A graph with no loops, and no multiple edges between vertices.
<b>O</b>	A sequence of edges and vertices with repetition allowed.
<b>P</b>	A walk with no repeated edges.

### Answer Box

1	2	3	4	5	6	7	8
<b>M</b>	<b>F</b>	<b>C</b>	<b>B</b>	<b>O</b>	<b>A</b>	<b>E</b>	<b>P</b>

9	10	11	12	13	14	15	16
<b>D</b>	<b>I</b>	<b>G</b>	<b>L</b>	<b>N</b>	<b>F</b>	<b>J</b>	<b>K</b>