Team name:

Please write down all people in your team.

1. 2.

3. 4.

Grading

Question	Score	Max
1		4
2		4
3		2
Total		10

7.1 Graph Theory

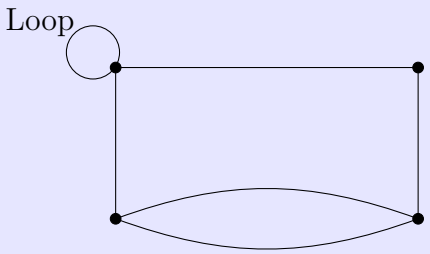
7.1.1 Terminology

Since we're introducing a new concept, Graph Theory, we need to go over the various terms so that we can communicate about these graphs properly.

- **Graph:** A graph is a type of diagram that contains *vertices* (aka nodes) and *edges*.

- **Node:** A vertex of the graph, drawn as a dot.
  - **Adjacent nodes:** Two nodes that are connected by an edge.
- **Edge:** A line that connects two nodes together.

- **Parallel edges:** Two edges that have the same two endpoints.
- **Loop:** An edge that begins and ends at the same node, creating a loop.



Parallel edges

- **Walk:** A series of alternating nodes and edges, traversing between adjacent nodes.
  - **Closed walk:** When the beginning and ending node of a walk are the same.
  - **Length of a walk:** The amount of edges in the walk.
  - **Trivial walk:** A walk of length 0.
- **Trail:** A walk with no repeated edges.
- **Path:** A walk with no repeated vertices.
- **Circuit:** A closed trail.
- **Trivial circuit:** A circuit with one vertex and no edges.
- **Eulerian:** A trail or circuit where every edge is traversed.
- **Cycle:** A nontrivial circuit where the only repeated node is the first/last one.