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# LECTURE 1

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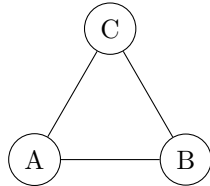
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# 1 Graph Theory Basics

A graph is a mathematical object consisting of:

1. vertices
2. edges which is a pair of vertices

Typically, we represent vertices as dots and edges as line segments that joins two dots. e.g.  $G = (V, E)$  where  $V$  is a set of vertices and  $E$  is a set of edges. drawing a graph using tikz:



Given a graph  $G$  we'll denote its vertex set by  $V(G)$  and its edge set by  $E(G)$ .