

$$G = V(G) + E(G)$$

$$v \in V(G) \leftrightarrow v \text{ is a node}$$

$$ij \in E(G) \leftrightarrow i \text{ is adjacent to } j$$

**Cartesian Product Definition**

$$(i, j) \in V(G \times H) \leftrightarrow (i \in V(G) \wedge j \in V(H))$$

**Or**

$$V(G \times H) = V(G) \times V(H)$$

$$(i, j)(k, l) \in E(G \times H) \leftrightarrow (i \in V(G) \wedge j \in V(H) \wedge k \in V(G) \wedge l \in V(H)) \wedge ((i = k \wedge jl \in E(H)) \vee (j = l \wedge ik \in E(G)))$$