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$G = (V, E)$
$V = \{1, \ldots, m\}$
$E \subseteq V \times V$
$(s, t) \in E$
undirected
(s, t)
(t, s)
directed
$(s \to t) := (s, t)$

Remark:
$(s, s) \notin E, \forall s \in V$
$G' = (V', E')$
$G = (V, E)$
$V' \subseteq V$
$E' \subseteq E$
$V' \subseteq V$
$G = (V, E)$
vertex-induced subgraph
$G'(V') = (V', E(V'))$
$E(V') = \{(s, t) \in E | s, t \in V'\}$
$E' \subseteq E$
$G = (V, E)$
edge-induced subgraph
$G'(E') = (V(E'), E')$
$V(E') = \{s \in V | (s, t) \in E'\}$
$P = (V(P), E(P))$
$V(P) = \{v_0, \ldots v_k\}$
$V(P) = \{(v_0, v_1), (v_1, v_2) \ldots (v_{k-1}, v_k)\}$
v_0
v_k
$G = (V, E) : V(P) \subseteq V, E(P) \subseteq E$
$C = (V(C), E(C))$
$V(C) = \{v_0, \ldots v_k\}$
$E(C) = \{(v_0, v_1), (v_1, v_2) \ldots (v_{k-1}, v_k), \ldots (v_k, v_0)\}$
$G = (V, E)$
$V = V_a \dot{\cup} V_b$
$(s, t) \in E \Rightarrow s \in V_a, t \in V_b$
$G = (V, E)$
$V' \subseteq$