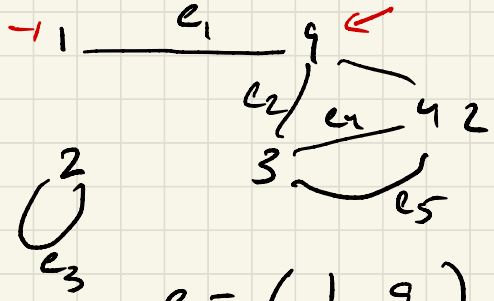
Graph $G = \{V, E\}$

$V \subseteq \mathbb{Z}$




$E \subseteq V \times V$

$e = (v_1, v_2)$

$e_1 = (1, 9)$

endpoints of an edge

$e_1$ "connects" 1 and 9

1 and 9 are adjacent

3 and 42 are adjacent vertices

$e_1$ and $e_2$ are adjacent edge

$e_3$ is a loop $e_3 = (2, 2)$

$e_4$ and $e_5$ are parallel edges

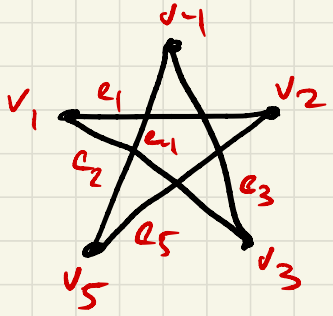
$e_7$ $e_6$ are loops

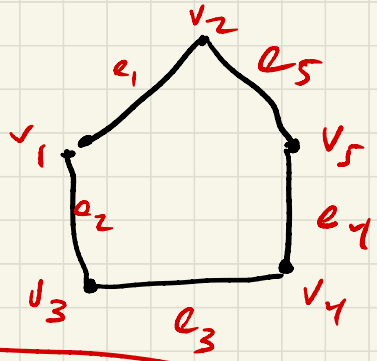
$e_2$ and $e_3$ are parallel

$v_4$ is disconnected

$V = \{v_1, v_2, v_3, v_4, v_5, v_6\}$

$E = \{ \overset{e_1}{(v_1, v_2)}, \overset{e_2}{(v_1, v_3)}, \overset{e_3}{(v_1, v_3)}, \overset{e_4}{(v_2, v_4)}, \overset{e_5}{(v_5, v_4)}, \overset{e_6}{(v_5, v_5)}, \overset{e_7}{(v_6, v_6)} \}$

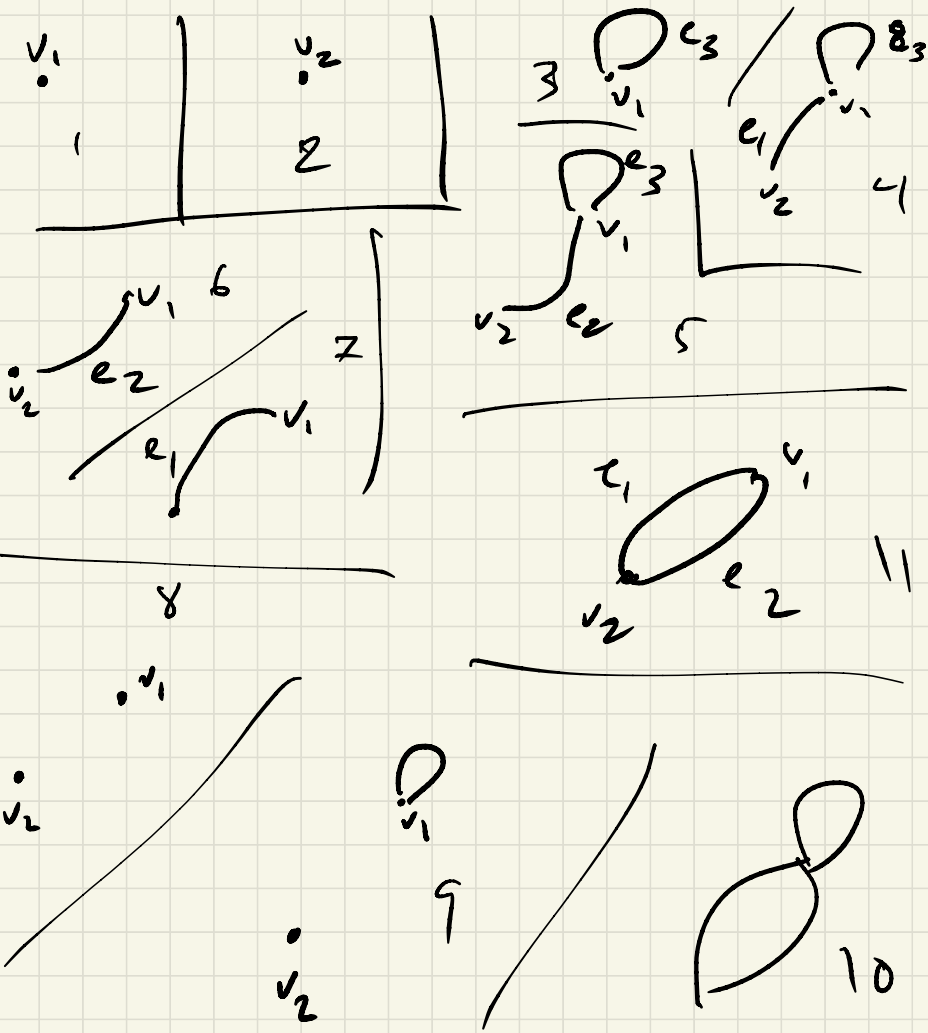



$V = \{v_1, v_2, v_3, v_4, v_5\}$

$E = \{(v_1, v_3), (v_3, v_4), (v_4, v_5),$
$(v_5, v_2) \quad (v_1, v_2)\}$

# Subgraphs


v1
v2
1
2
3
v1
e3
v1
v2
e2
5
e1
v2
4
v1
6
v2
e2
e1
v1
7
8
e1
v1
e2
v2
11
v1
v2
9
v1
v2
10