

7. (a)与(b)是同构的.

设  $f(v_1)=b, f(v_2)=a, f(v_3)=c, f(v_4)=e, f(v_5)=d, f(v_6)=f$

$G_1=(V_1, E_1), G_2=(V_2, E_2).$

则  $(u, v) \in E_1 \Leftrightarrow (f(u), f(v)) \in E_2.$

$(v_1, v_2) \in E_1 \Leftrightarrow (b, a) \in E_2.$

$(v_1, v_4) \in E_1 \Leftrightarrow (b, e) \in E_2$

$(v_3, v_1) \in E_1 \Leftrightarrow (c, b) \in E_2$

$(v_6, v_1) \in E_1 \Leftrightarrow (f, b) \in E_2$

$(v_2, v_5) \in E_1 \Leftrightarrow (a, d) \in E_2$

$(v_6, v_3) \in E_1 \Leftrightarrow (f, c) \in E_2$

$(v_5, v_3) \in E_1 \Leftrightarrow (d, c) \in E_2$

$(v_3, v_4) \in E_1 \Leftrightarrow (c, e) \in E_2$

$(v_6, v_4) \in E_1 \Leftrightarrow (f, e) \in E_2.$

同构:  $G_1 \cong G_2$

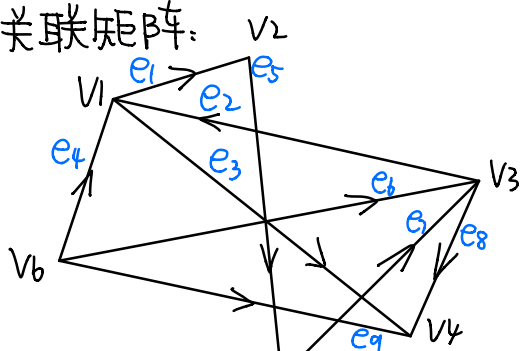
①  $V_1 \rightarrow V_2$  存在双射  $f$

②  $(u, v) \in E_1 \Leftrightarrow (f(u), f(v)) \in E_2$

8. 邻接矩阵 =

|       | $v_1$ | $v_2$ | $v_3$ | $v_4$ | $v_5$ | $v_6$ |
|-------|-------|-------|-------|-------|-------|-------|
| $v_1$ | 0     | 0     | 1     | 0     | 0     | 1     |
| $v_2$ | 1     | 0     | 0     | 0     | 0     | 0     |
| $v_3$ | 0     | 0     | 0     | 0     | 1     | 1     |
| $v_4$ | 1     | 0     | 1     | 0     | 0     | 1     |
| $v_5$ | 0     | 1     | 0     | 0     | 0     | 0     |
| $v_6$ | 0     | 0     | 0     | 0     | 0     | 0     |

关联矩阵:



对边标号如图

$v_5 \checkmark$

则

|       | $e_1$ | $e_2$ | $e_3$ | $e_4$ | $e_5$ | $e_6$ | $e_7$ | $e_8$ | $e_9$ |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| $v_1$ | 1     | -1    | 1     | -1    | 0     | 0     | 0     | 0     | 0     |
| $v_2$ | -1    | 0     | 0     | 0     | 1     | 0     | 0     | 0     | 0     |
| $v_3$ | 0     | 1     | 0     | 0     | 0     | -1    | -1    | 1     | 0     |
| $v_4$ | 0     | 0     | -1    | 0     | 0     | 0     | 0     | -1    | -1    |
| $v_5$ | 0     | 0     | 0     | 0     | -1    | 0     | 1     | 0     | 0     |
| $v_6$ | 0     | 0     | 0     | 1     | 0     | 1     | 0     | 0     | 1     |

边列表:

$$A = (1 \quad 1 \quad 3 \quad 6 \quad 2 \quad 6 \quad 5 \quad 3 \quad 6)$$

$$B = (2 \quad 4 \quad 1 \quad 1 \quad 5 \quad 3 \quad 3 \quad 4 \quad 4)$$

正向表:

