

3.16

	y_1	y_2	y_3	y_4	y_5
x_1	(3)	(4)	1	2	2
x_2	0	1	2	(3)	1
x_3	0	5	(5)	1	3
x_4	2	2	1	0	(5)
x_5	1	(4)	2	1	(3)

$$4-1=3$$

取 $M = \{x_1y_2, x_2y_4, x_3y_3, x_4y_5\}$

$$3$$

取 $S = x_5$

$$5$$

$$5$$

$$4-1=3$$

$S \quad T \quad N_S \quad N_S - T \quad Y \quad Z$
 $x_5 \quad y_2 \quad y_2 \quad y_2 \quad x_1$

$x_1x_5 \quad y_2 \quad y_2$

$N_S = T = \{y_2\}$ 不存在完美匹配

$x \in S, y \in Y - T$

$S = \{x_1, x_5\} \quad Y = \{y_1, y_3, y_4, y_5\}$

$$2=1$$

重新 $M = \{x_1y_2, x_2y_4, x_3y_3, x_5y_5\}$

取 $x = x_4$

$S \quad T \quad N_S \quad N_S - T \quad Y \quad Z$

$x_4 \quad y_5 \quad y_5 \quad y_5 \quad x_5$

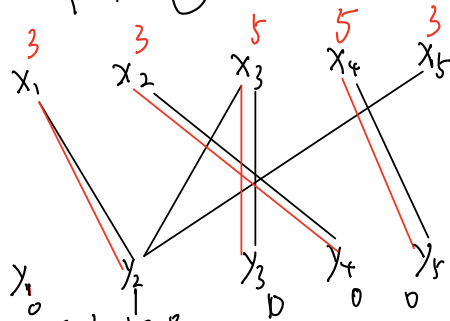
$x_1x_5 \quad y_5 \quad y_2y_5 \quad x_2 \quad y_2 \quad x_1$

$x_1x_4x_5 \quad x_2y_5 \quad x_1y_2y_5 \quad x_1 \quad x_1$

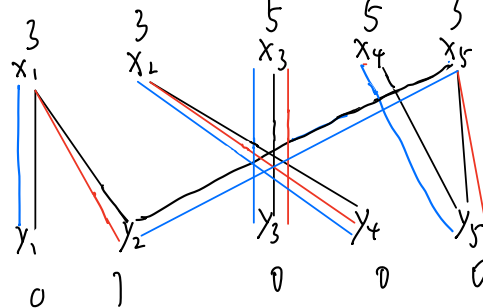
取 $P = x_4 \rightarrow y_5 \rightarrow x_5 \rightarrow y_2 \rightarrow x_1 \rightarrow y_1$

$M' = P \oplus M = \{x_1y_1, x_2y_4, x_3y_3, x_4y_5, x_5y_2\}$

即为完美匹配

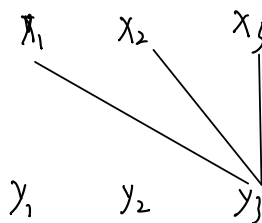


修改顶点标号



解: 补充

	x_1	x_2	x_3	
x_1	1	2	3	3
x_2	3	2	4	3
x_3	2	3	5	4



取 $M = \{x_1y_1, x_2y_3\}$

$s = T$ $N_s = N_s - 1$ $y = 2$
 x_3 y_3 y_3 y_3 x_2
 x_2x_3 y_3 x_3

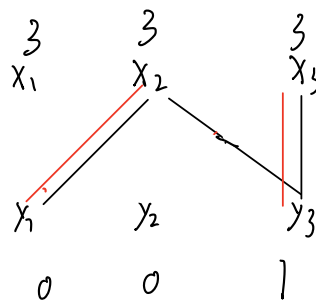
$N_s = T$, 不存在完美匹配

$x \in S, y \in Y - T$

$s = x_2x_3$ $y = x_1x_2$

$\Delta = 1$

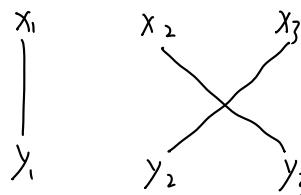
修改标签



取 $M = \{x_2y_1, x_3y_3\}$

可扩展路 $x_1 \rightarrow y_1 \rightarrow x_2 \rightarrow y_3 \rightarrow x_3 \rightarrow y_2$

可得完美匹配 $M' = \{x_1y_1, x_2y_3, x_3y_2\}$



6.19

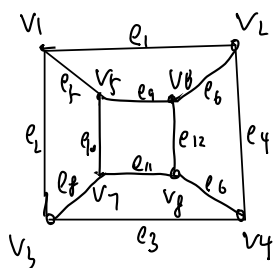


图 G 全是偶图 $\chi(G) = 2$

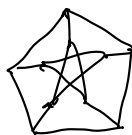
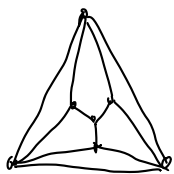


图 G 含有奇圈 $\chi(G) \geq 3$

同时 G 即不是奇图, 又不是完全图 $\chi(G) \leq \Delta(G) = 3$

$\therefore \chi(G) = 3$



图有奇圈

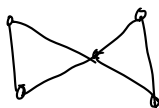
$\chi(G) \geq 3$

但不是奇圈,也不是完全图

$\chi(G) \leq \Delta(G) = 3$

$\therefore \chi(G) = 3$

6.42 解:



$$= \begin{array}{c} \text{graph} \end{array} - \begin{array}{c} \text{graph} \end{array}$$

$$= (1)(\triangle) - 2(\text{graph})$$

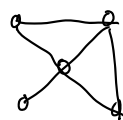
$$= (1)(\triangle) - 2[(0)(\triangle) - \triangle]$$

$$= \triangle [1 - 2(0) - 1]$$

$$= \triangle (1 - 2(0) + 2)$$

$$= k(k-1)(k-2) [k(k-1) - 2k + 2]$$

$$= k(k-1)^2(k-2)^2$$



$$= \begin{array}{c} \text{graph} \end{array} - \begin{array}{c} \text{graph} \end{array}$$

$$= \begin{array}{c} \text{graph} \end{array} [(0) - 1]$$

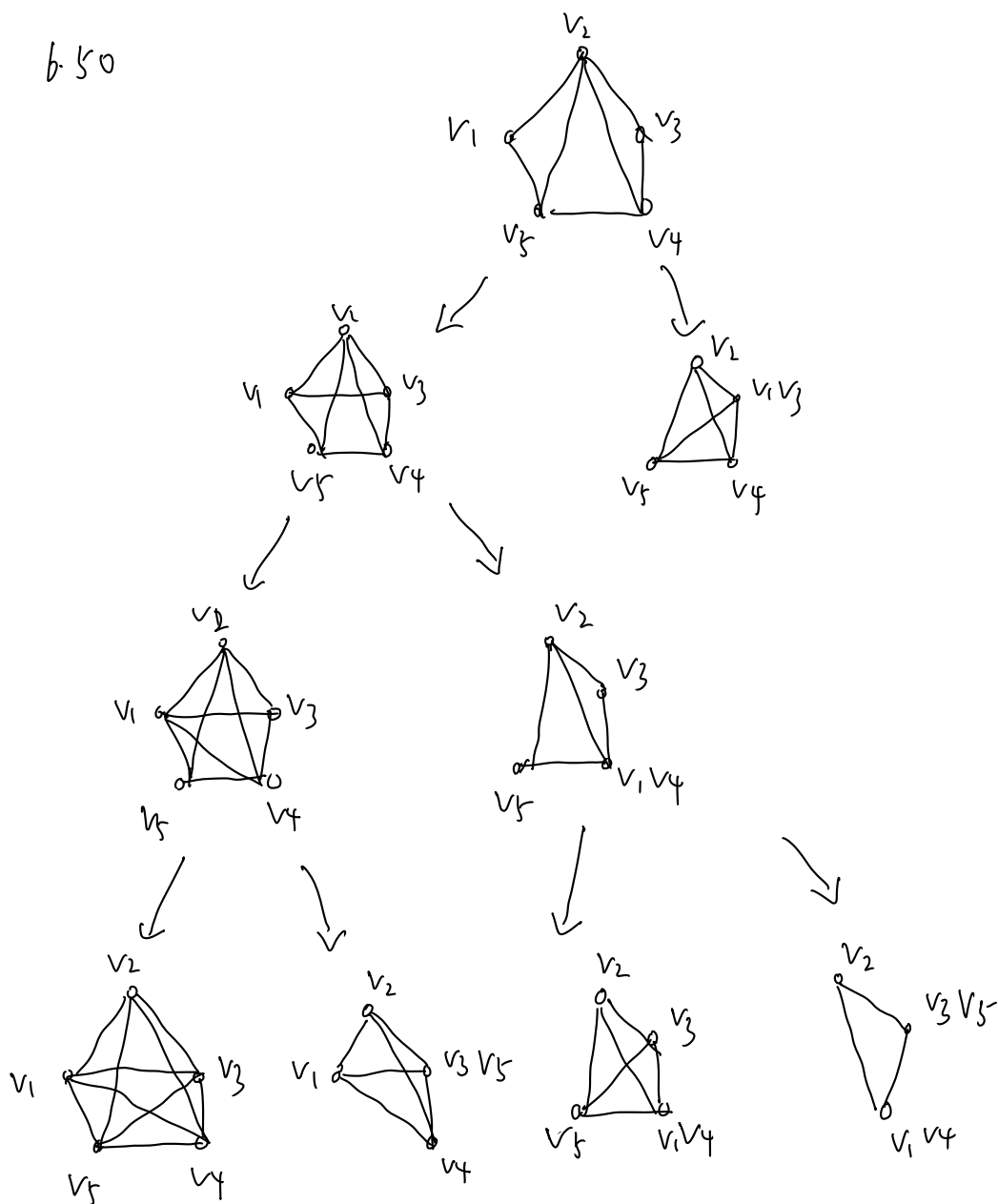
$$= \left(\begin{array}{c} \text{graph} \end{array} + \begin{array}{c} \text{graph} \end{array} \right) [(0) - 1]$$

$$= [k(k-1)(k-2)(k-3) + k(k-1)(k-2)](k-1)$$

$$= k(k-1)^2(k-2)(k-3+1)$$

$$= k(k-1)^2(k-2)^2$$

6.50



如图点染色数为 $\chi(G) = 3$

正常3-染色划分为: $\{v_1, v_4\}, \{v_2\}, \{v_3, v_5\}$