No: W14

Date:

T16. (1)(2) 见电子版

T17. (离散数学中算法的表达方式?)

No1. $P:=\{u\}$; $T:=V\backslash P$; $d(u):=0$ $(\forall t\in T)(d(t):=\infty)$;

No2. $(\forall t\in T)(d(t):=\min\limits_{p\in P}\{d(t),d(p)+w(p,t)\})$;

$(\exists t_0\in T)(\forall t\in T)(d(t_0)\le d(t))$;

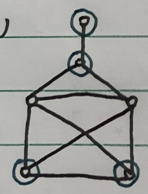
$(\exists p_0\in P)(d(t_0)=d(p_0)+w(p_0,t_0))$; //找到新加入点前一个点

No3. $P:=P\cup\{t_0\}$; $T:=T\backslash\{t_0\}$; $mark(t_0):=(p_0,d(t_0))$;

No4. if $t_0=V$ then exit else goto No2.

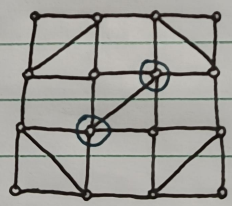
T18. 无向图中奇结点个数为偶数2k，当k=0,1时是一笔画的，找出各图奇结点：

(1)



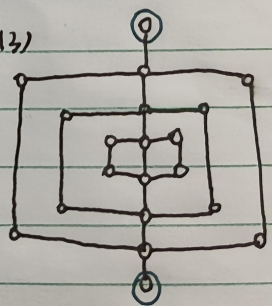
4个，不能一笔画

(2)



2个，能一笔画

(3)



2个，能一笔画

T20. 证明：设G中所有奇结点为 $v_1,v_2,\cdots v_k,v_{k+1},\cdots,v_{2k}$，

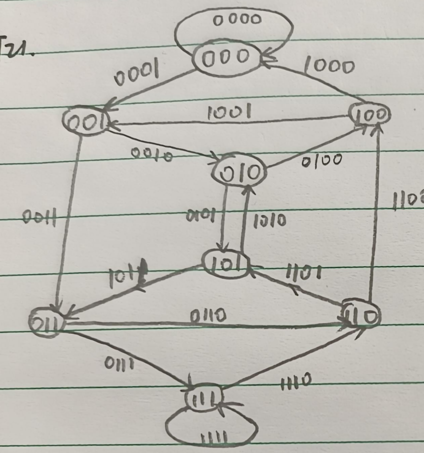
在 v_i 和 v_{i+k} $(1\le i\le k)$ 间连接 e_i^* 边，得到图 G^*，

G^* 每个结点的度均为偶数且连通，由Euler定理，G^* 为Euler图。

存在Euler圈 C^*。

若将 C^* 中 O_i^* $(1 \le i \le k)$ 去除，C^* 分解为k条不重的简单路 $C_1, C_2, \cdots C_k$，有 $E(G) = E(C_1) \cup E(C_2) \cup \cdots \cup E(C_k)$

T21.

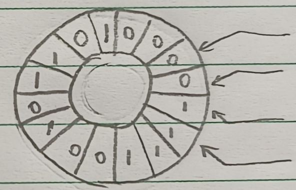


如左图，满足题意。

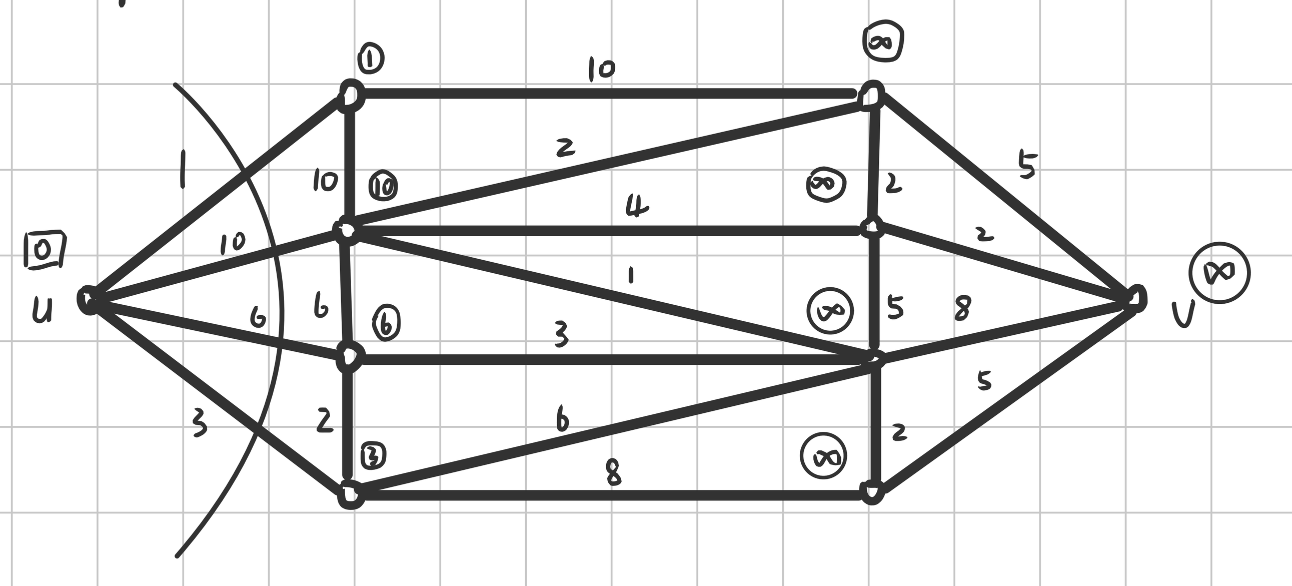
16位二进制数为

0000111100101101

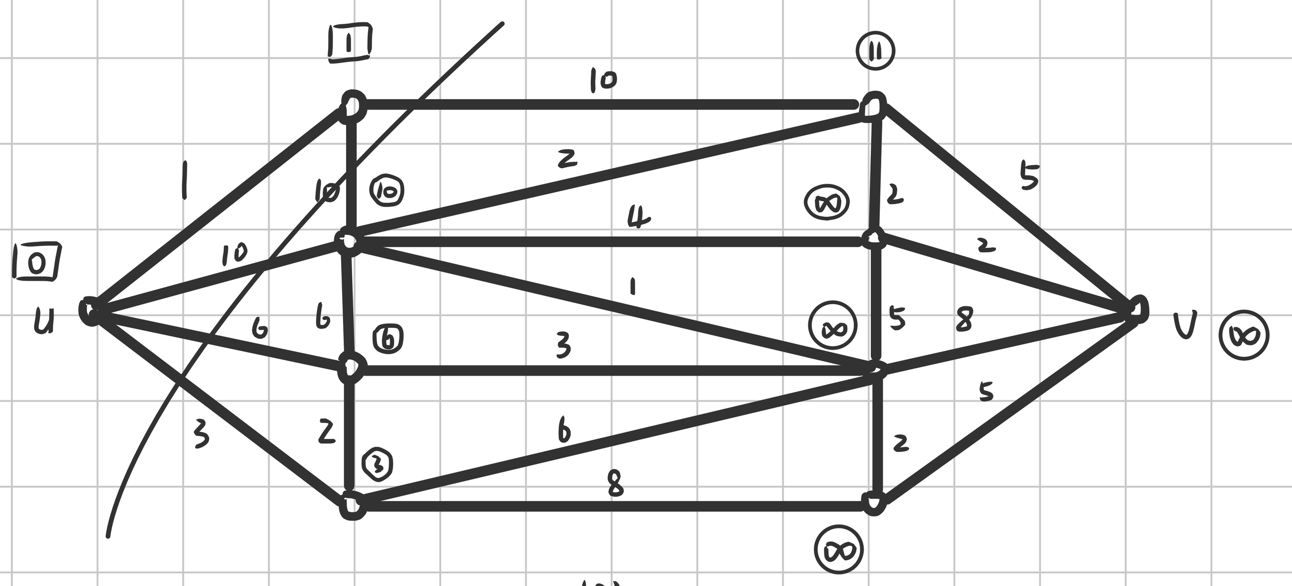
即为De Bruijn序列.



解：(1)



(1)



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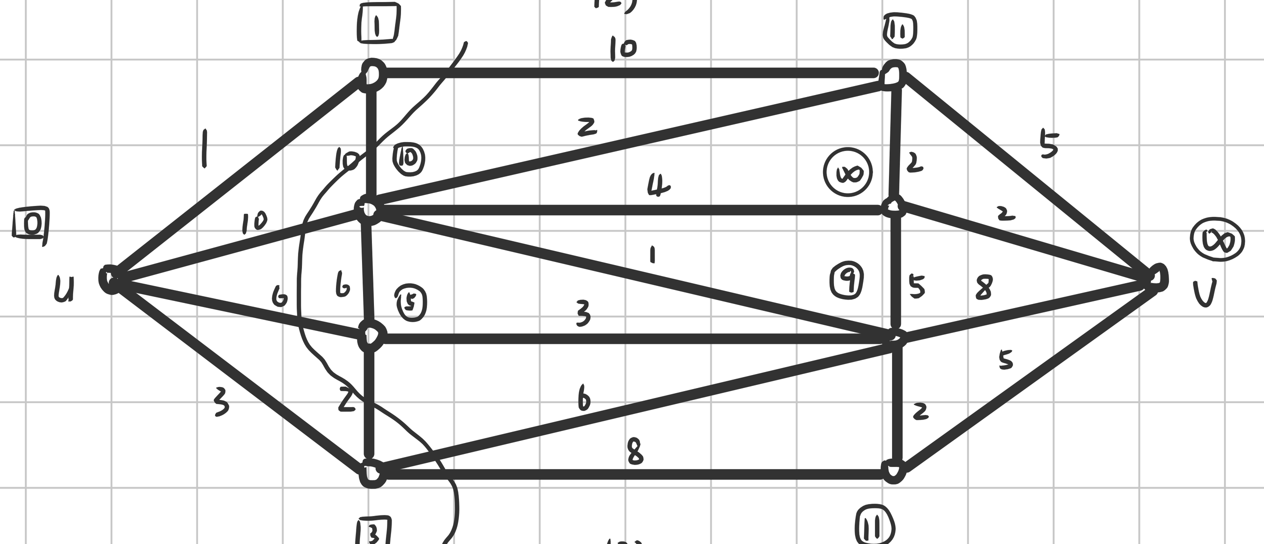

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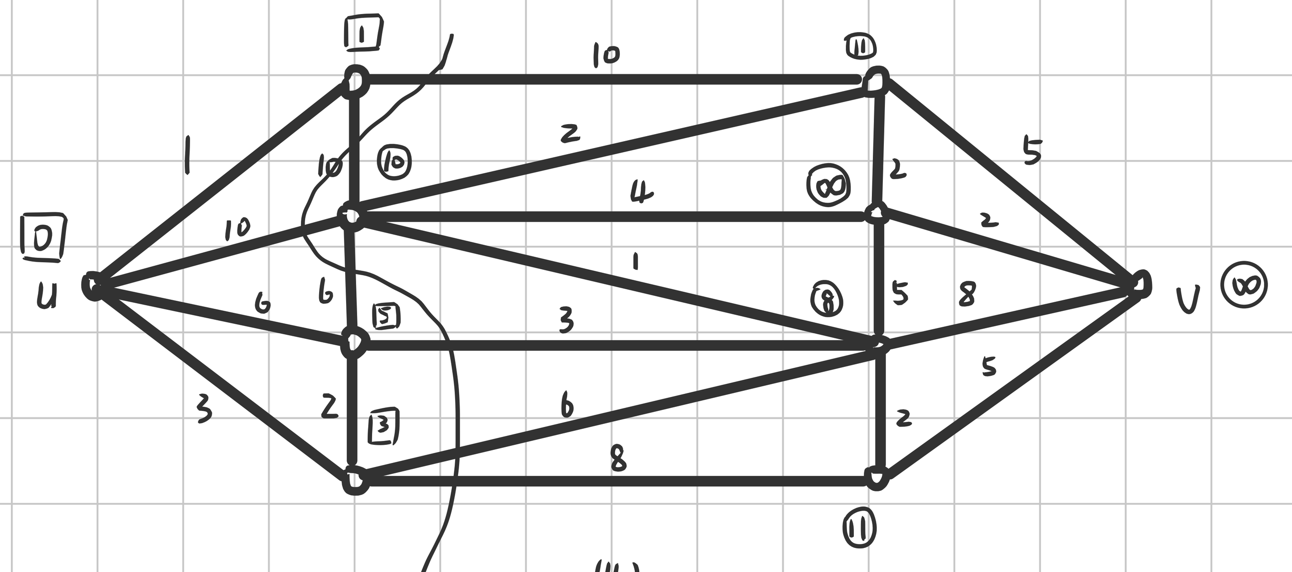

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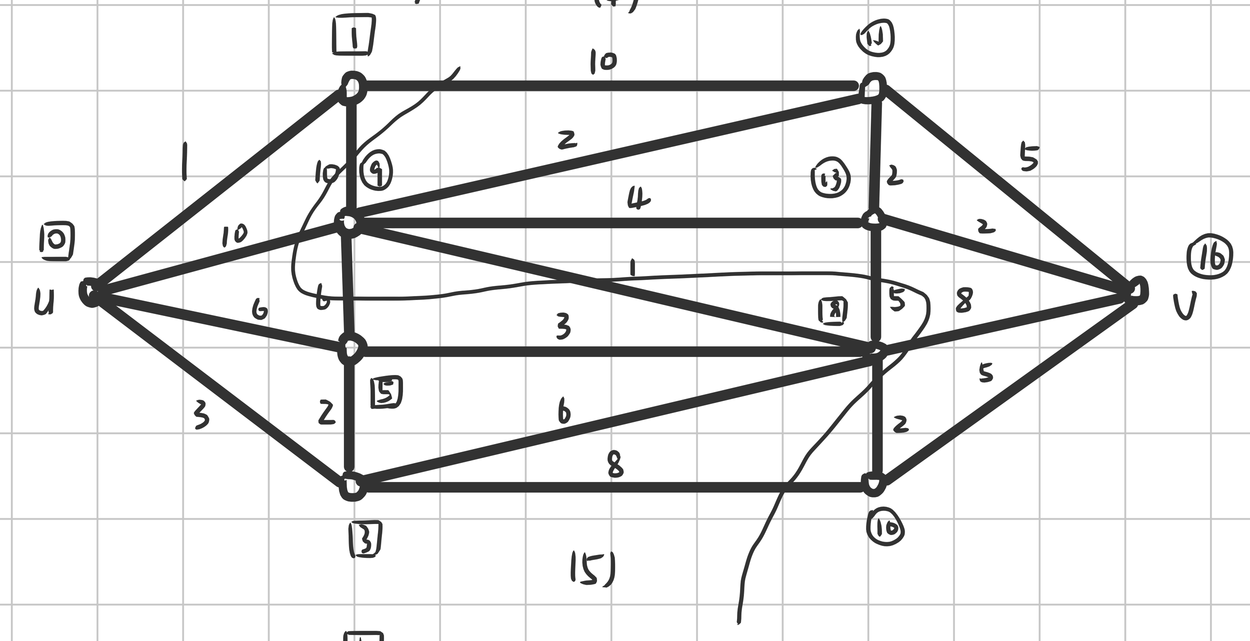

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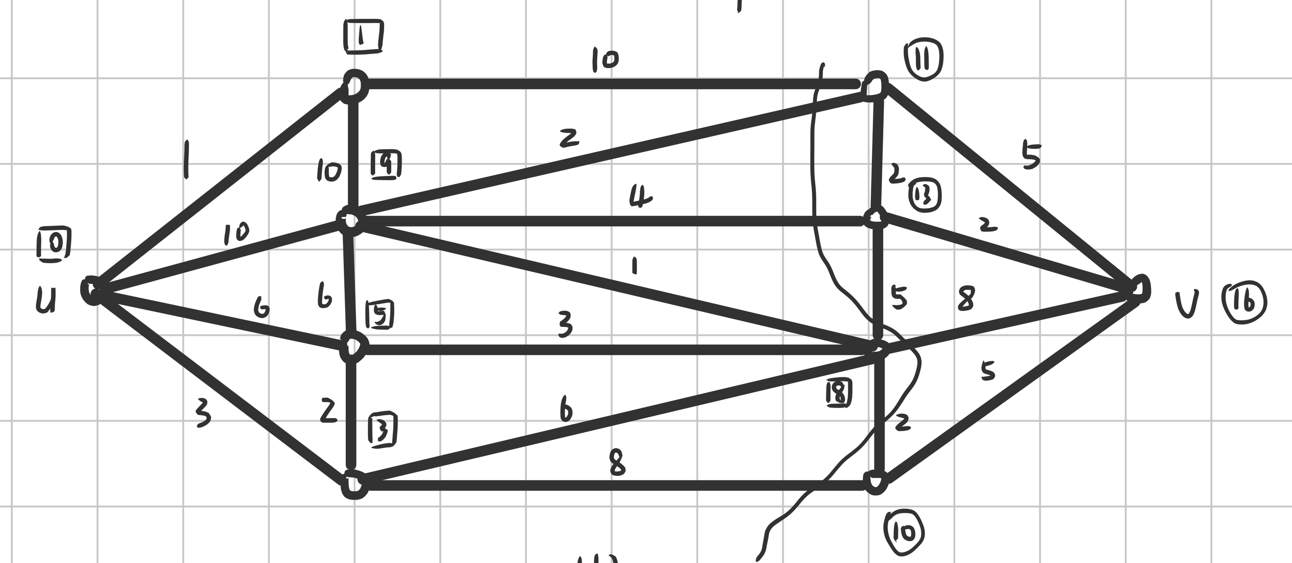

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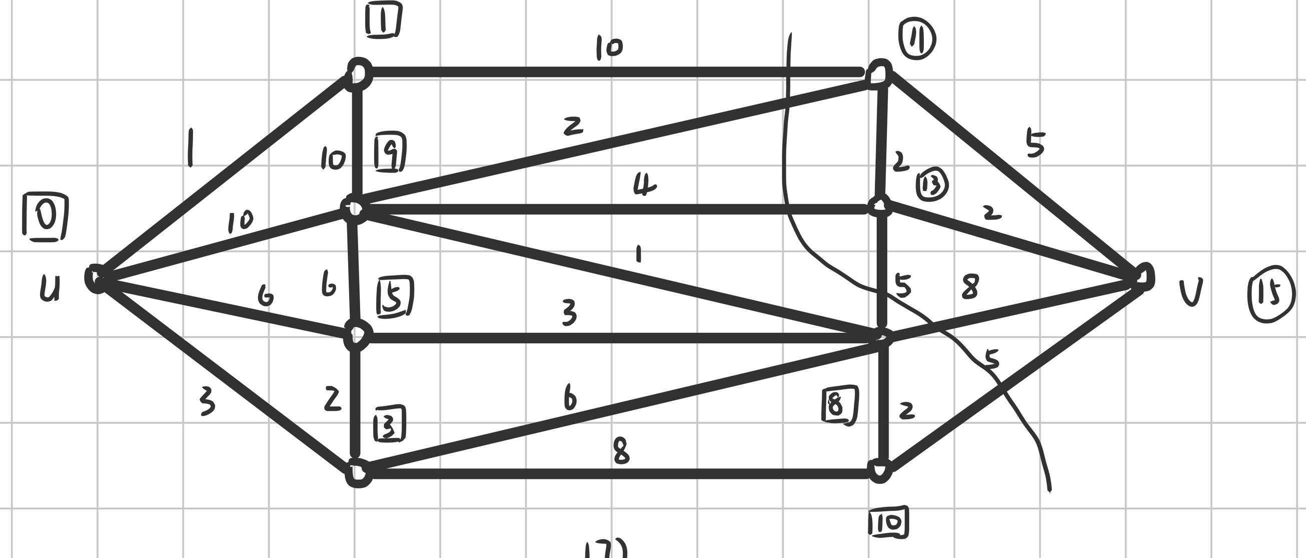

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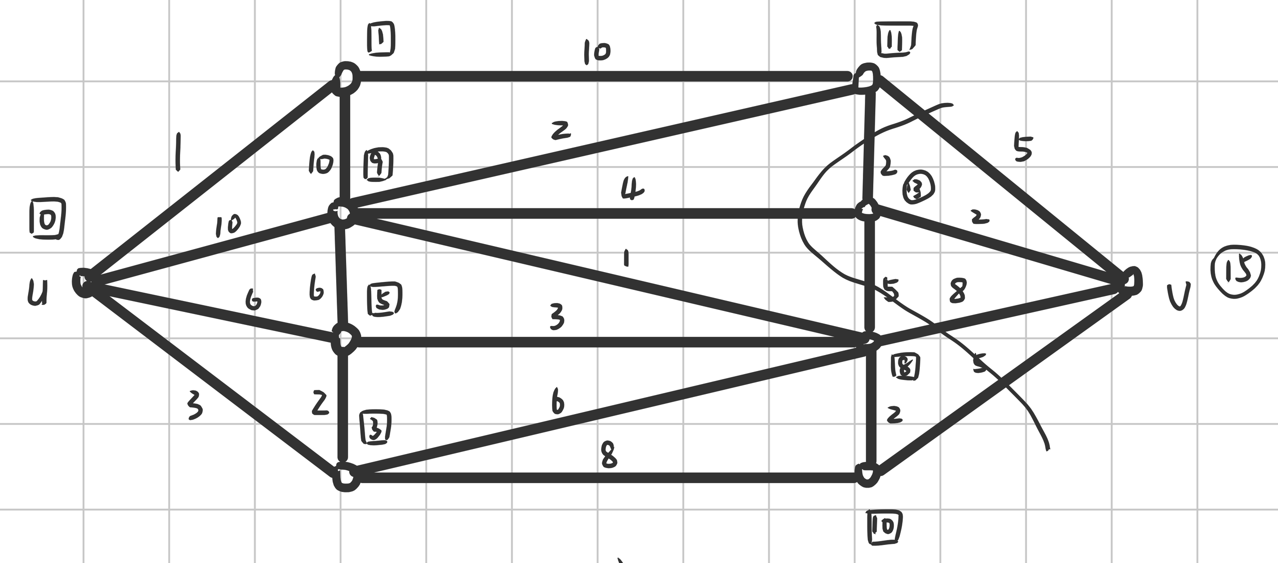
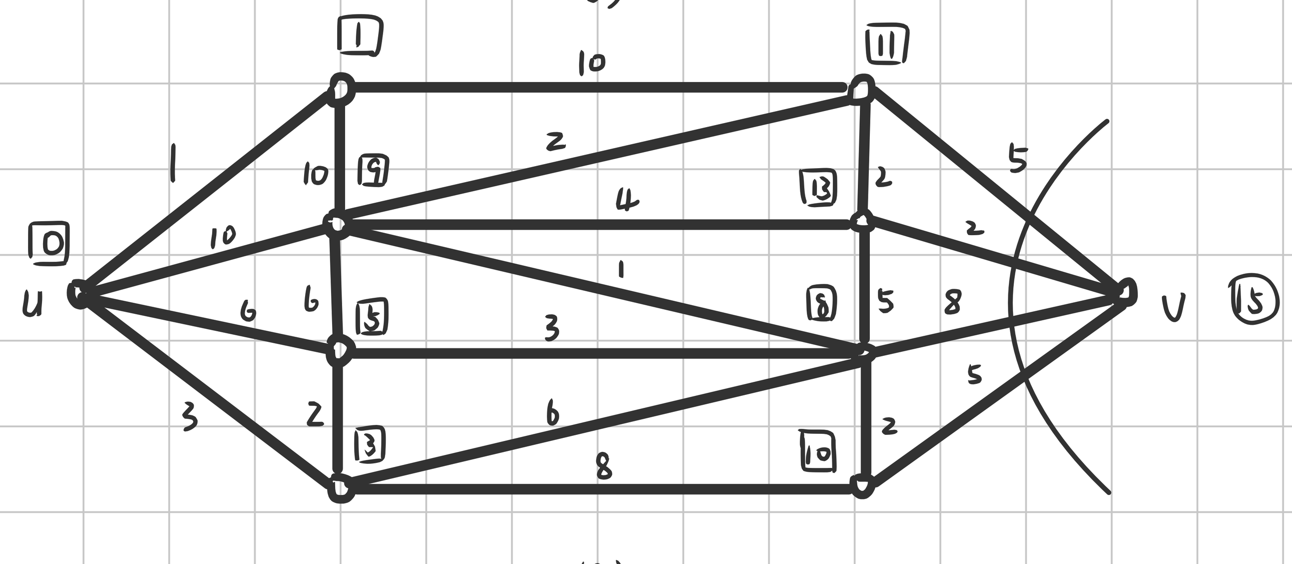
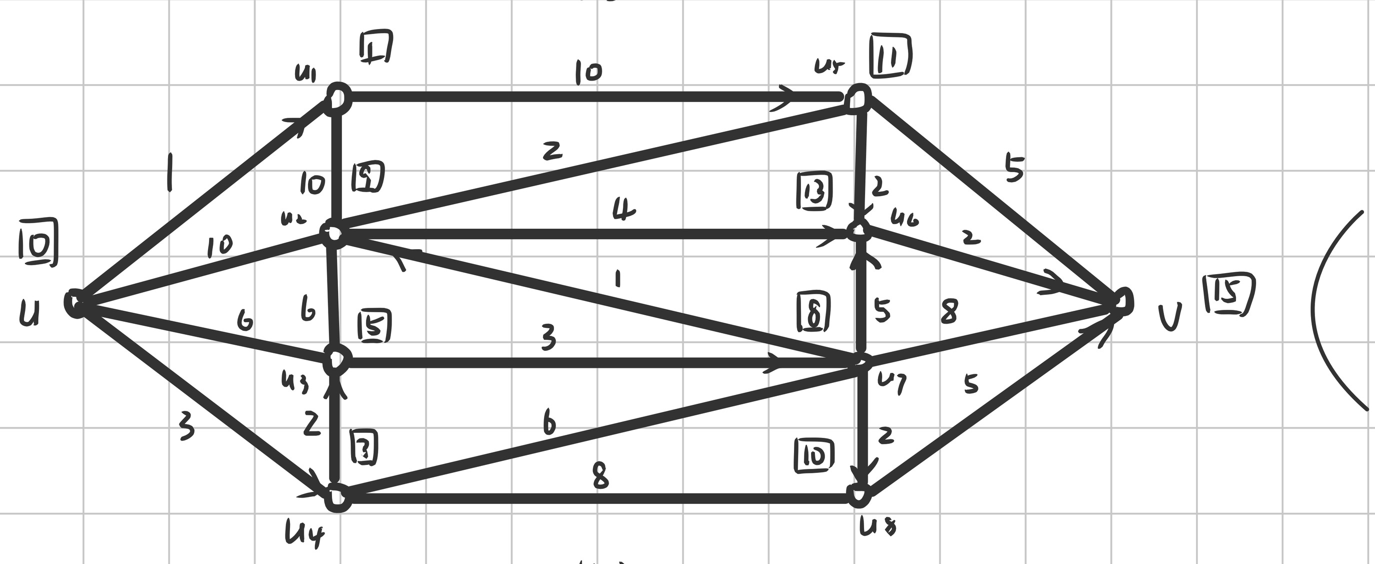


(8)



(9)



(10)

最短路径有:

$P_1 = (u, u_1, u_5, u_6, v)$

$P_2 = (u, u_4, u_3, u_7, u_8, v)$

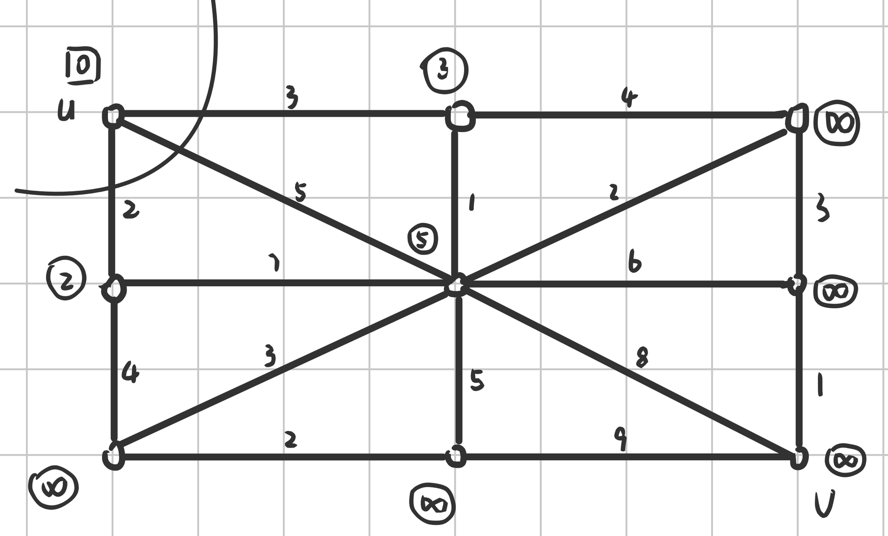
$P_3 = (u, u_4, u_3, u_7, u_2, u_6, v)$

$P_4 = (u, u_4, u_3, u_7, u_2, u_5, u_6, v)$

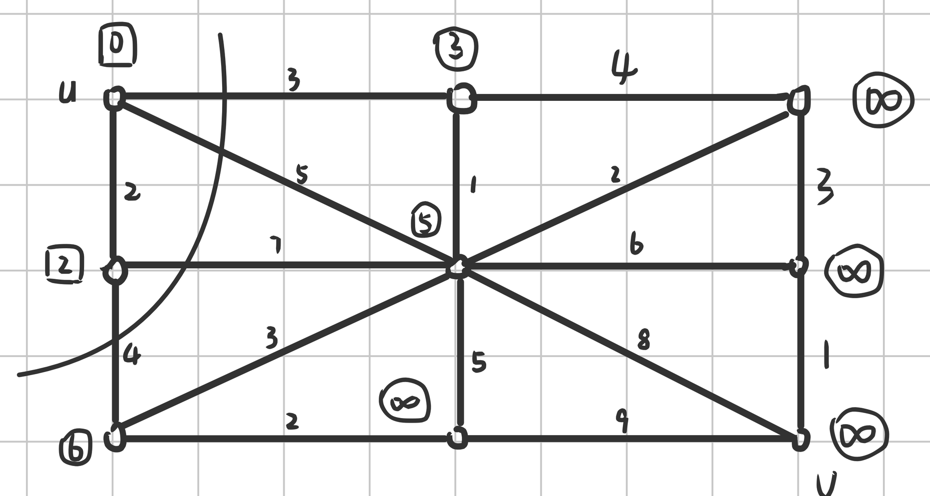
$P_5 = (u, u_4, u_3, u_7, u_6, v)$

$W(P) = 15$

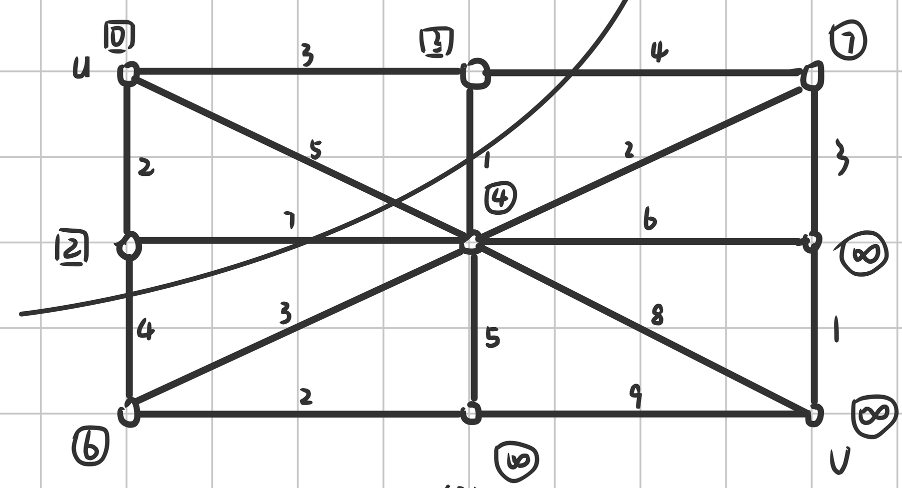
(2)



(1)



(2)



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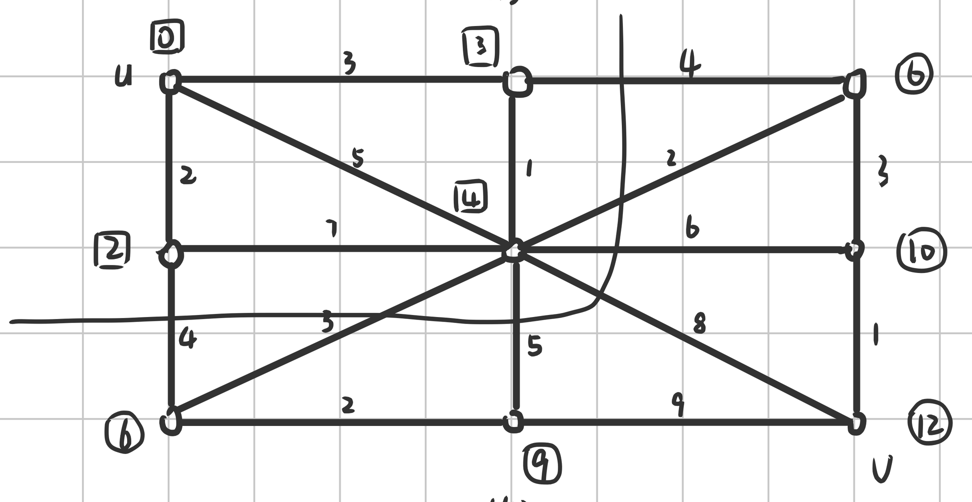

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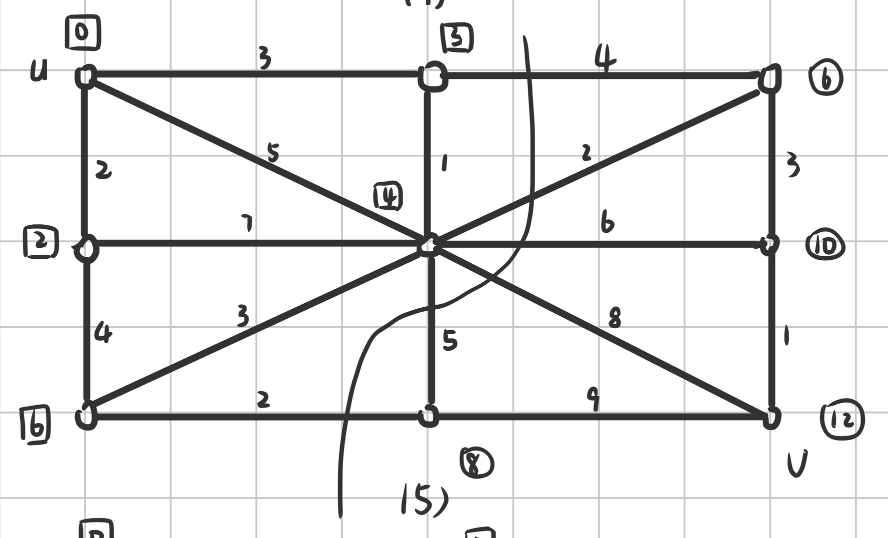
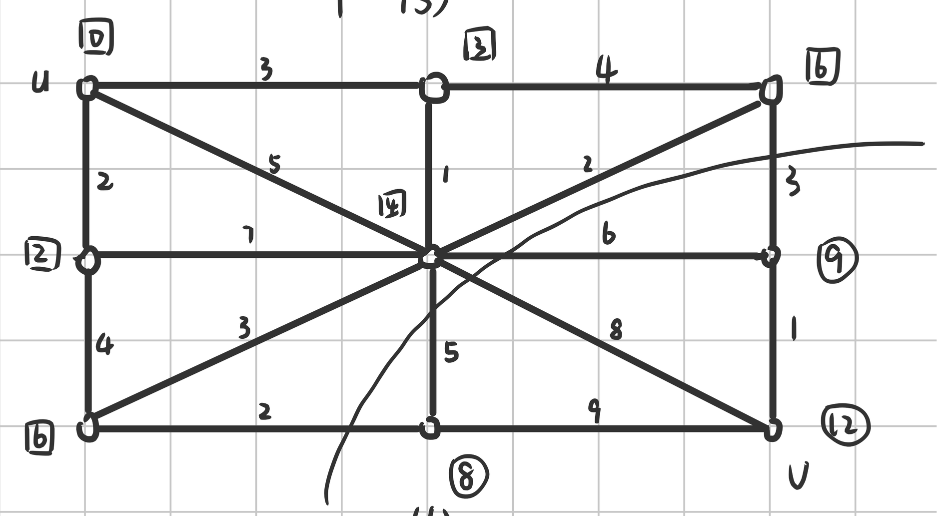
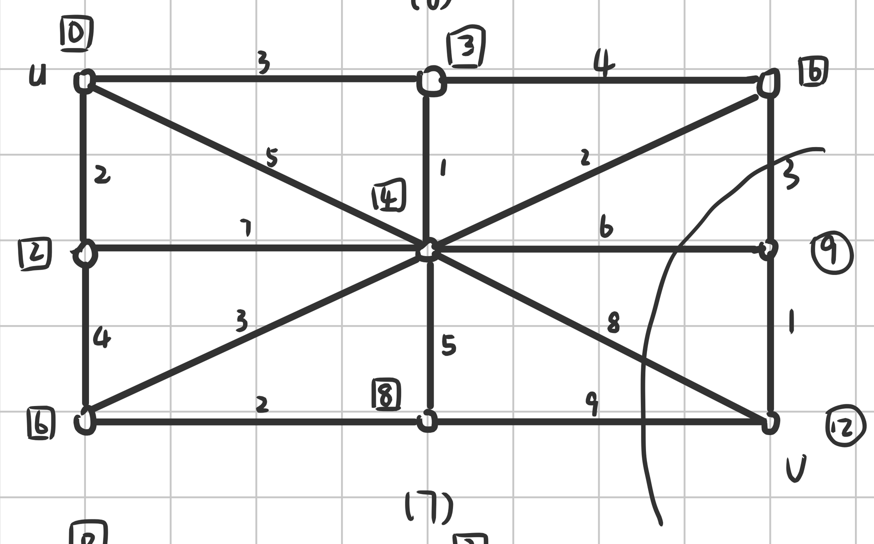


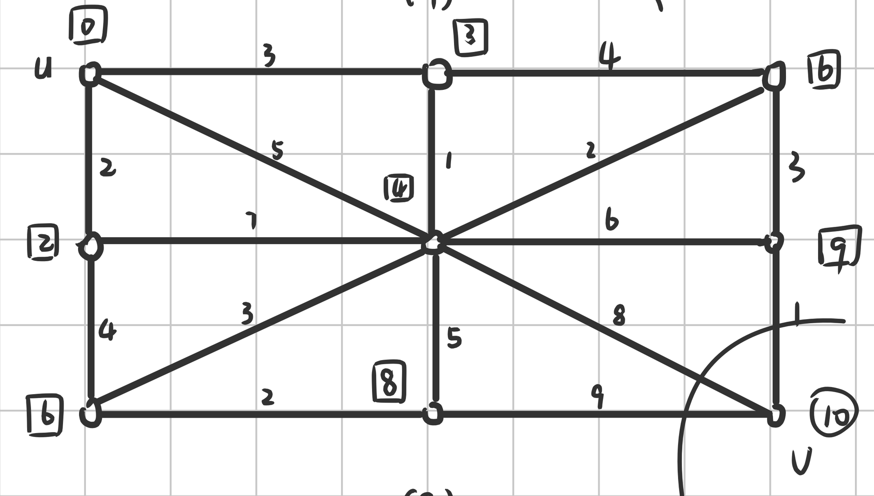
(5)



(6)



(7)



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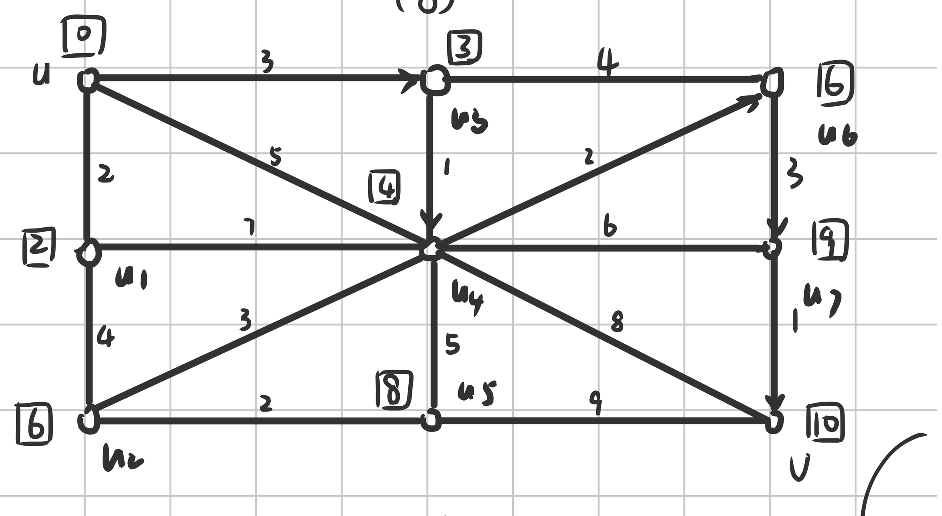

(9)

最短路径为

$P = (u, u_3, u_4, u_6, u_7, v)$

$W(P) = 10$