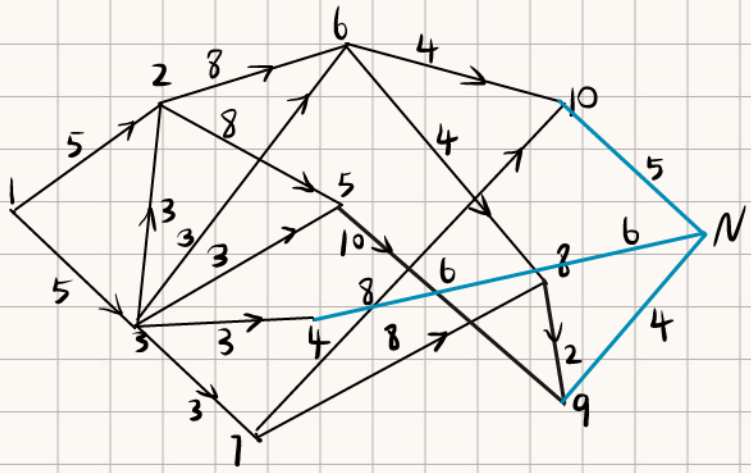
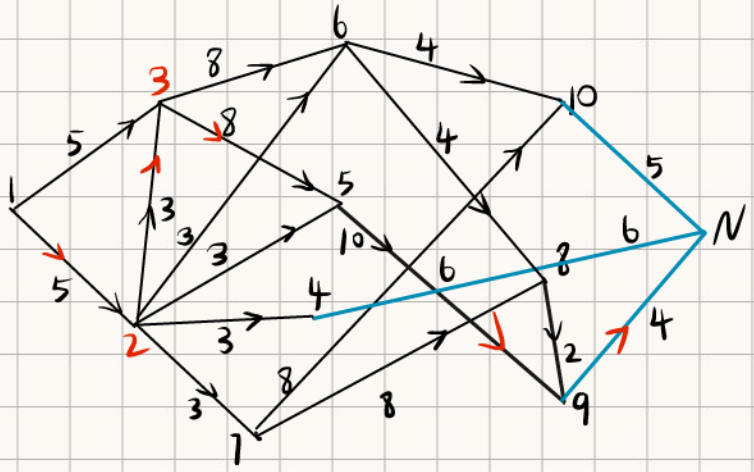
16(a)与17(a)

17(a) 建立网图：



拓扑排序后



经拓扑排序.

② 赋初值 $\pi(v_1')=0$.

③ 依次更新 $\pi(v_j')$, $j=2,3,\dots,n$.

$$\pi(v_j')=\max_{v_i'\in\Gamma^-v_j'}(\pi(v_i')+w(v_i',v_j'))$$

$\pi(1)=0$ $\pi(2)=5$ $\pi(3)=8$ $\pi(4)=8$ $\pi(5)=16$ $\pi(6)=16$ $\pi(7)=8$ $\pi(8)=20$ $\pi(9)=26$ $\pi(10)=20$
$\pi(N)=30$

故关键路径为：$V_1, V_2, V_3, V_5, V_9, N$ (这是重排后的，重排前为 I序1, I序3, I序2, I序5, I序9)

② 赋初值 $\tau(v_n')=\pi(v_n')$.

③ 依次更新 $\tau(v_j')$, $j=n-1,\dots,1$.

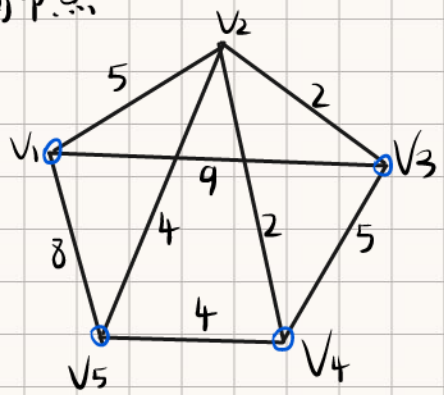
$$\tau(v_j')=\min_{v_i'\in\Gamma^+(v_j')}(\tau(v_i')-w(v_j',v_i'))$$

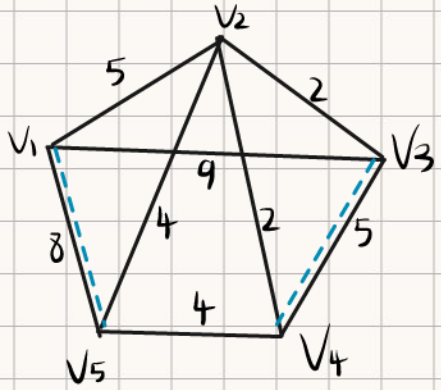
各工序最晚启动时间：

$T(10)=T(N)-5=25$ $T(9)=T(N)-4=26$ $T(8)=T(9)-2=24$ $T(7)=T(8)-8=16$
$T(6)=T(8)-4=20$ $T(5)=T(9)-10=16$ $T(4)=T(N)-6=24$ $T(3)=T(5)-8=8$ $T(2)=5$
$T(1)=T(2)-5=0$

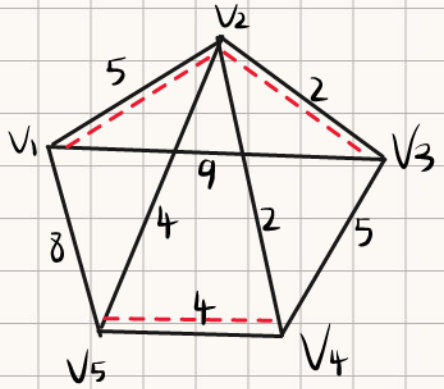
I序3：即拓扑后的2：$t(V_2)=T(2)-\pi(2)=5-5=0$
I序5：$t(5)=T(2)-\pi(2)=16-16=0$
I序10：$t(5)=T(10)-\pi(10)=25-20=5$

16. 奇节点：





添加对偶两条边后
在 V_1, V_2, V_3, V_4, V_5 回路中
重边长度 > 总长的半
故交换重边与非重边



此图即为邮路之解 红色即为重复走的道路
回路为：$(V_1, V_2, V_3, V_4, V_5, V_2, V_4, V_5, V_1, V_2, V_3, V_1)$