Q1 $\sum d(v_i) = 2(n-1)$ where $n = \sum_{i=1}^{k} n_i$

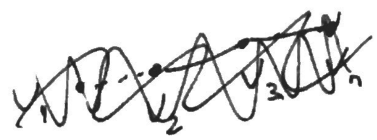
$\sum d(v_i) = n_1 + 2n_2 + \dots + kn_k = 2(n_1 + \dots n_k - 1)$

$n_1 + 2n_2 + 3n_3 + \dots + kn_k = 2n_1 + 2n_2 + \dots + 2n_k - 2$

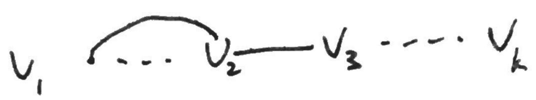
$n_1 = n_3 + 2n_4 + \dots + (k-2)n_k + 2$

Q2 如~~不是~~最长道路两端点~~不是树叶~~至少1个不是树叶

则有



G



v_1 的所有相邻点都在最长道路上

上图中 $(v_1\ v_2)$ 构成回路，图 G 不再是树

Q3 $d_1 = 2n - 2$ subject to $d_1 \geq 1$ $d_1 = 1$

~~$d_2 = 2n - 2 =$~~

~~$\sum^{2} d_i = 2n - 2$~~

$d_2 = \sum^{2} d_i - d_1 = 2n-2 -1 = 1$

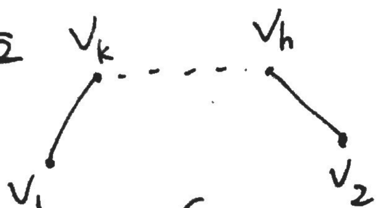
for ~~给~~ $N \geqslant 3$ $d_N = \sum^{N} d_i - \sum^{N-1} d_i$

$= \cancel{2(N} (2N-2) - (2N-2-2)$

$= 2$

这些树都是

~~$|V - \{v_1, v_2\}| = 0$ to $n-2$~~



G

$|V(G) - \{v_1, v_2\}| =$ from 0 to $n-2$

$C_0^{n-2} + C_1^{n-2} + \dots + C_{n-2}^{n-2} =$

$P_0^{n-2} + P_1^{n-2} + \dots + P_{n-2}^{n-2} = \frac{(n-2)!}{0!} + \frac{(n-2)!}{1!} + \dots + \frac{(n-2)!}{(n-2)!}$

$(n-2)! \left[\frac{1}{0!} + \frac{1}{1!} + \frac{1}{2!} + \dots + \frac{1}{(n-2)!} \right]$

???

若要用上 V 中所有结点，而且 $v_i - v_j \neq v_j - v_i$

则 $(n-2)! = \frac{(n-2)!}{0!\,1!\,\dots\,1!} = \frac{(n-2)!}{(d_1-1)!\dots(d_n-1)}$

不是很清楚结点间的顺序是否有关系