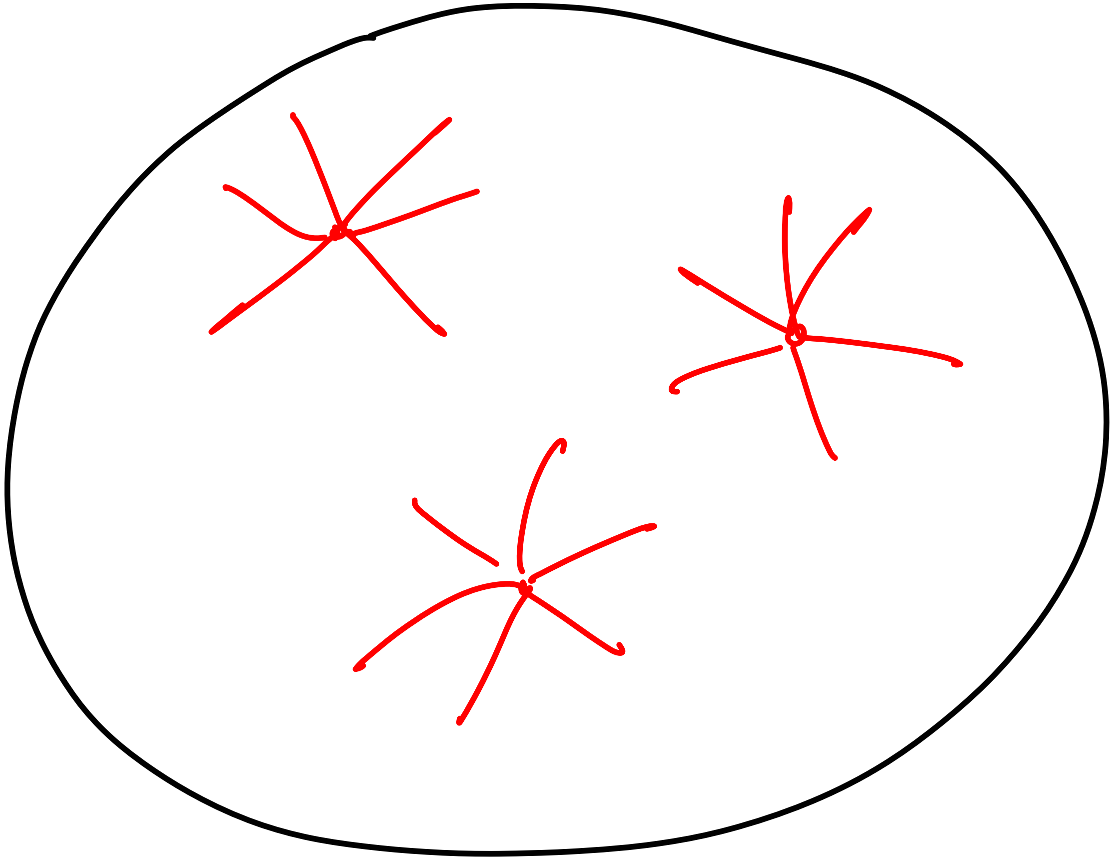
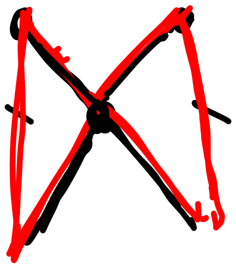
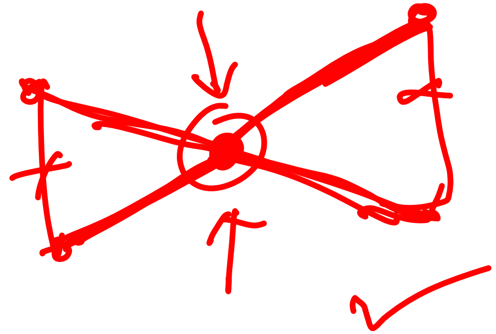
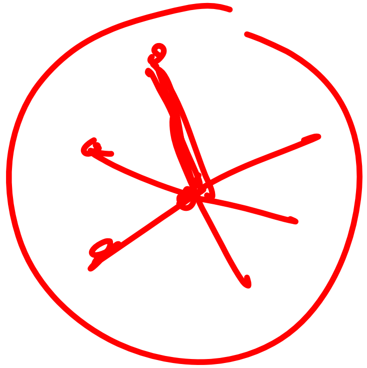


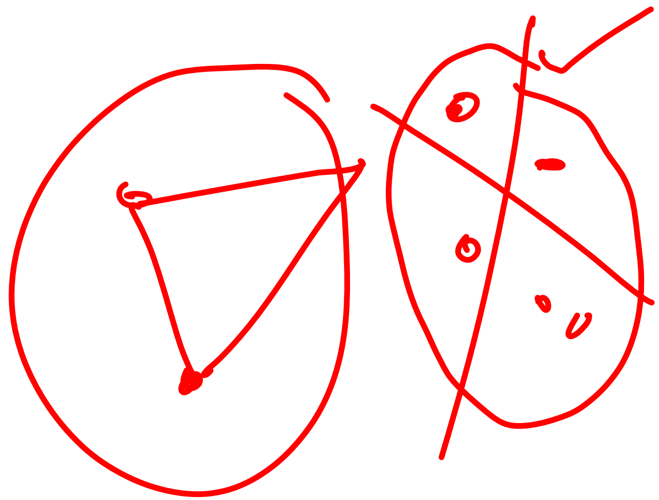






S

$$\gamma(G) \le \beta(G)$$



$$\gamma(G) \leq \beta(G)$$

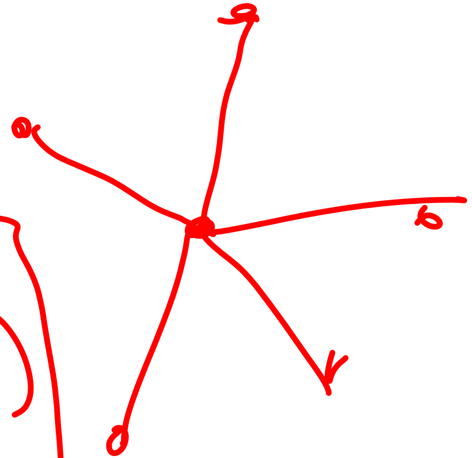
$$\gamma(K_n) = 1$$

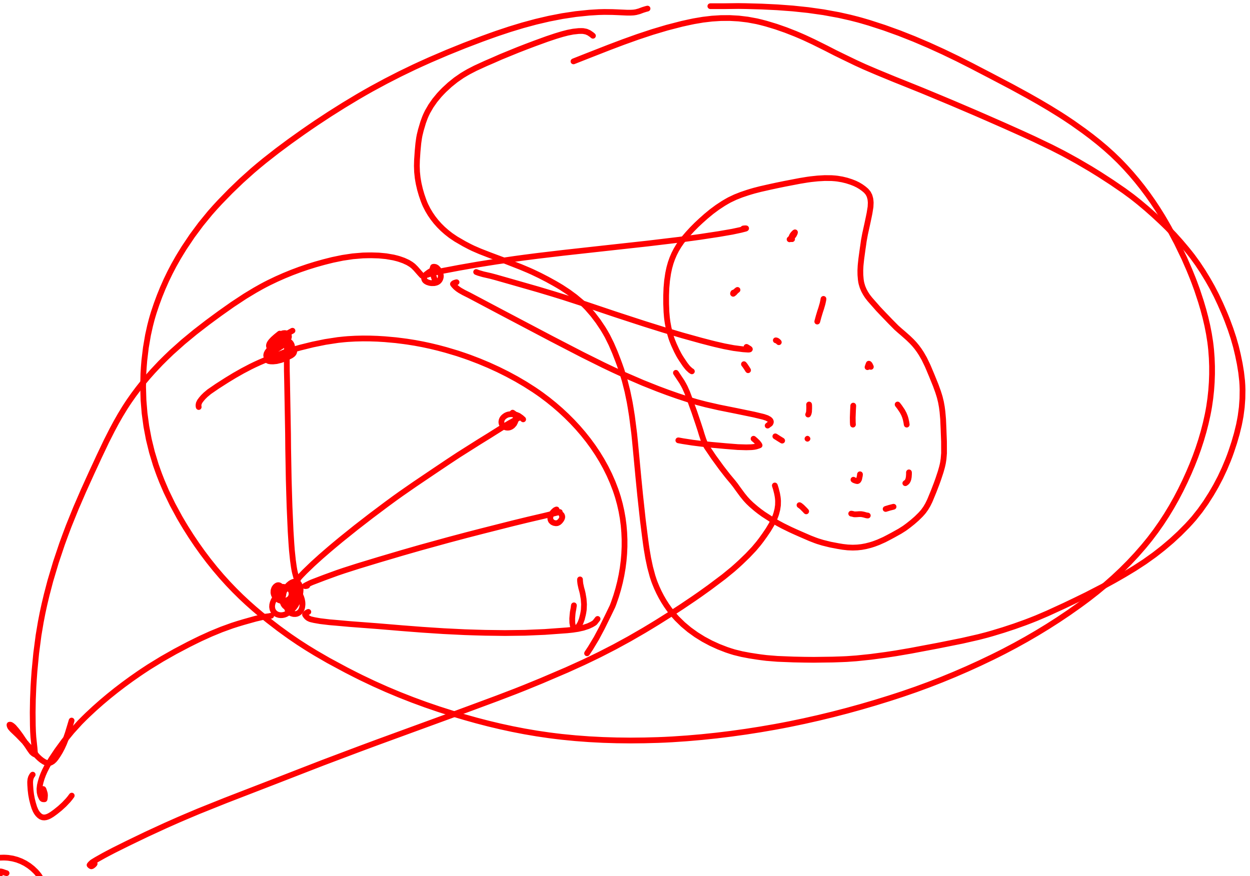
$$\boxed{\beta(K_n) = n-1}$$

$$\Delta(G) = \Delta$$

$$\Delta + 1$$

$$\boxed{\frac{n}{\Delta+1} \le \gamma(G)}$$



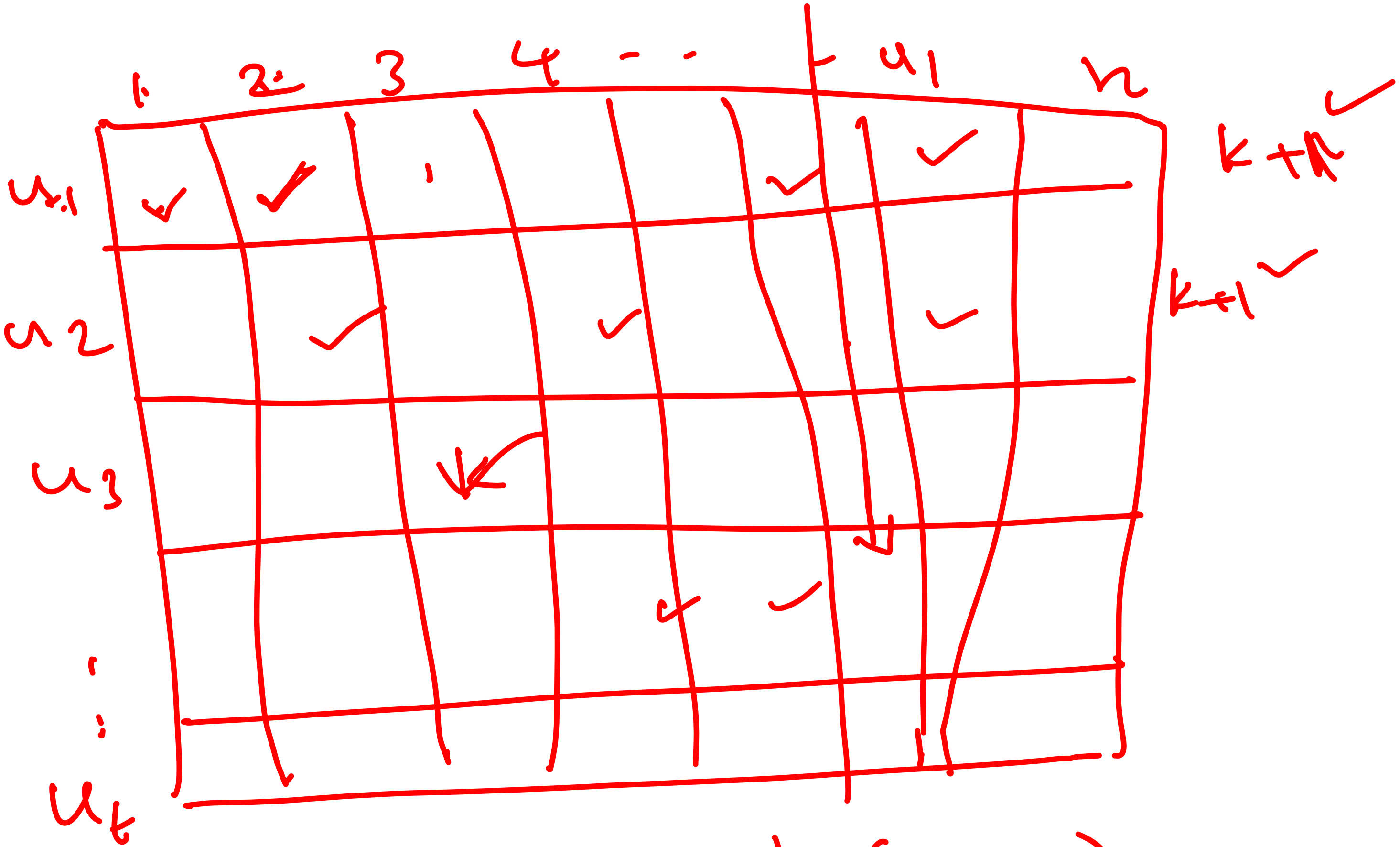


D

S

$$|U| \frac{(k+1)}{n} \checkmark$$

$$x \in V - S, \qquad < |U| \frac{(k+1)}{n}$$



$t = |U|$

$$\geq |U|(k+1)$$

$$< |U| \frac{k+1}{n} \times n$$

$|U|(k+1)$

$|U| \leq \frac{n}{k+1}$

p steps

$$|U|$$

$$n \xrightarrow{\text{1st step}} n\left(1 - \frac{k+1}{n}\right) \xrightarrow{\text{2nd step}}$$

$$n\left(1 - \frac{k+1}{n}\right)\left(1 - \frac{k+1}{n}\right) = n\left(1 - \frac{k+1}{n}\right)^2$$

$$\cdots \quad \cancel{n}\left(1 - \frac{k+1}{n}\right)^p \le \frac{\cancel{n}}{k+1}$$

$$\boxed{1 - x \le e^{-x}}$$

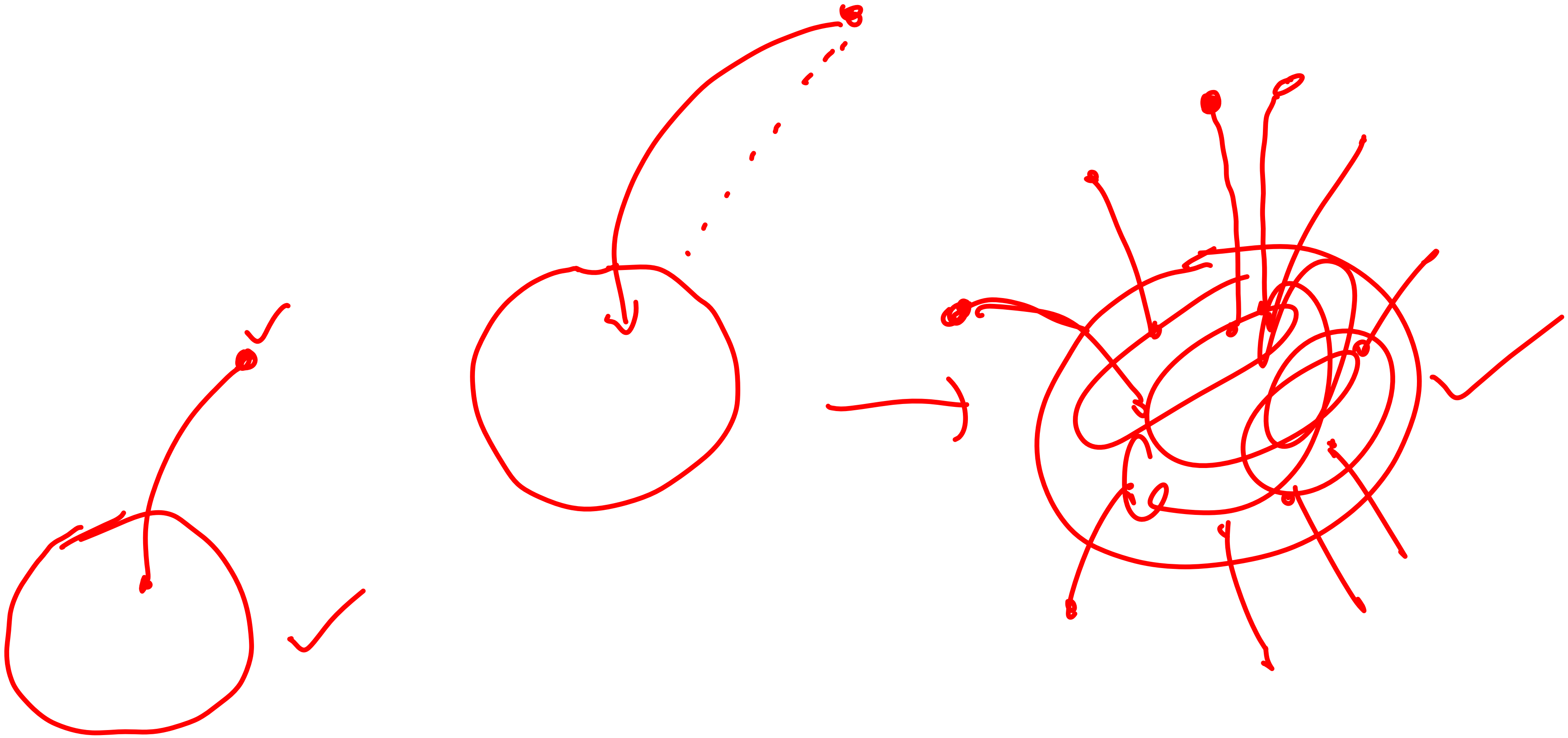
$$\left(1 - \frac{k+1}{n}\right)^{p} \le e^{-\frac{k+1}{n} p} \le \frac{1}{k+1}$$

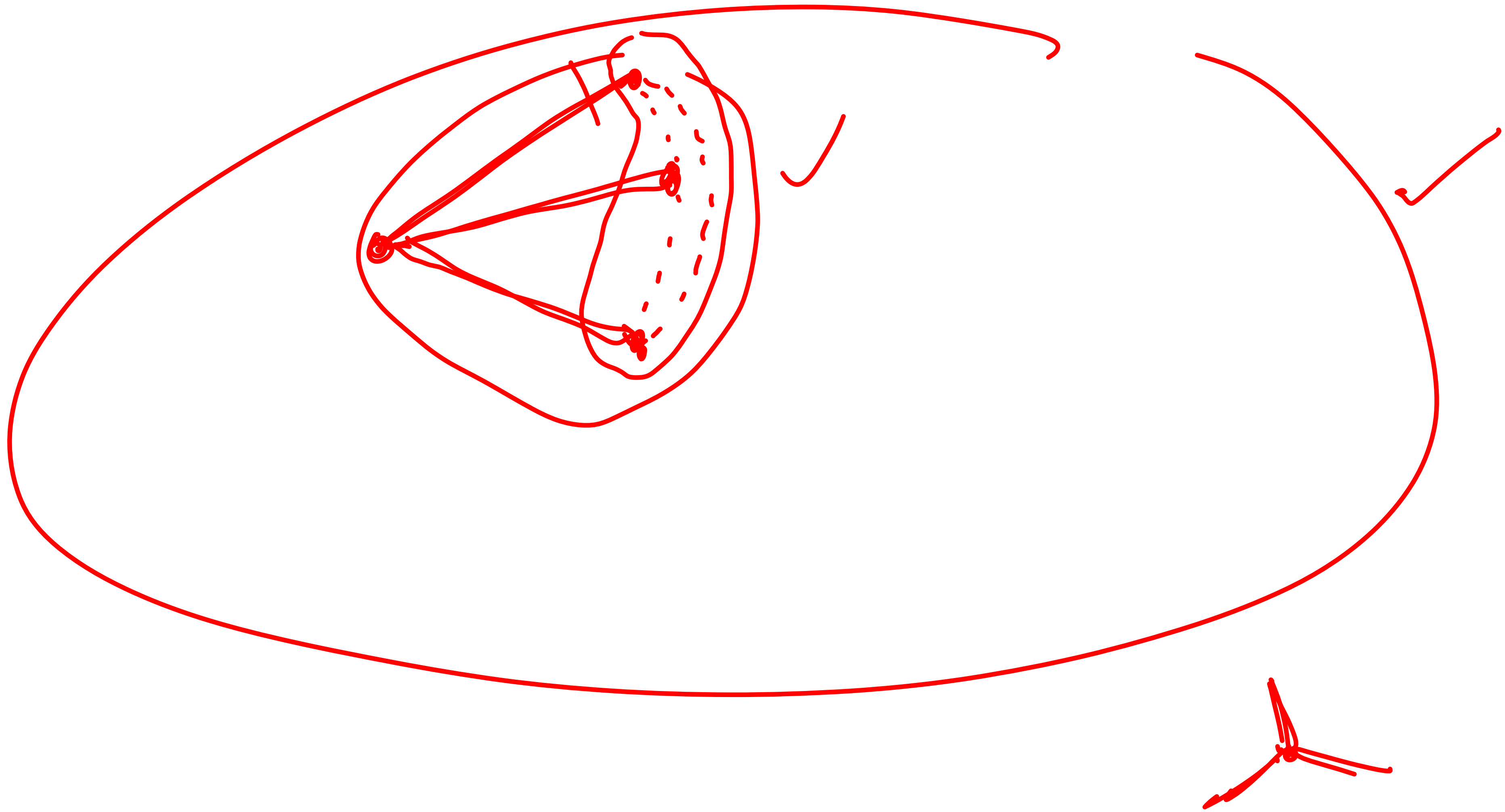
$$\frac{n}{k+1} \log(k+1)$$

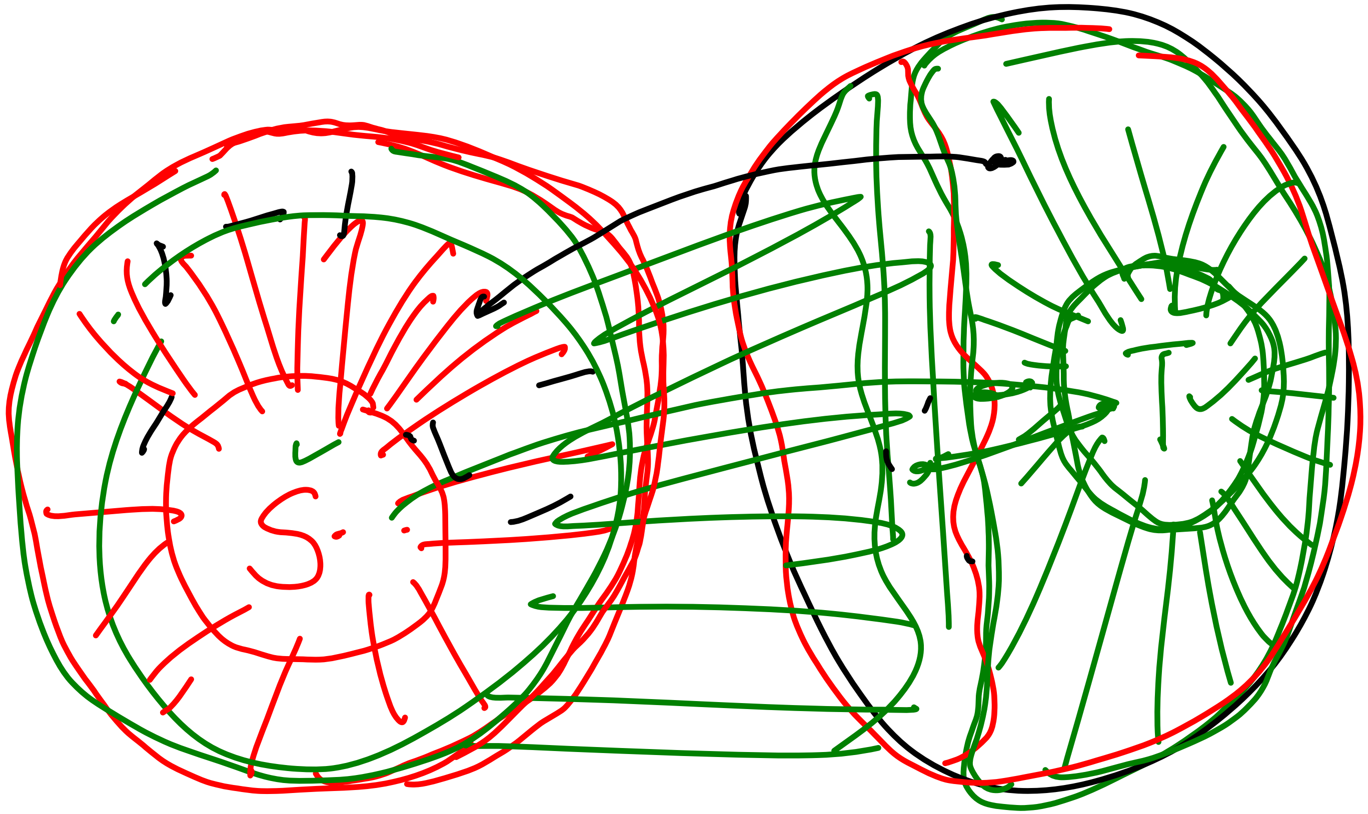
$$p \ge \frac{n}{k+1} \ln(k+1)$$

✓

$$p + \frac{n}{k+1} \leq \frac{n}{k+1}\left(\log(k+1) + 1\right)$$





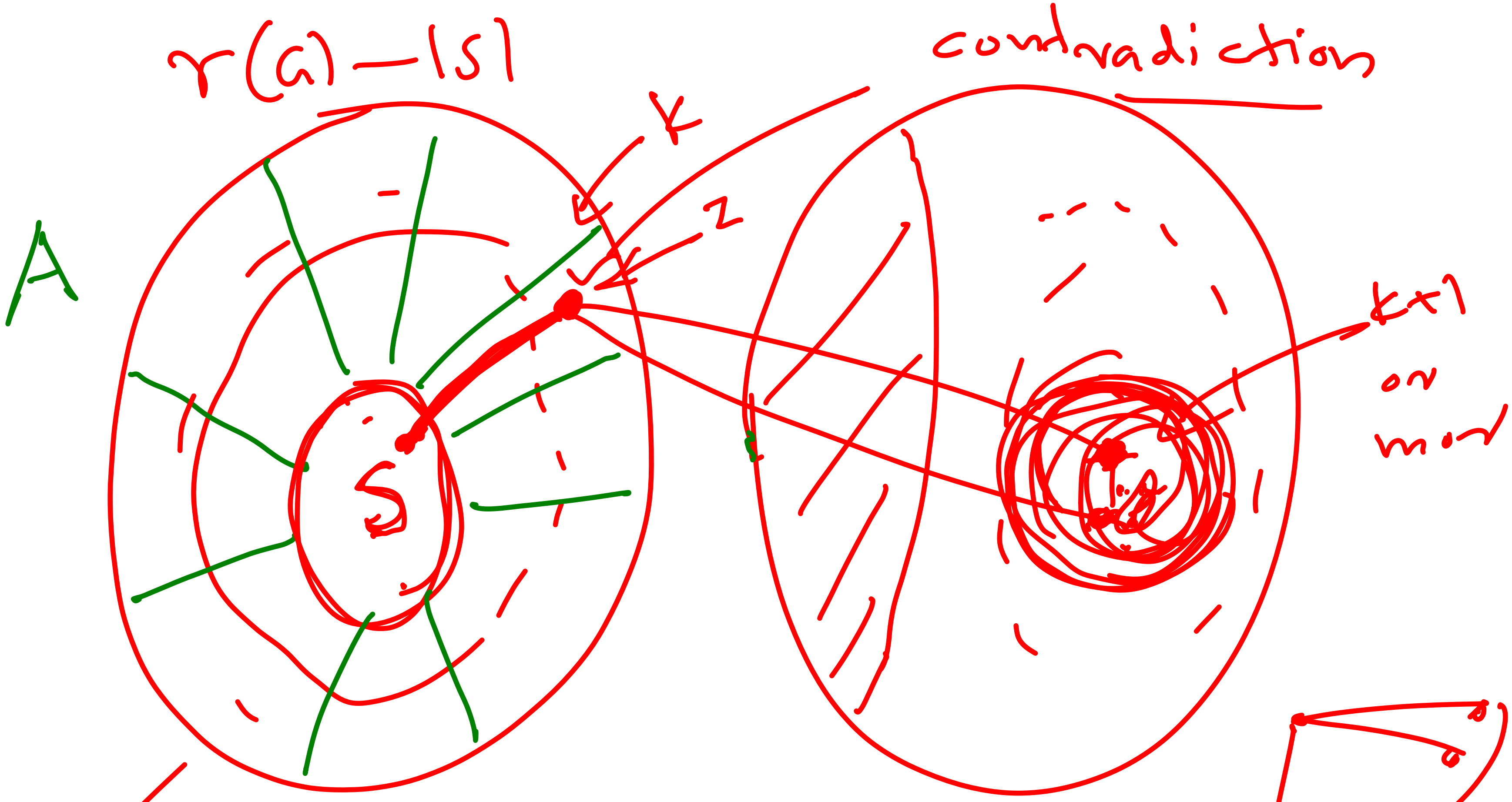


SUT is an independent set

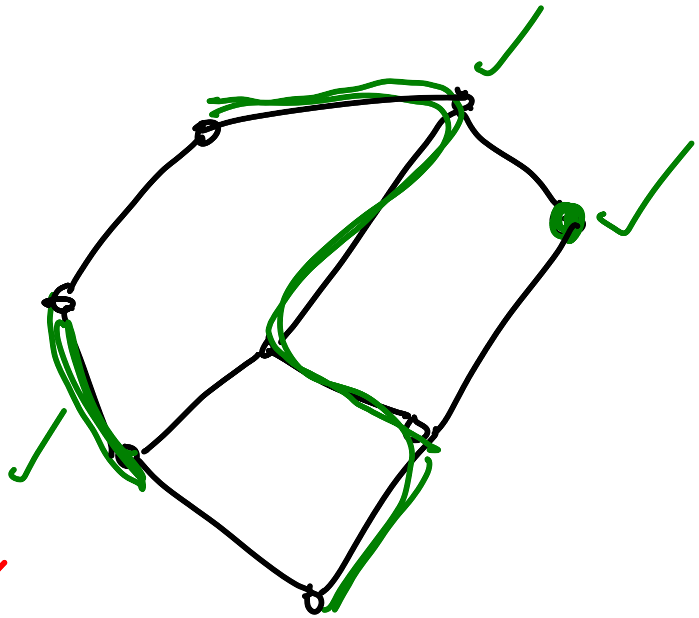
$S \cup T$

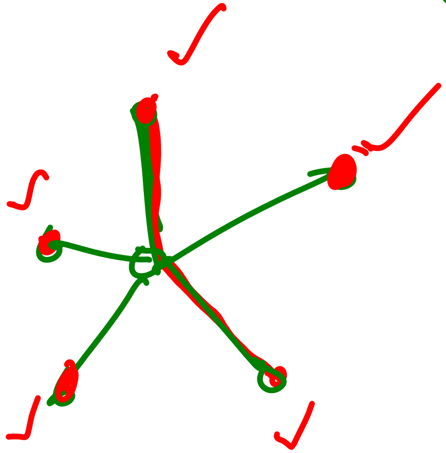
is independent and dominating

$$|S \cup T| \leq \gamma(G)$$



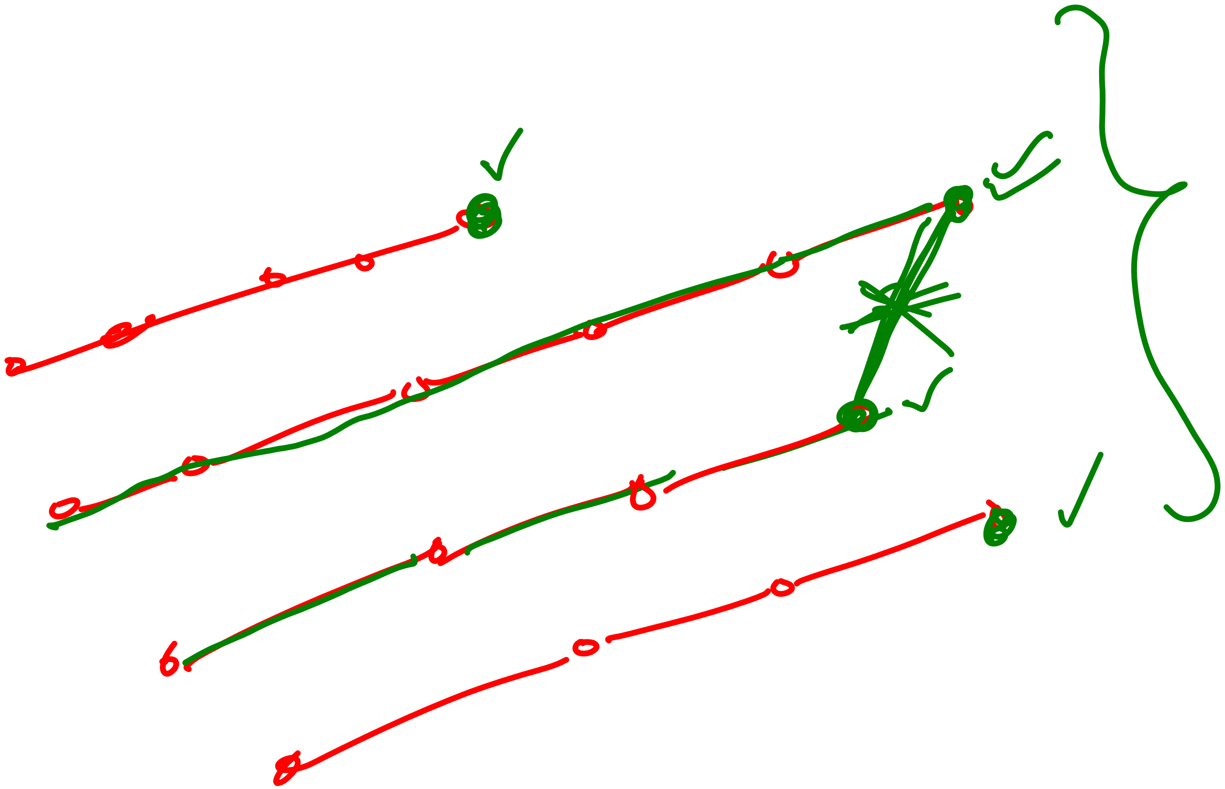
$|A|-|S| \geq |T|$

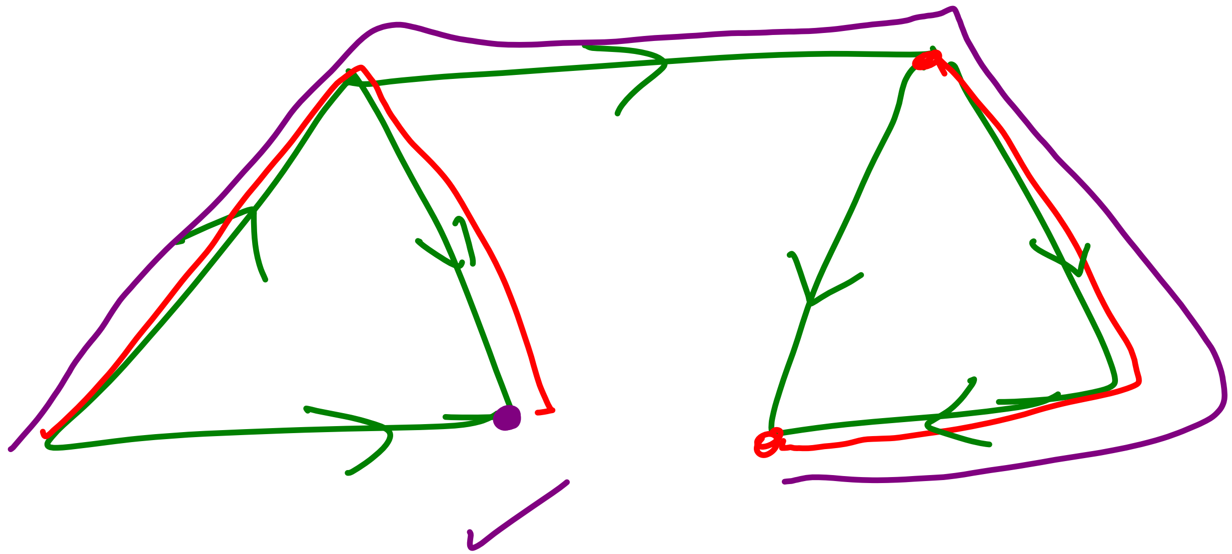




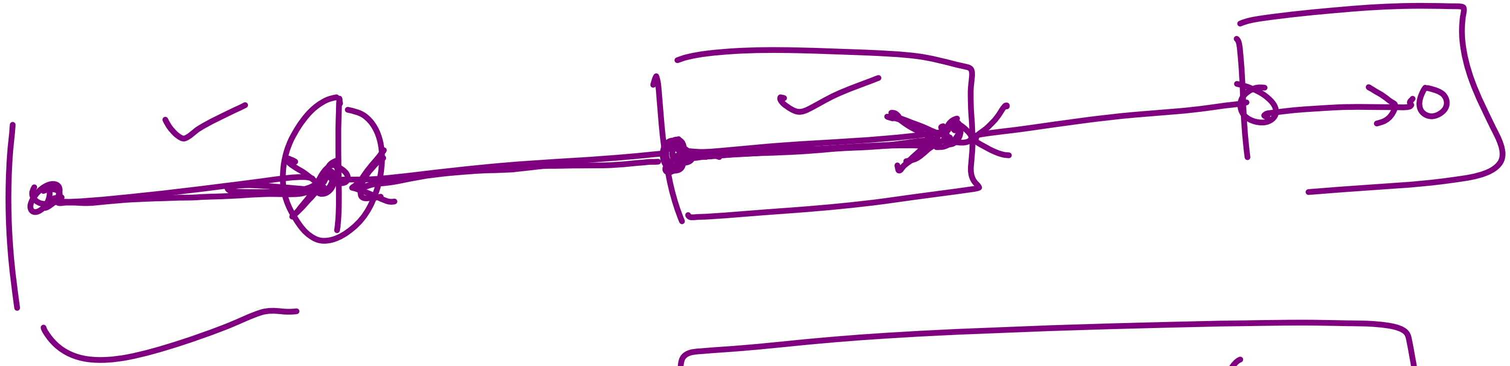
$\#$ path cover $\leq \alpha(G) = 1$

$$n-3+1 = \boxed{n-2 \leq \underbrace{n-1}_{\alpha(G)}}$$

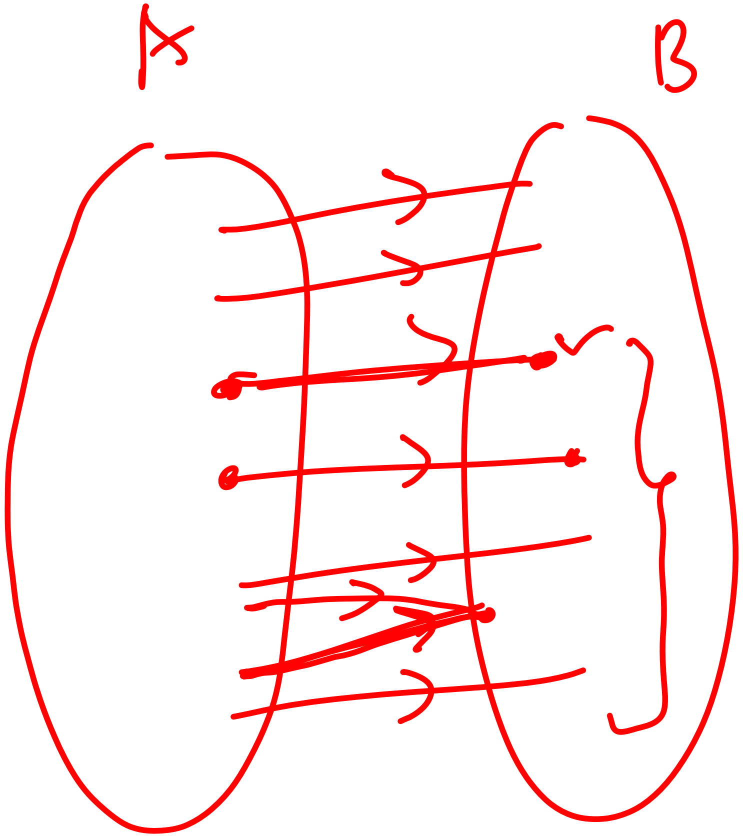




$x_1 \to x_2 \to x_3 \to \cdots \to x_k$



1. $\longrightarrow$ $\boxed{\frac{n}{2} \le \alpha(G)}$



maximum matching $\alpha'(G)$

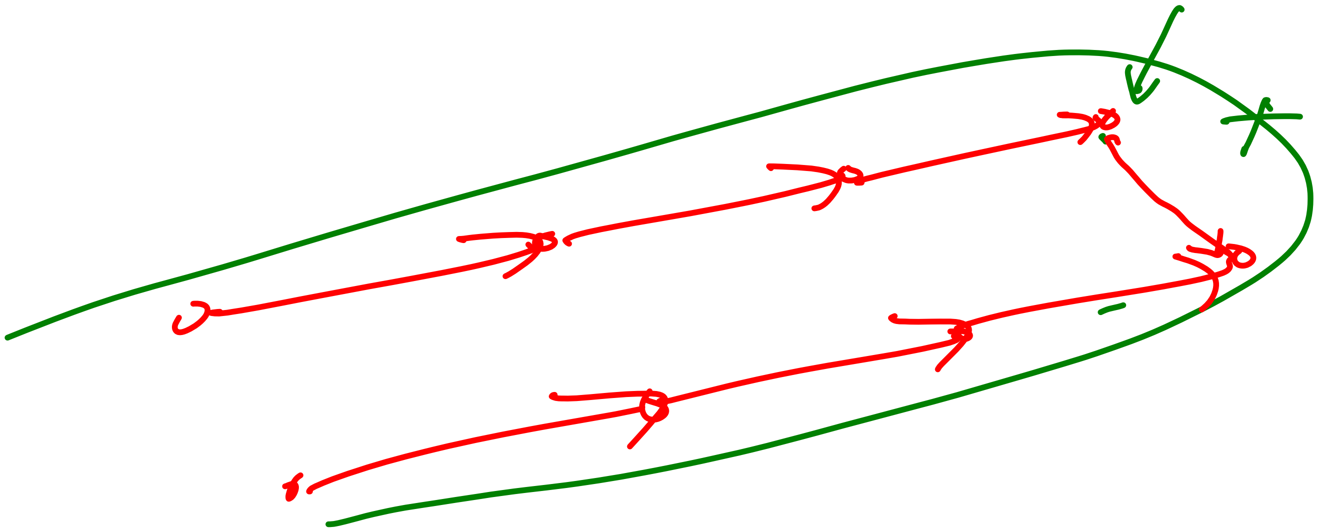
$+$

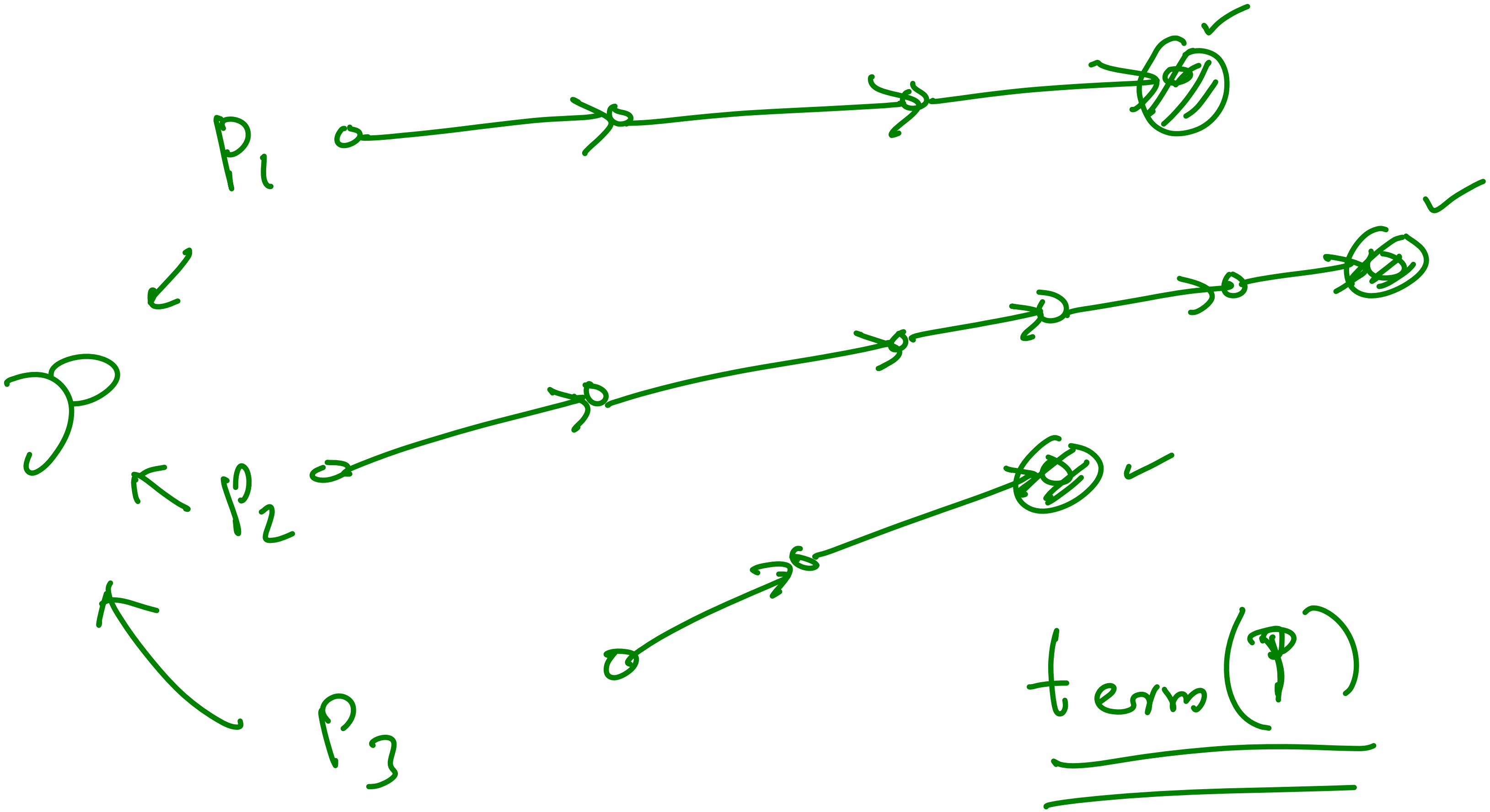
$n - 2\alpha'(G)$

$$n - 2\alpha'(G) + \alpha'(G) = \underline{n - \alpha'(G)}$$

$$\alpha(G) = n - \underbrace{\beta(G)}$$

$$= n - \underbrace{\alpha'(G)}$$




P_1
P_2
P_3
term(P)

minimal path cover

$\mathcal{P}$ of G term$(\mathcal{P})$

$\nexists$ no other $\mathcal{P}_1$ of G
such that term$(\mathcal{P}_1) <$ term$(\mathcal{P})$