$$0 < \cancel{\delta}\,\varepsilon < \frac{1}{k}$$

$$\frac{n}{2k}$$

$$\boxed{p = \frac{1}{n^{1-\varepsilon}}} = n^{\varepsilon - 1} \boxed{\geq \frac{6k \log n}{n}}$$

$$\boxed{\leq \frac{n}{2}}$$

$$\frac{n P_i}{2i} \cdot p^i \qquad G(n,p)$$

$$\boxed{\frac{\binom{n}{i}}{2i}} p^i =$$

$$E(X) = E(X_1 + X_2 + \cdots$$

$$=$$

$$=$$

$$\underline{n^k p^k} \geq \underbrace{n^i p^i}$$ ✓

$$\underline{\text{for } 3 \leq i \leq k}$$

$$np = n \frac{1}{n^{1-\varepsilon}} = \underline{n^{\varepsilon} > 1} \checkmark$$

$$\boxed{P(X \geq a) \leq \frac{E(X)}{a}}$$

$$(k-2)\, n^{k-1}\, p^{k} = (k-2)\, n^{k-1} \frac{1}{n^{k-k\varepsilon}}$$

$$\varepsilon < \frac{1}{k}$$

$$= (k-2)\, n^{k\varepsilon-1} < (k-2) \frac{1}{n^{\circ}}$$

$$\Pr\left(\exists \text{ a independent set of cardinality} \geq \frac{n}{2k}\right)$$

$$+$$

$$< \frac{1}{2}$$

$$\Pr\left(X \geq \frac{n}{2}\right) < \frac{1}{2}$$

$\frac{n}{2}$

$\leq \frac{n}{2k}$

$$\boxed{x(a) \geq \frac{n/2}{n/2k} \geq k}$$


n
k!
1, 2, ..., n
|H| = k
⌊n/k⌋
k
k
k
k
k
k
k
k
k

$$\left(1 - r\right)^{\left(\frac{n}{k}\right)} \longrightarrow 0$$

H

$$n \to \infty$$

$$\boxed{\lim_{n\to\infty} \frac{p_i(n)}{t_i(n)} \to 0}\ \text{as } n \to \infty$$

$p(n)$ is slightly smaller $t(n)$

$$P(G \notin \mathcal{P}) \Rightarrow 1$$

$$P(G \in \mathcal{P}) \to 0$$

$$P(X \geq 1) \longrightarrow 0$$

if $p/t \to 0$

$$P(X \geq 1) \leq \frac{E(X)}{1} = \underline{E(X) \to 0}$$

$$\frac{p}{t} \longrightarrow 1$$

$$p(X \geq 1) \longrightarrow 1$$

$$\boxed{p(X = 0) \longrightarrow 0}$$

$$\sigma^2 = E\left((X-\mu)^2\right)$$

$$= E\left(X^2+\mu^2-2X\mu\right)$$

$$= E(X^2)+\mu^2-2E(X)\cdot\mu$$

$$= E(X^2)+\mu^2-2\mu^2$$

$$= \underline{\underline{E(X^2)-\mu^2}}$$

$$P\left(|X-\mu| > \lambda\right)$$

σ^2

$$= P\left(\boxed{(X-\mu)^2} > \lambda^2\right) \le \frac{E\left((X-\mu)^2\right)}{\lambda^2}$$

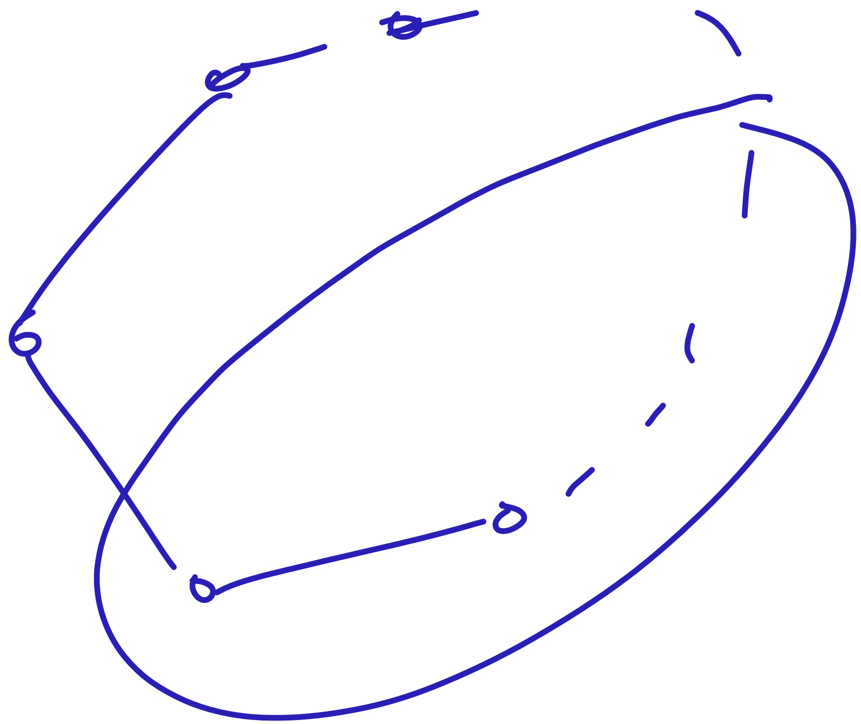
Y

$$\varepsilon(H) = \frac{|E(H)|}{|H|}$$

ℓ $$\boxed{\varepsilon(H') \le \varepsilon(H)}$$

$$\frac{\cancel{k}}{\cancel{k}(k-1)/2}$$

$$\frac{2}{k-1}$$



C_k

$$\frac{k}{k} = 1$$

✓