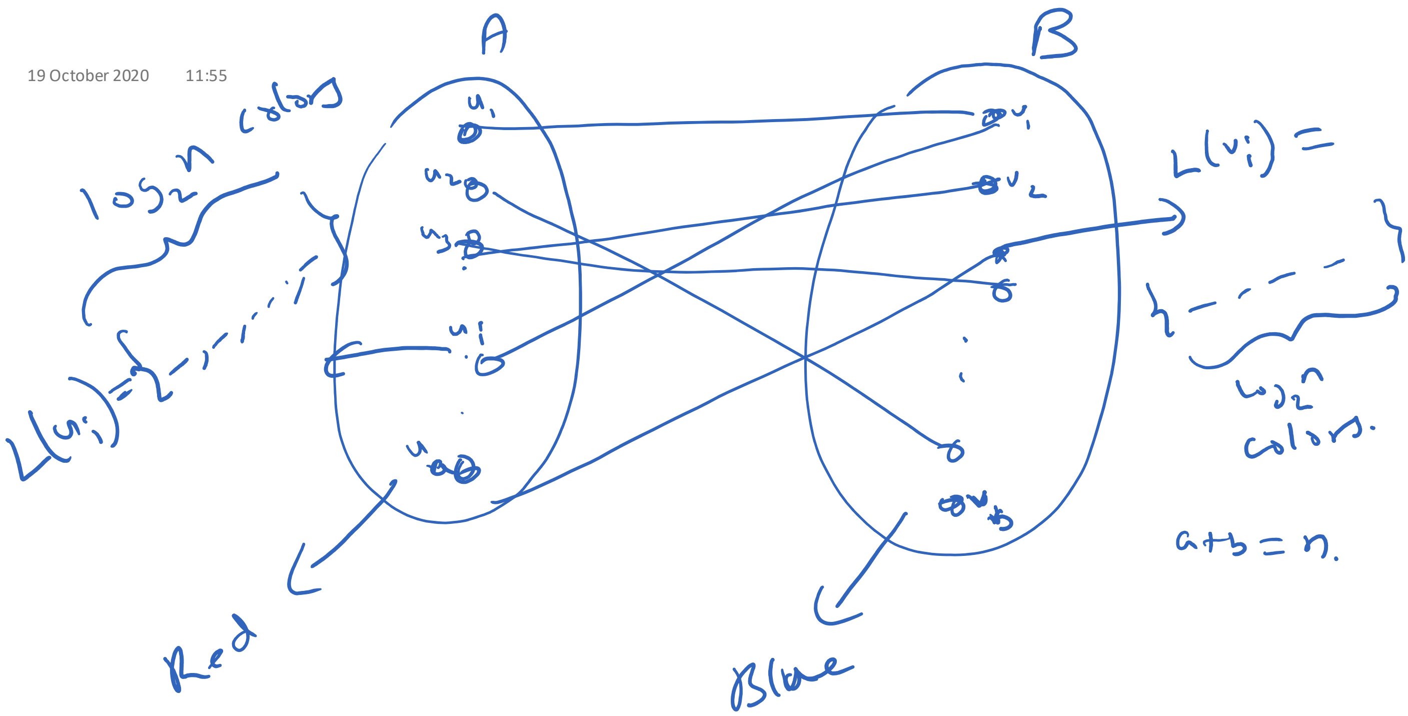
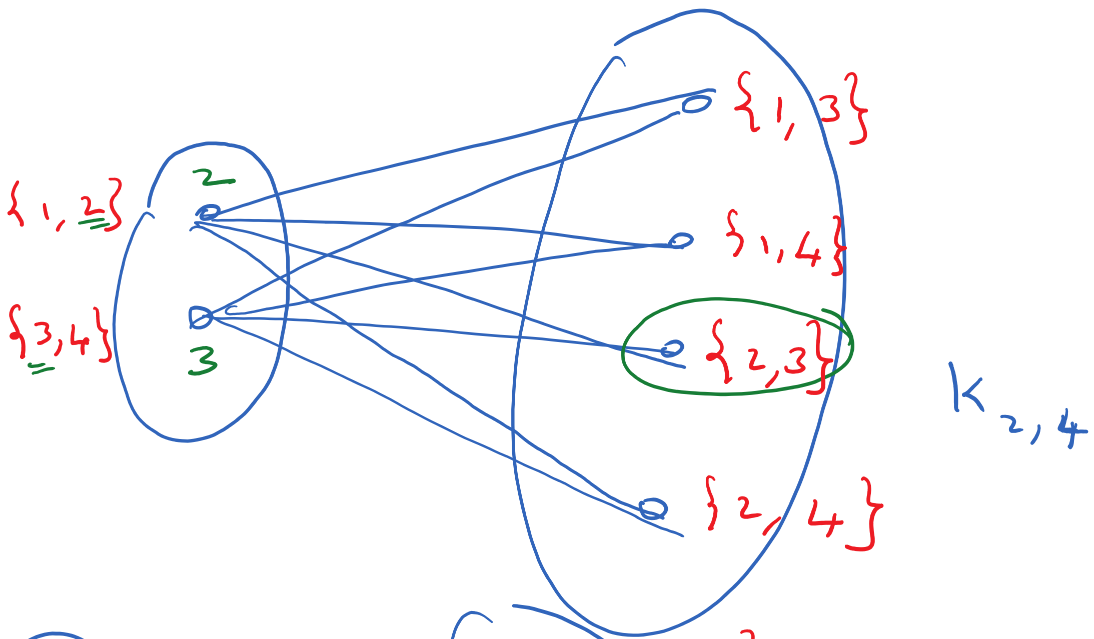
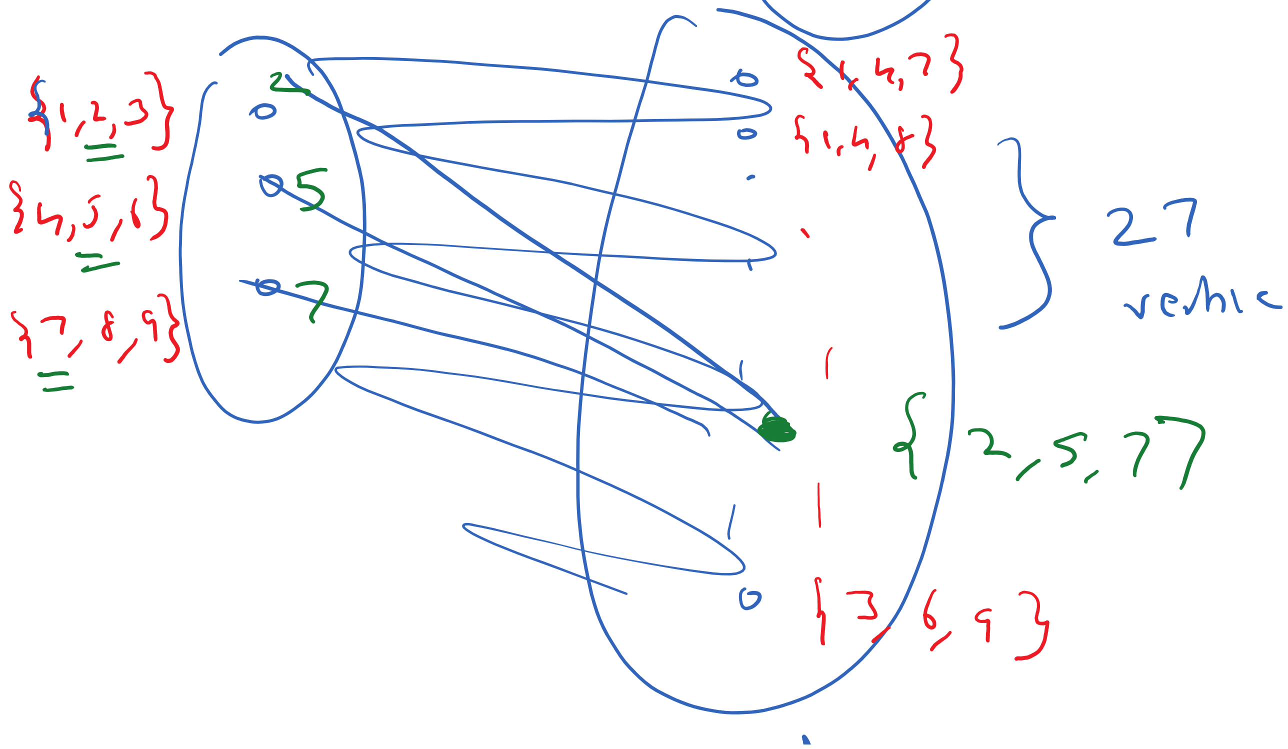
19 October 2020 11:55



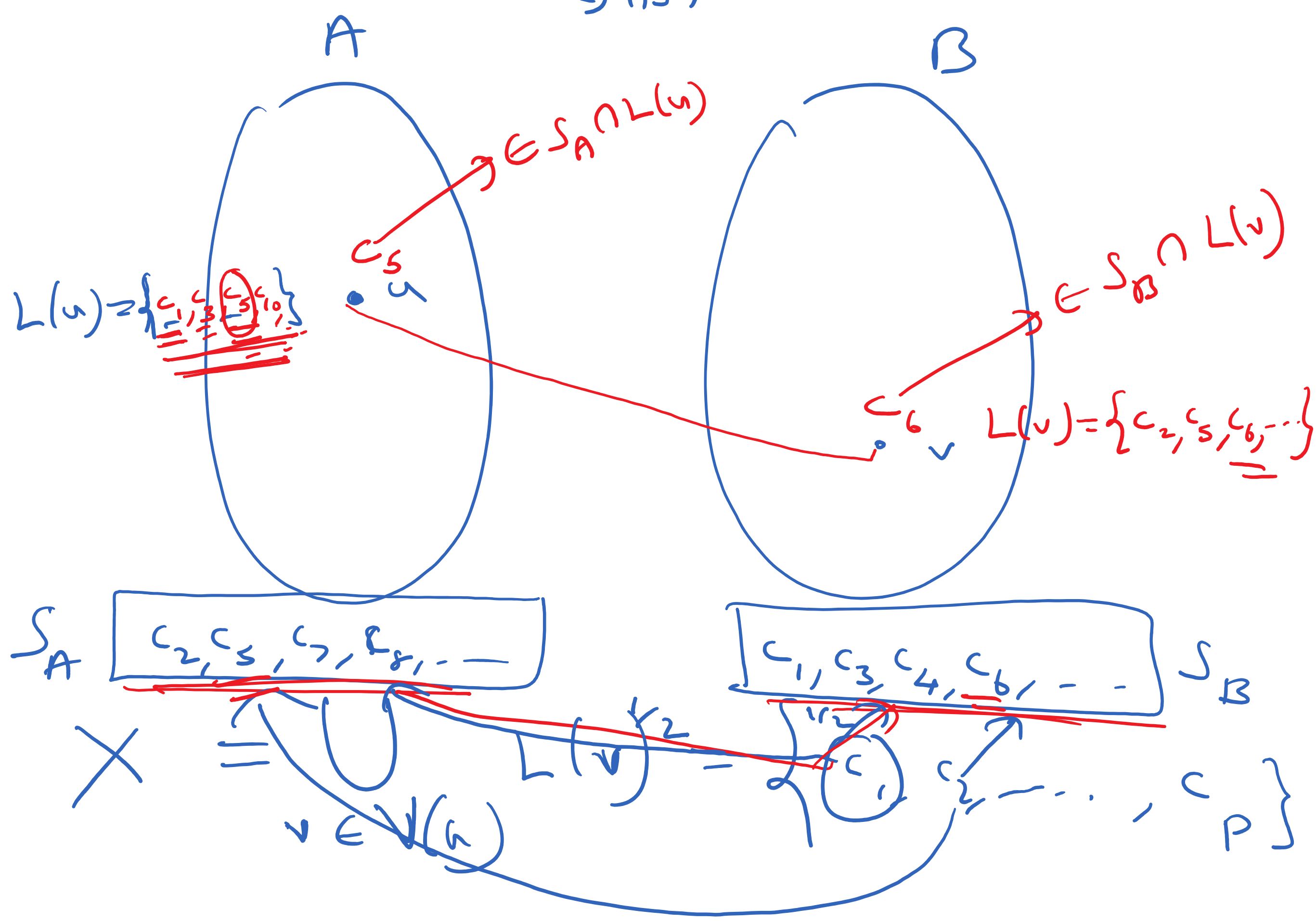




Q. G — bipartite with n vertices

$\rightarrow$ $L(v) \geq \log_2 n$, $\forall v \in V(G)$

list



E_u : the bad event that u is not colored

$\Pr[E_u] = \Pr$[none of the colors of $L(u)$ is present in S_A]

$= \frac{1}{2^{|L(u)|}} \rightarrow \underbrace{\frac{1}{2} \times \frac{1}{2} \times \cdots \frac{1}{2}}_{|L(u)| \text{ times}}$

$2^{|L(u)|}$ $\quad |L(u)|$ times

Since $|L(u)| > \log n$

$$< \frac{1}{2^{\log n}}$$

$$= \frac{1}{n} \quad \text{—— } A$$

$$\Pr\left[\bigvee_{u \in V(G)} E_u\right] \leq \sum_{u \in V(G)} \Pr[E_u]$$

$$< n \cdot \frac{1}{n}$$

$$= 1$$

□