Colorings

Def If G is a graph, k a pos. integer,
a k-(vertex)-coloring of G is a function
$f: V(G) \longrightarrow \{1, \dots, k\}$ such that
($\{1,\dots,k\}$: colors)

if v, w are adjacent, then they are assigned
distinct colors ($f(v) \neq f(w)$)

$V(G)$ = people $E(G)$ = people who don't get along.

coloring: people $\rightsquigarrow$ tables

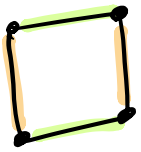
$V(G)$ = tasks $E(G)$ = need same resources at same time

colors: tasks $\longrightarrow$ time slots

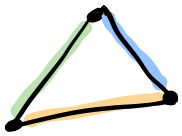
Def If G a graph, k - pos int. a k-edge-coloring
is a function $f: E(G) \longrightarrow \{1, 2, \dots, k\}$
such that $f(e_1) \neq f(e_2)$ whenever e_1, e_2 share a vertex.

$V(G)$ = people at a dance $E(G)$ = pairs who intend to dance

coloring: assigning couples $\rightarrow$ songs

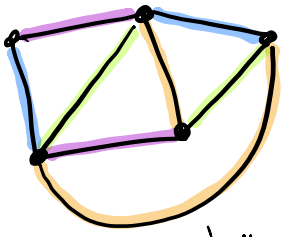


$k=2$



$k=3$

$\chi'(G)$



$\chi' \geq 4$