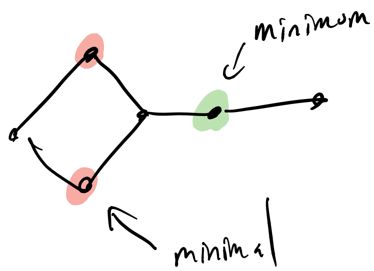
Def A vertex cut in a graph G is a subset $S \subset V(G)$ such that $G - S$ is disconnected.

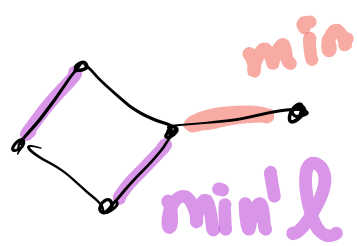
Def An edge cut in a graph G is a subset $T \subset E(G)$ such that $G - T$ is disconnected.

Def A minimal vertex cut is a vertex cut $S \subset V(G)$ such that no proper subset $S' \subsetneq S$ is a vertex cut.

Def A minimum vertex cut is a vertex cut $S \subset V(G)$ such that $\#|S|$ is as small as possible



Similarly, can define minimal & minimum edge cuts



$\kappa(G)$ = "the connectivity of G"
= the size of a minimum vertex cut if $G \neq K_n$
else $\kappa(G) = n-1$

$\lambda(G)$ = "the edge connectivity of G"

= the size of a <u>minimum</u> edge cut.

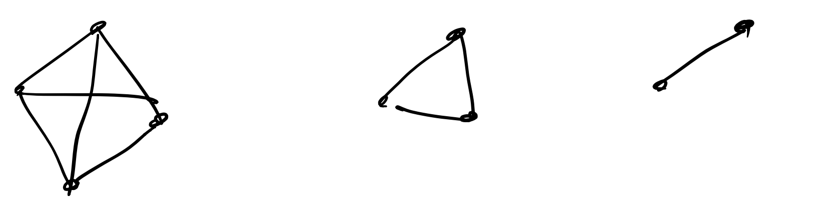
$\kappa(G) \geq 1 \iff$ G connected $\iff \lambda(G) \geq 1$

$\kappa(G) \geq 2 \iff$ G is nonseparable

<u>Def</u> We say G is k-connected if $\kappa(G) \geq k$

<u>Reminder</u> $\delta(G)$ = the min degree of any vertex in G

$\Delta(G)$ = the max degree - - -.



$\kappa(G) = 3$

if G is not complete then $\exists$ some vertex cut.