



Undirected Subgraphs

1 Why

We often start with an undirected graph and want to talk about the graphs we obtain by only keeping the edges incident to particular vertices.

2 Definition

The *subgraph* of a graph corresponding to a subset of vertices is the undirected graph with those vertices and all edges between those vertices.

3 Notation

Let $G = (V, E)$ be an undirected graph. Let $W \subset V$. The subgraph corresponding to W is the undirected graph (W, F) where

$$F = \{\{v, w\} \in E \mid v, w \in W\}.$$

TODO: maybe delete; this abuses G , which is no longer an ordered pair, but becomes a function on subsets of V with a complicated codomain. We denote the subgraph of G corresponding to W by $G(W) = (W, E(W))$.