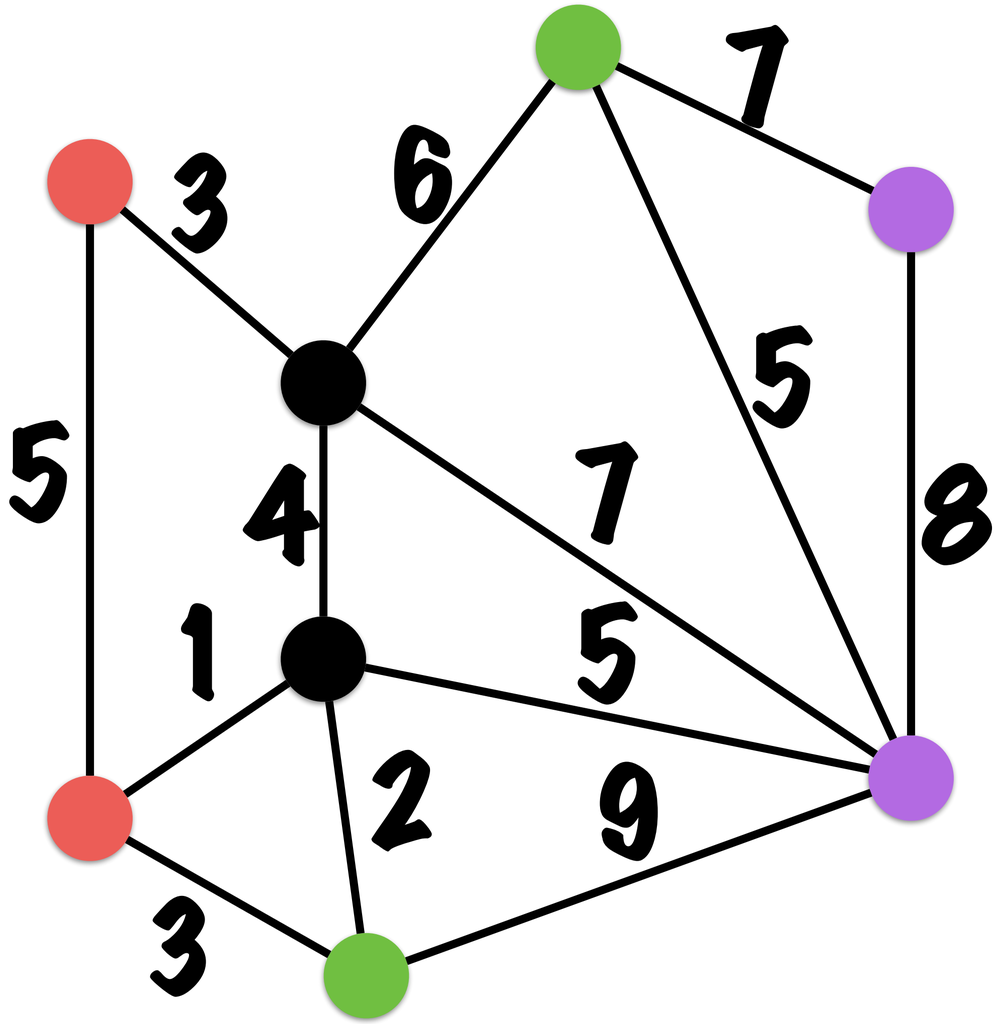
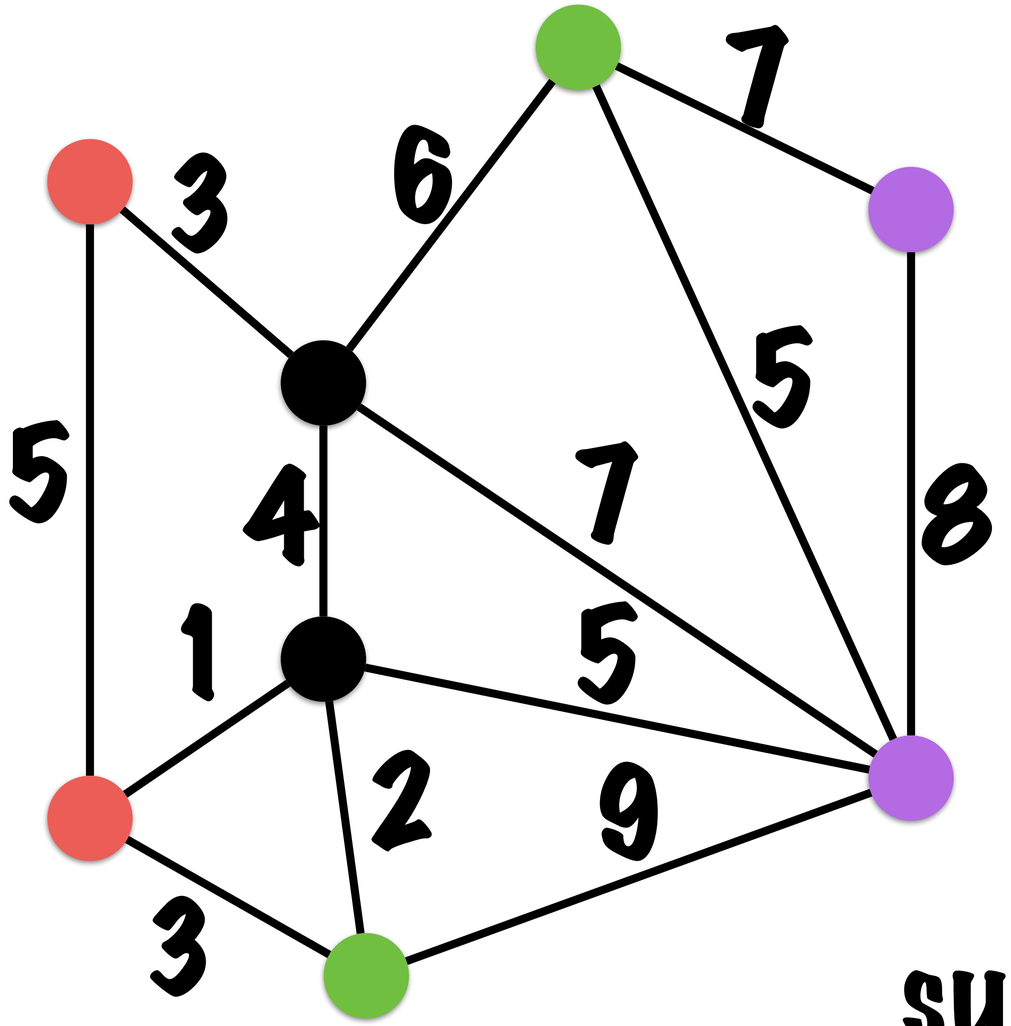
Steiner forest

Appears in...



VLSI
Optical and wireless communication
Transportation and distribution systems
Network design

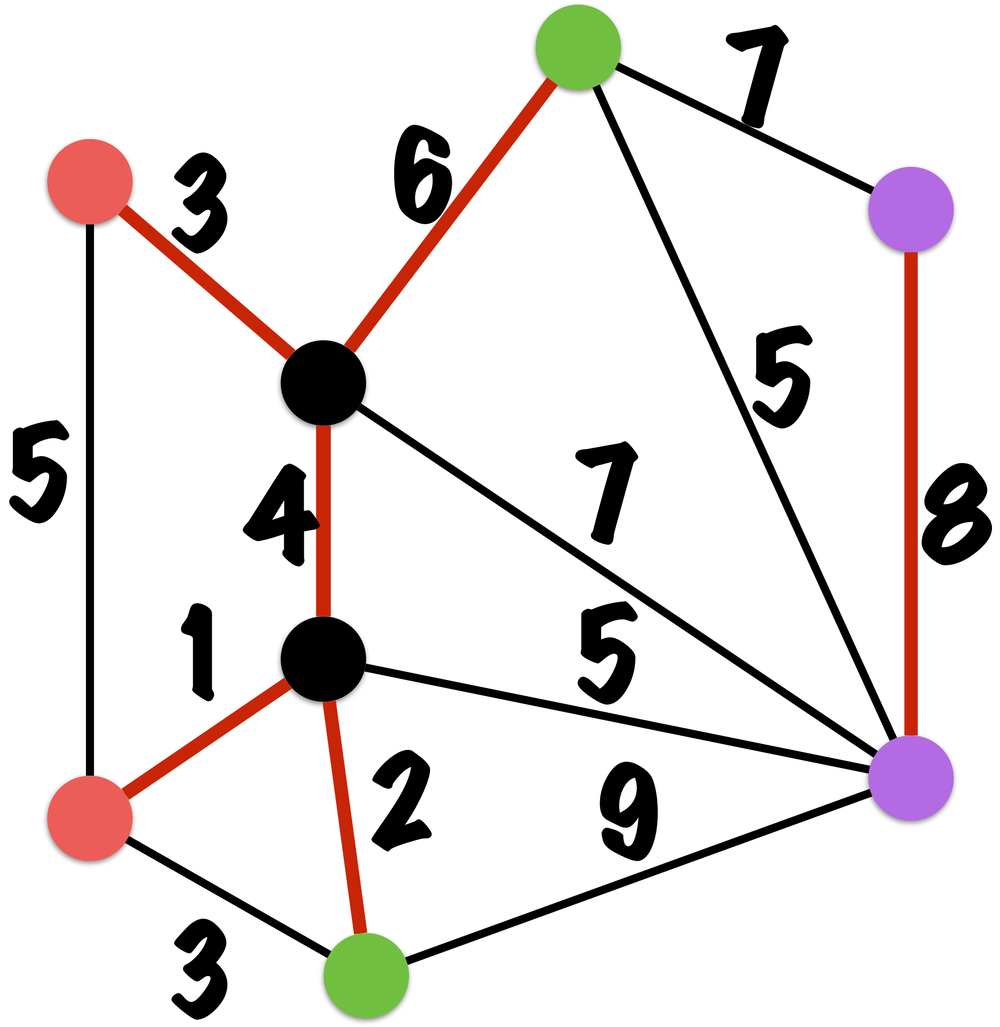
Connecting subsets



Input

Graph with edge costs
subsets of vertices (terminals)
{● , ● }, { ● , ● },{ ● , ● }

Connecting subsets



Input

Graph with edge costs

subsets of terminals

{ ● , ● }, { ● , ● },{ ● , ● }

Output

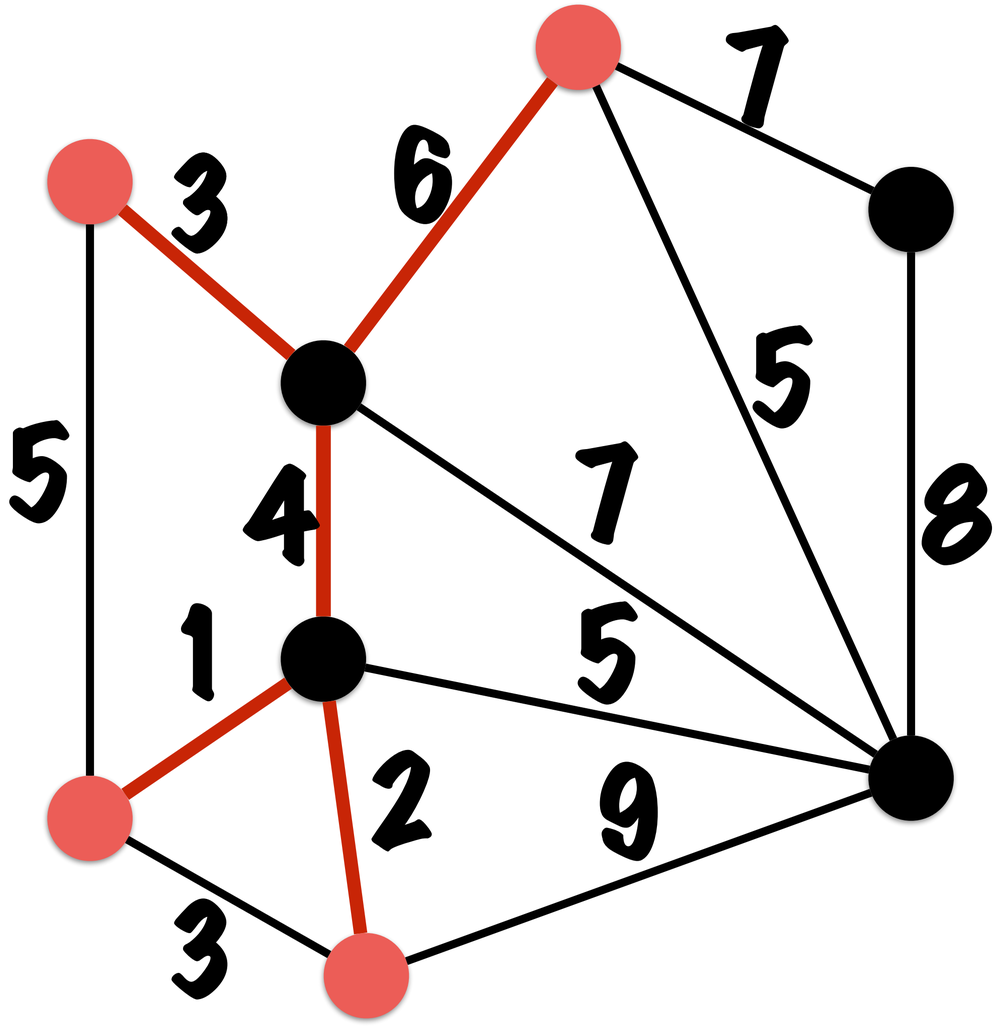
choose edges s.t.

each subset is connected

Goal

minimize cost of edges

A special case: Steiner tree



Input

Graph with edge costs

one subset of terminals

{ ●, ●, ●, ● }

Output

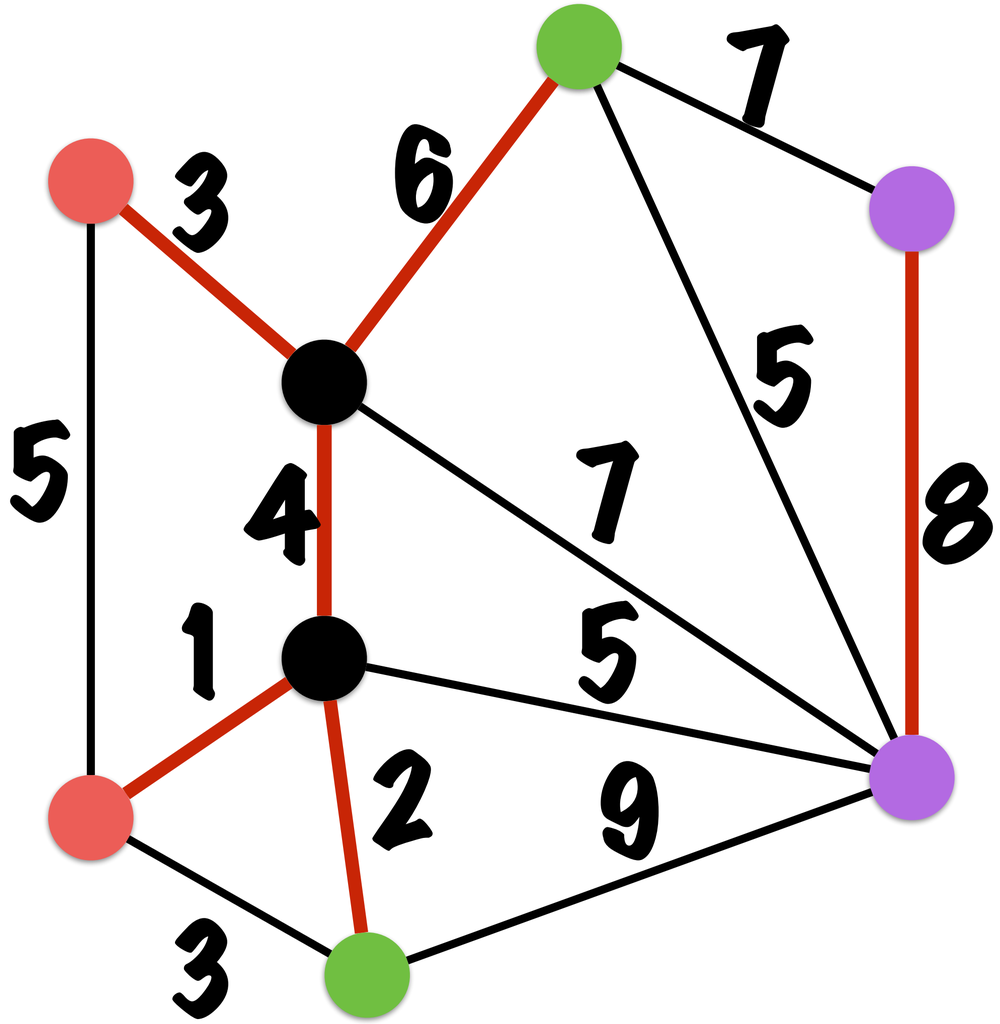
choose edges s.t.

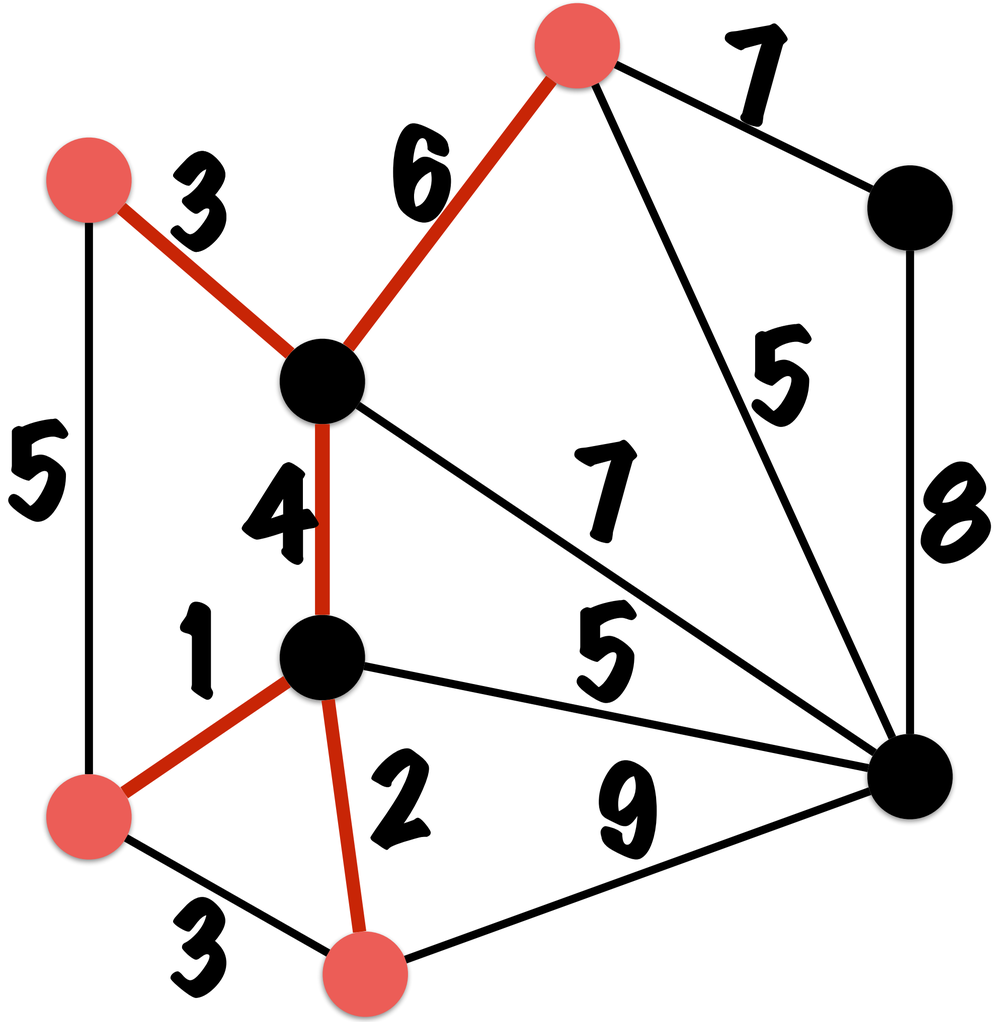
the subset is connected

Goal

minimize cost of edges

Steiner forest vs. Steiner tree





Steiner forest