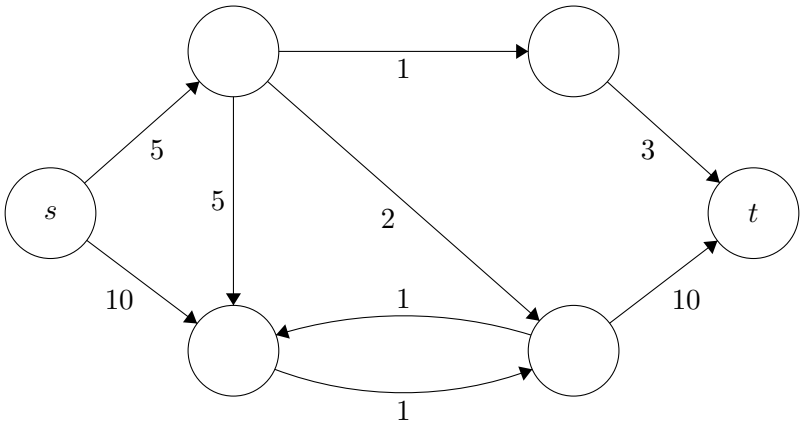
1 Network Flows

Def [Max flow problems]:
A flow network is a directed G=(V,E), S.T:

1. every edge has a capacity $C_e \geq 0$
2. There is a source $s \in V$
3. There is a sink $t \in V$ s.t $t \neq s$

Example:



Remark: Just for convinience sake, we assume that:

1. no edge enters s or leaves t.
2. All capacities are integers.
3. there exists an edge incident to every vertex.

Def [Flow]: A flow is a function f :$E \to \mathbb{R}_+$ s.t:

1. $\forall\, e,\ 0 \leq f(e) \leq C_e$
2. $\forall u \in V/s,t,\ \Sigma_{vu \in E} f(vu) = \Sigma_{uw \in E} f(uw)$