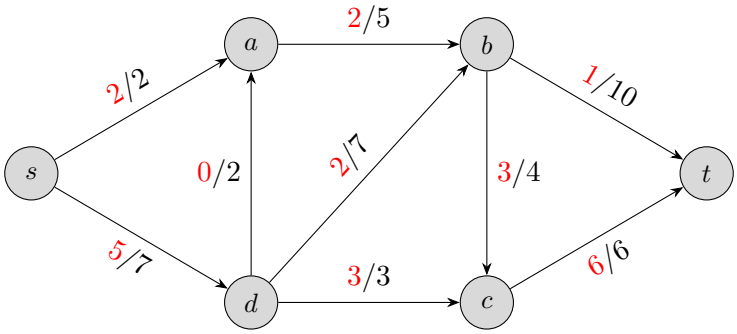
CS-E3190 Principles of Algorithmic Techniques

08. Linear Programming – Tutorial Exercise

1. **Maximum flow and minimum cuts.** You can find the definitions in Chapter 10 of Jeff's book. We are given a graph as shown in the figure.



Denote c_{uv} the capacity of the edge uv and denote f_{uv} the value of the flow f on the edge uv.

(a) In the maxflow problem we want to maximize the flow from s to t. Formulate maxflow as a linear program.

(b) Draw the residual graph for the graph in the figure.

(c) Find an augmenting path. Which edge becomes saturated when this path is augmented?

(d) Solve the linear program by finding the maxflow using augmenting paths.

(e) Give a minimum cut of the graph.