

## CS 310

“Somewhere, something incredible is waiting to be known”

# Homework 8

Max flow = ?

## Homework 8

Max flow = 9

# Ford - Fulkerson Algorithm

Initialize  $f_e=0$  for all  $e \in E$

repeat

    Search for an s-t path 'P' in the current residual graph  $G_f$   
    such that every edge of P has positive residual capacity.

if no such path 'P' then **stop** with current flow  $f_e$  for all  $e \in E$

else

    Let  $\Delta = \min(\text{residual capacity of } e \in P \text{ in } G_f)$

    for all edges  $e$  of  $G$  whose forward edge is in P

        increase  $f_e$  by  $\Delta$

    for all edges  $e$  of  $G$  whose reverse edge is in P

        decrease  $f_e$  by  $\Delta$

**When does it terminate?**

**Time complexity?**

# Reference reading

Algorithm Design by Tardos et. al. 2006

Chapter 7:

**§7.1** The Maximum-Flow Problem and the  
Ford-Fulkerson Algorithm

**§7.2** Maximum Flows and Minimum Cuts in a network