

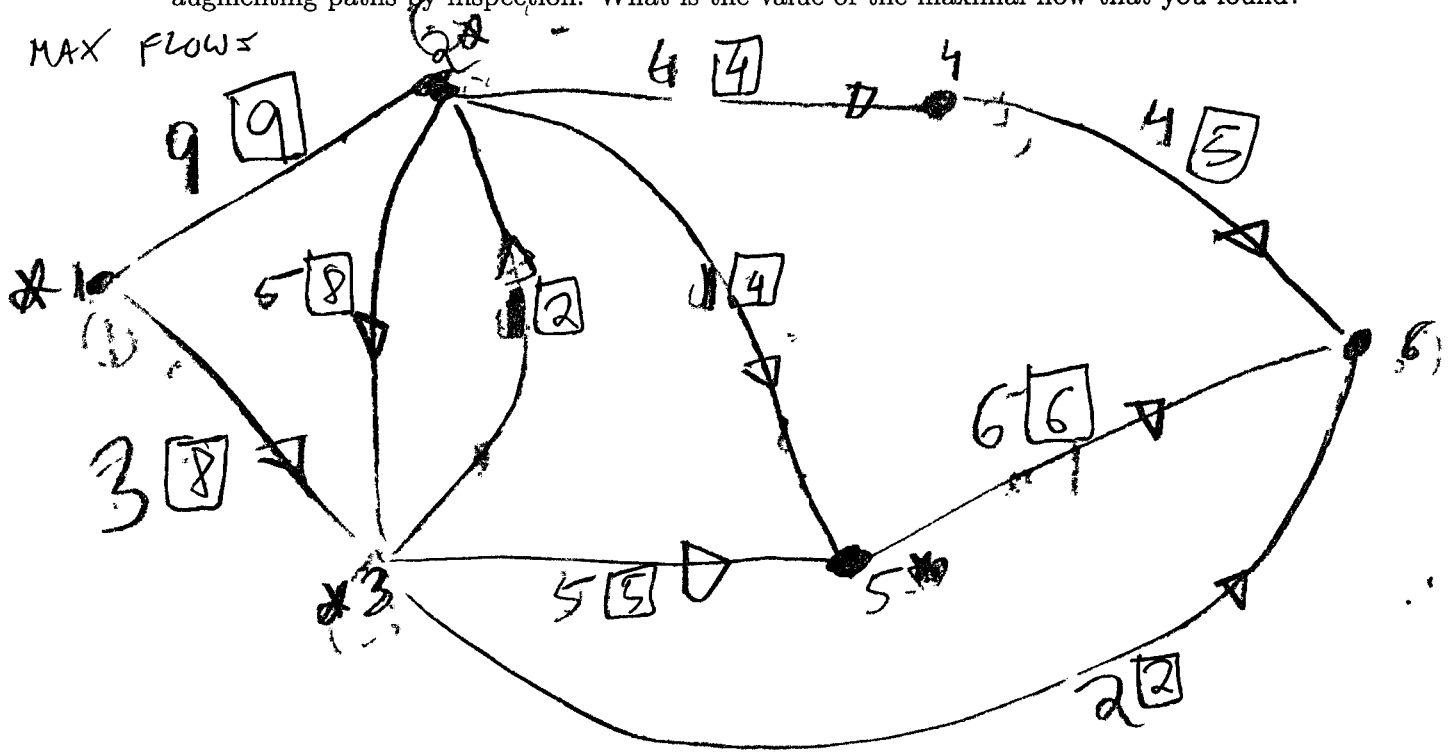
ANS. TO HOMEWORK 21

Homework for Lecture 21 (Due Dec. 6, 2023, 10:00pm) of Linear Optimization (Math 354), Fall 2023 (Dr. Z)

1. For the following network, with six vertices where 1 is the source, and 6 is the sink, the capacity matrix is

$$\begin{bmatrix} 0 & 9 & 8 & 0 & 0 & 0 \\ 0 & 0 & 8 & 4 & 4 & 0 \\ 0 & 2 & 0 & 0 & 5 & 2 \\ 0 & 0 & 0 & 0 & 0 & 5 \\ 0 & 0 & 0 & 0 & 0 & 6 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$

(a) Draw it (b) Find a maximal flow, by starting with the zero flow, and keep improving it, by repeatedly finding augmenting paths. Do not use the labelling algorithm, but rather find augmenting paths by inspection. What is the value of the maximal flow that you found?



MIN CUT = {36, 56, 24}

VALUE = 2 + 6 + 4 = 12