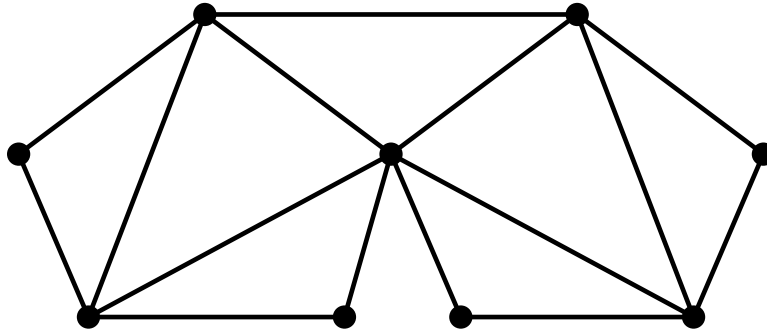


Spring 2023, Math 579: Preliminary Problem Set 11
Due: Thursday, April 13th, 2023
Trees

Preliminary problems. These problems should be completed before discussion on Thursday.



(P1) Find two spanning trees of the graph given above.

(P2) Find 2 subgraphs with the same number of edges as a spanning tree, but that are not trees. Do your chosen subgraphs contain cycles, or are they disconnected?

(P3) Find the determinant of the following matrix.

$$\begin{pmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 \\ 1 & 0 & 1 & 1 \end{pmatrix}$$