

## The Maximum Flow Problem

**Name:** \_\_\_\_\_

**Objectives:**

- Introduce the maximum flow problem.
- Demonstrate how to solve the maximum flow problem by the Ford-Fulkerson algorithm.

**Key Ideas:**

- sink and source nodes
- flow
- feasible flow
- value of flow
- cuts
- capacity of cut
- max-flow min-cut theorem
- integrality properties
- sensitivity analysis

**Reading Assignment:**

- Read Handout 5 on the maximum flow problem.

**Prelab Exercise:**

For the following graph, compute the maximum flow from node 1 to node 3 in any way you like. (The numbers on the arcs are capacities.) Can you give a convincing argument that you have found an optimal solution?

