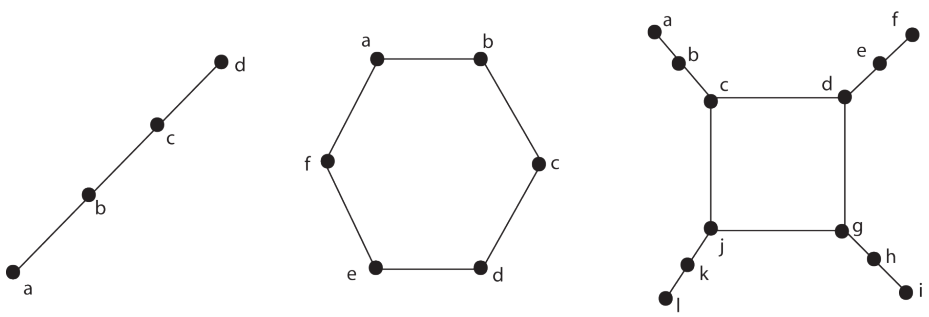
Last name _____

First name _____

LARSON—MATH 556—CLASSROOM WORKSHEET 09
Connectivity.

Concepts & Notation

- Sec. 2.2: cut edge, ω, spanning tree, edge cut $[S, \bar{S}]$, bond.
- Sec. 2.3: cut vertex, connector (non-cut vertex).
- Sec. 3.1: vertex cut, κ, edge cut, κ'.
- Sec. 3.2: block, internally disjoint paths, Whitney's theorem, Menger's theorem



Classwork Problems

1. For the path graph P_4 (left) classify the vertices as cut-vertices or connectors.

2. For the cycle graph C_6 (middle) classify the vertices as cut-vertices or connectors.

3. For the graph $C_{2,2}$ (right) classify the vertices as cut-vertices or connectors.

Facts (proved)

(1) Every non-trivial tree has at least 2 degree-1 vertices.

(2) Every connected graph has a spanning tree.

4. Prove: Every non-trivial tree has at least 2 connectors.

5. Prove: Every non-trivial connected graph has at least two non-cut vertices.