

Last name \_\_\_\_\_

First name \_\_\_\_\_

LARSON—MATH 356—CLASSROOM WORKSHEET 06  
Bipartite Graphs!

Reminders

1. Remember to email your Notes/Classroom Worksheet prior to the next class.
2. Read ahead in our textbook.

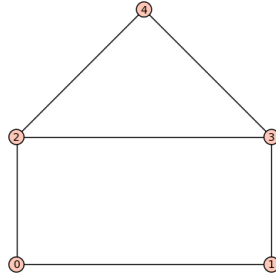
Concepts & Notation

- Sec. 1.4: subgraph ( $H \subseteq G$ ), spanning subgraph, induced subgraph  $G[V']$ , edge-induced subgraph  $G[E']$ .
- Sec. 1.5: degree, maximum degree  $\Delta$ , minimum degree  $\delta$ .
- Sec. 1.6: walk, trail, path, distance, connected, disconnected, components  $\omega$ .
- Sec. 1.7: closed walk, cycle, girth.
- Sec. 1.8: weighted graph, shortest path problem, Dijkstra's algorithm.

Review

1. **Corollary:** The number of odd degree vertices of a graph is even.
2. What is a *walk* in a graph?
3. What is a *trail* in a graph?
4. What is a *path* in a graph?
5. When is a graph *connected*?
6. What is a *component* in a graph?
7. What is a *closed walk* in a graph?
8. What is a *cycle* in a graph?

## Notes



1. What is the *girth* of a graph?
2. (Sec. 1.6) What is the *distance* between vertices  $v$  and  $w$  in a graph?
3. (Sec. 1.7) **Claim:** A graph is bipartite if and only if it contains no odd cycle.
4. Can we turn this proof into a test for whether a graph is bipartite?
5. (Sec. 1.8) What is a *weighted graph*?
6. What is the *shortest path problem*?
7. What is *Dijkstra's algorithm*?