Last name _____

First name _____

LARSON—MATH 356—CLASSROOM WORKSHEET 05
Bipartite Graphs!

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 Δ, minimum degree δ.
- Sec. 1.6: walk, trail, path, connected, disconnected, components ω.
- Sec. 1.7: closed walk, cycle, girth.
- Sec. 1.8: weighted graph, shortest path problem, Dijkstra's algorithm.

Reminders

1. Remember to email your Notes/Classroom Worksheet prior to the next class.

2. Read ahead in our textbook.

Review

1. What is an *induced subgraph* of a graph G?

2. What is an *edge-induced subgraph* of a graph G?

3. What is a *graph complement*?

4. What is an *edge-induced subgraph* of a graph G?

5. What is a *spanning subgraph*?

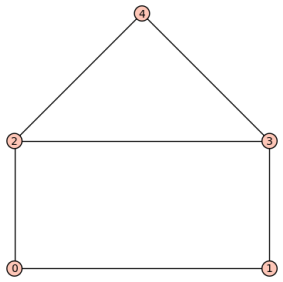
6. What is the *degree* of a vertex?

7. What is the *minimum degree* of a graph?

8. What is the *maximum degree* of a graph?

9. **Theorem**: The sum of the degrees of a graph equals twice the number of edges.

Notes



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?

9. What is the *girth* of a graph?

10. **Claim**: A graph is bipartite if and only if it contains no odd cycle.