

Last name _____

First name _____

LARSON—MATH 356—CLASSROOM WORKSHEET 03
Adjacency & Incidence Matrices.

Concepts & Notation

- Sec. 1.1: vertices, ν , edges, ϵ , graph, planar graph, adjacent, incident.
- Sec. 1.2: identical graphs, isomorphic graphs, $G \cong H$, complete graphs K_n , empty graphs E_n , bipartite graph, complete bipartite graph $K_{m,n}$, graph complement G^c .
- Sec. 1.3: incidence matrix \mathbb{M} , adjacency matrix \mathbb{A} .
- 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

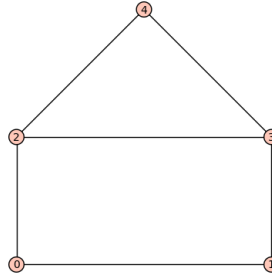
Reminders

1. Remember to email your Notes/Classroom Worksheet prior to the next class.
2. Homework #0 is due tomorrow. (We meet in Lab on Thursday!)
3. Read ahead in our textbook.

Review

1. What are *identical graphs*?
2. What are *isomorphic graphs*?
3. What are *complete graphs*?
4. What is an *empty graph*?
5. What is a *bipartite graph*?
6. What is a *complete bipartite graph*?

Notes



1. What is an *incidence matrix* M of a graph? (these are not unique!)
2. What is an *adjacency matrix* A of a graph? (these are not unique!)
3. What is a *subgraph* of a graph G ?
4. What is an *induced subgraph* of a graph G ?
5. What is an *edge-induced subgraph* of a graph G ?
6. What is a *graph complement*?
7. What is an *edge-induced subgraph* of a graph G ?
8. What is a *spanning subgraph*?
9. What is the *degree* of a vertex?
10. What is the *minimum degree* of a graph?
11. What is the *minimum degree* of a graph?
12. What is the *maximum degree* of a graph?
13. **Claim:** The sum of the degrees of a graph equals twice the number of edges.