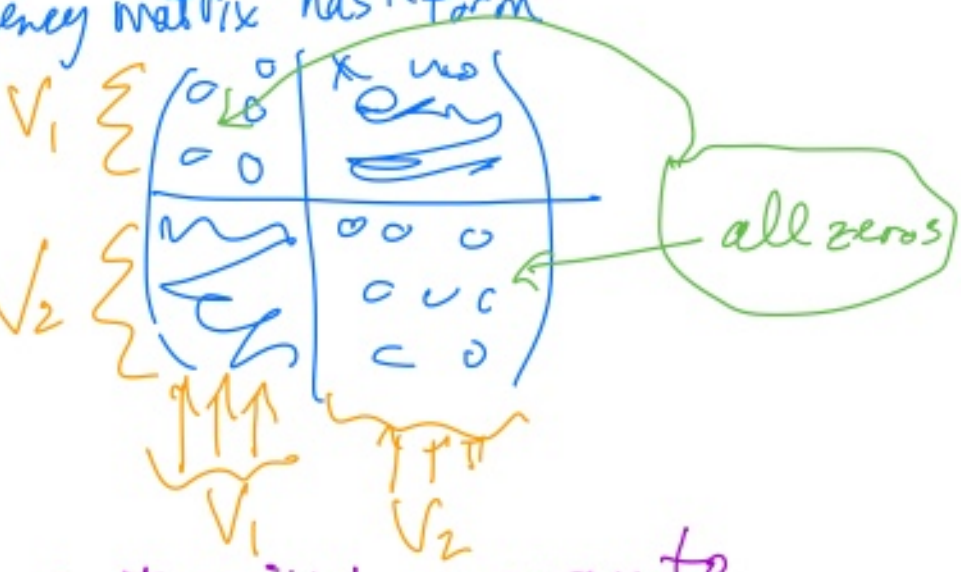
Notes from homework:

① Two Graphs are isomorphic
$\iff$ Adjacency matrices can be made the same after reordering vertices
(rearranging the columns and applying the same rearrangement to the rows.)

② A graph is bipartite $\iff$
its adjacency matrix has the form



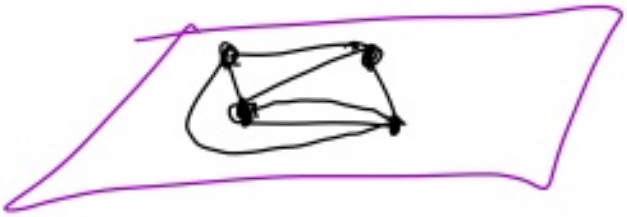
(rearrangements might be necessary to get the vertex sets together.)

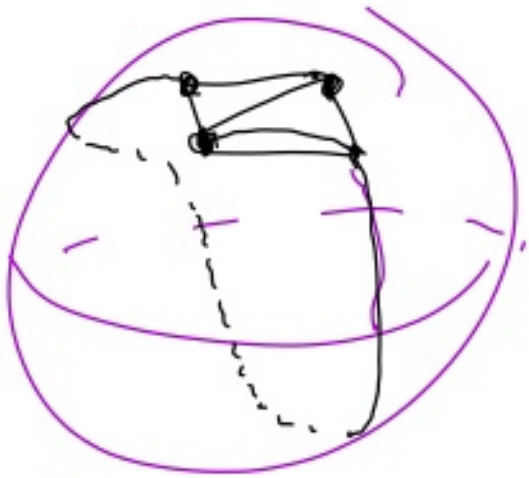
③ In proofs — make sure to write in sentences.

④ Dirac's Graph Thm (Corrected version):
If G is a graph with at least 3 vertices, and if the degree of each vertex is at least $\frac{n}{2}$, then there exists
(where n = # of vertices)

a Hamiltonian circuit in the graph.

Planar graphs = Spherical graphs





Euler characteristic of a graph on a surface.

Let
v = # of vertices
e = # of edges
f = # of faces

Sphere

$$\chi = v - e + f$$

↑ Euler characteristic (2 for sphere)

$f = 4$, $e = 6$, $v = 4 \Rightarrow v - e + f = 4 - 6 + 4 = \boxed{2}$

Quiz

1. Favorite Movie
2. Define complete graph
3. A Hamiltonian circuit on a graph is _____.