CS311H

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Good Morning, Colleagues

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Are there any questions?

Logistics

- Class survey

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- Homework 5 due at the start of class on Tuesday

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- 2 more graph modules on Tuesday
  - Apologies for imperfect modules
  - Honors material modules have harder questions

Logistics

- Last question on module (not connectected graph)?

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- How do you know if a graph is planar?

Bipartite graphs

- If G is a connected, bipartite graph, prove that for every edge (u, v), there doesn't exist any vertex s such that $dist(s, u) = dist(s, v)$ where $dist(x, y)$ is the length of the shortest path between x and y.

Planar Graph Applications

- Electronic circuit design (so it can all fit on a single board without crossing wires)

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- Design of road networks (to avoid need for underpasses and overpasses)

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- Design of road networks (to avoid need for underpasses and overpasses)
- Shortest path problems

Euler's Formula

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- For a planar connected graph G, the edges have MIN-DEGREE of 2. Also, there are 8 REGIONS with degrees 8, 4, 4, 4, 3, 3, 3 and 3. How many edges and vertices does G have?

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- For Tuesday, you'll see how to prove the 5-color theorem

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- Prove that every planar graph is 6-colorable

Assignments for Thursday

- Modules 14.1 and 14.2
- Homework due at the start of class