

Homework 4: Induction, the Euler Characteristic, and Chemistry

*Due Tuesday, Week 5, at the start of class**UCSB 2015*

Work on these problems for 90m/until you solve everything/longer if you're interested!

1. We can define a **graph-fullerene** as any graph G with the following properties:

- Every vertex in our graph is connected to three other vertices.
- Our graph is planar.
- Every face of our graph is either a pentagon or a hexagon.

Prove the claim we made in class: every graph-fullerene contains exactly twelve pentagons. (Use the Euler characteristic!)