Assignment #8 due Monday 11/20

Assignment #9 due Monday 11/27

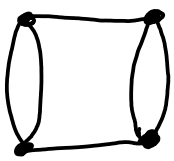
Assignment #10 due Monday 12/4

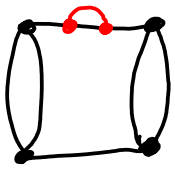
## Assignment #8

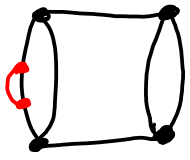
① There are nine 6-vertex, 3-regular, loopless graph up to isomorphism.

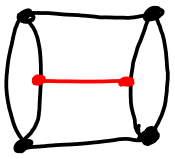
There are 6 6-vertex, 3-regular, simple graphs

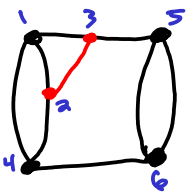
Here's one graph on 4 vertices and all the ways we can do reverse excision.

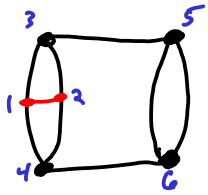


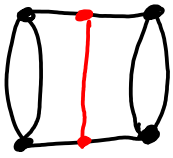








not all of these are different.

In order to Prove $P \to Q$ you have three choices

Direct Proof Assume P is true. Show Q is true as well.
first sentence last sentence.

Contrapositive Proof Assume Q is false. Show P is false as well
first sentence last sentence.

Contradiction Assume P is true and Q is false.
first sentence.

Conclude R is true and R is false.

Use direct proofs for both 4a. 4b.

4a Assume that the edge set of G is a disjoint union of edge sets of cycles.

⋮

Therefore every vertex of G has even degree.

(b) Suppose every vertex of $G$ has even degree.

⋮

Use Second principle of induction on $|E(G)|$

⋮

Therefore $E(G)$ is a disjoint union of edge sets of cycles.