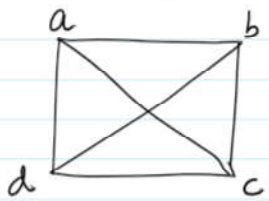
L-26 Planar

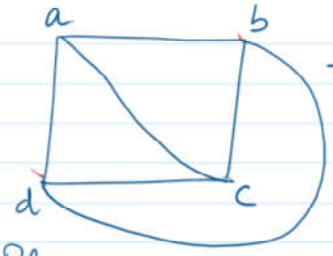
Wednesday, April 6, 2022 10:05 AM

Planar Graph :→

A Planar graph is a graph drawn in the plane in such a way that no two edges intersect (cross) each other.



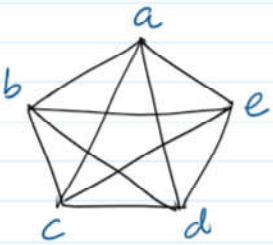
K_4

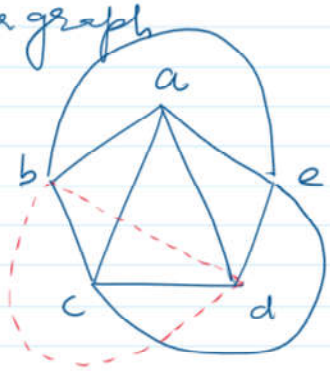


→ Planar Representation

Planar graph

K_5





Non-planar graph

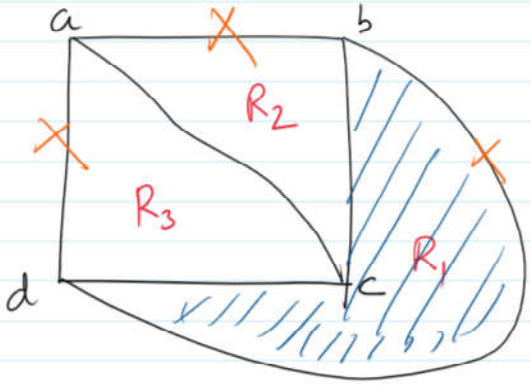
$K_{3,3}$

Non-planar graph.

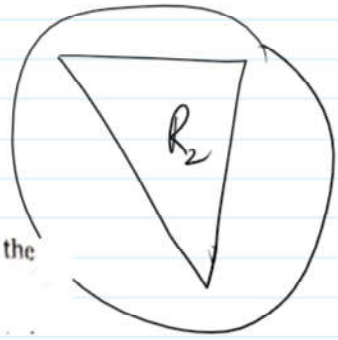
Planar graph : A Planar graph is a graph which is isomorphic to a plane graph *i.e.*, it can be redrawn as a plane graph.

↳ Planar Representation.

Region : A plane graph partitions the plane into several regions. These regions are called faces. Each region is depicted by the set of edges.

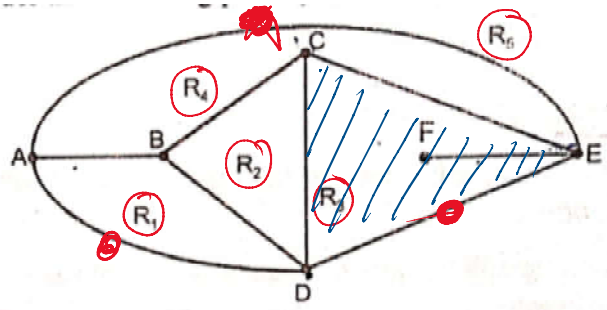


Face



Degree of face : If G be graph and g be its face, then the number of edges in the boundary of g with cut edges counting twice is defined as the degree of face g.

$\deg(R_1) = 3$ $\deg(R_2) = 3$ $\deg(R_3) = 3$ $\deg R_4 = 3$



How Many Regions are there

(a) 4 (b) 5 (c) 6 (d) 7

$d(R_1) = 3$

$d(R_2) = 3$

$d(R_3) = 5$

$d(R_4) = 4$

$d(R_5) = 3$