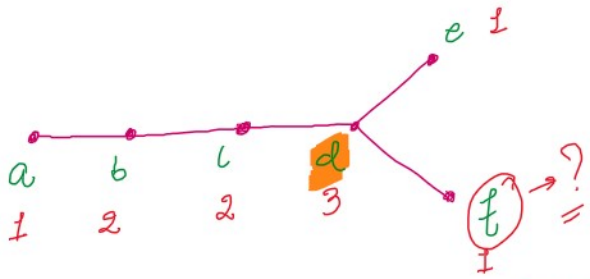
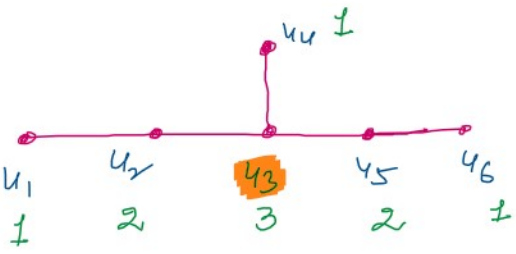
L22 29 Mar 2022

29 March 2022 11:10





$f(a) =$

$f(b) =$

$f(c) = u_5$

$f(d) = u_3$

$f(e) = u_4$

$f(f) =$

$d - u_3$

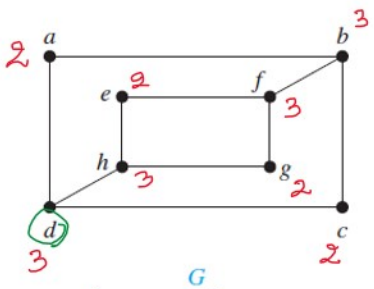
adjacent
2 vertices with degree 1
and 1 vertex with degree 2

2 vertices with degree 2
and 1 vertex with degree 1

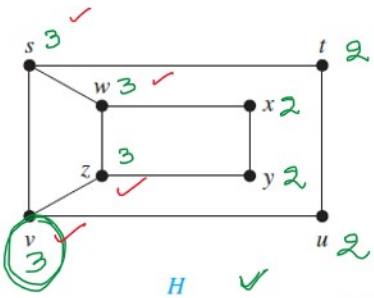
NOT isomorphic

No. of vertices in $G = 8$
No. of edges in $G = 10$
3, 3, 3, 3, 2, 2, 2, 2

No. of vertices in $H = 8$
No. of edges in $H = 10$
3, 3, 3, 3, 2, 2, 2, 2



G

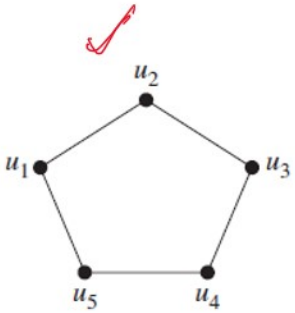


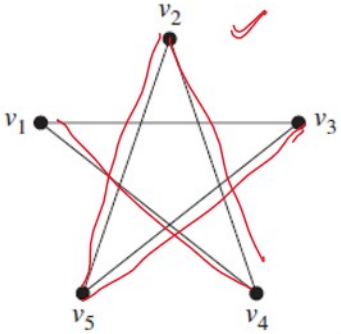
H

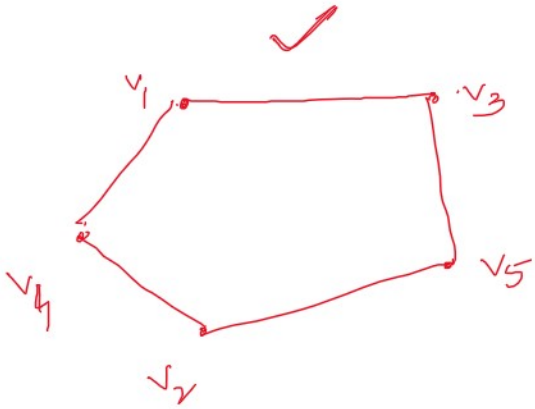
NOT isomorphism

Every vertex whose degree is 3 ($d, 5, f$ or 6)
adjacent to 2 vertices with degree 2
and 1 vertex with degree 3

Every vertex with degree 3 (r, z, w, s)
adjacent to 2 vertices with degree 3
and 1 vertex with degree 1

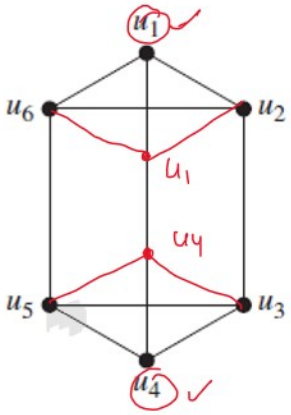


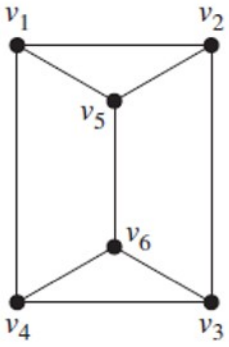




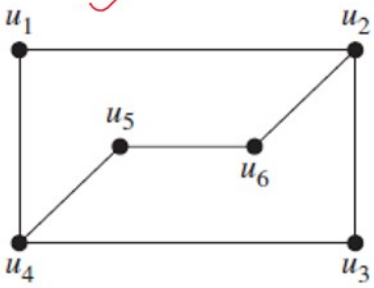
Isomorphic

Isomorphic

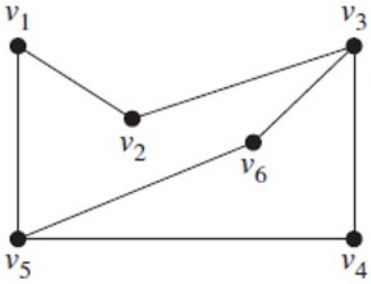




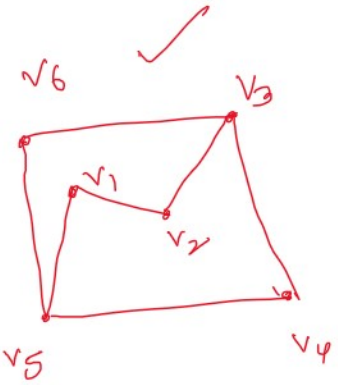
Isomorphic



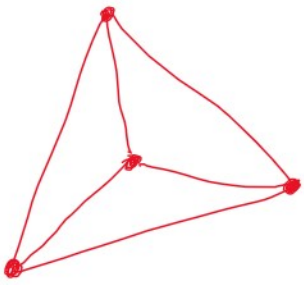
G

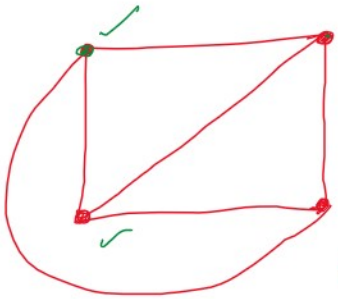


H



Isomorphic

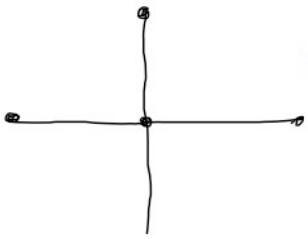




Yes

Homeomorphic Graphs :→

Given any graph G, we obtain a



Given any graph G, we obtain a new graph by dividing an edge of G with additional vertices.

Two graphs G and G^* are s.t. to be Homeomorphic if they can obtained from the same graph or isomorphic graphs by this method.