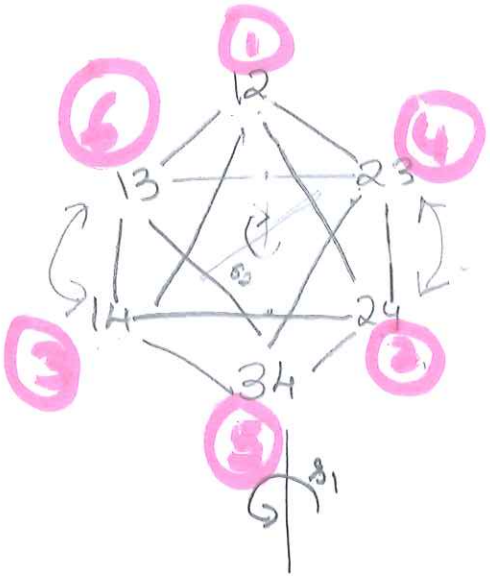
Octahedral graph:

Vertices : $\binom{4}{2}$

edges : intersections.



$s_1 = (12)$

$s_2 = (23)$

$s_3 = (34)$

$s_1 = (23)(46)$

$s_2 = (16)(25)$

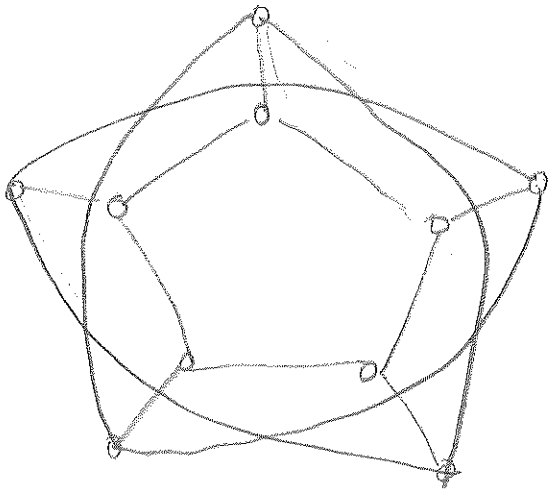
$s_3 = (24)(36)$

Yet another embedding of S_4 in S_6. (actually A_6!)

S_4 acts on V in another way

Qn: Is this isomorphic to the rep. from Lecture 10?

Petersen = Dodecahedron / antipodes



$\circlearrowleft S_5$

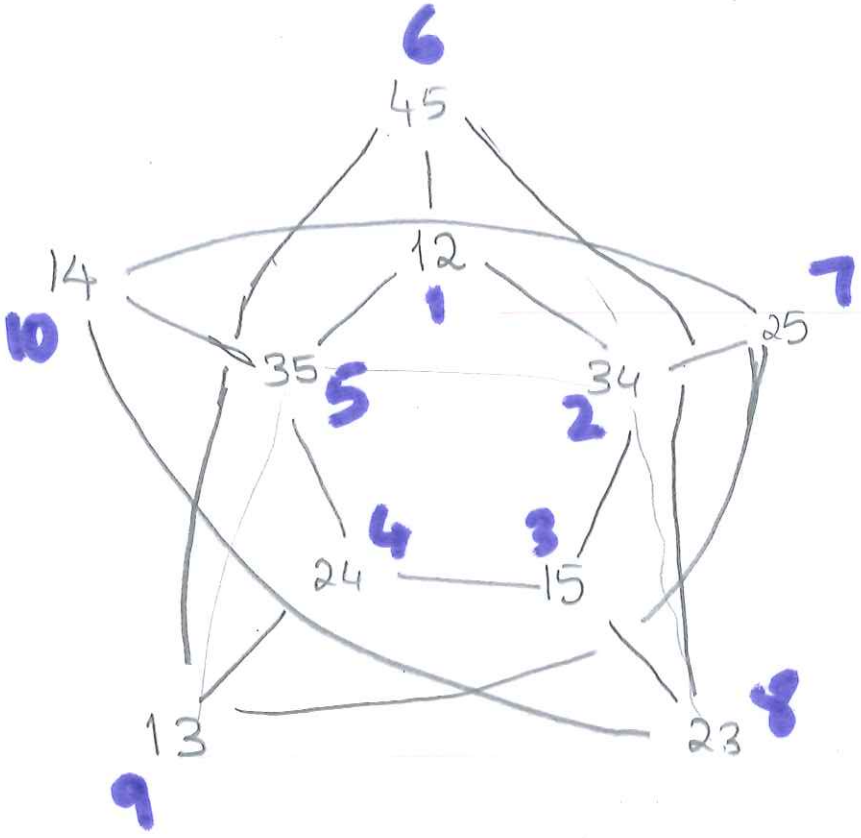
$RP^2 = S^2 /$ antipodes

Petersen - tiling of RP^2 by six pentagons

Petersen graph $\rightsquigarrow S_5 \subset S_{10}$.

Kneser graph $K_{5,2}$

= Petersen graph.



$\circlearrowright S_5$

$S_1 = (37)(4,10)(8\,9)$

$S_2 = (19)(24)(57)$

$S_3 = (48)(56)(9,10)$

$S_4 = (25)(3,10)(47)$

$\circlearrowright A_5 \times S_2$

$S_5 \longrightarrow S_{10}$

transitive embedding.