# Homework #9 §13 #1, §14 #1,4

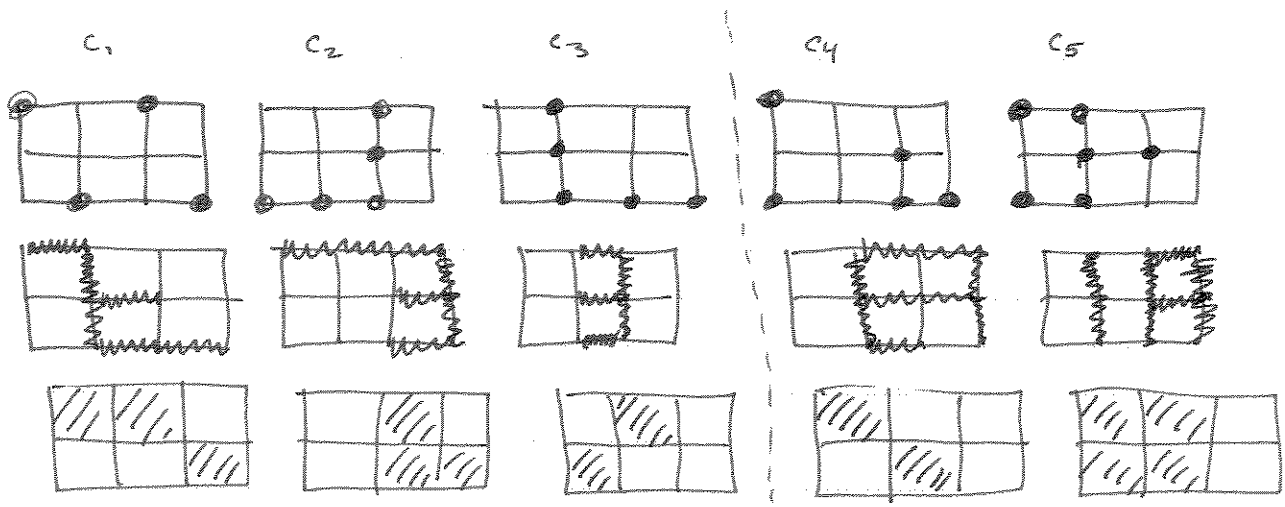
§13

(1) $\gamma: [0,1] \longrightarrow \mathbb{R}^2$ is a path and $P$ is a point of $\gamma$ which is not an endpoint. Then $\gamma - \{P\}$ is not connected, and is in fact, two connected pieces.

5 Proof: $\gamma$ is a homeomorphism so it is sufficient to observe that if $P \in (0,1)$ then $[0,1] - \{P\} = [0,P) \cup (P,1]$ and that $[0,P)$ and $(P,1]$ are connected, but their union is not. //

§14

(1)




2 rev

(4) (a) $C + C_1 = C_3$

$C = C_1 + C_3$

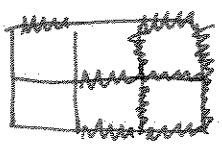
2 rev

(b) $C + C_5 = C_1$

$C = C_1 + C_5$

$= C_1 + C_1 + C_2 + C_3$

$= C_2 + C_3$



(c) $C = C_4 + C_5$

$= C_3$