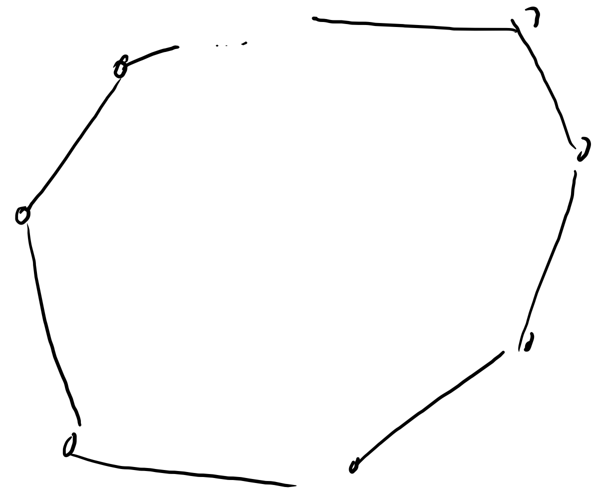
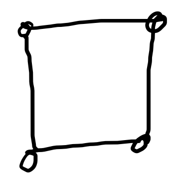
C_n

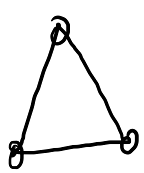


graphe cyclique

C_1

C_4 

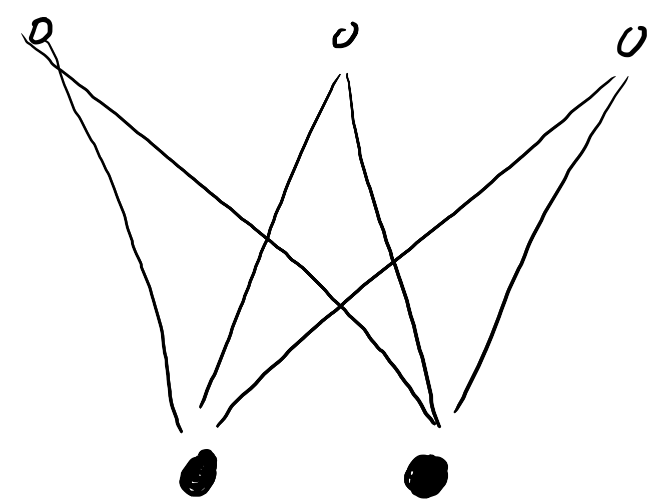
C_2 

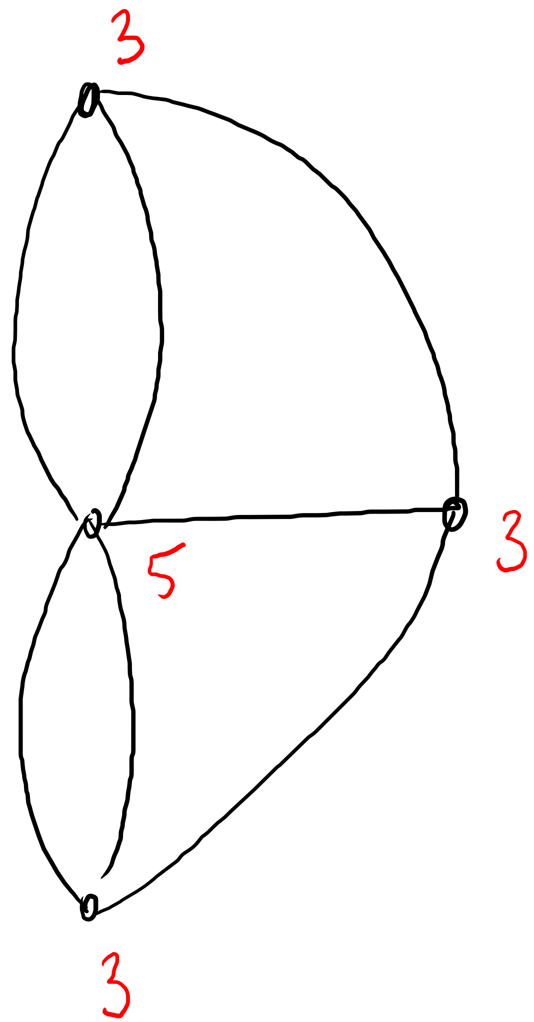
C_3 

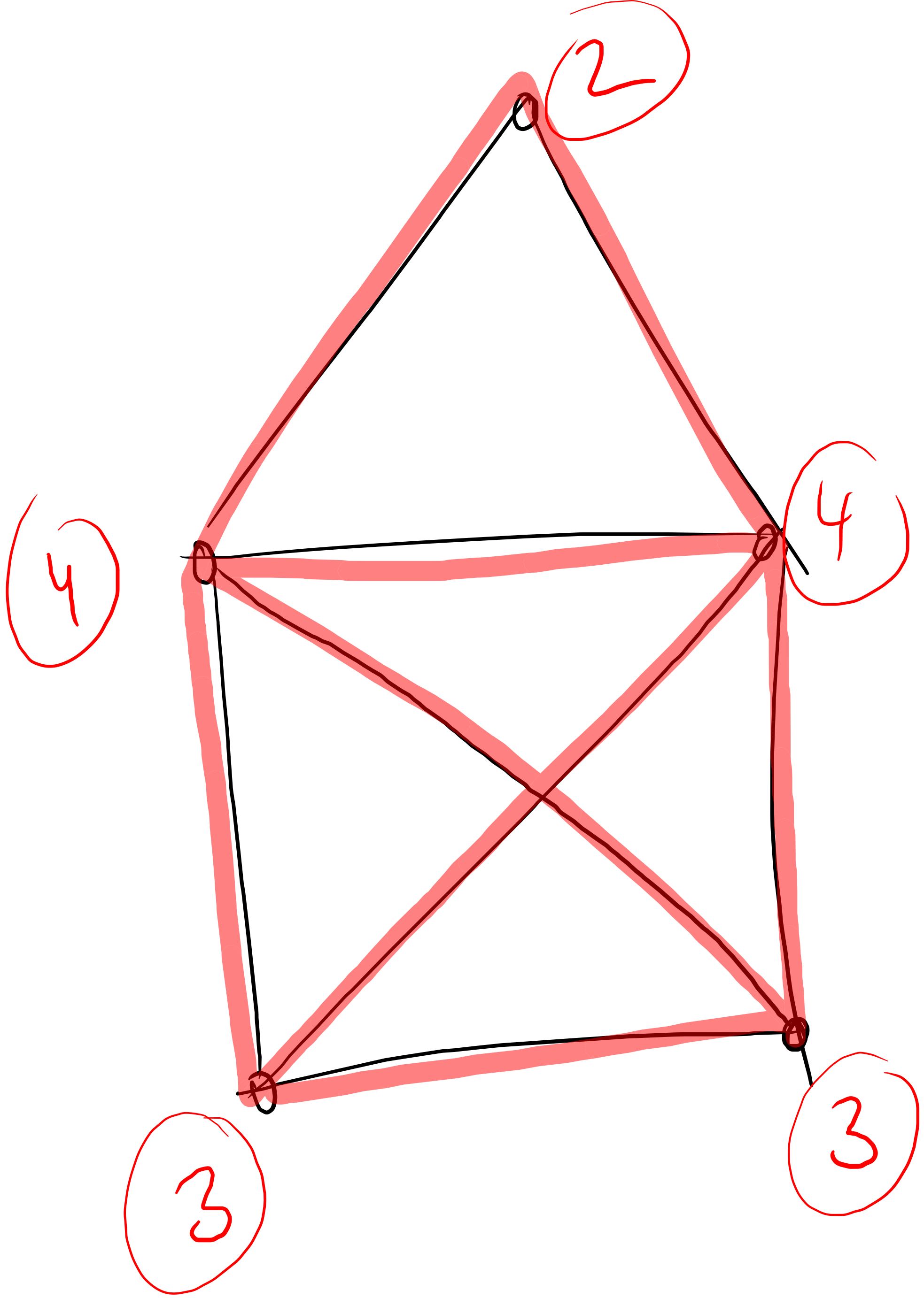
K_n Graphe complet

$K_{m,n}$

$K_{3,2}$



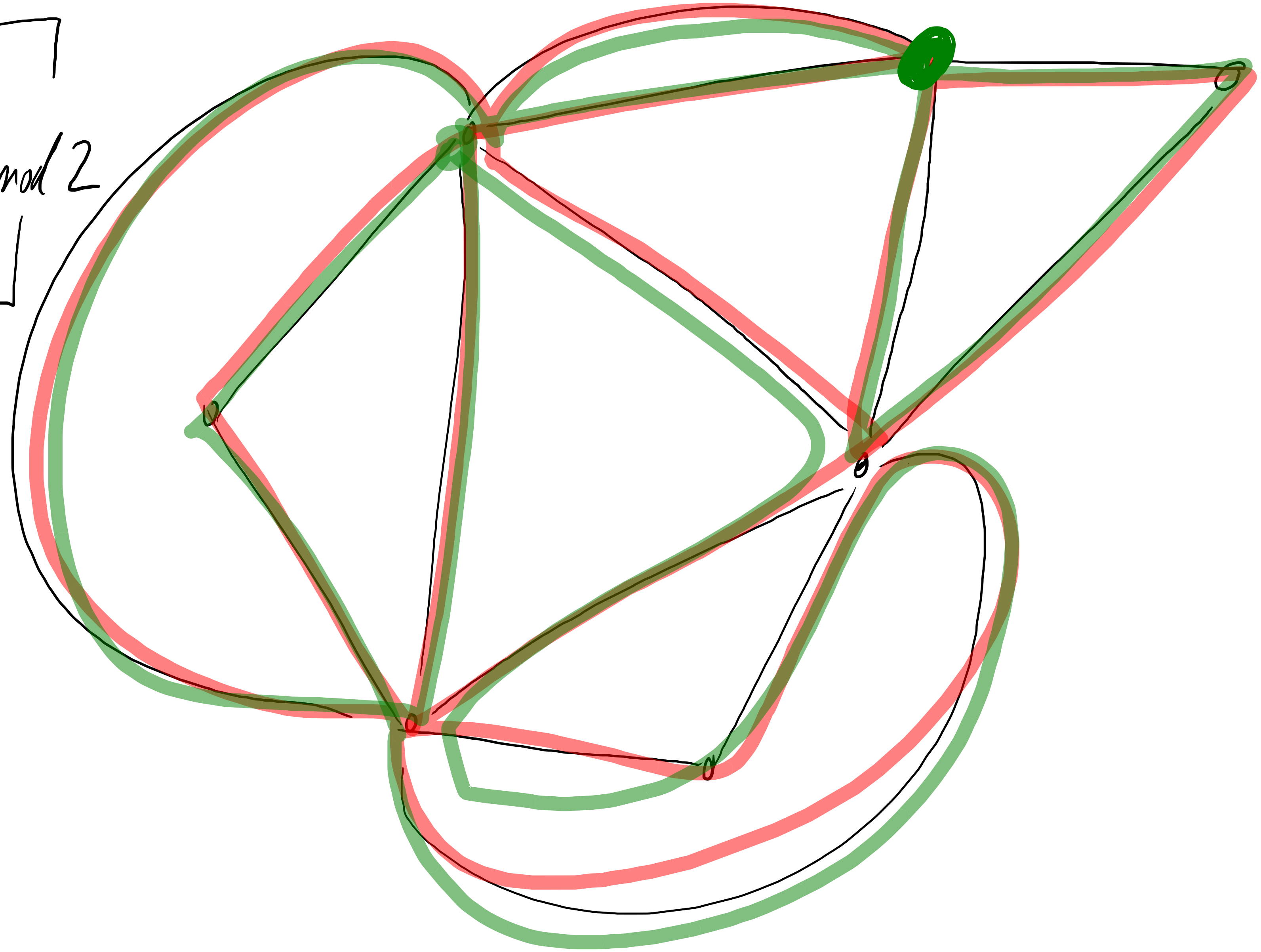

3
5
3
3

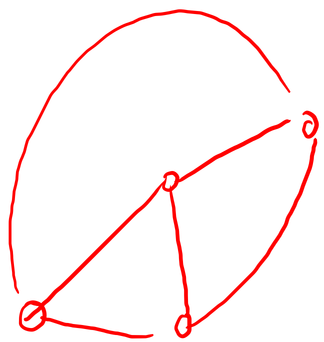


2
4
4
3
3

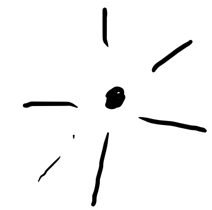
[Eulérien] $\iff$ [$\deg(s) \equiv 0 \mod 2$]

$\forall s$ sommet





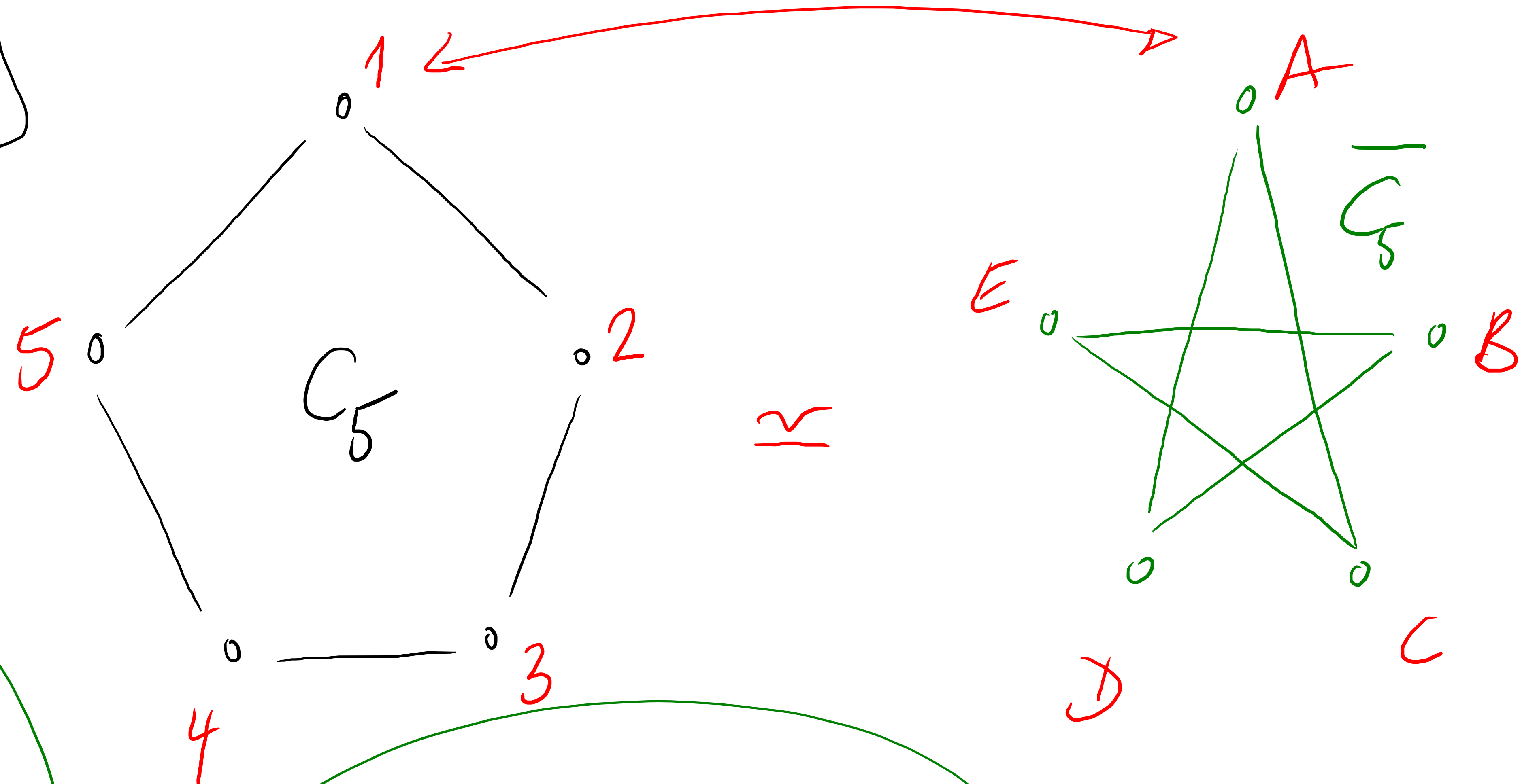
n sommets



r régulier

$$\sum \text{degrés} = n \cdot r$$

$\boxed{3.1.21}$



sommets

C_5	$\overline{C_5}$
1	A
2	C
3	E
4	B
5	D

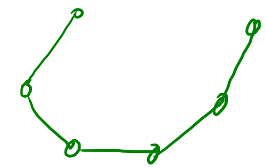
arêtes

$12 \leftrightarrow AC$ $\quad$ $45 \leftrightarrow BD$

$23 \leftrightarrow CE$ $\quad$ $51 \leftrightarrow DA$

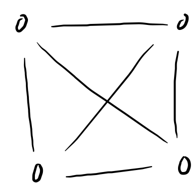
$34 \leftrightarrow EB$

$C_n \simeq \overline{C_n}$ si $n \neq 5$



n arêtes $\qquad \frac{n(n-1)}{2} - n$

K_n



$$\begin{array}{ccccc} n-1 & + \; n-2 & + \; n-3 & + \dots & + \; 1 \\ 1 & 2 & 3 & & \\ \hline \end{array}$$

$$\underbrace{n \quad n \quad n \quad \dots \quad n}_{(n-1) \text{ fois}}$$

$$\frac{n(n-1)}{2}$$

$$n = \frac{n(n-1)}{2} - n$$

$$2n = n^2 - n - 2n$$

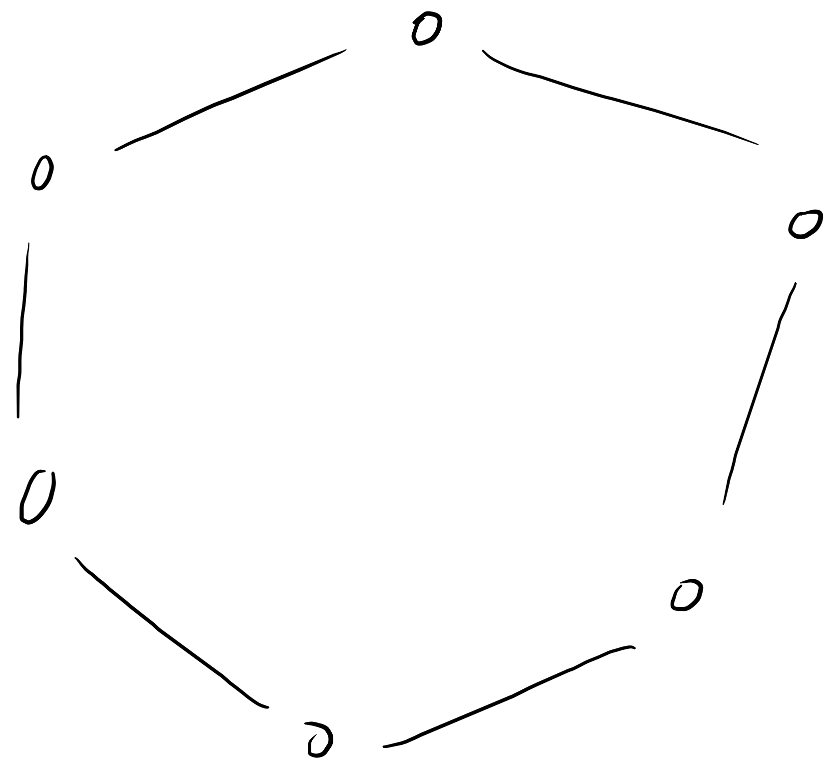
$$n^2 - 5n = 0 \;/\; n(n-5) = 0 \quad \Rightarrow \quad n = 5$$

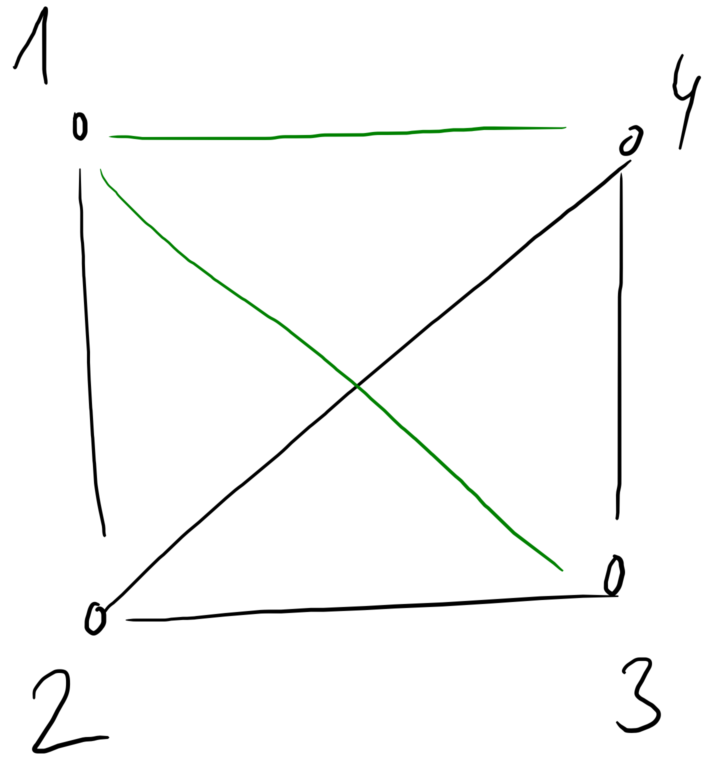
$$\Rightarrow \boxed{\text{si } n \neq 5 \quad C_n \not\simeq \overline{C_n}}$$

G 3 régulier, 7 sommets

$$\underbrace{\sum \text{degrés}}_{2m} = 3 \cdot 7 = 21 \quad ↯$$

C_6





$\overline{G}$

14

13

complémentaire de G

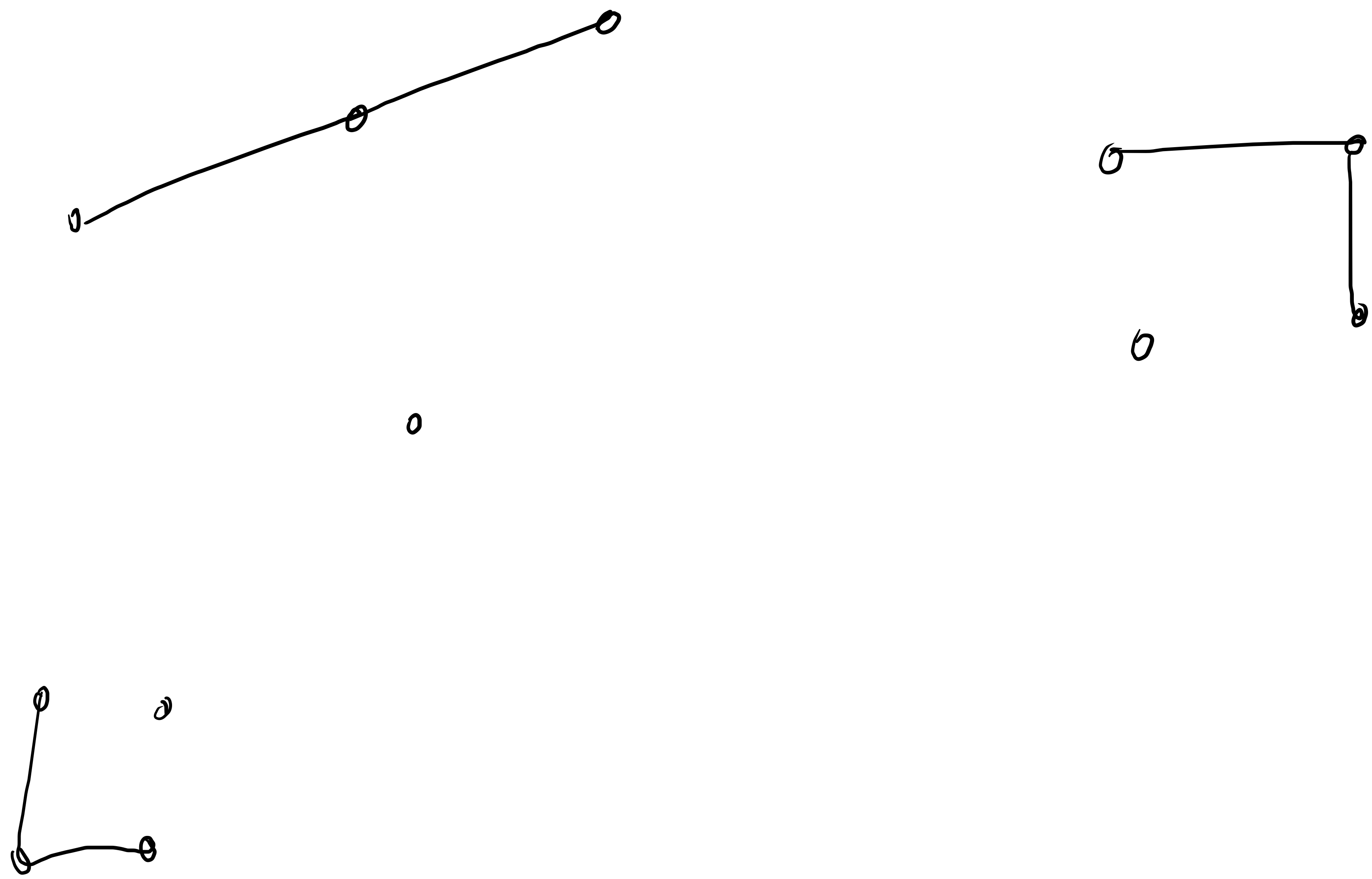
G

12

24

23

34



$G \simeq \overline{G}$ # arêtes : m pour G et $\overline{G}$

sommets : n pour G et $\overline{G}$

$$\Rightarrow \underbrace{m+m}_{\#\text{ arêtes de } K_n \,=\, \frac{n(n-1)}{2}}$$

$$\Rightarrow \quad m+m = n\cdot(n-1)\cdot\frac{1}{2}$$

$$\Rightarrow \quad 4m = n\cdot(n-1)$$

Problème 7