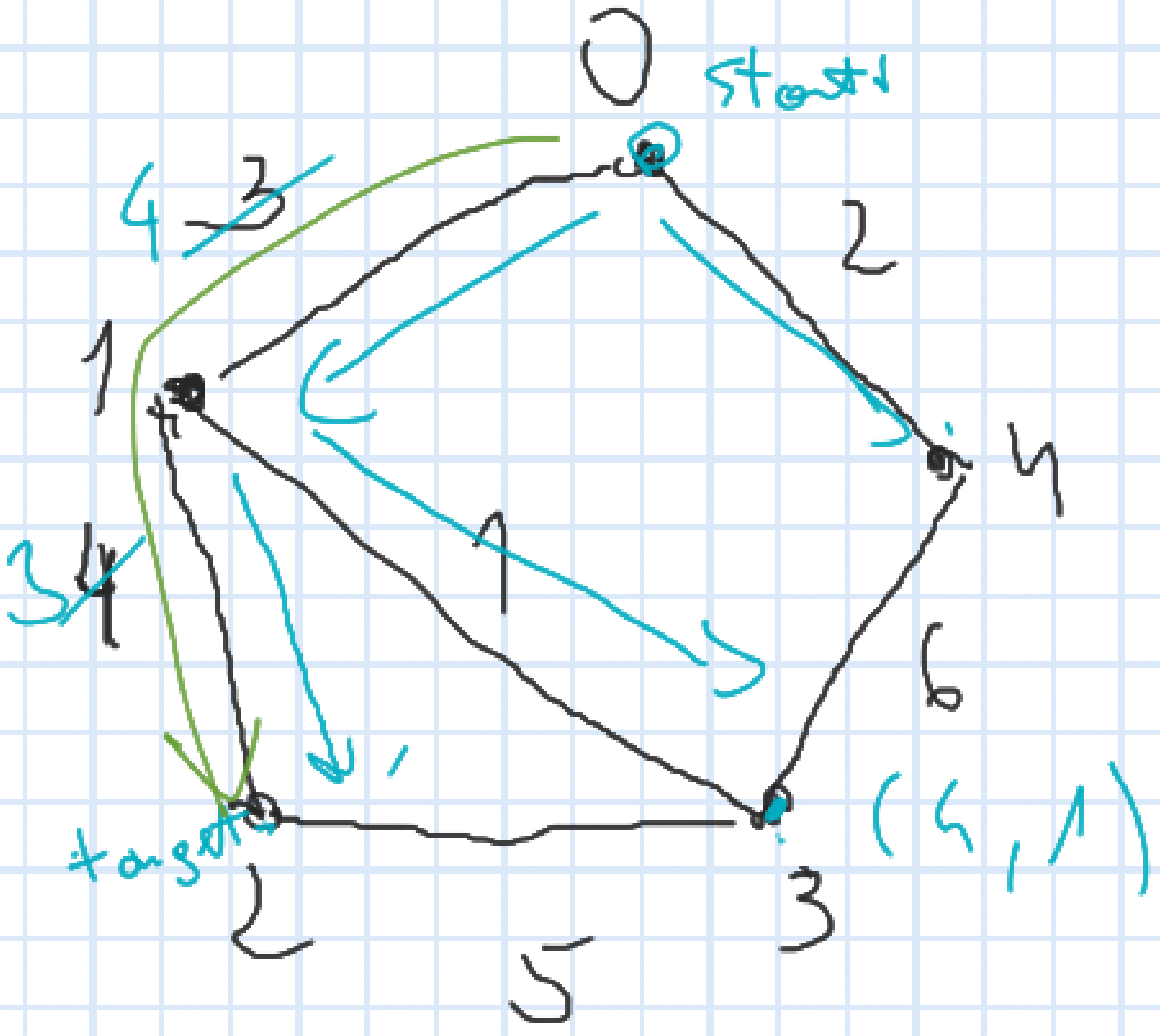
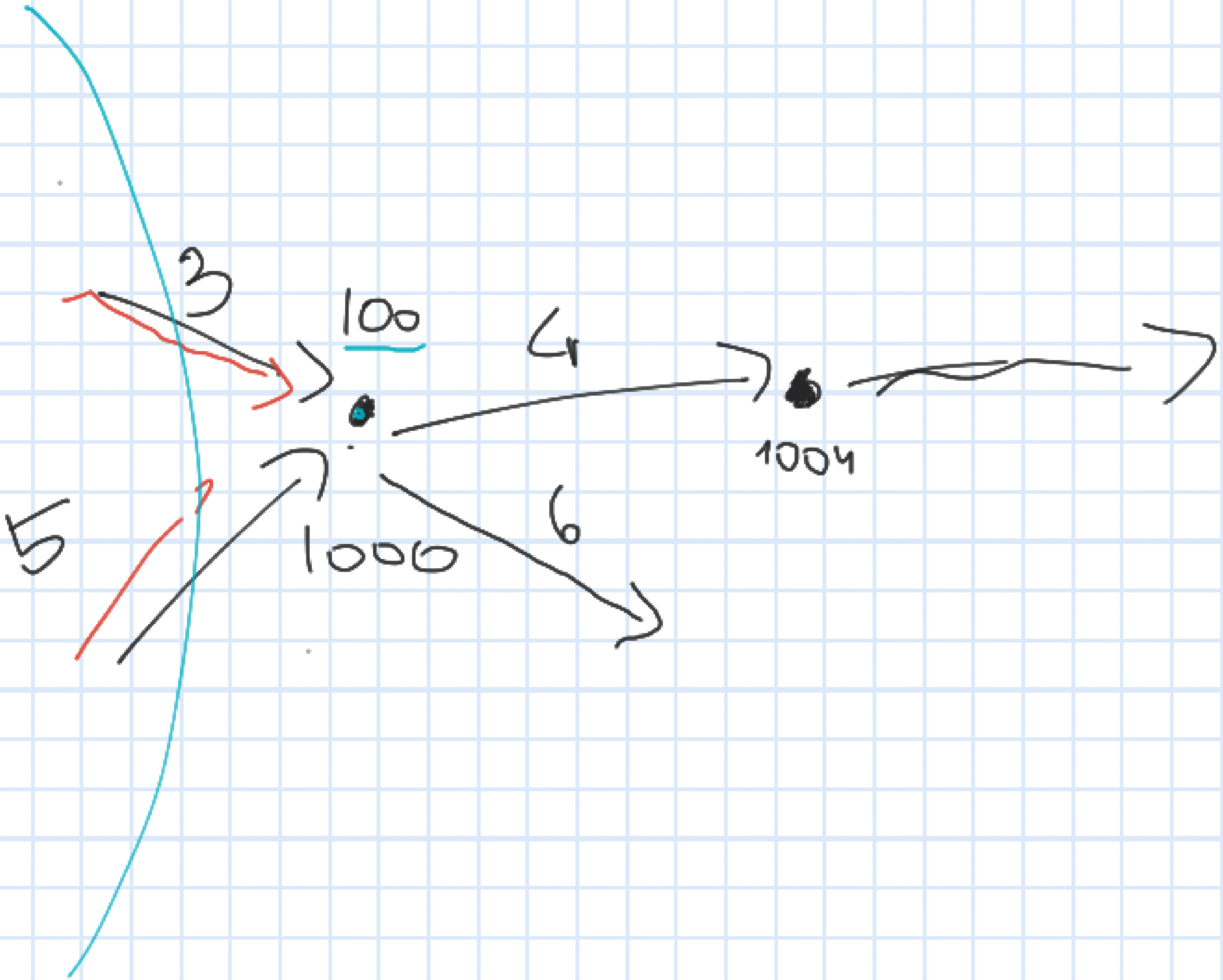


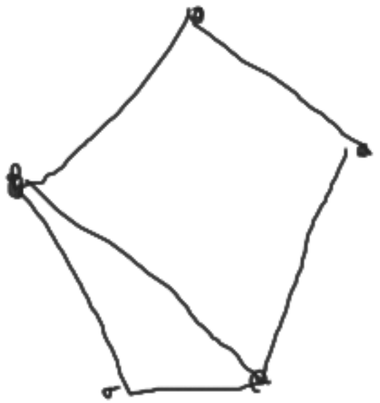
|E|

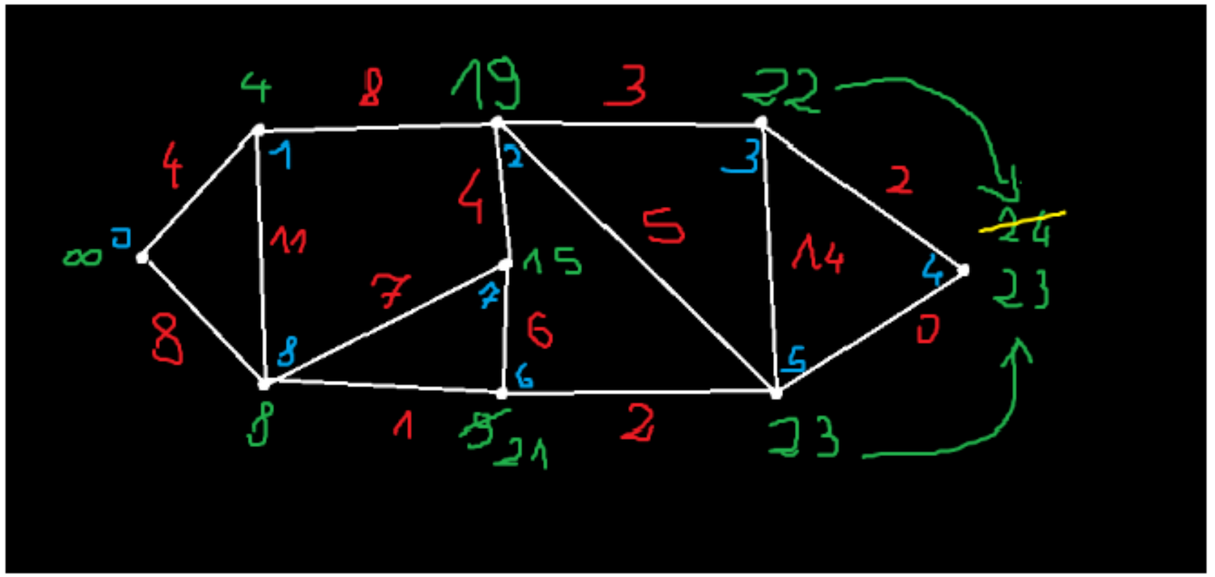
{1, ..., |E|}

(s , waga wagh , numer verschieden)

[illegible] 2 który wygrywa






4
8
19
3
22
4
1
2
3
2
4
11
5
14
24
23
15
7
7
6
8
8
6
5
0
8
1
5
11
2
23

1] Formuły logiczne 2CNF

$(x \vee y) \wedge (\bar{x} \vee z) \wedge (\bar{z} \vee \bar{y})$

1 0 0 1 0 1

$a \Rightarrow b \leftarrow \bar{a} \vee b$

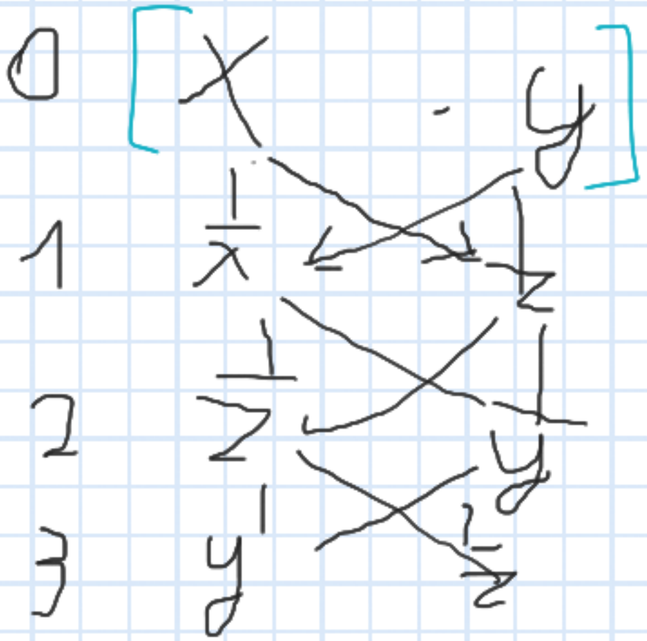
$b \Rightarrow c \quad \bar{b} \Rightarrow \bar{a}$

$c \Rightarrow \bar{c}$

Zadanie: Czy istnieje takie wartościowanie, że formuła jest prawdziwa

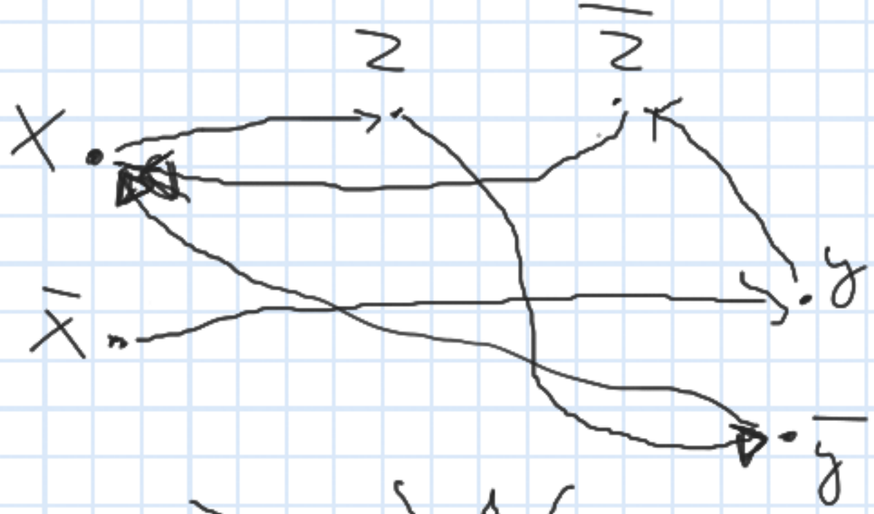
$\neg x \Rightarrow \neg y \quad x \Rightarrow z \quad z \Rightarrow \neg y$

$\neg y \Rightarrow x \quad \neg z \Rightarrow x \quad y \Rightarrow \neg z$



$a = 1$

$a = 0$



a ¬a

1 0

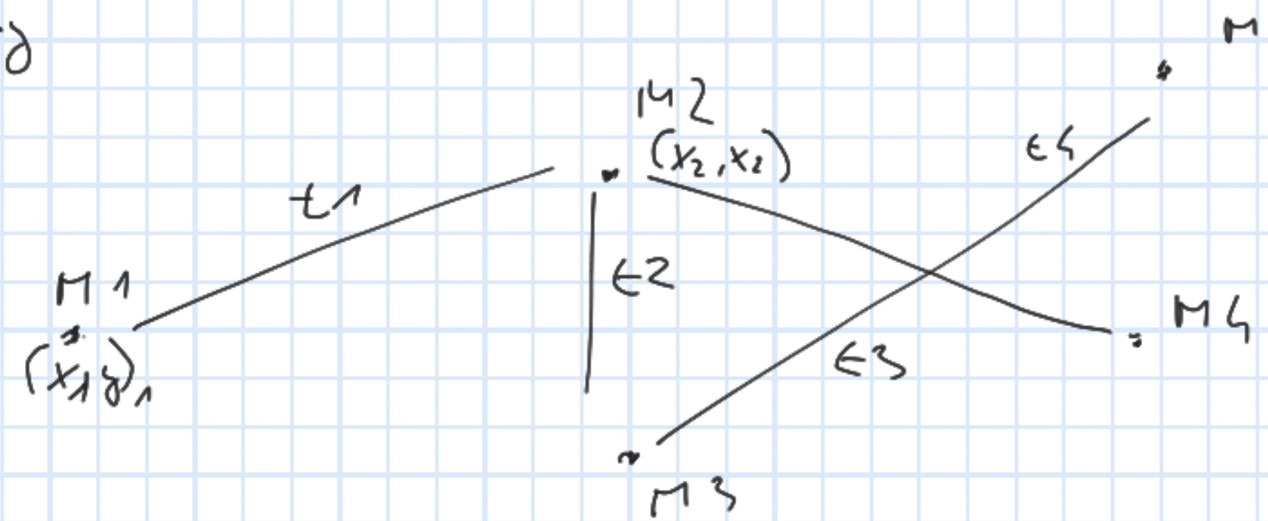
0 1

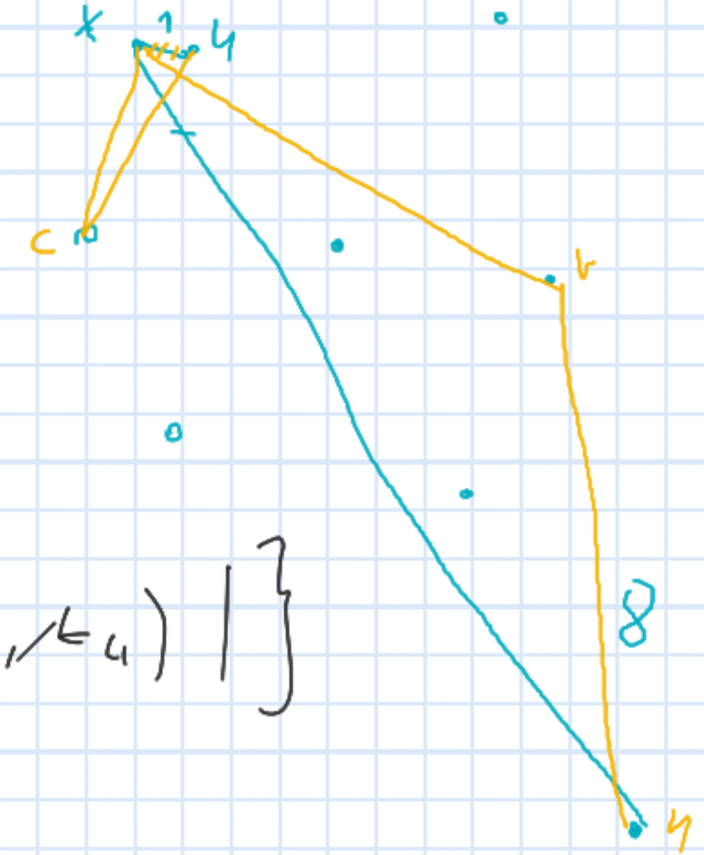
$(a \Rightarrow \neg a) \wedge (\neg a \Rightarrow a)$

1 0 0 1

1 0

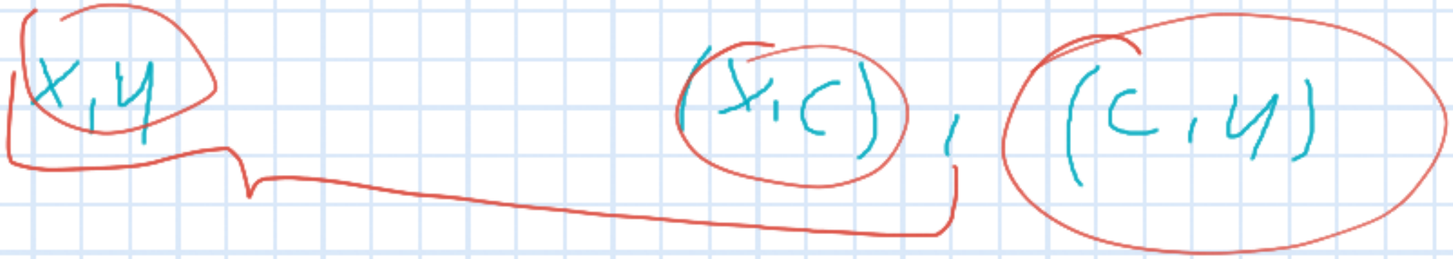
5] Autotrasy





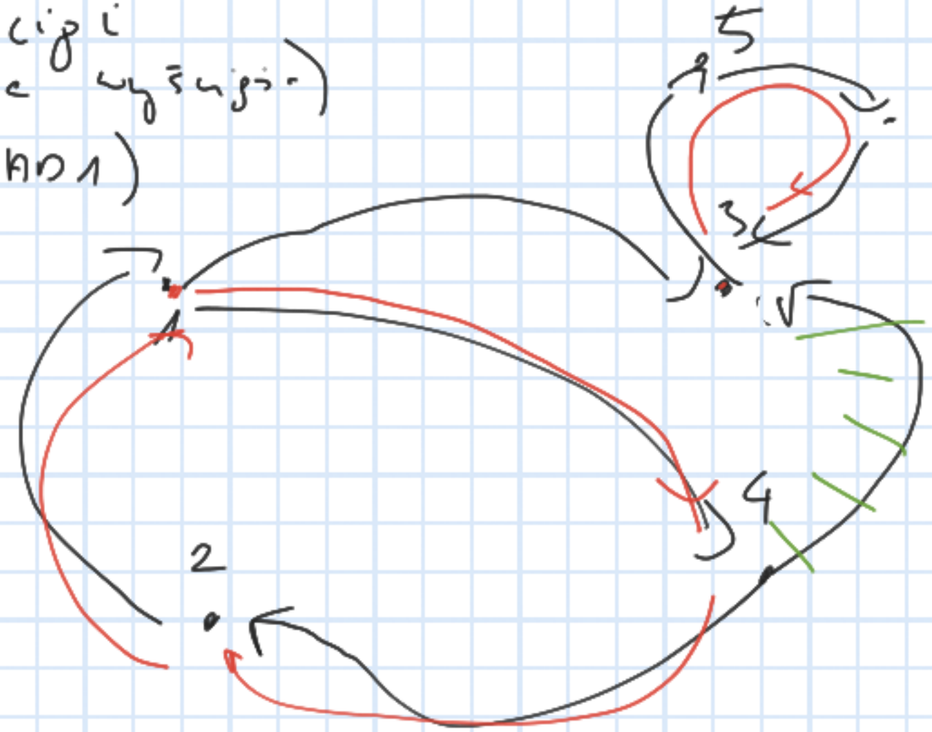
$\lceil s(M_1, M_2) \rceil$ $\lceil \text{len}[km] \rceil$ dni

ZADANIE: $\min \{ | \min(t_1, \dots, t_4) - \max(t_1, \dots, t_4) | \}$



2] Wyścigi
(serie wyścigów)

(podpowiedź: ZAD 1)

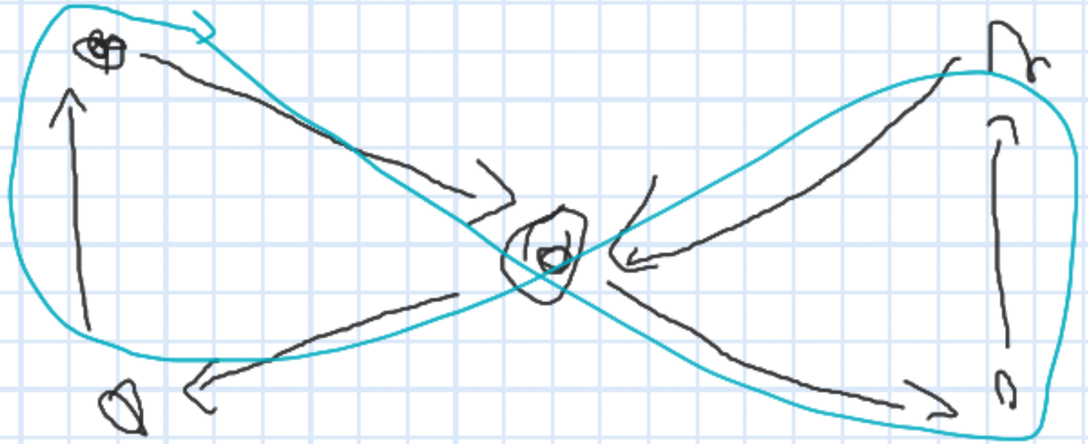


Koide miasto
biera udział w wyścigach
Ale tylko w jednym wyścigu.

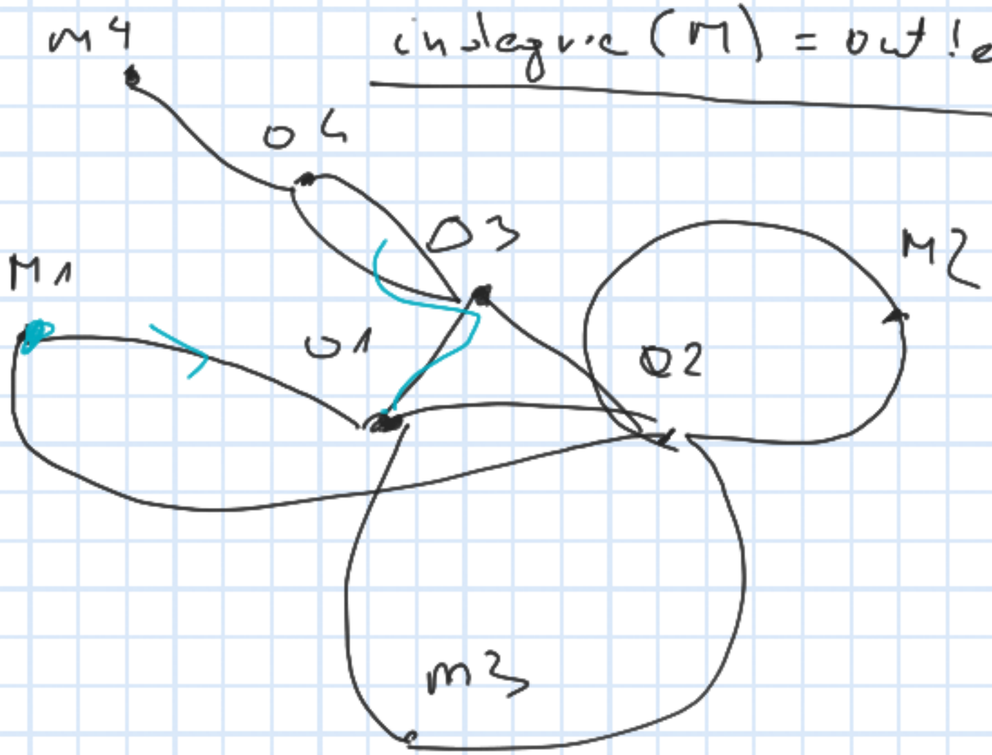
Każdy wyścig to trasa
zamknięta, i cykle proste

ZADANIE: Czy to sic... ?

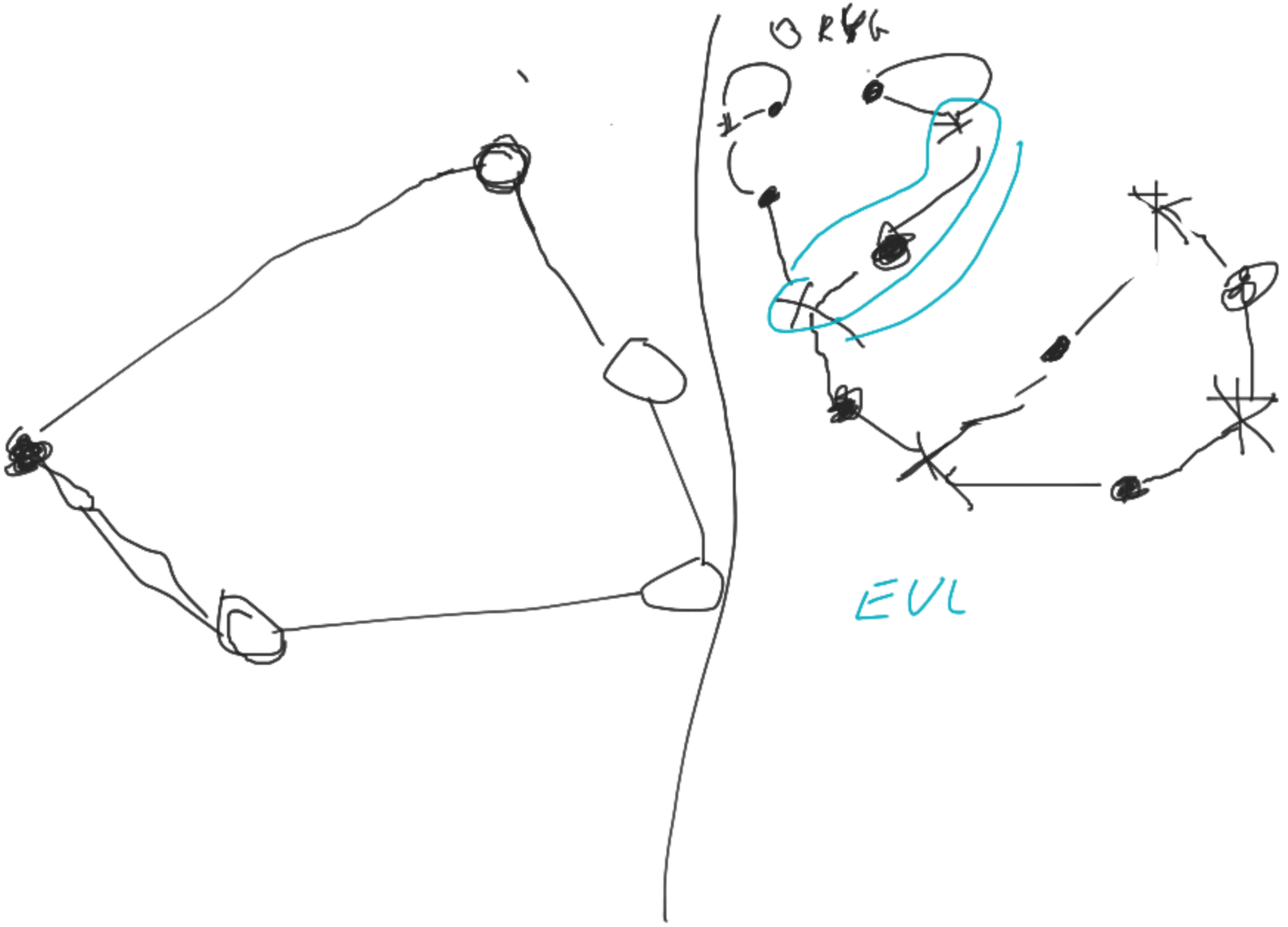
$$\forall_v \quad indeg(v) \leq 2 \quad \wedge \quad outdeg(v) \leq 2$$



4] "Szachy"



indegree(M) = outdegree(M) = 1


EVL