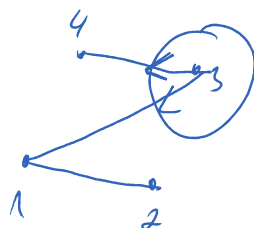


$$G = (V, E)$$

$$V = \{1, 2, 3, 4\}$$

$$E = \{\{1, 2\}, \{2, 3\}, \{1, 3\}\}$$



$$1: 2, 3$$

$$2: 1$$

$$3: 1, 2$$

$$4: 3$$

MATICA SUSIEDNOSTI

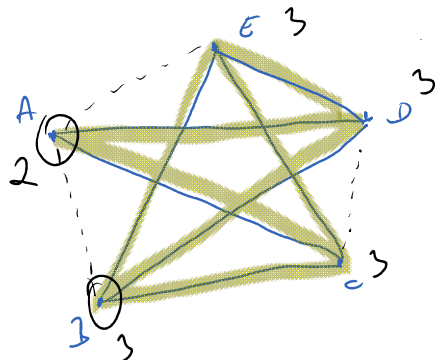
$$A = (a_{ij}) \quad i \rightarrow j$$

$$M = \begin{matrix} & \begin{matrix} A & B & C & D & E \end{matrix} \\ \begin{matrix} A \\ B \\ C \\ D \\ E \end{matrix} & \begin{pmatrix} 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 0 & 1 \\ 1 & 1 & 0 & 0 & 1 \\ 0 & 1 & 1 & 1 & 0 \end{pmatrix} \end{matrix} \rightarrow \begin{matrix} 2 \\ 3 \\ 3 \\ 3 \\ 3 \end{matrix} \quad 5 \times 5$$

NAJVIŠŠÍ STUPEŇ: 3

PRÍEMER: 2

OBVOD: 3



$$1. \quad M_1 = M + I = \begin{pmatrix} 1 & 0 & 1 & 1 & 0 \\ 0 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 0 & 1 \\ 1 & 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & 1 & 1 \end{pmatrix}$$

$$M_2 = M_1 \cdot M_1$$

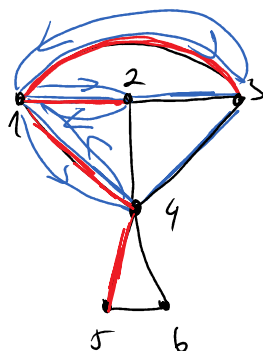
$$M_3 = M_2 \cdot M_1$$

$$M_k = M_{k-1} \cdot M_1$$

$$M_4 = M_3 \cdot M_1$$

$$M_2 = M_1 \cdot M_1 = \begin{pmatrix} 1 & 1 & 1 & 1 & 1 \end{pmatrix} = h_k \Rightarrow 2 = \text{PRÍEMER}$$

②



$$A = \begin{matrix} & \begin{matrix} 1 & 2 & 3 & 4 & 5 & 6 \end{matrix} \\ \begin{matrix} 1. \\ 2. \\ 3. \\ 4. \\ 5. \\ 6. \end{matrix} & \begin{pmatrix} 0 & 1 & 1 & 1 & 0 & 0 \\ 1 & 0 & 1 & 1 & 0 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 0 & 0 & 1 & 1 & 0 \end{pmatrix} \end{matrix} = A^1$$

SLED DÍŤKY 1

$$a_{ij} \quad i \rightarrow j$$

$$A^2 = \begin{pmatrix} 3 & 2 & 2 & 2 & 1 & 1 \\ 2 & 3 & 2 & 2 & 1 & 1 \\ 2 & 2 & 3 & 2 & 1 & 1 \\ 2 & 2 & 2 & 3 & 1 & 1 \\ 1 & 1 & 1 & 1 & 2 & 1 \\ 1 & 1 & 1 & 1 & 1 & 2 \end{pmatrix}$$

$$1 \rightarrow 1$$

SLED DÍŤKY 2

$n_1 \rightarrow 1 \rightarrow 1$

SLEDUJ DÍK 2

③ 4 Vrcholů

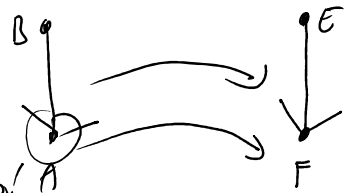
$V = \{A, B, C, D\}$

IZOMORFISMUS $G_1 \rightarrow G_2$

→ SUSEDNOSTI SA ZACHOVÁVA

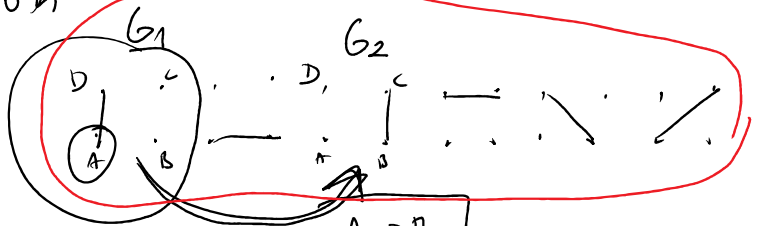
→ STUPNĚ VRCHOLŮV SA ZACHOVÁVÁ

→ OBA GRAFY MUSÍ MÍT ROVNAKÝ POČET VRCHOLŮV

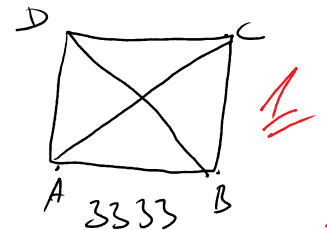
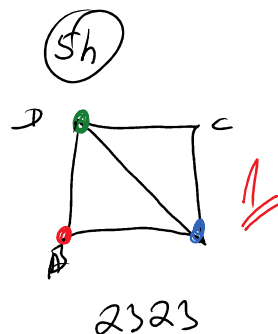
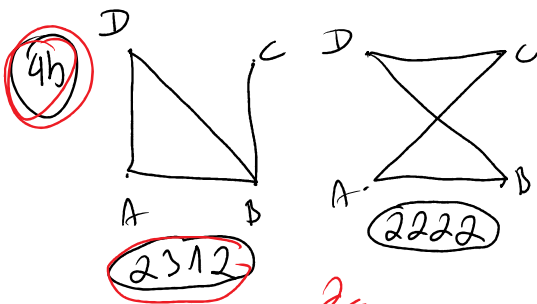
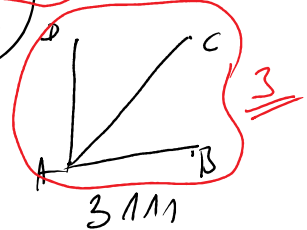
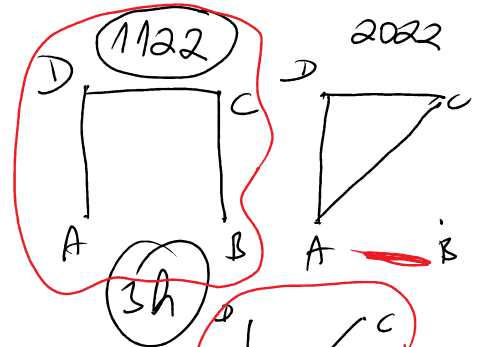
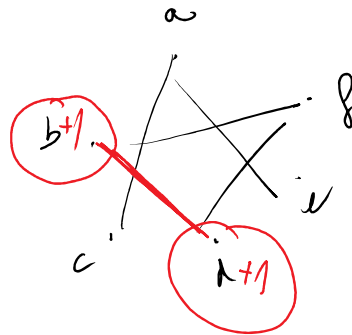


D. C

od 0h → 6h



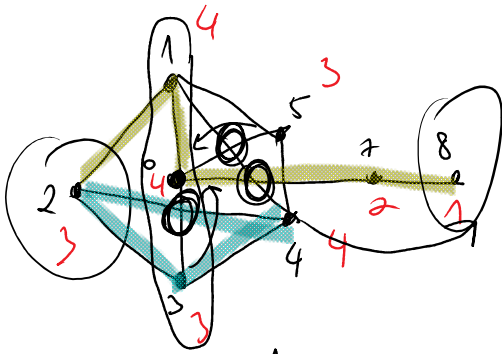
A → B
B → A
C → D
D → C



6 SÚVISLÝCH GRAFOV

ABED
2312

2)



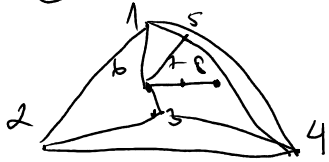
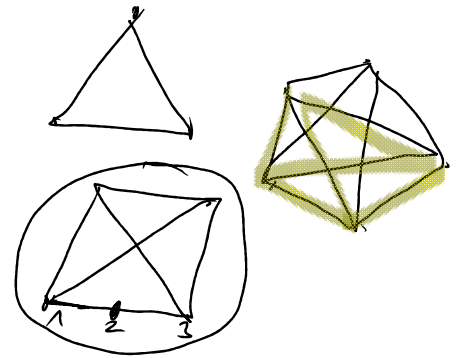
NADVÄČŠÍ STUPEŇ: 4
PRIEMER: 4
OBVOD: 3

ROVINNÝ ✓

(V, E)

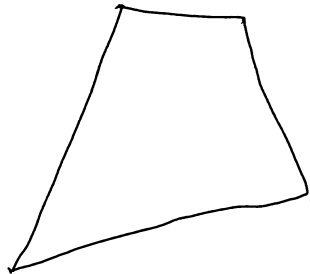
$V \subset V$
 $E \subset E$

K_3 ✓
 K_4 X
 K_5 X



3) 1) 7V ✓

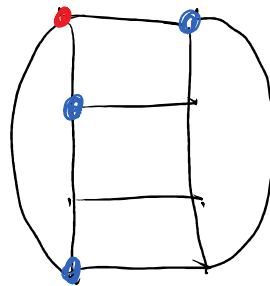
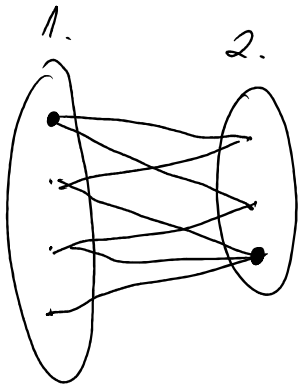
PRIEMER 2
OBVOD 4



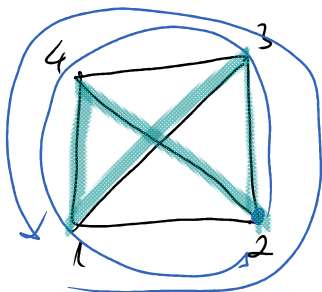
→ ŽIADNE Δ

→ Z KAŽDÉHO VERCHOLO DO KAŽDÉHO
NA MAX 2 KROKY

6)



7)



K_4

3

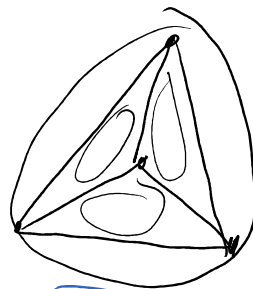
4



4

3

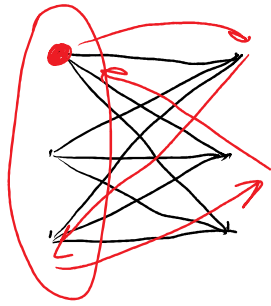
1234
2341



1243

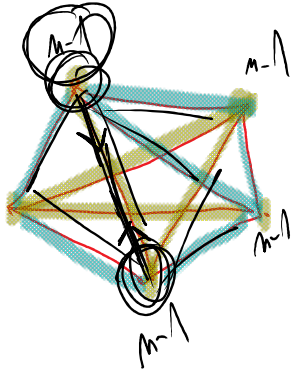
1423

$K_{3,3}$



Paran Afrika
4, 6

10



$$K_m = \frac{m \cdot (m-1)}{2}$$

SE KOMPLEMENT

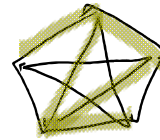
SAMOKOMP.

$$= \frac{m \cdot (m-1)}{2} \text{ hrán}$$

$$\frac{3 \cdot 2}{4} = \frac{6}{4}$$

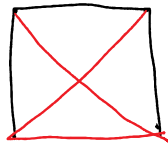
$$\frac{4 \cdot 3}{4} = 3$$

$$\frac{m \cdot (m-1)}{2} \begin{matrix} \leftarrow \\ \rightarrow \end{matrix}$$



$m = 4k \rightarrow 2v0$
 $m-1 = 4k-1 \rightarrow 2v1$

6



1122
2211



$1 \rightarrow m-1$