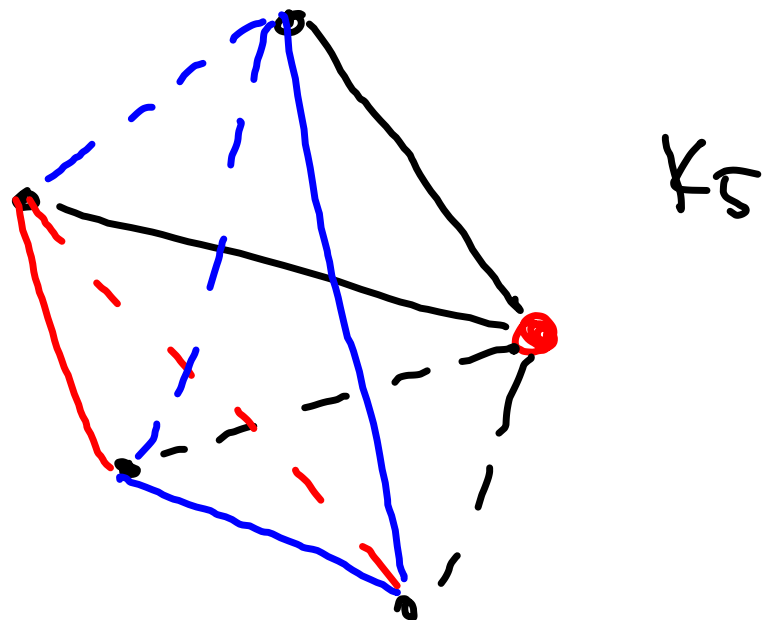
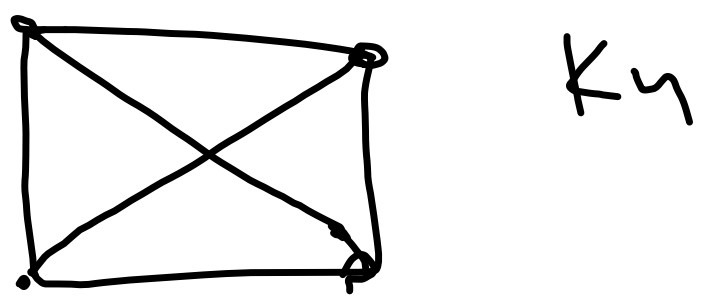


$n = 5$

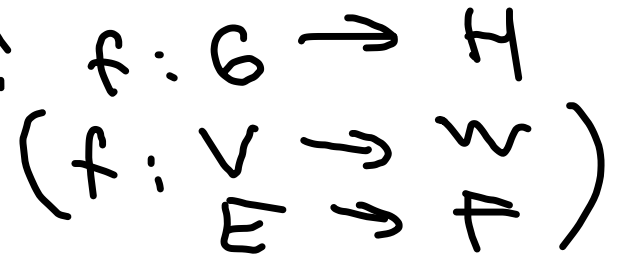


není Δ z plných ani čarbových



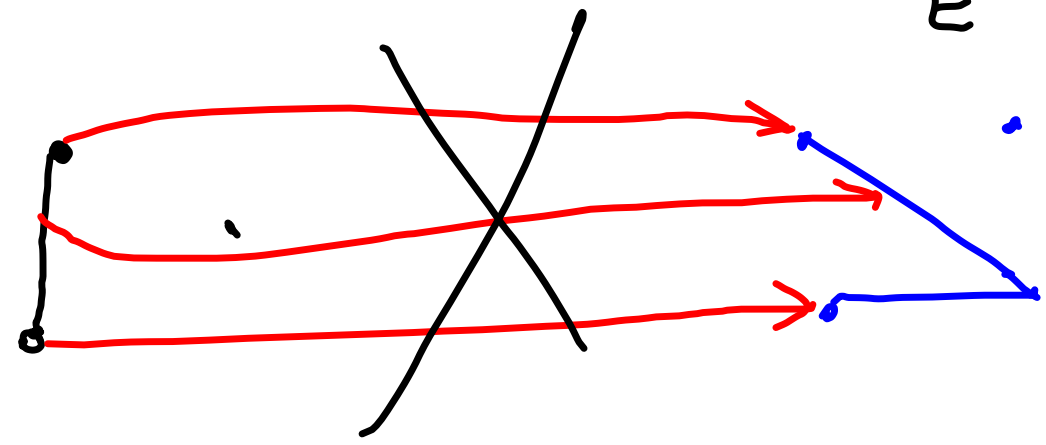
lin. zobrazení : $f : V \rightarrow W$
 $f(\vec{u} + \vec{v}) = f(\vec{u}) + f(\vec{v})$
 $f(a \cdot \vec{u}) = a \cdot f(\vec{u})$

homomorfismus grafů
 zobrazení

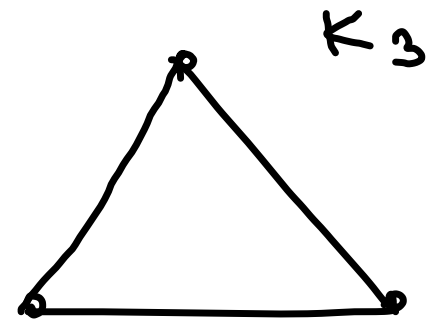
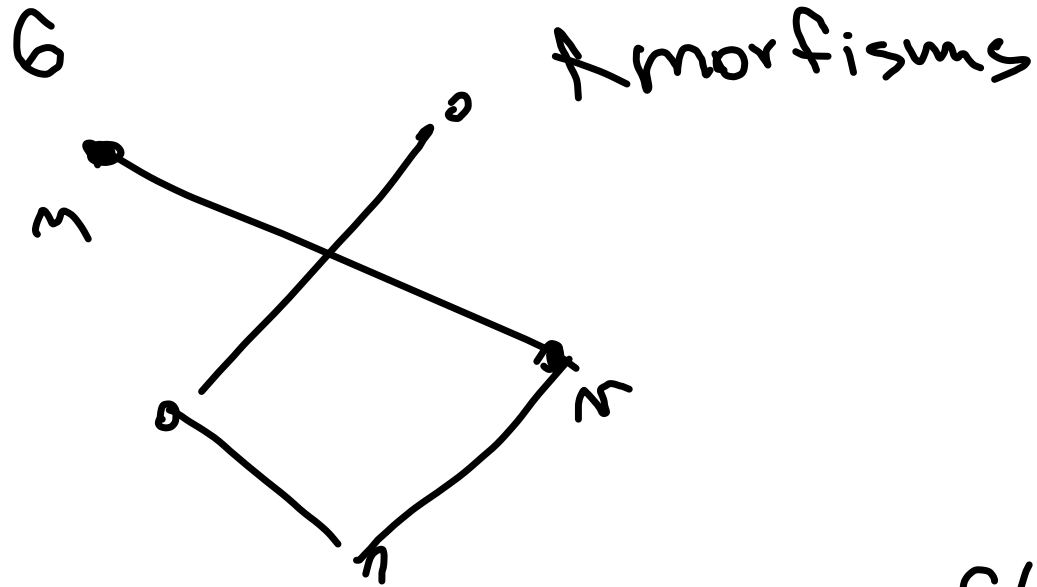


$$G = (V, E)$$

$$H = (W, F)$$

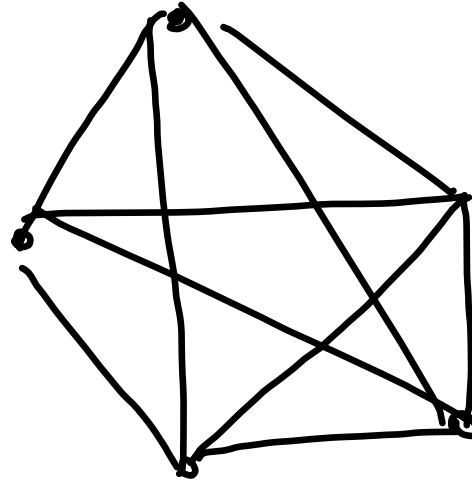
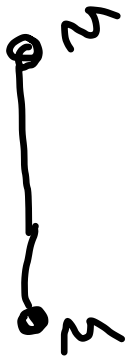


obarveni 3 barvami



$n_1, n_2 \rightarrow f(n) = f(w)$

P_1 : # morfismů P_2 do K_5

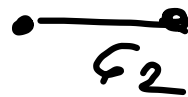


P_2 5 možností, kam zobrazit m
↳ - - - - ↘

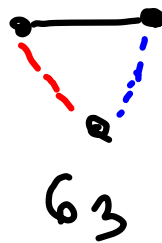
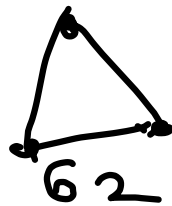
S. 4 morfismů P_2 do K_5

Všechny neizomorfní grafy na n vrcholech:

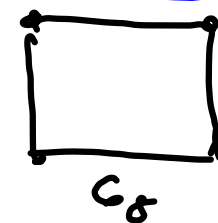
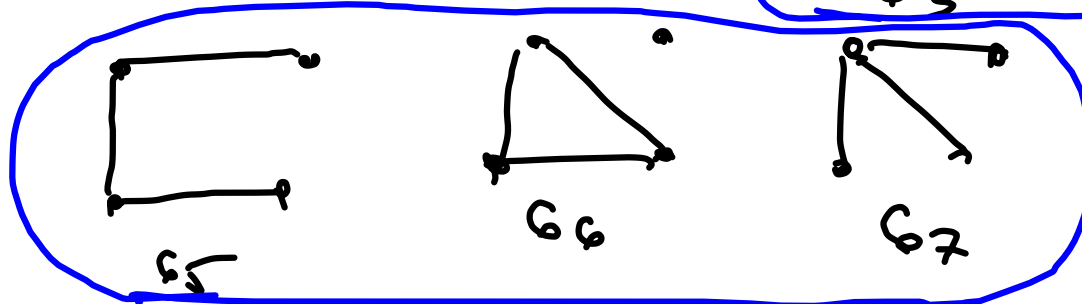
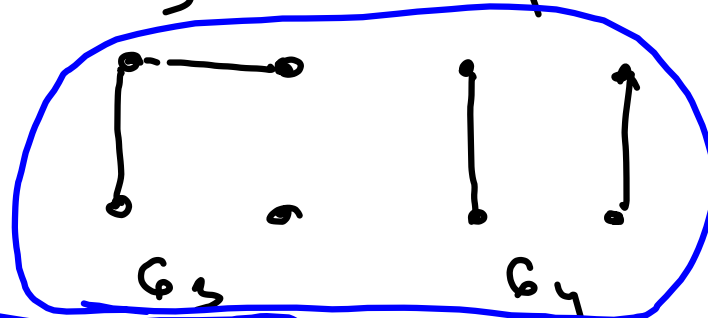
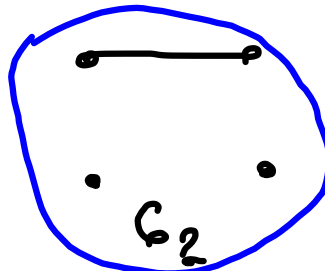
$n=2$



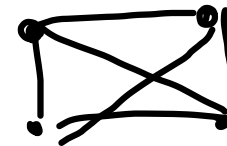
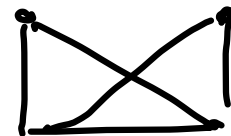
$n=3$

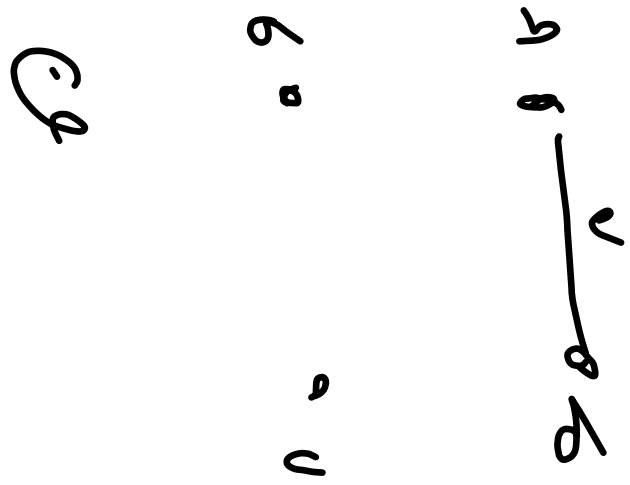


$n=4$



$$1 + 1 + 2 + 3 + 2 + 1 + 1 = 11$$

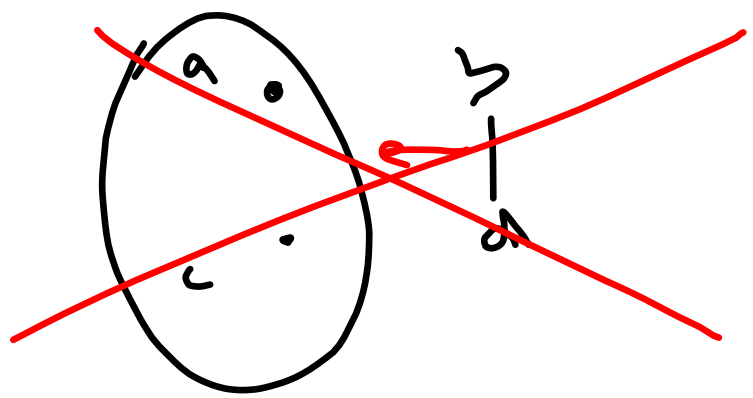




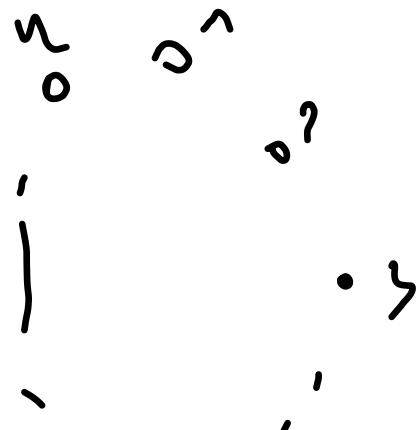
$$V' = \{a, c\} \subset V$$

$$E' = \{e\} \subset E$$

$G' = (V', E')$ NE NI PODGRAF



neizom. grafů $\geq k(n) = \frac{1}{n!} \cdot 2^{\binom{n}{2}}$
 $n! \cdot \# \text{viz.} \geq 2^{\binom{n}{2}}$



grafů na n oškolovaných vrcholcích je $2^{\binom{n}{2}}$

viz. * všechny přičítají!
 dá každý graf na n oškolovaných vrcholcích
 (nutně ale i některé)



G_3 se stejným očíslováním
 dá tento graf

G_3 s očíslováním $(2, 1)$
 dá rovněž tento graf



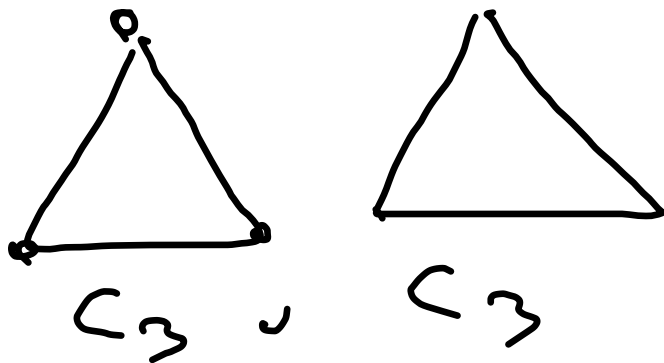
Tedy

$$\# \text{reizomů} = ni(n) \geq \frac{2^{\binom{n}{2}}}{n!}$$

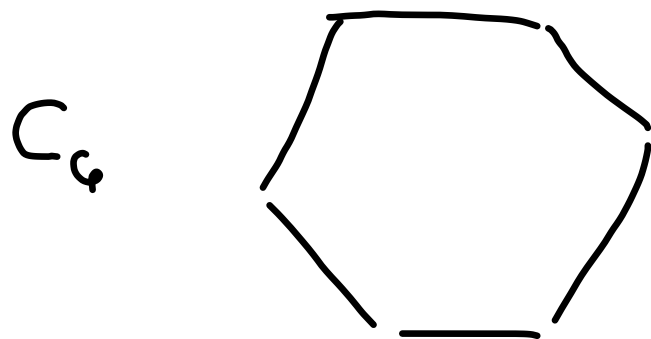
$$\log_2 ni(n) \geq \binom{n}{2} - \log n! \geq$$

$$\geq \frac{1}{2}n^2 - \log n^n = \frac{n^2}{2} - n \log n$$

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



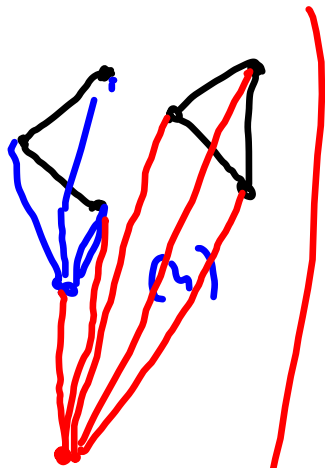
$(2, 2, 2, 2, 2, 2)$



$(2, 2, 2, 2, 2, 2)$

nejsem izomorfní

Shore $(2, 3, \underline{3}, \underline{3}, \underline{3}, 4, \cancel{5})$



$(2, 3, 2, 2, 2, 2, 3)$

↓ *seřadit*

$(2, 2, 2, \underline{2}, \underline{2}, \underline{3}, \cancel{3})$ (4)



$(2, 2, 2, 1, 1, 2) \xrightarrow{\text{seřadit}} (1, 1, 2, \underline{2}, \underline{2}, \cancel{2})$ (3)

$(1, 1, 2, 1, 1) \xrightarrow{\text{seř.}} (1, 1, 1, \underline{1}, \underline{1}, \cancel{1})$ (2)

$(1, 1, 0, 0) \xrightarrow{\text{seř.}} (0, 0, \underline{1}, \underline{1})$ (1)

