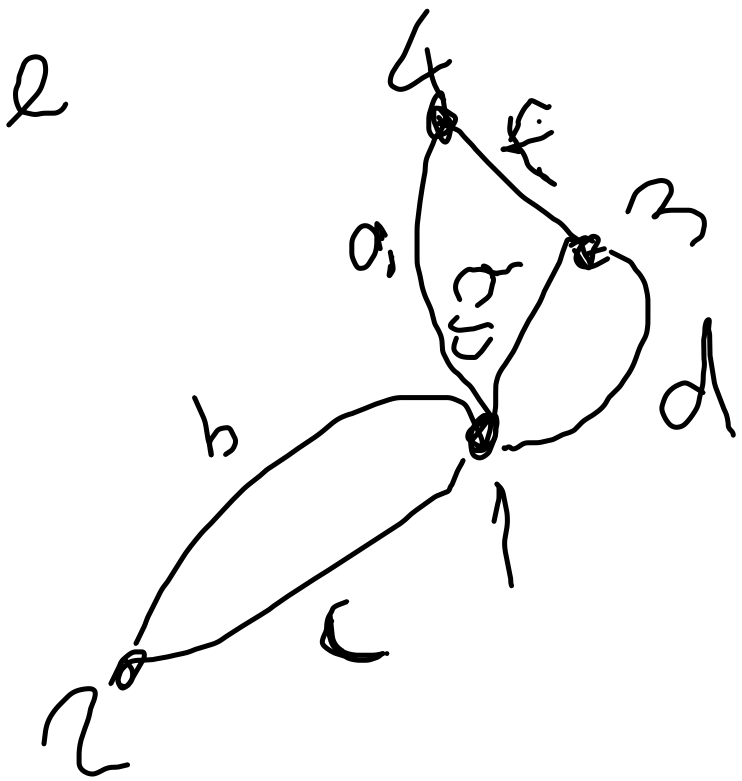
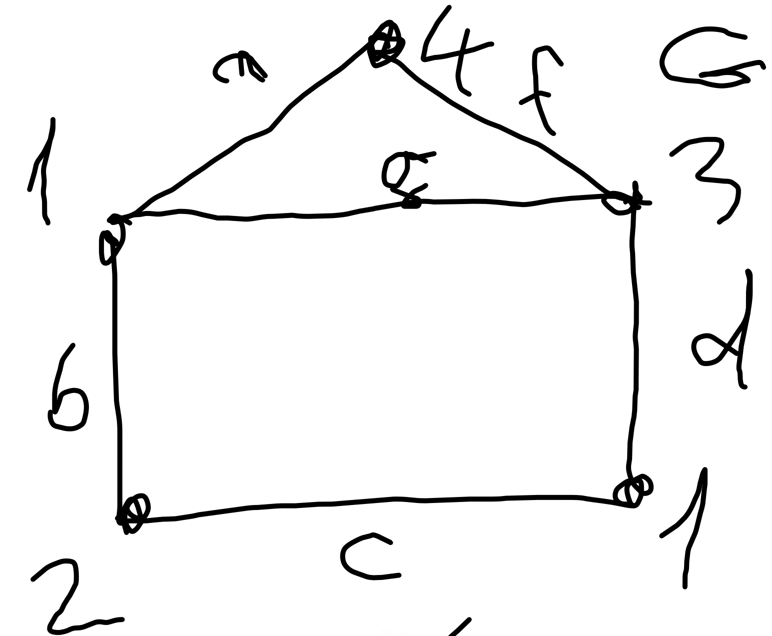
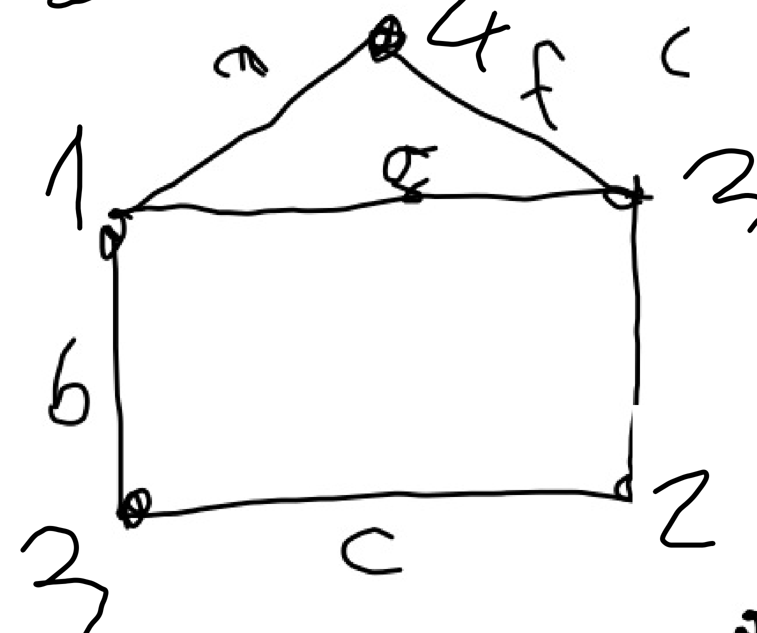
G·e

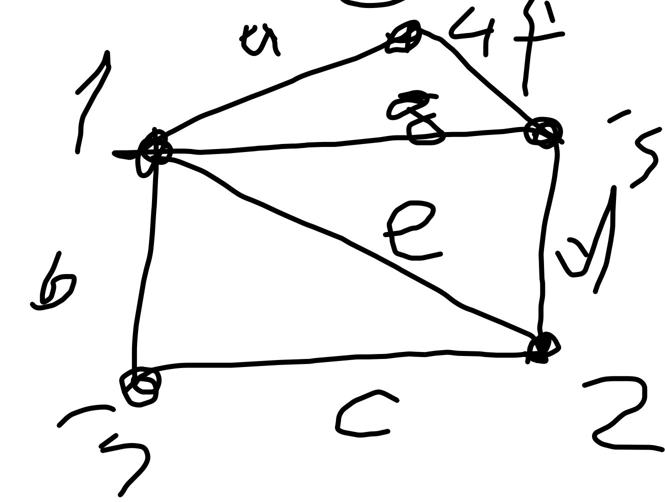


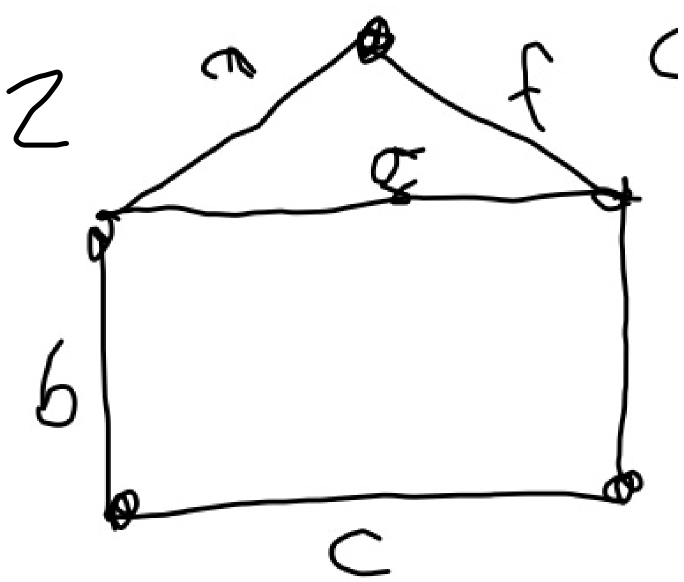
G - e



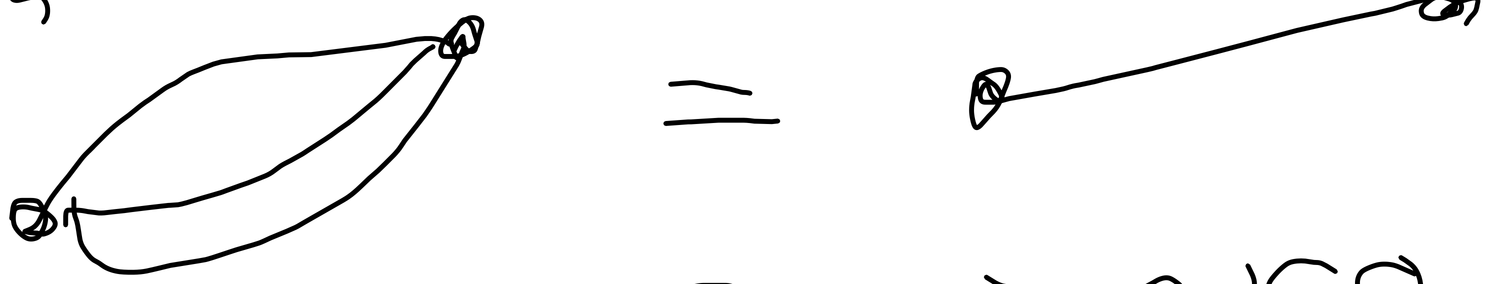


G



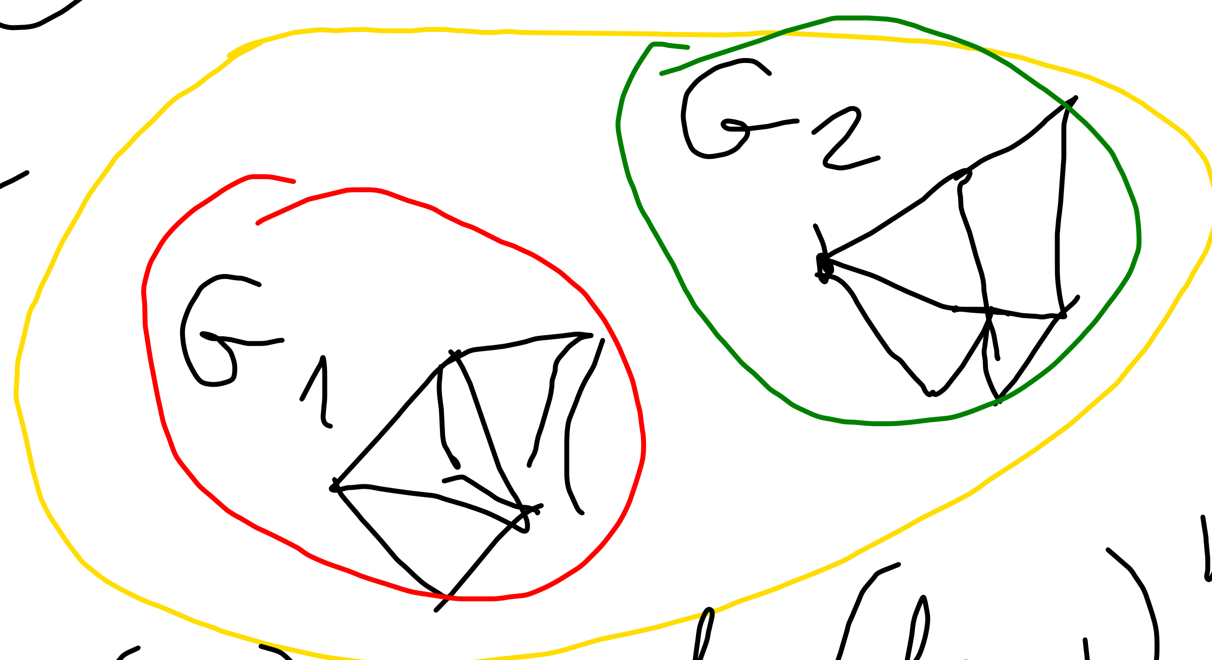


Shortcuts

1) 

2)  zero

3) G

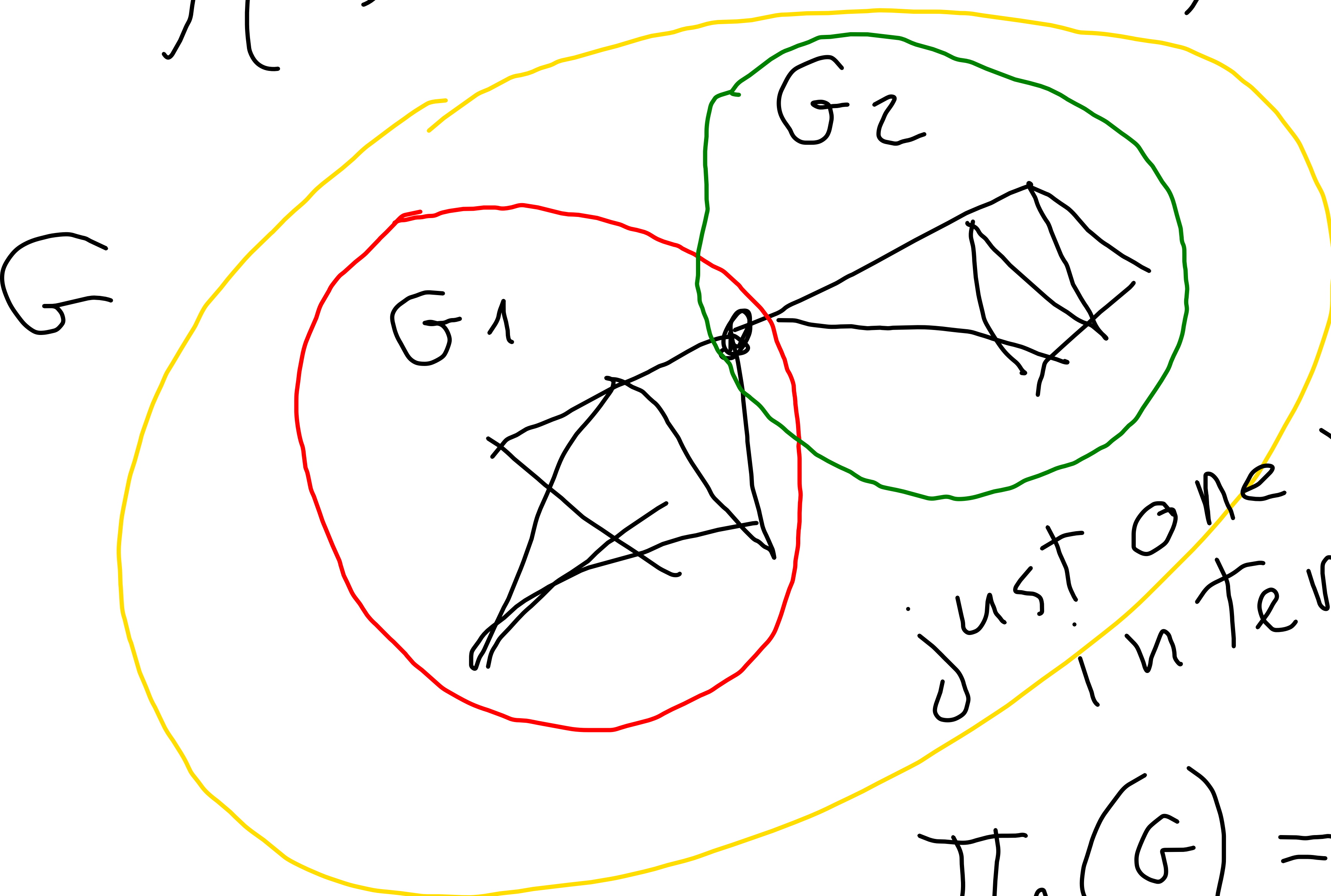


$$\pi_k(G) = \pi_k(G_1) \cdot \pi_k(G_2)$$

4) $\pi_k(T) = k(k-1)^{n-1}$

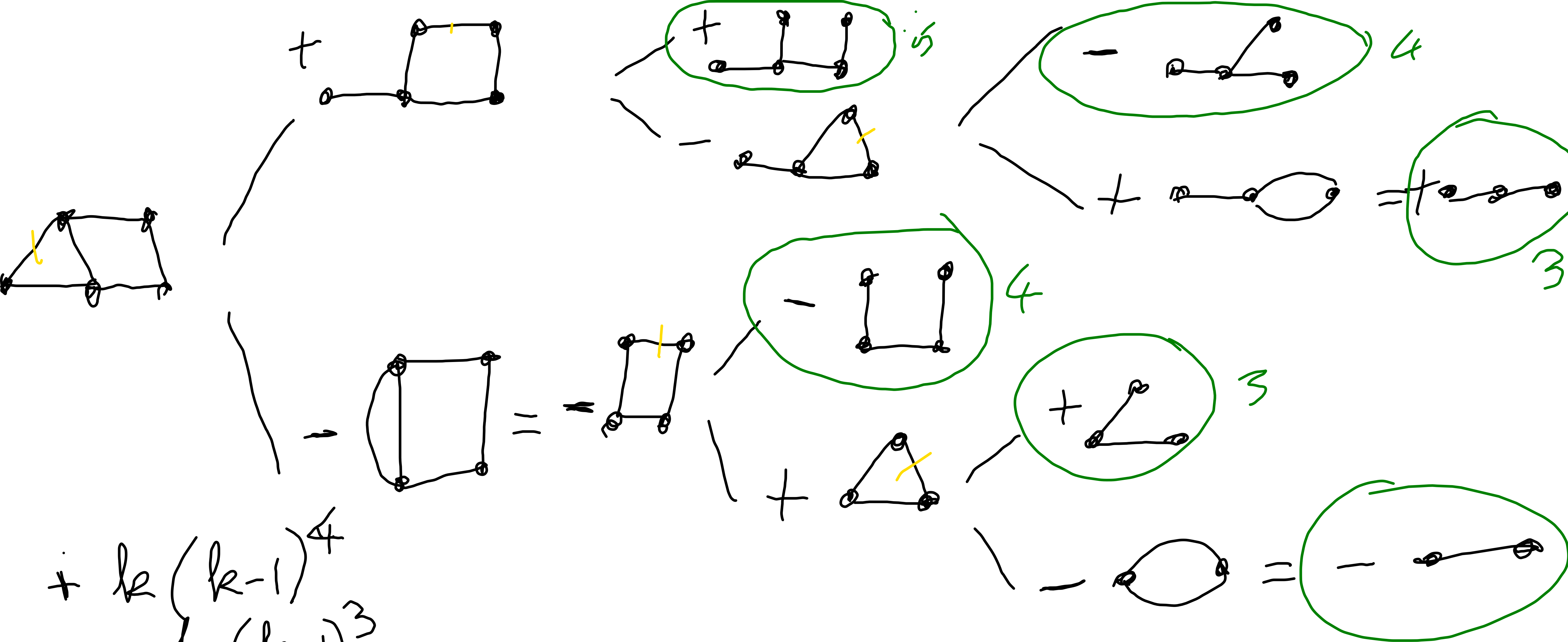
T a tree with n vertices

5) (DANGER!)



just one vertex as intersection

$$\pi_k(G) = \frac{\pi_k(G_1) \cdot \pi_k(G_2)}{k}$$



$$+k(k-1)^4$$
$$-2k(k-1)^3$$
$$+2k(k-1)^2$$
$$-k(k-1)$$

$$+k(k-1)^4 \to k^5 - 4k^4 + 6k^3 - 4k^2 + k$$

$$-2k(k-1)^3 \qquad -2k^4 + 6k^3 - 6k^2 + 2k$$

$$+2k(k-1)^2 \qquad +2k^3 - 4k^2 + 2k$$

$$-k(k-1) \qquad -k^2 + k$$

$+ \quad - \quad + \quad - \quad +$

$$k^5 - 6k^4 + 14k^3 - 15k^2 + 6k$$

1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

\# of vertices

\# of edges

0 constant term

1 6 14 15 6

In our computations

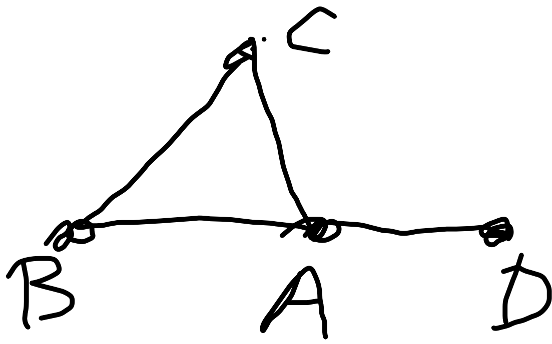
$AA = A$ (so $AAB = AB$ ...)

$A + AB = A$ (so $ACBD + ACBDEF = ACBD$)

A	$A \wedge A$
T	T
F	F

A	B	AB	$A + AB$
T	T	T	T
T	F	F	T
F	T	F	F
F	F	F	F

$=$



$$(A+BCD)(B+AC)(C+AB)(D+A) =$$

$$(AB + \cancel{A}AC + BCD\cancel{B} + \cancel{BCDAC})(\quad) =$$

$$= (AB + AC + BCD)(C+AB)(\quad) =$$

$$= (\cancel{ABC} + AB\cancel{A}\cancel{B} + AC\cancel{C} + \cancel{ACAB} + BCD\cancel{C} + \cancel{BCDAB})(\quad) =$$

$$= (AB + AC + BCD)(D+A) =$$

$$= \cancel{ABD} + AB\cancel{A} + \cancel{ACD} + AC\cancel{A} + BCD\cancel{D} + \cancel{BCDA} =$$

$$= AB + AC + BCD$$

Min. cov.: $\{A,B\}$, $\{A,C\}$, $\{B,C,D\}$

Max. ind. sets: $\{C,D\}$, $\{B,D\}$, $\{A\}$