

a	c	ac	aca
T	T	T	T
T	F	F	F
F	T	F	F
F	F	F	F

$$ac = aca$$

~~aca~~

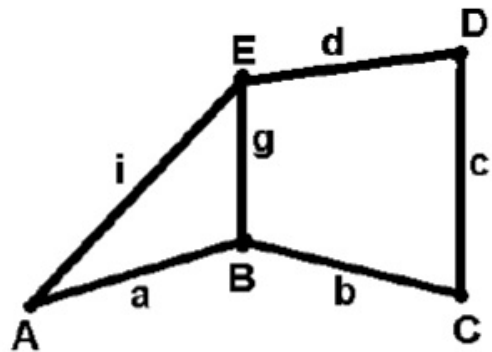
a	c	ac	$a + ac$
T	T	T	T
T	F	F	T
F	T	F	F
F	F	F	F

↑

↑

$$a + ac = a$$

~~$$a + ac$$~~



$$(A + BE)(B + ACE)(C + BD)(D + CE)(E + ABD) =$$

$$= (AB + \cancel{ACE} + BE\cancel{B} + \cancel{BEACE}) (\text{---}) =$$

$$= (AB + ACE + BE)(C + BD) \cdot \text{---} =$$

$$= (ABC + \cancel{ABBD} + \cancel{ACEC} + \cancel{ACEBD} + BEC + \cancel{BEDD}) (\text{---}) =$$

$$= (ABC + ABD + ACE + BEC + BED)(D + CE) (\text{---}) =$$

$$= (\cancel{ABCD} + \cancel{ABCE} + \cancel{ABDD} + \cancel{ABDC} + \cancel{ACED} + \cancel{ACECE} + \cancel{BECD} +$$

$$+ \cancel{BCECE} + \cancel{BEDD} + \cancel{BEDCE}) (\text{---}) =$$

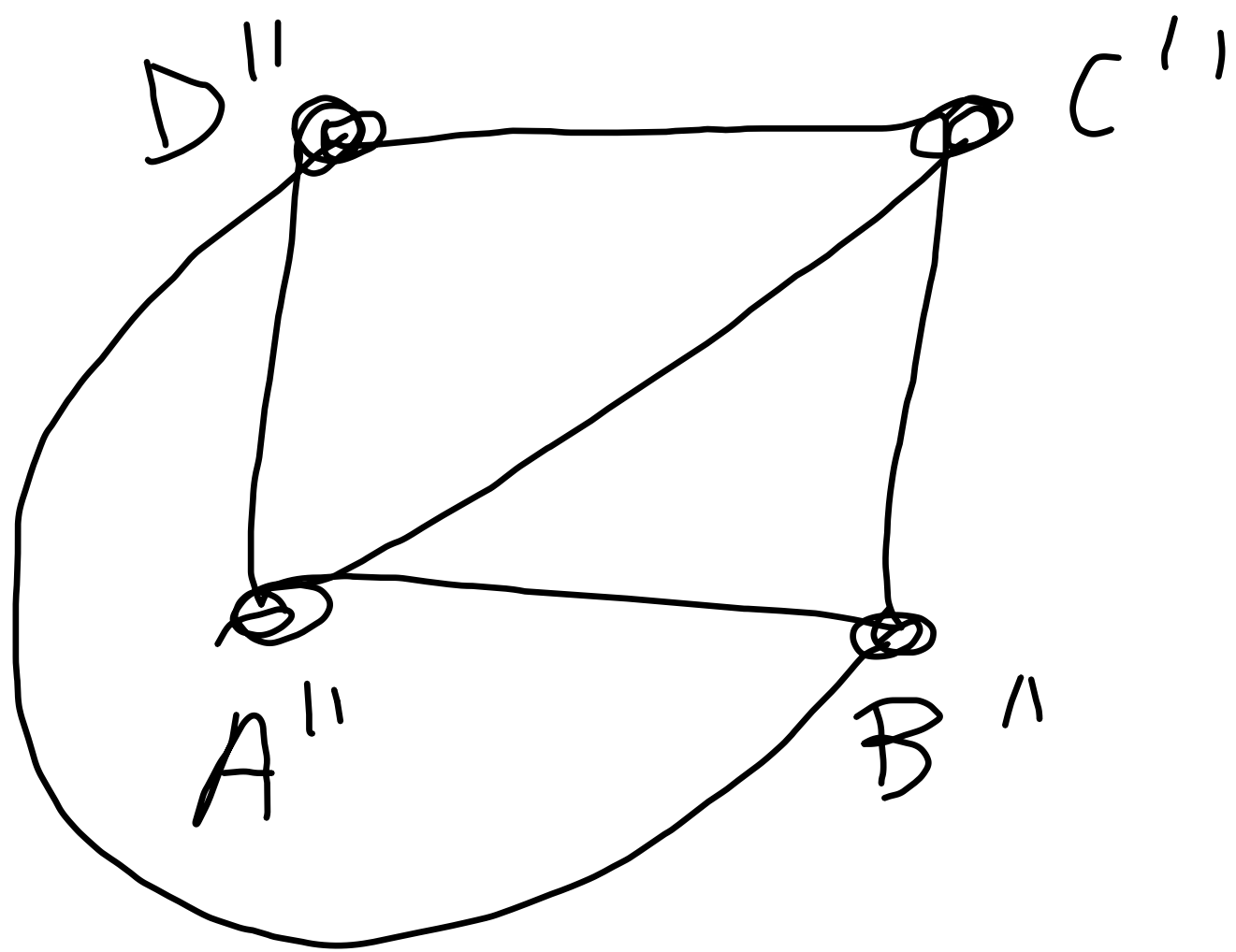
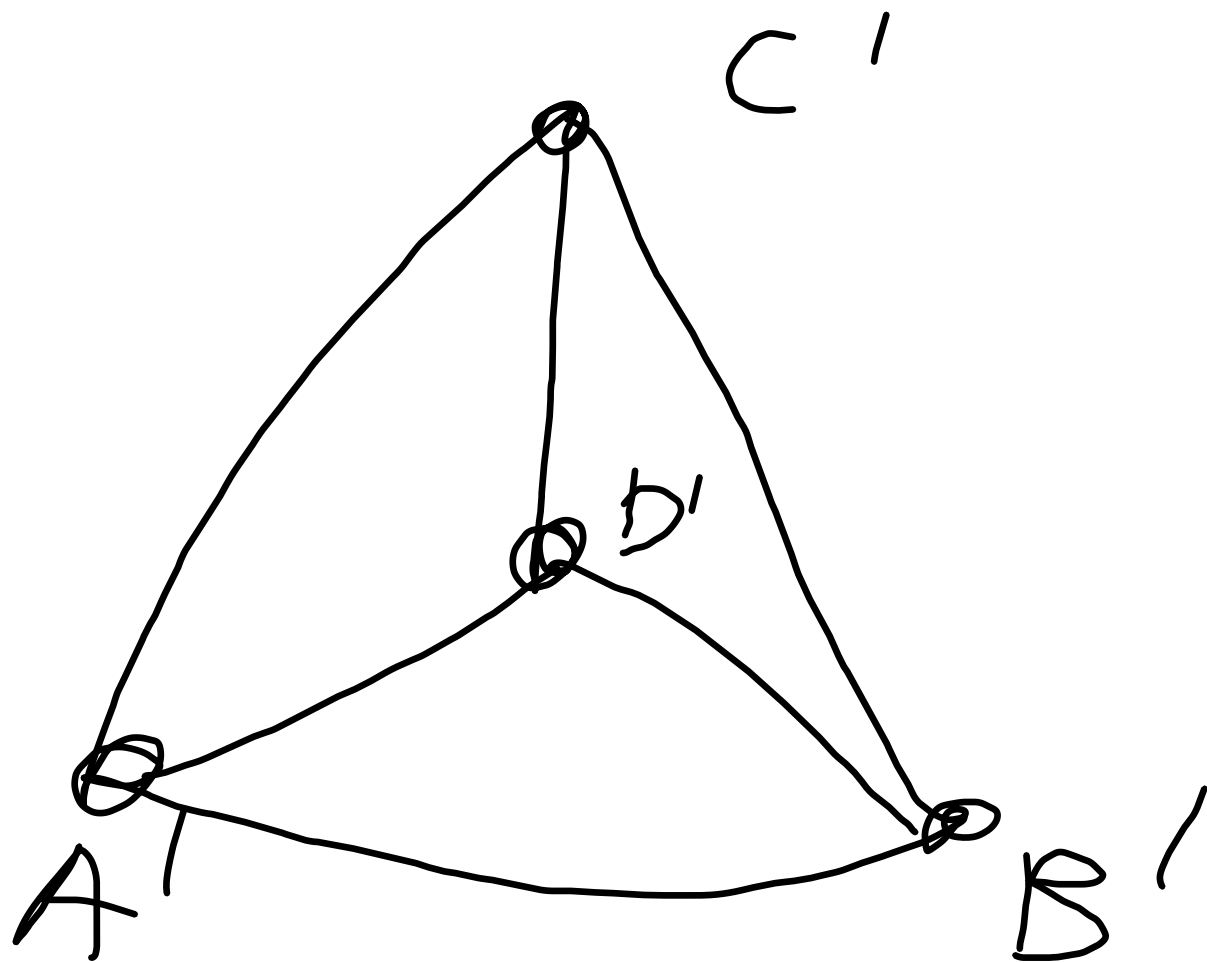
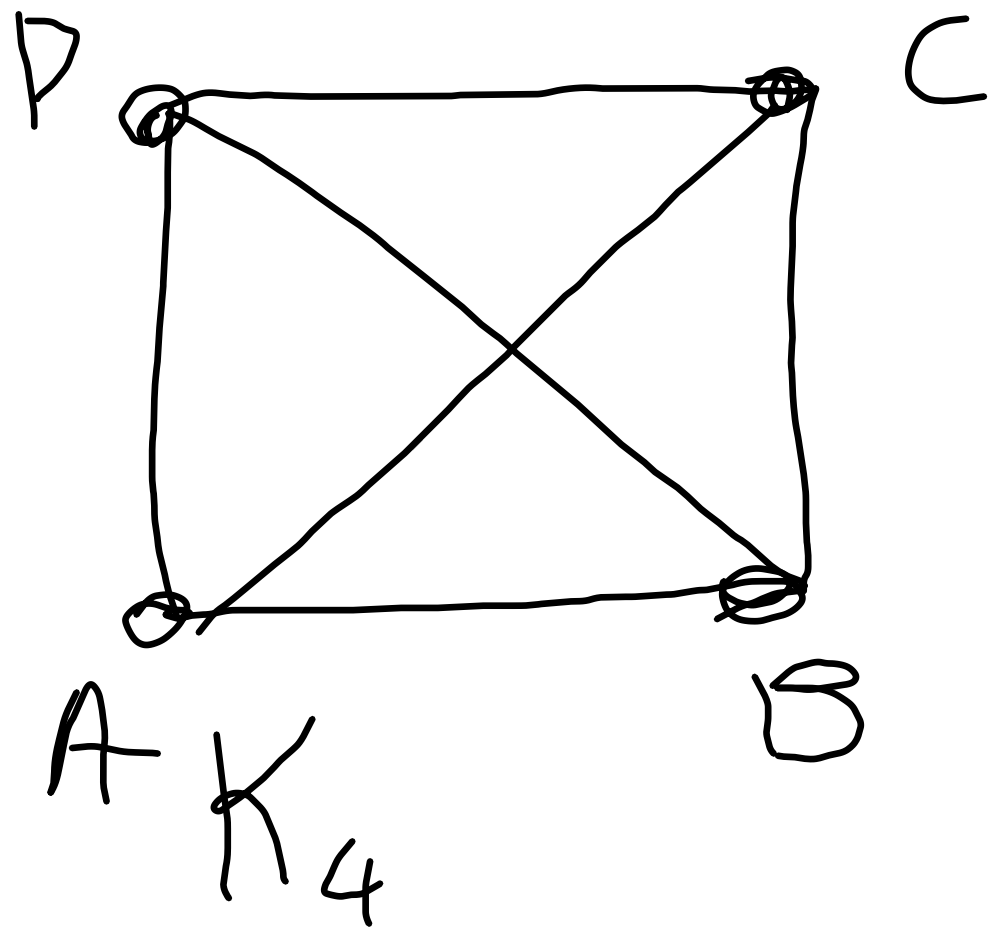
$$= (ABD + ACE + BCE + BDE)(E + ABD) =$$

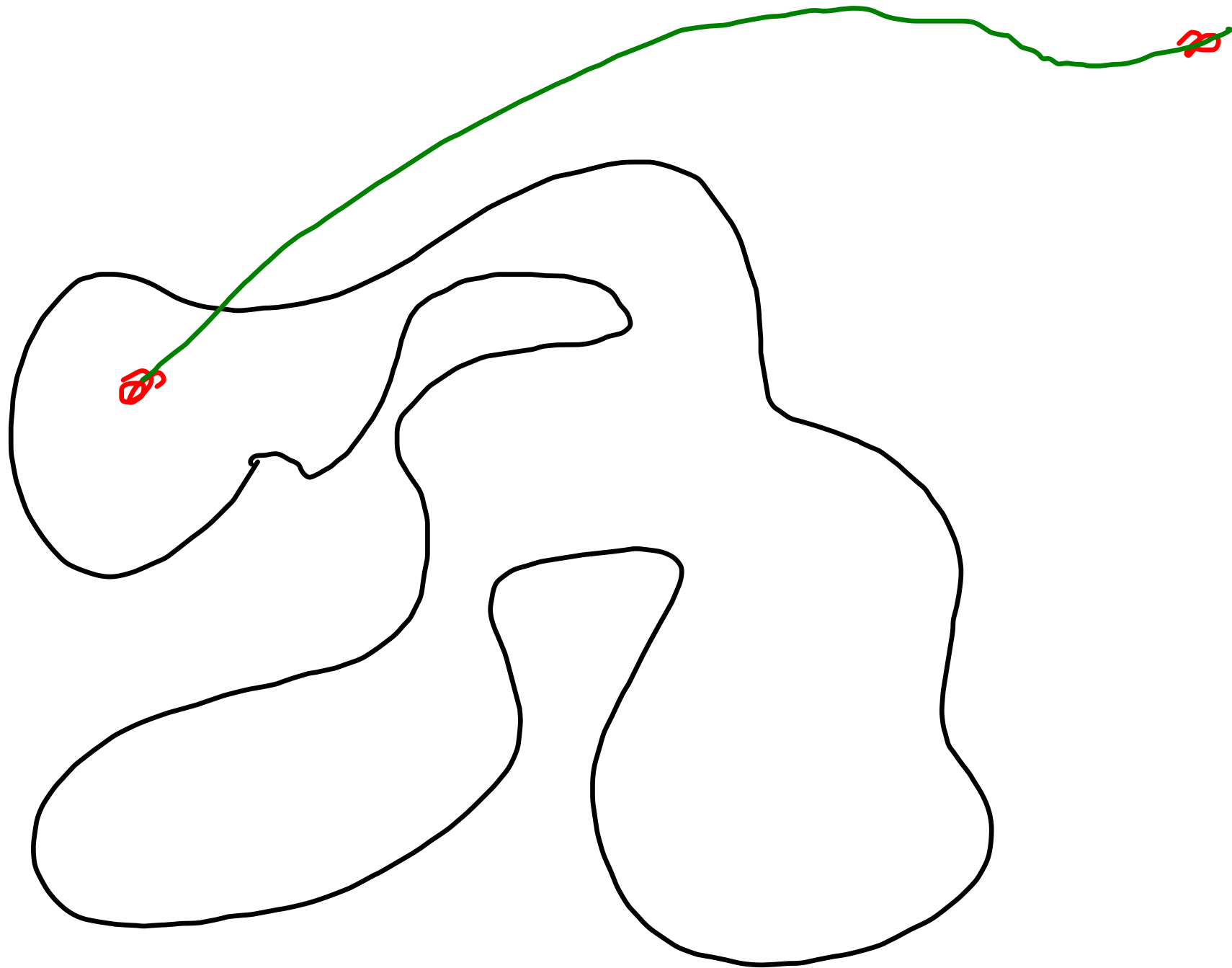
$$= \cancel{ABDE} + \cancel{ABDABD} + \cancel{ACEE} + \cancel{ACEABD} + \cancel{BCEE} + \cancel{BCABD} + \cancel{BDEE} + \cancel{BDEABD}$$

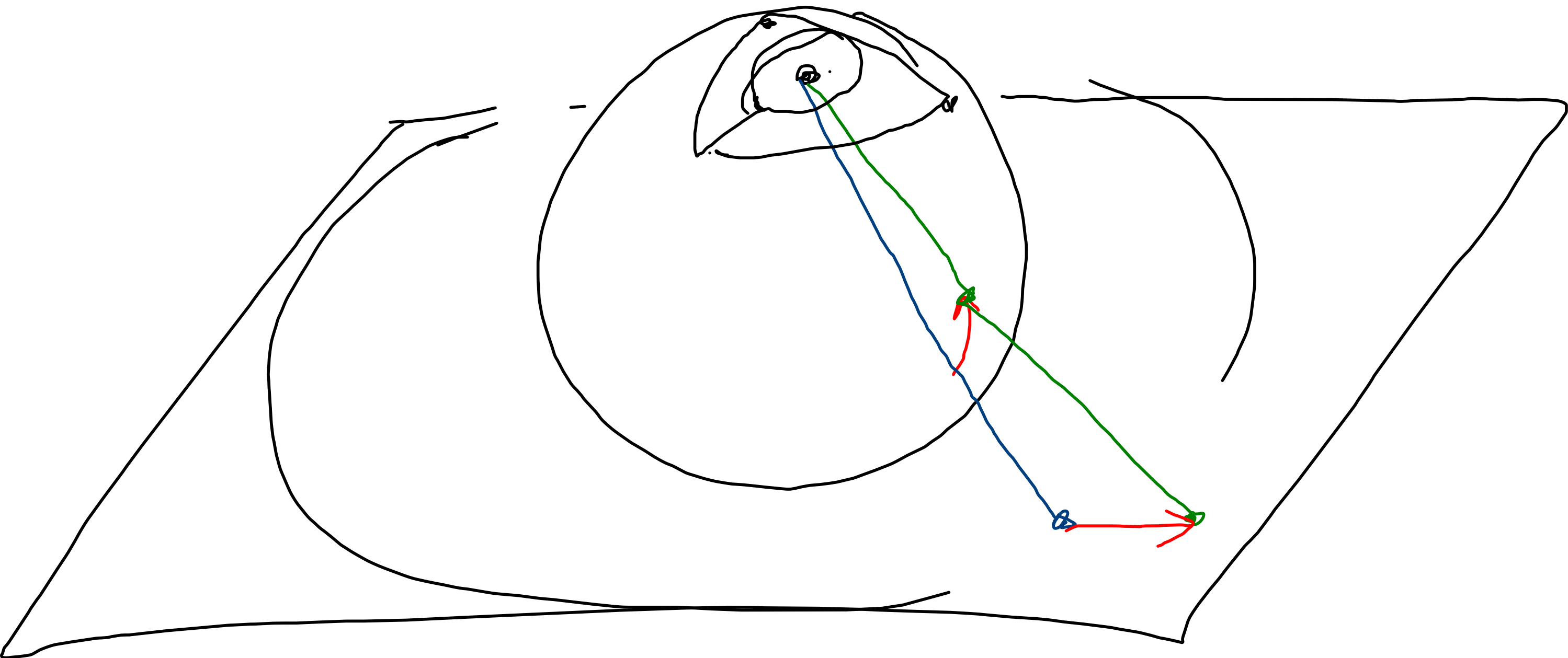
Min. cov: $\{A, B, D\}, \{A, C, E\}, \{B, C, E\}, \{B, D, E\}$

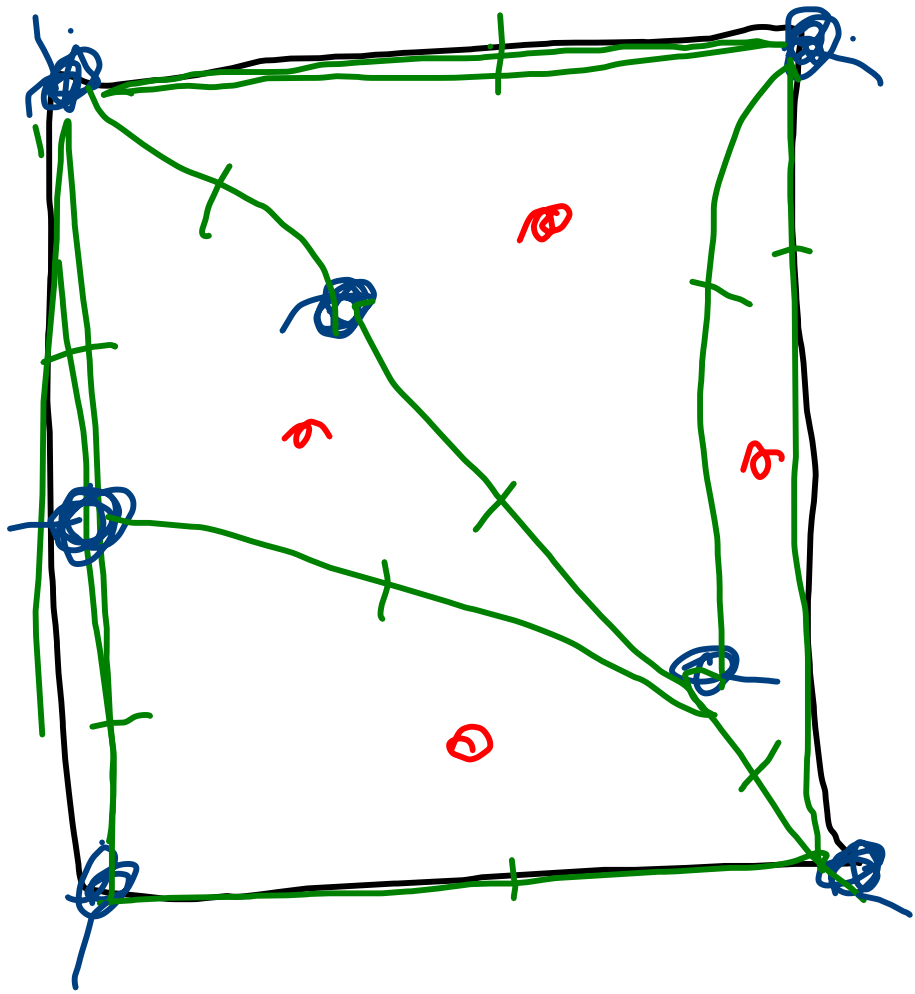
$$= ABD + ACE + BCE + BDE$$

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

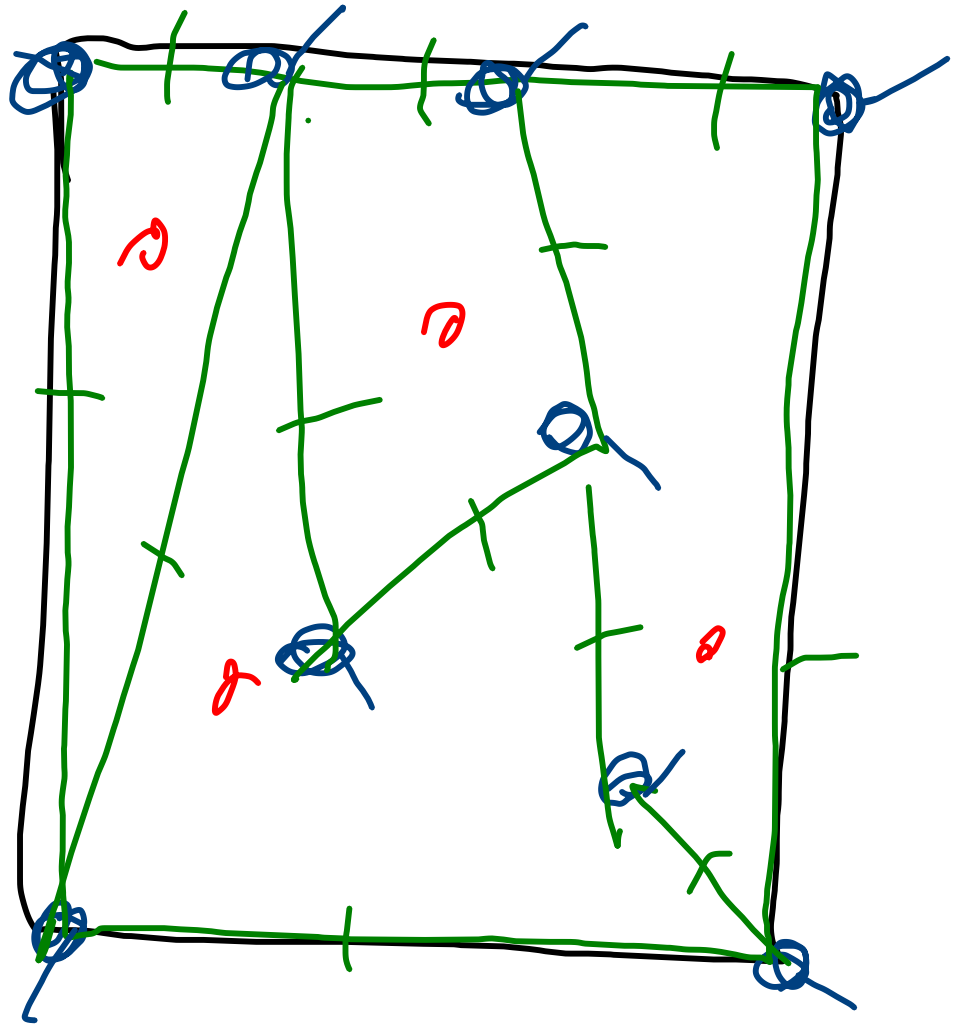








$$7 - 10 + 4 = 1$$



$$9 - 12 + 4 = 1$$

If $\varphi = 1$, G is a tree

$$\text{so } \nu = \varepsilon - 1$$

$$\begin{aligned} \nu - \varepsilon + \varphi &= \nu - (\nu - 1) + \varphi = \\ &= \cancel{\nu} - \cancel{\nu} + 1 + 1 = 2 \end{aligned}$$

$$\nu(G-e) - \varepsilon(G-e) + \varphi(G-e) = 2$$

$$\nu(G) - (\varepsilon(G) - 1) + (\varphi(G) - 1) = 2$$

$$\nu(G) - \varepsilon(G) + \cancel{1} + \varphi(G) - \cancel{1} = 2$$

$$\begin{aligned} & d(f_1) \geq 3 \\ & + d(f_2) \geq 3 \\ & \vdots \\ & + d(f_\varphi) \geq 3 \end{aligned} \left. \vphantom{\begin{aligned} & d(f_1) \geq 3 \\ & + d(f_2) \geq 3 \\ & \vdots \\ & + d(f_\varphi) \geq 3 \end{aligned}} \right\} \varphi$$

$$\sum d(f_i) \geq 3 \cdot \varphi$$

$$\nu - \varepsilon + \varphi = 2$$

$$\nu - \varepsilon + \frac{2\varepsilon}{3} \geq 2$$

$$2\varepsilon \geq 3\varphi$$
$$\varphi \leq \frac{2\varepsilon}{3}$$

$$3\nu - 3\varepsilon + 2\varepsilon \geq 6$$

$$3\nu - \varepsilon \geq 6$$

$$\varepsilon \leq 3\nu - 6$$