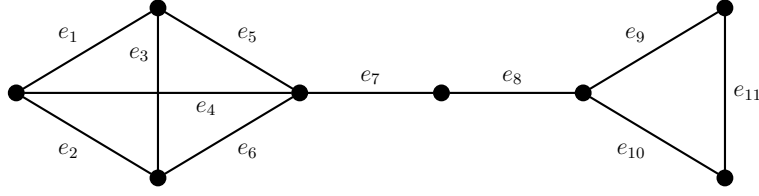


Example graphs

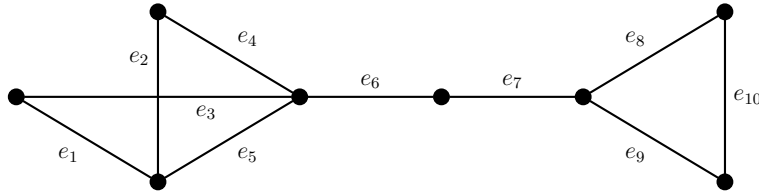


$R = \mathbb{Q}\mathbb{Q}[e_1..e_{11}]$

$I = \text{ideal}(e_2*e_5 - e_1*e_6, e_3*e_4 - e_1*e_6, e_3*e_7^2*e_9*e_{10} - e_5*e_6*e_8^2*e_{11}, e_2*e_7^2*e_9*e_{10} - e_4*e_6*e_8^2*e_{11}, e_1*e_7^2*e_9*e_{10} - e_4*e_5*e_8^2*e_{11})$

trial	shipping version	oneStep changes
1	475s	415s
2	471s	414s
3	474s	411s
4	471s	411s
5	474s	411s
avg.	473s	412s
difference	—	61s quicker

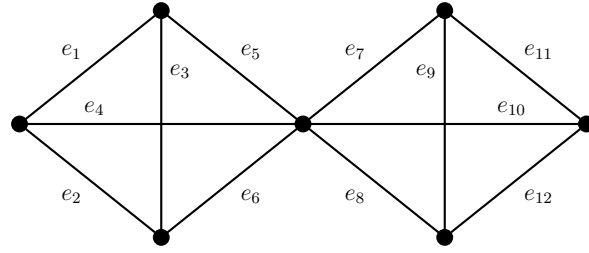
Removing one edge:



$R = \mathbb{Q}\mathbb{Q}[e_1..e_{10}]$

$I = \text{ideal}(e_2*e_3 - e_1*e_4, e_2*e_6^2*e_8*e_9 - e_4*e_5*e_7^2*e_{10}, e_1*e_6^2*e_8*e_9 - e_3*e_5*e_7^2*e_{10})$

trial	shipping version	oneStep changes
1	14.7s	13.2s
2	14.8s	13.2s
3	14.7s	13.1s
4	14.9s	13.1s
5	14.9s	13.3s
avg.	14.8s	13.18s
difference	—	1.62s quicker



```
R = QQ[e_1..e_12]
I = ideal(e_8*e_11-e_7*e_12, e_9*e_10-e_7*e_12, e_2*e_5-e_1*e_6, e_3*e_4-e_1*e_6,
e_3*e_8*e_10-e_5*e_6*e_12, e_2*e_8*e_10-e_4*e_6*e_12, e_1*e_8*e_10-e_4*e_5*e_12,
e_3*e_7*e_10-e_5*e_6*e_11, e_2*e_7*e_10-e_4*e_6*e_11, e_1*e_7*e_10-e_4*e_5*e_11,
e_3*e_7*e_8-e_5*e_6*e_9, e_2*e_7*e_8-e_4*e_6*e_9, e_1*e_7*e_8-e_4*e_5*e_9)
```