# List of superpotentials of toric phases

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# 1 Superpotentials of toric phases of polytopes with 2 internal points

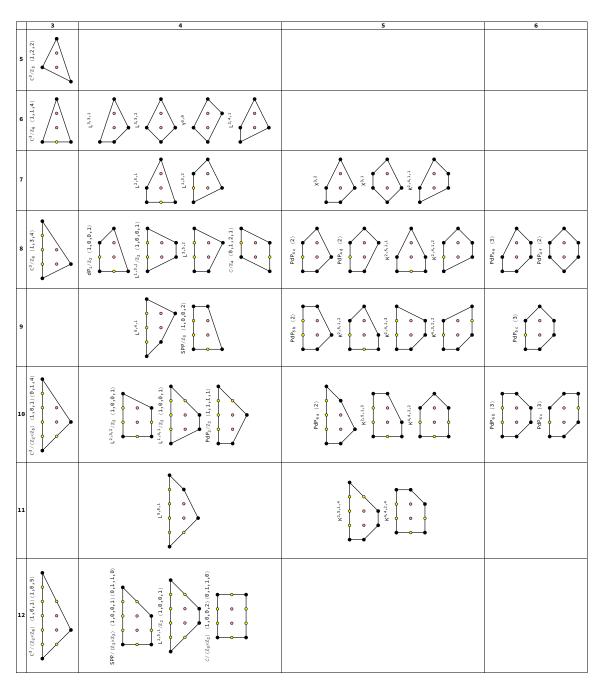


Figure 1: Hi

# 1.1 $\mathbb{C}^3/\mathbb{Z}_5$ (1,2,2)

(I)  $-X_{12}X_{23}X_{31} + X_{12}X_{25}X_{51} + X_{23}X_{31}X_{12} - X_{23}X_{34}X_{42} - X_{25}X_{51}X_{12} + X_{34}X_{42}X_{23} - X_{34}X_{45}X_{53} + X_{45}X_{53}X_{34}$ 

# 1.2 $\mathbb{C}^3/\mathbb{Z}_6$ (1, 1, 4)

(I)  $X_{12}X_{23}X_{31} - X_{12}X_{26}X_{61} - X_{23}X_{31}X_{12} + X_{23}X_{34}X_{42} + X_{26}X_{61}X_{12} - X_{34}X_{42}X_{23} + X_{34}X_{45}X_{53} - X_{45}X_{53}X_{34} + X_{45}X_{56}X_{64} - X_{56}X_{64}X_{45}$ 

### 1.3 $L^{3,3,1}$

(I)  $-X_{12}X_{26}X_{61} + X_{26}X_{61}X_{12} + X_{34}X_{45}X_{53} - X_{45}X_{53}X_{34} + X_{45}X_{56}X_{64} - X_{56}X_{64}X_{45} + X_{12}X_{23}X_{34}X_{41} - X_{23}X_{34}X_{41}X_{12}$ 

#### 1.4 $L^{3,3,2}$

- (I)  $-X_{23}X_{35}X_{52} + X_{35}X_{52}X_{23} X_{35}X_{54}X_{43} + X_{43}X_{35}X_{54} + X_{16}X_{62}X_{23}X_{31} X_{16}X_{65}X_{54}X_{41} X_{31}X_{16}X_{62}X_{23} + X_{41}X_{16}X_{65}X_{54}$
- (II)  $-X_{12}X_{23}X_{31} + X_{12}X_{26}X_{61} + X_{15}X_{54}X_{41} X_{15}X_{56}X_{61} + X_{23}X_{31}X_{12} X_{23}X_{35}X_{52} X_{26}X_{61}X_{12} + X_{35}X_{52}X_{23} X_{35}X_{54}X_{43} X_{41}X_{15}X_{54} + X_{43}X_{35}X_{54} + X_{56}X_{61}X_{15}$

### 1.5 $Y^{3,0}$

- (I)  $X_{12}X_{23}X_{34}X_{41} X_{12}X_{25}X_{56}X_{61} X_{23}X_{34}X_{41}X_{12} + X_{25}X_{56}X_{61}X_{12} + X_{34}X_{45}X_{56}X_{63} X_{45}X_{56}X_{63}X_{34}$
- (II)  $X_{34}X_{45}X_{56}X_{63} X_{45}X_{56}X_{63}X_{34}$

### 1.6 $L^{2,4,1}$

(I)  $X_{12}X_{26}X_{61} + X_{23}X_{35}X_{52} + X_{24}X_{41}X_{12} - X_{24}X_{45}X_{52} - X_{26}X_{61}X_{12} - X_{35}X_{56}X_{63} - X_{12}X_{23}X_{34}X_{41} + X_{34}X_{45}X_{56}X_{63}$ 

### 1.7 $L^{2,5,1}$

(I)  $X_{12}X_{23}X_{31} - X_{12}X_{27}X_{71} - X_{16}X_{67}X_{71} - X_{23}X_{31}X_{12} + X_{23}X_{34}X_{42} + X_{27}X_{71}X_{12} - X_{34}X_{42}X_{23} + X_{34}X_{45}X_{53} - X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{16}X_{65}X_{57}X_{71} - X_{46}X_{65}X_{53}X_{34}$ 

### 1.8 $L^{1,3,2}$

- (I)  $-X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{24}X_{41}X_{12} + X_{26}X_{65}X_{52} + X_{27}X_{71}X_{12} X_{27}X_{75}X_{52} + X_{12}X_{24}X_{43}X_{31} X_{12}X_{26}X_{67}X_{71} X_{36}X_{65}X_{54}X_{43} + X_{36}X_{67}X_{75}X_{53}$
- (II)  $-X_{12}X_{27}X_{71} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{24}X_{41}X_{12} + X_{27}X_{71}X_{12} X_{35}X_{54}X_{43} + X_{35}X_{56}X_{63} + X_{37}X_{75}X_{53} X_{37}X_{76}X_{63} + X_{62}X_{27}X_{76} + X_{12}X_{24}X_{43}X_{31} X_{27}X_{75}X_{56}X_{62}$

## 1.9 $X^{3,2}$

- (I)  $X_{16}X_{62}X_{21} X_{17}X_{72}X_{21} X_{23}X_{34}X_{42} + X_{34}X_{42}X_{23} X_{34}X_{45}X_{53} X_{36}X_{62}X_{23} + X_{45}X_{53}X_{34} + X_{17}X_{74}X_{45}X_{51} + X_{23}X_{36}X_{67}X_{72} X_{16}X_{67}X_{74}X_{45}X_{51}$
- (II)  $-X_{17}X_{76}X_{61} X_{24}X_{46}X_{62} + X_{27}X_{76}X_{62} X_{34}X_{45}X_{53} + X_{34}X_{46}X_{63} + X_{61}X_{17}X_{76} + X_{17}X_{74}X_{45}X_{51} + X_{24}X_{45}X_{53}X_{32} X_{27}X_{76}X_{63}X_{32} X_{45}X_{51}X_{17}X_{74}$
- (III)  $X_{16}X_{67}X_{71} X_{23}X_{34}X_{42} + X_{23}X_{37}X_{72} X_{26}X_{67}X_{72} X_{34}X_{45}X_{53} + X_{45}X_{53}X_{34} X_{45}X_{57}X_{74} + X_{57}X_{74}X_{45} X_{16}X_{63}X_{37}X_{71} + X_{26}X_{63}X_{34}X_{42}$

## 1.10 $X^{3,1}$

- (I)  $X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} X_{21}X_{13}X_{32} + X_{13}X_{32}X_{25}X_{51} X_{13}X_{37}X_{76}X_{61} + X_{37}X_{76}X_{61}X_{13} + X_{45}X_{57}X_{76}X_{64} X_{25}X_{57}X_{76}X_{64}X_{42}$
- $(II) \ \ X_{13}X_{32}X_{21} X_{27}X_{73}X_{32} + X_{27}X_{76}X_{62} X_{13}X_{36}X_{62}X_{21} X_{57}X_{76}X_{64}X_{45} + X_{36}X_{64}X_{45}X_{57}X_{73} \\$
- $\begin{array}{ll} \text{(III)} \ \ X_{15}X_{52}X_{21} X_{16}X_{62}X_{21} + X_{16}X_{63}X_{31} X_{37}X_{76}X_{63} X_{15}X_{52}X_{23}X_{31} + X_{23}X_{37}X_{76}X_{62} + \\ X_{45}X_{57}X_{76}X_{64} X_{57}X_{76}X_{64}X_{45} \end{array}$
- (IV)  $-X_{13}X_{36}X_{61} + X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} X_{21}X_{13}X_{32} + X_{36}X_{61}X_{13} X_{36}X_{67}X_{73} + X_{45}X_{56}X_{64} + X_{56}X_{67}X_{75} + X_{73}X_{36}X_{67} X_{75}X_{56}X_{67} + X_{13}X_{32}X_{25}X_{51} X_{25}X_{56}X_{64}X_{42}$
- $\begin{array}{l} \text{(V)} \ \ -X_{13}X_{37}X_{71} + X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} X_{21}X_{13}X_{32} + X_{37}X_{71}X_{13} + X_{45}X_{57}X_{74} + \\ X_{13}X_{32}X_{25}X_{51} X_{25}X_{57}X_{74}X_{42} \end{array}$

### 1.11 $K^{2,4,1,1}$

- (I)  $X_{12}X_{24}X_{41} X_{12}X_{27}X_{71} X_{13}X_{34}X_{41} X_{16}X_{67}X_{71} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{13}X_{32}X_{27}X_{71} + X_{16}X_{65}X_{57}X_{71} X_{24}X_{46}X_{65}X_{53}X_{32}$
- (II)  $-X_{12}X_{23}X_{31} + X_{12}X_{27}X_{71} X_{23}X_{34}X_{42} + X_{34}X_{42}X_{23} X_{34}X_{45}X_{53} + X_{45}X_{56}X_{64} + X_{16}X_{62}X_{23}X_{31} X_{16}X_{64}X_{47}X_{71} X_{27}X_{75}X_{56}X_{62} + X_{47}X_{75}X_{53}X_{34}$
- (III)  $X_{12}X_{23}X_{31} X_{12}X_{26}X_{61} + X_{14}X_{46}X_{61} X_{14}X_{47}X_{71} X_{23}X_{34}X_{42} + X_{26}X_{65}X_{52} + X_{27}X_{71}X_{12} X_{27}X_{75}X_{52} X_{31}X_{12}X_{23} + X_{34}X_{42}X_{23} X_{34}X_{46}X_{65}X_{53} + X_{47}X_{75}X_{53}X_{34}$

### 1.12 $\mathbb{C}^3/\mathbb{Z}_8$ (1,3,4)

 $\begin{array}{l} \text{(I)} \ \ -X_{13}X_{32}X_{21} + X_{13}X_{38}X_{81} + X_{16}X_{67}X_{71} - X_{16}X_{68}X_{81} + X_{18}X_{82}X_{21} - X_{18}X_{87}X_{71} + \\ X_{23}X_{34}X_{42} - X_{23}X_{38}X_{82} + X_{25}X_{53}X_{32} - X_{25}X_{54}X_{42} - X_{34}X_{45}X_{53} + X_{45}X_{57}X_{74} + \\ X_{46}X_{65}X_{54} - X_{46}X_{67}X_{74} - X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} \end{array}$ 

### **1.13** $dP_1/\mathbb{Z}_2$ (1,0,0,1)

- (I)  $-X_{18}X_{83}X_{31} X_{24}X_{43}X_{32} + X_{28}X_{83}X_{32} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} + X_{12}X_{24}X_{43}X_{31} X_{12}X_{28}X_{87}X_{71} + X_{18}X_{86}X_{67}X_{71} X_{46}X_{67}X_{75}X_{54}$
- (II)  $-X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{21}X_{18}X_{82} X_{35}X_{54}X_{43} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{71}X_{18}X_{87} X_{18}X_{82}X_{23}X_{31} + X_{18}X_{86}X_{67}X_{71} + X_{23}X_{35}X_{54}X_{42} X_{46}X_{67}X_{75}X_{54}$

- (III)  $-X_{13}X_{32}X_{21} + X_{17}X_{72}X_{21} X_{17}X_{78}X_{81} X_{28}X_{87}X_{72} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} + X_{67}X_{78}X_{86} + X_{13}X_{32}X_{28}X_{81} X_{46}X_{67}X_{75}X_{54}$
- **1.14**  $L^{1,3,1}/\mathbb{Z}_2$  (1,0,0,1)
  - (I)  $X_{12}X_{23}X_{31} X_{12}X_{26}X_{61} + X_{14}X_{42}X_{21} X_{15}X_{52}X_{21} + X_{15}X_{56}X_{61} + X_{26}X_{65}X_{52} X_{56}X_{67}X_{75} X_{58}X_{86}X_{65} X_{14}X_{47}X_{73}X_{31} X_{23}X_{38}X_{84}X_{42} + X_{38}X_{86}X_{67}X_{73} + X_{47}X_{75}X_{58}X_{84}$
  - (II)  $X_{12}X_{23}X_{31} X_{12}X_{26}X_{61} + X_{15}X_{56}X_{61} X_{17}X_{73}X_{31} + X_{17}X_{74}X_{41} X_{23}X_{38}X_{82} + X_{24}X_{48}X_{82} + X_{26}X_{65}X_{52} X_{48}X_{87}X_{74} X_{56}X_{67}X_{75} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{15}X_{52}X_{24}X_{41} + X_{38}X_{86}X_{67}X_{73}$

### 1.15 $L^{3,5,2}$

- (I)  $X_{12}X_{24}X_{41} X_{13}X_{34}X_{41} + X_{17}X_{76}X_{61} X_{17}X_{78}X_{81} X_{24}X_{43}X_{32} + X_{34}X_{47}X_{73} + X_{35}X_{54}X_{43} X_{35}X_{57}X_{73} X_{12}X_{28}X_{86}X_{61} + X_{13}X_{32}X_{28}X_{81} X_{47}X_{76}X_{65}X_{54} + X_{57}X_{78}X_{86}X_{65}$
- (II)  $X_{12}X_{24}X_{41} X_{12}X_{26}X_{61} + X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} X_{18}X_{82}X_{21} X_{24}X_{43}X_{32} + X_{26}X_{68}X_{82} + X_{34}X_{47}X_{73} + X_{35}X_{54}X_{43} X_{35}X_{57}X_{73} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} + X_{18}X_{87}X_{76}X_{61} X_{47}X_{76}X_{65}X_{54}$
- **1.16**  $C/\mathbb{Z}_4$  (0,1,2,1)
  - (I)  $X_{14}X_{42}X_{27}X_{71} X_{14}X_{46}X_{63}X_{31} + X_{18}X_{82}X_{23}X_{31} X_{18}X_{85}X_{57}X_{71} X_{23}X_{35}X_{54}X_{42} X_{27}X_{76}X_{68}X_{82} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54}$
  - (II)  $X_{13}X_{34}X_{41} + X_{17}X_{78}X_{81} + X_{24}X_{43}X_{32} + X_{28}X_{87}X_{72} X_{34}X_{46}X_{63} X_{35}X_{54}X_{43} X_{57}X_{78}X_{85} X_{68}X_{87}X_{76} X_{13}X_{32}X_{28}X_{81} X_{17}X_{72}X_{24}X_{41} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54}$
- (III)  $X_{13}X_{34}X_{41} X_{13}X_{38}X_{81} X_{17}X_{74}X_{41} + X_{17}X_{78}X_{81} + X_{23}X_{38}X_{82} + X_{27}X_{74}X_{42} X_{34}X_{46}X_{63} X_{57}X_{78}X_{85} X_{23}X_{35}X_{54}X_{42} X_{27}X_{76}X_{68}X_{82} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54}$
- (IV)  $X_{13}X_{34}X_{41} X_{13}X_{38}X_{81} X_{17}X_{74}X_{41} X_{23}X_{34}X_{42} + X_{23}X_{38}X_{82} + X_{27}X_{74}X_{42} X_{34}X_{46}X_{63} X_{37}X_{75}X_{53} + X_{37}X_{76}X_{63} + X_{45}X_{53}X_{34} X_{45}X_{58}X_{84} + X_{46}X_{68}X_{84} + X_{17}X_{75}X_{58}X_{81} X_{27}X_{76}X_{68}X_{82}$

## 1.17 $PdP_{4c}$ (2)

- (I)  $X_{12}X_{25}X_{51} X_{25}X_{53}X_{32} + X_{34}X_{45}X_{53} + X_{48}X_{86}X_{64} X_{48}X_{87}X_{74} X_{56}X_{64}X_{45} X_{13}X_{34}X_{45}X_{51} + X_{45}X_{56}X_{67}X_{74} X_{12}X_{28}X_{86}X_{67}X_{71} + X_{13}X_{32}X_{28}X_{87}X_{71}$
- (II)  $X_{18}X_{82}X_{21} X_{23}X_{38}X_{82} + X_{48}X_{86}X_{64} X_{48}X_{87}X_{74} X_{56}X_{64}X_{45} + X_{13}X_{38}X_{87}X_{71} X_{18}X_{86}X_{67}X_{71} + X_{23}X_{34}X_{45}X_{52} + X_{45}X_{56}X_{67}X_{74} X_{13}X_{34}X_{45}X_{52}X_{21}$
- (III)  $X_{18}X_{82}X_{21} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{48}X_{86}X_{64} X_{48}X_{87}X_{74} + X_{71}X_{18}X_{87} X_{82}X_{21}X_{18} X_{15}X_{53}X_{32}X_{21} X_{18}X_{86}X_{67}X_{71} + X_{15}X_{54}X_{43}X_{32}X_{21}$

- (IV)  $X_{12}X_{25}X_{51} + X_{17}X_{76}X_{61} X_{17}X_{78}X_{81} X_{25}X_{53}X_{32} + X_{34}X_{45}X_{53} + X_{45}X_{56}X_{64} X_{47}X_{76}X_{64} X_{56}X_{64}X_{45} X_{12}X_{28}X_{86}X_{61} + X_{13}X_{32}X_{28}X_{81} X_{13}X_{34}X_{45}X_{51} + X_{47}X_{78}X_{86}X_{64}$
- (V)  $X_{14}X_{43}X_{31} X_{14}X_{45}X_{51} X_{23}X_{31}X_{12} X_{35}X_{54}X_{43} + X_{45}X_{57}X_{74} + X_{46}X_{65}X_{54} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{12}X_{23}X_{35}X_{51} X_{12}X_{28}X_{87}X_{71} + X_{28}X_{87}X_{71}X_{12} X_{46}X_{68}X_{87}X_{74}$
- (VI)  $X_{12}X_{23}X_{31} X_{15}X_{53}X_{31} + X_{17}X_{76}X_{61} X_{17}X_{78}X_{81} X_{23}X_{31}X_{12} + X_{28}X_{81}X_{12} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} X_{12}X_{28}X_{86}X_{61} + X_{15}X_{54}X_{43}X_{31} X_{47}X_{76}X_{65}X_{54} + X_{47}X_{78}X_{86}X_{64}$
- (VII)  $-X_{13}X_{32}X_{21} + X_{13}X_{35}X_{51} X_{14}X_{45}X_{51} + X_{17}X_{76}X_{61} + X_{18}X_{82}X_{21} X_{18}X_{86}X_{61} + X_{45}X_{56}X_{64} X_{47}X_{76}X_{64} + X_{14}X_{43}X_{32}X_{21} X_{17}X_{78}X_{82}X_{21} X_{35}X_{56}X_{64}X_{43} + X_{47}X_{78}X_{86}X_{64}$
- $\begin{array}{l} (\text{VIII}) \ \ -X_{13}X_{32}X_{21} + X_{13}X_{35}X_{51} X_{14}X_{45}X_{51} + X_{18}X_{82}X_{21} X_{18}X_{87}X_{71} X_{35}X_{54}X_{43} + \\ X_{45}X_{57}X_{74} + X_{46}X_{65}X_{54} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{71}X_{18}X_{87} X_{82}X_{21}X_{18} + \\ X_{14}X_{43}X_{32}X_{21} X_{46}X_{68}X_{87}X_{74} \end{array}$

### 1.18 $PdP_{4d}$ (2)

- (I)  $X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{14}X_{42}X_{21} X_{14}X_{43}X_{31} X_{17}X_{72}X_{21} + X_{28}X_{87}X_{72} + X_{35}X_{56}X_{64}X_{43} X_{56}X_{68}X_{87}X_{75} + X_{17}X_{75}X_{56}X_{68}X_{81} X_{23}X_{35}X_{56}X_{64}X_{42}$
- (II)  $X_{14}X_{42}X_{21} X_{17}X_{72}X_{21} X_{23}X_{34}X_{42} + X_{23}X_{36}X_{62} X_{25}X_{56}X_{62} + X_{28}X_{87}X_{72} X_{14}X_{42}X_{28}X_{81} + X_{25}X_{53}X_{34}X_{42} + X_{17}X_{75}X_{56}X_{68}X_{81} X_{36}X_{68}X_{87}X_{75}X_{53}$
- $(\mathrm{III}) \ \ X_{14} X_{47} X_{71} X_{18} X_{87} X_{71} X_{24} X_{47} X_{72} + X_{25} X_{53} X_{32} X_{25} X_{56} X_{62} X_{14} X_{43} X_{32} X_{21} + X_{18} X_{87} X_{72} X_{21} + X_{24} X_{43} X_{36} X_{62} + X_{56} X_{68} X_{87} X_{75} X_{36} X_{68} X_{87} X_{75} X_{53}$
- (IV)  $-X_{14}X_{42}X_{21} + X_{14}X_{47}X_{71} X_{18}X_{87}X_{71} + X_{23}X_{34}X_{42} + X_{24}X_{46}X_{62} X_{24}X_{47}X_{72} X_{34}X_{46}X_{63} + X_{35}X_{56}X_{63} + X_{18}X_{87}X_{72}X_{21} X_{23}X_{35}X_{56}X_{62} X_{56}X_{68}X_{87}X_{75} + X_{68}X_{87}X_{75}X_{56}$
- (V)  $X_{12}X_{24}X_{41} X_{15}X_{57}X_{71} X_{24}X_{41}X_{12} + X_{25}X_{53}X_{32} X_{25}X_{56}X_{62} + X_{27}X_{71}X_{12} X_{32}X_{24}X_{43} + X_{57}X_{78}X_{85} X_{12}X_{27}X_{78}X_{81} + X_{15}X_{56}X_{68}X_{81} + X_{24}X_{43}X_{36}X_{62} X_{36}X_{68}X_{85}X_{53}$
- (VI)  $X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} + X_{28}X_{87}X_{72} X_{32}X_{24}X_{43} + X_{35}X_{54}X_{43} X_{46}X_{65}X_{54} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} X_{17}X_{72}X_{24}X_{41} + X_{17}X_{76}X_{68}X_{81} + X_{24}X_{46}X_{63}X_{32} X_{35}X_{57}X_{76}X_{63}$
- (VII)  $-X_{14}X_{42}X_{21} + X_{14}X_{47}X_{71} X_{18}X_{87}X_{71} + X_{23}X_{34}X_{42} X_{23}X_{36}X_{62} + X_{24}X_{46}X_{62} X_{24}X_{47}X_{72} + X_{36}X_{65}X_{53} + X_{18}X_{87}X_{72}X_{21} X_{34}X_{46}X_{65}X_{53}$
- (VIII)  $X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{14}X_{42}X_{21} X_{14}X_{43}X_{31} X_{17}X_{72}X_{21} + X_{28}X_{87}X_{72} + X_{36}X_{64}X_{43} X_{36}X_{65}X_{53} + X_{53}X_{36}X_{65} X_{68}X_{87}X_{76} + X_{17}X_{76}X_{68}X_{81} X_{23}X_{36}X_{64}X_{42}$

## 1.19 $K^{2,5,1,1}$

- $\text{(I)} \ \ X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} X_{15}X_{57}X_{71} + X_{15}X_{58}X_{81} X_{23}X_{31}X_{12} X_{34}X_{42}X_{23} + \\ X_{34}X_{45}X_{53} X_{36}X_{65}X_{53} + X_{57}X_{76}X_{65} + X_{23}X_{36}X_{64}X_{42} + X_{28}X_{87}X_{71}X_{12} X_{45}X_{58}X_{87}X_{76}X_{64}$
- (II)  $-X_{12}X_{23}X_{31} + X_{12}X_{27}X_{71} X_{27}X_{78}X_{82} X_{34}X_{42}X_{23} + X_{34}X_{45}X_{53} X_{36}X_{65}X_{53} + X_{57}X_{76}X_{65} + X_{78}X_{85}X_{57} + X_{18}X_{82}X_{23}X_{31} X_{18}X_{85}X_{57}X_{71} + X_{23}X_{36}X_{64}X_{42} X_{45}X_{57}X_{76}X_{64}$
- (III)  $X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{17}X_{78}X_{81} X_{23}X_{31}X_{12} + X_{23}X_{34}X_{42} + X_{28}X_{81}X_{12} X_{34}X_{46}X_{63} X_{57}X_{78}X_{85} X_{17}X_{76}X_{68}X_{81} X_{35}X_{54}X_{42}X_{23} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54}$

# 1.20 $K^{2,4,1,2}$

- (I)  $-X_{16}X_{68}X_{81} + X_{24}X_{45}X_{52} X_{45}X_{56}X_{64} + X_{68}X_{85}X_{56} X_{13}X_{35}X_{52}X_{21} + X_{13}X_{37}X_{78}X_{81} + X_{16}X_{67}X_{72}X_{21} X_{24}X_{43}X_{37}X_{72} + X_{35}X_{56}X_{64}X_{43} X_{56}X_{67}X_{78}X_{85}$
- (II)  $X_{13}X_{37}X_{71} X_{18}X_{87}X_{71} + X_{24}X_{45}X_{52} X_{56}X_{67}X_{75} + X_{58}X_{87}X_{75} X_{13}X_{35}X_{52}X_{21} X_{24}X_{43}X_{37}X_{72} + X_{35}X_{56}X_{64}X_{43} X_{45}X_{58}X_{86}X_{64} + X_{18}X_{86}X_{67}X_{72}X_{21}$
- (III)  $X_{13}X_{37}X_{71} X_{18}X_{87}X_{71} + X_{23}X_{34}X_{42} X_{23}X_{37}X_{72} X_{34}X_{46}X_{63} + X_{35}X_{56}X_{63} + X_{46}X_{65}X_{54} X_{56}X_{67}X_{75} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{13}X_{35}X_{54}X_{42}X_{21} + X_{18}X_{86}X_{67}X_{72}X_{21}$
- $\begin{array}{l} \text{(IV)} \ \ X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} X_{15}X_{57}X_{71} + X_{15}X_{58}X_{81} X_{23}X_{35}X_{52} + X_{24}X_{45}X_{52} + \\ X_{27}X_{71}X_{12} X_{27}X_{76}X_{62} + X_{28}X_{86}X_{62} X_{24}X_{43}X_{31}X_{12} X_{45}X_{58}X_{86}X_{64} + X_{35}X_{57}X_{76}X_{64}X_{43} \end{array}$
- $\begin{array}{l} (\mathrm{V}) \ \ -X_{12}X_{24}X_{41} + X_{12}X_{27}X_{71} + X_{13}X_{34}X_{41} X_{15}X_{57}X_{71} + X_{15}X_{58}X_{81} X_{27}X_{76}X_{62} + \\ X_{28}X_{86}X_{62} X_{34}X_{45}X_{53} X_{13}X_{32}X_{28}X_{81} + X_{24}X_{45}X_{53}X_{32} X_{45}X_{58}X_{86}X_{64} + \\ X_{57}X_{76}X_{64}X_{45} \end{array}$
- (VI)  $X_{13}X_{37}X_{71} X_{18}X_{87}X_{71} + X_{24}X_{45}X_{52} + X_{35}X_{54}X_{43} X_{45}X_{58}X_{84} X_{46}X_{65}X_{54} + X_{46}X_{68}X_{84} X_{68}X_{87}X_{76} X_{13}X_{35}X_{52}X_{21} + X_{18}X_{87}X_{72}X_{21} X_{24}X_{43}X_{37}X_{72} + X_{58}X_{87}X_{76}X_{65}$
- (VII)  $X_{13}X_{34}X_{41} X_{13}X_{38}X_{81} X_{17}X_{74}X_{41} X_{23}X_{34}X_{42} + X_{23}X_{38}X_{82} + X_{27}X_{74}X_{42} X_{27}X_{78}X_{82} X_{34}X_{45}X_{53} + X_{45}X_{53}X_{34} + X_{56}X_{64}X_{45} X_{56}X_{67}X_{75} + X_{67}X_{78}X_{86} + X_{17}X_{75}X_{58}X_{81} X_{45}X_{58}X_{86}X_{64}$

#### 1.21 $PdP_{4e}$ (3)

- (I)  $X_{13}X_{32}X_{21} + X_{16}X_{68}X_{81} + X_{17}X_{72}X_{21} X_{17}X_{78}X_{81} X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} X_{13}X_{34}X_{42}X_{21} X_{16}X_{67}X_{72}X_{21} X_{46}X_{68}X_{85}X_{54} + X_{34}X_{46}X_{67}X_{78}X_{85}X_{53}$
- (II)  $X_{13}X_{32}X_{21} X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} X_{46}X_{65}X_{54} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{13}X_{34}X_{42}X_{21} + X_{18}X_{87}X_{72}X_{21} X_{18}X_{86}X_{67}X_{72}X_{21} + X_{34}X_{46}X_{67}X_{75}X_{53}$

- (III)  $-X_{12}X_{28}X_{81} + X_{28}X_{87}X_{72} X_{36}X_{64}X_{43} X_{58}X_{87}X_{75} + X_{81}X_{12}X_{28} + X_{12}X_{24}X_{43}X_{31} + X_{36}X_{67}X_{75}X_{53} + X_{45}X_{58}X_{86}X_{64} X_{67}X_{72}X_{28}X_{86} X_{24}X_{45}X_{53}X_{31}X_{12}$
- (IV)  $X_{13}X_{32}X_{21} X_{25}X_{53}X_{32} X_{47}X_{76}X_{64} + X_{68}X_{87}X_{76} X_{13}X_{34}X_{42}X_{21} + X_{25}X_{56}X_{64}X_{42} + X_{34}X_{47}X_{75}X_{53} X_{56}X_{68}X_{87}X_{75}$
- $\begin{array}{l} (\mathrm{V}) \ \ -X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{15}X_{52}X_{21} X_{15}X_{53}X_{31} + X_{17}X_{72}X_{21} X_{17}X_{78}X_{81} + \\ X_{26}X_{64}X_{42} X_{26}X_{65}X_{52} X_{72}X_{21}X_{17} + X_{81}X_{17}X_{78} X_{37}X_{78}X_{86}X_{64}X_{43} + X_{37}X_{78}X_{86}X_{65}X_{53} \\ \end{array}$
- (VI)  $X_{16}X_{68}X_{81} + X_{17}X_{72}X_{21} X_{17}X_{78}X_{81} + X_{24}X_{43}X_{32} X_{36}X_{64}X_{43} + X_{45}X_{56}X_{64} X_{56}X_{68}X_{85} X_{16}X_{67}X_{72}X_{21} X_{24}X_{45}X_{53}X_{32} + X_{36}X_{67}X_{78}X_{85}X_{53}$
- (VII)  $X_{17}X_{72}X_{21} X_{17}X_{78}X_{81} + X_{26}X_{64}X_{42} X_{26}X_{65}X_{52} + X_{34}X_{47}X_{73} X_{35}X_{57}X_{73} X_{72}X_{21}X_{17} + X_{81}X_{17}X_{78} X_{13}X_{34}X_{42}X_{21} + X_{13}X_{35}X_{52}X_{21} X_{47}X_{78}X_{86}X_{64} + X_{57}X_{78}X_{86}X_{65}$
- (VIII)  $X_{18}X_{82}X_{21} + X_{24}X_{43}X_{32} + X_{27}X_{76}X_{62} X_{27}X_{78}X_{82} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} X_{57}X_{76}X_{65} X_{18}X_{86}X_{62}X_{21} X_{24}X_{45}X_{53}X_{32} + X_{45}X_{57}X_{78}X_{86}X_{64}$ 
  - (IX)  $-X_{13}X_{32}X_{21} + X_{17}X_{72}X_{21} X_{17}X_{78}X_{81} + X_{24}X_{43}X_{32} + X_{46}X_{67}X_{74} X_{67}X_{78}X_{86} X_{72}X_{21}X_{17} + X_{81}X_{17}X_{78} + X_{13}X_{35}X_{52}X_{21} X_{24}X_{46}X_{65}X_{52} X_{35}X_{57}X_{74}X_{43} + X_{57}X_{78}X_{86}X_{65}$
  - $(X) -X_{12}X_{25}X_{51} + X_{12}X_{28}X_{81} + X_{13}X_{35}X_{51} + X_{28}X_{87}X_{72} X_{35}X_{54}X_{43} X_{46}X_{65}X_{54} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{13}X_{32}X_{28}X_{81} + X_{25}X_{54}X_{43}X_{32} + X_{46}X_{67}X_{75}X_{54} X_{67}X_{72}X_{28}X_{86}$
  - (XI)  $-X_{12}X_{28}X_{81} + X_{35}X_{54}X_{43} X_{35}X_{57}X_{73} X_{36}X_{64}X_{43} + X_{36}X_{67}X_{73} X_{48}X_{85}X_{54} + X_{48}X_{86}X_{64} + X_{81}X_{12}X_{28} + X_{12}X_{24}X_{43}X_{31} X_{24}X_{43}X_{31}X_{12} + X_{28}X_{85}X_{57}X_{72} X_{67}X_{72}X_{28}X_{86}$
- (XII)  $-X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} + X_{37}X_{75}X_{53} X_{37}X_{76}X_{63} X_{48}X_{87}X_{75}X_{54} + X_{48}X_{87}X_{76}X_{64}$
- (XIII)  $X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} X_{23}X_{34}X_{42} + X_{26}X_{64}X_{42} X_{26}X_{65}X_{52} + X_{28}X_{87}X_{72} X_{31}X_{12}X_{23} + X_{34}X_{47}X_{73} + X_{35}X_{52}X_{23} X_{35}X_{57}X_{73} X_{47}X_{76}X_{64} + X_{57}X_{76}X_{65} X_{72}X_{28}X_{87} + X_{81}X_{12}X_{28}$

### 1.22 $PdP_{4f}$ (2)

- (I)  $-X_{34}X_{46}X_{63} X_{58}X_{87}X_{75} + X_{13}X_{34}X_{42}X_{21} + X_{18}X_{87}X_{72}X_{21} + X_{35}X_{58}X_{86}X_{63} + X_{46}X_{67}X_{75}X_{54} X_{13}X_{35}X_{54}X_{42}X_{21} X_{18}X_{86}X_{67}X_{72}X_{21}$
- (II)  $-X_{12}X_{23}X_{31} + X_{23}X_{36}X_{62} X_{24}X_{46}X_{62} X_{27}X_{75}X_{52} X_{28}X_{81}X_{12} + X_{28}X_{85}X_{52} + X_{12}X_{27}X_{78}X_{81} + X_{24}X_{43}X_{31}X_{12} + X_{46}X_{67}X_{75}X_{54} X_{36}X_{67}X_{78}X_{85}X_{54}X_{43}$
- (III)  $-X_{13}X_{32}X_{21} + X_{24}X_{43}X_{32} X_{24}X_{46}X_{62} + X_{46}X_{65}X_{54} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{13}X_{36}X_{62}X_{21} X_{18}X_{87}X_{72}X_{21} + X_{18}X_{85}X_{57}X_{72}X_{21} X_{36}X_{68}X_{85}X_{54}X_{43}$

- (IV)  $X_{15}X_{52}X_{21} X_{15}X_{58}X_{81} X_{16}X_{62}X_{21} + X_{16}X_{68}X_{81} X_{27}X_{75}X_{52} + X_{27}X_{76}X_{62} + X_{34}X_{47}X_{75}X_{58}X_{83} X_{47}X_{76}X_{68}X_{83}X_{34}$
- (V)  $X_{13}X_{35}X_{51} X_{16}X_{65}X_{51} + X_{34}X_{47}X_{73} X_{47}X_{76}X_{64} X_{13}X_{34}X_{42}X_{21} + X_{16}X_{64}X_{42}X_{21} X_{35}X_{58}X_{87}X_{73} + X_{58}X_{87}X_{76}X_{65}$
- (VI)  $-X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{37}X_{75}X_{53} X_{58}X_{87}X_{75} + X_{16}X_{64}X_{42}X_{21} X_{16}X_{65}X_{53}X_{31} X_{37}X_{76}X_{64}X_{43} + X_{58}X_{87}X_{76}X_{65}$
- $\begin{array}{ll} (\mathrm{VII}) & -X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} + X_{23}X_{36}X_{62} X_{24}X_{46}X_{62} X_{28}X_{87}X_{72} + X_{46}X_{65}X_{54} \\ & X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{81}X_{12}X_{28} + X_{24}X_{43}X_{31}X_{12} + X_{57}X_{72}X_{28}X_{85} X_{36}X_{68}X_{85}X_{54}X_{43} \\ \end{array}$
- (VIII)  $-X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} + X_{23}X_{36}X_{62} X_{28}X_{87}X_{72} + X_{45}X_{58}X_{84} X_{58}X_{87}X_{75} + X_{72}X_{28}X_{87} X_{81}X_{12}X_{28} + X_{24}X_{43}X_{31}X_{12} X_{24}X_{45}X_{56}X_{62} X_{36}X_{68}X_{84}X_{43} + X_{56}X_{68}X_{87}X_{75}$ 
  - (IX)  $X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} X_{13}X_{34}X_{41} X_{28}X_{87}X_{72} + X_{34}X_{46}X_{63} + X_{46}X_{65}X_{54} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{13}X_{32}X_{28}X_{81} X_{24}X_{46}X_{63}X_{32} X_{54}X_{46}X_{68}X_{85} + X_{57}X_{72}X_{28}X_{85}$
  - $(X) -X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} X_{28}X_{87}X_{72} + X_{31}X_{12}X_{23} X_{34}X_{42}X_{23} + X_{34}X_{45}X_{53} + X_{68}X_{87}X_{76} X_{81}X_{12}X_{28} + X_{23}X_{36}X_{64}X_{42} X_{36}X_{68}X_{85}X_{53} X_{45}X_{57}X_{76}X_{64} + X_{57}X_{72}X_{28}X_{85}$
  - $\begin{array}{l} ({\rm XI}) \ \ -X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} + X_{23}X_{36}X_{62} + X_{25}X_{54}X_{42} X_{25}X_{56}X_{62} X_{28}X_{87}X_{72} + \\ X_{31}X_{12}X_{23} X_{34}X_{42}X_{23} + X_{34}X_{48}X_{83} X_{36}X_{68}X_{83} + X_{72}X_{28}X_{87} X_{81}X_{12}X_{28} \\ X_{48}X_{87}X_{75}X_{54} + X_{56}X_{68}X_{87}X_{75} \end{array}$
- (XII)  $X_{12}X_{28}X_{81} X_{27}X_{75}X_{52} + X_{27}X_{76}X_{62} X_{28}X_{86}X_{62} X_{37}X_{74}X_{43} + X_{37}X_{75}X_{53} X_{38}X_{85}X_{53} + X_{38}X_{86}X_{63} + X_{52}X_{28}X_{85} X_{63}X_{37}X_{76} + X_{74}X_{43}X_{37} X_{81}X_{12}X_{28} X_{12}X_{24}X_{43}X_{31} + X_{24}X_{43}X_{31}X_{12}$
- (XIII)  $-X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} + X_{23}X_{34}X_{42} + X_{31}X_{12}X_{23} X_{34}X_{42}X_{23} + X_{34}X_{45}X_{53} X_{38}X_{85}X_{53} + X_{38}X_{86}X_{63} X_{45}X_{57}X_{74} X_{46}X_{63}X_{34} + X_{46}X_{67}X_{74} X_{81}X_{12}X_{28} X_{28}X_{86}X_{67}X_{72} + X_{57}X_{72}X_{28}X_{85}$
- 1.23  $L^{5,4,1}$ 
  - (I)  $X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{14}X_{42}X_{21} X_{14}X_{43}X_{31} X_{19}X_{92}X_{21} + X_{19}X_{98}X_{81} X_{23}X_{34}X_{42} + X_{28}X_{89}X_{92} + X_{34}X_{45}X_{53} + X_{36}X_{64}X_{43} X_{45}X_{56}X_{64} + X_{67}X_{79}X_{96} X_{68}X_{89}X_{96} X_{79}X_{98}X_{87} X_{36}X_{67}X_{75}X_{53} + X_{56}X_{68}X_{87}X_{75}$
- **1.24** SPP/ $\mathbb{Z}_3$  (1, 0, 0, 2)
  - (I)  $-X_{12}X_{28}X_{81} + X_{14}X_{43}X_{31} X_{14}X_{45}X_{51} + X_{19}X_{98}X_{81} + X_{48}X_{86}X_{64} X_{48}X_{87}X_{74} + X_{12}X_{23}X_{35}X_{51} X_{19}X_{92}X_{23}X_{31} + X_{28}X_{87}X_{79}X_{92} X_{35}X_{56}X_{64}X_{43} + X_{45}X_{56}X_{67}X_{74} X_{67}X_{79}X_{98}X_{86}$

- (II)  $-X_{13}X_{32}X_{21} + X_{13}X_{35}X_{51} + X_{14}X_{43}X_{31} X_{14}X_{45}X_{51} X_{19}X_{93}X_{31} + X_{29}X_{93}X_{32} X_{29}X_{98}X_{82} + X_{48}X_{86}X_{64} X_{48}X_{87}X_{74} + X_{79}X_{98}X_{87} + X_{19}X_{98}X_{82}X_{21} X_{35}X_{56}X_{64}X_{43} + X_{45}X_{56}X_{67}X_{74} X_{67}X_{79}X_{98}X_{86}$
- $(\mathrm{III}) \ -X_{13}X_{32}X_{21} + X_{13}X_{35}X_{51} + X_{14}X_{43}X_{31} X_{14}X_{45}X_{51} X_{19}X_{93}X_{31} + X_{29}X_{93}X_{32} X_{29}X_{98}X_{82} X_{35}X_{54}X_{43} + X_{45}X_{57}X_{74} + X_{46}X_{65}X_{54} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{19}X_{98}X_{82}X_{21} X_{46}X_{68}X_{87}X_{74}$

## **1.25** $PdP_{5b}$ (2)

- (I)  $X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} + X_{19}X_{98}X_{81} X_{24}X_{43}X_{32} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} + X_{28}X_{87}X_{79}X_{92} X_{67}X_{79}X_{98}X_{86} X_{13}X_{36}X_{65}X_{54}X_{41} + X_{36}X_{67}X_{75}X_{54}X_{43}$
- (II)  $X_{12}X_{24}X_{41} X_{24}X_{43}X_{32} + X_{28}X_{87}X_{72} X_{29}X_{97}X_{72} + X_{35}X_{56}X_{63} X_{37}X_{76}X_{63} X_{12}X_{28}X_{89}X_{91} + X_{13}X_{32}X_{29}X_{91} X_{13}X_{35}X_{54}X_{41} + X_{37}X_{75}X_{54}X_{43} X_{56}X_{68}X_{87}X_{75} + X_{68}X_{89}X_{97}X_{76}$
- $(\mathrm{III}) \ -X_{13}X_{32}X_{21} + X_{13}X_{34}X_{41} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} X_{19}X_{93}X_{31} + X_{29}X_{93}X_{32} X_{29}X_{98}X_{82} X_{34}X_{46}X_{63} + X_{45}X_{56}X_{64} X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{19}X_{98}X_{82}X_{21} + X_{57}X_{79}X_{98}X_{85} X_{56}X_{67}X_{79}X_{98}X_{85}$
- (IV)  $-X_{13}X_{32}X_{21} + X_{13}X_{34}X_{41} + X_{16}X_{63}X_{31} X_{19}X_{93}X_{31} + X_{29}X_{93}X_{32} X_{29}X_{98}X_{82} X_{34}X_{46}X_{63} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} + X_{79}X_{98}X_{87} X_{16}X_{65}X_{54}X_{41} + X_{19}X_{98}X_{82}X_{21} + X_{46}X_{67}X_{75}X_{54} X_{67}X_{79}X_{98}X_{86}$
- (V)  $X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} + X_{19}X_{98}X_{81} X_{24}X_{43}X_{32} + X_{36}X_{64}X_{43} X_{45}X_{56}X_{64} + X_{56}X_{69}X_{95} X_{57}X_{79}X_{95} X_{13}X_{36}X_{64}X_{41} + X_{28}X_{87}X_{79}X_{92} + X_{45}X_{57}X_{76}X_{64} X_{69}X_{98}X_{87}X_{76}$
- (VI)  $-X_{12}X_{28}X_{81} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} + X_{19}X_{98}X_{81} + X_{28}X_{89}X_{92} + X_{45}X_{56}X_{64} X_{56}X_{67}X_{75} + X_{67}X_{78}X_{86} X_{69}X_{98}X_{86} X_{78}X_{89}X_{97} + X_{12}X_{23}X_{34}X_{41} X_{19}X_{92}X_{23}X_{31} X_{34}X_{45}X_{56}X_{63} + X_{69}X_{97}X_{75}X_{56}$
- (VII)  $X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{16}X_{64}X_{41} X_{16}X_{65}X_{51} X_{19}X_{92}X_{21} + X_{19}X_{98}X_{81} X_{45}X_{56}X_{64} + X_{56}X_{67}X_{75} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{28}X_{81}X_{13}X_{32} + X_{28}X_{87}X_{79}X_{92} + X_{34}X_{45}X_{51}X_{13} X_{67}X_{79}X_{98}X_{86}$
- (VIII)  $X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} + X_{19}X_{98}X_{81} X_{24}X_{43}X_{32} + X_{28}X_{89}X_{92} + X_{36}X_{64}X_{43} X_{56}X_{67}X_{75} + X_{67}X_{78}X_{86} X_{69}X_{98}X_{86} X_{78}X_{89}X_{97} X_{13}X_{36}X_{64}X_{41} + X_{69}X_{97}X_{75}X_{56}$

## 1.26 $K^{2,5,1,2}$

(I)  $-X_{13}X_{32}X_{21} + X_{24}X_{43}X_{32} + X_{27}X_{78}X_{82} - X_{27}X_{79}X_{92} - X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} - X_{36}X_{67}X_{73} + X_{67}X_{79}X_{96} - X_{18}X_{82}X_{24}X_{41} + X_{18}X_{89}X_{92}X_{21} + X_{13}X_{36}X_{65}X_{54}X_{41} - X_{57}X_{78}X_{89}X_{96}X_{65}$ 

- (II)  $-X_{13}X_{32}X_{21} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{45}X_{56}X_{64} + X_{56}X_{67}X_{75} + X_{67}X_{79}X_{96} + X_{13}X_{36}X_{64}X_{41} X_{18}X_{82}X_{24}X_{41} + X_{18}X_{89}X_{92}X_{21} + X_{24}X_{45}X_{53}X_{32} X_{36}X_{67}X_{75}X_{53} X_{78}X_{89}X_{96}X_{67}$
- (III)  $X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} X_{18}X_{82}X_{21} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{36}X_{67}X_{73} + X_{67}X_{79}X_{96} X_{13}X_{34}X_{42}X_{21} + X_{13}X_{36}X_{65}X_{51} + X_{18}X_{89}X_{92}X_{21} + X_{34}X_{45}X_{57}X_{73} X_{57}X_{78}X_{89}X_{96}X_{65}$
- (IV)  $X_{24}X_{43}X_{32} X_{35}X_{56}X_{63} X_{43}X_{35}X_{54} + X_{56}X_{68}X_{85} + X_{63}X_{35}X_{56} X_{68}X_{89}X_{96} X_{13}X_{32}X_{29}X_{91} + X_{13}X_{35}X_{54}X_{41} X_{17}X_{72}X_{24}X_{41} + X_{17}X_{78}X_{89}X_{91} + X_{29}X_{96}X_{67}X_{72} X_{67}X_{78}X_{85}X_{56}$
- (V)  $-X_{12}X_{28}X_{81} X_{14}X_{43}X_{31} + X_{14}X_{48}X_{81} X_{24}X_{48}X_{82} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} + X_{28}X_{89}X_{92} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} + X_{67}X_{79}X_{96} + X_{12}X_{24}X_{43}X_{31} + X_{36}X_{65}X_{54}X_{43} X_{57}X_{78}X_{89}X_{96}X_{65}$
- $\begin{array}{l} (\mathrm{VI}) \ \ -X_{12}X_{28}X_{81} X_{14}X_{43}X_{31} + X_{14}X_{48}X_{81} X_{24}X_{48}X_{82} + X_{27}X_{78}X_{82} + X_{28}X_{89}X_{92} + \\ X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} X_{43}X_{35}X_{54} + X_{56}X_{69}X_{95} + X_{12}X_{24}X_{43}X_{31} X_{27}X_{76}X_{69}X_{92} + \\ X_{57}X_{76}X_{63}X_{35} X_{57}X_{78}X_{89}X_{95} \end{array}$
- $\begin{array}{ll} \text{(VII)} & X_{13}X_{35}X_{51} + X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} X_{27}X_{76}X_{62} + X_{27}X_{78}X_{82} + X_{29}X_{96}X_{62} \\ & X_{29}X_{98}X_{82} X_{57}X_{78}X_{85} + X_{59}X_{98}X_{85} X_{13}X_{34}X_{42}X_{21} X_{35}X_{59}X_{96}X_{63} + X_{34}X_{45}X_{57}X_{76}X_{63} \\ \end{array}$
- (VIII)  $-X_{13}X_{32}X_{21} + X_{17}X_{78}X_{81} + X_{19}X_{92}X_{21} X_{19}X_{98}X_{81} + X_{24}X_{43}X_{32} + X_{26}X_{67}X_{72} X_{26}X_{69}X_{92} X_{35}X_{56}X_{63} X_{43}X_{35}X_{54} + X_{63}X_{35}X_{56} + X_{13}X_{35}X_{54}X_{41} X_{17}X_{72}X_{24}X_{41} + X_{56}X_{69}X_{98}X_{85} X_{67}X_{78}X_{85}X_{56}$ 
  - (IX)  $X_{13}X_{35}X_{51} + X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} X_{17}X_{72}X_{21} + X_{17}X_{78}X_{81} + X_{19}X_{92}X_{21} X_{19}X_{98}X_{81} + X_{26}X_{67}X_{72} X_{26}X_{69}X_{92} X_{35}X_{56}X_{63} X_{13}X_{34}X_{42}X_{21} + X_{34}X_{45}X_{56}X_{63} + X_{56}X_{69}X_{98}X_{85} X_{67}X_{78}X_{85}X_{56}$
  - $(X) \ \ X_{14}X_{42}X_{21} X_{14}X_{43}X_{31} X_{18}X_{82}X_{21} X_{21}X_{14}X_{42} + X_{27}X_{78}X_{82} + X_{31}X_{14}X_{43} + \\ X_{35}X_{54}X_{43} X_{35}X_{59}X_{93} X_{36}X_{64}X_{43} + X_{36}X_{69}X_{93} X_{47}X_{75}X_{54} + X_{47}X_{76}X_{64} + \\ X_{59}X_{97}X_{75} X_{78}X_{89}X_{97} + X_{18}X_{89}X_{92}X_{21} X_{27}X_{76}X_{69}X_{92}$

### 1.27 $K^{2,4,1,3}$

- (I)  $-X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{18}X_{82}X_{21} + X_{23}X_{34}X_{42} X_{45}X_{56}X_{64} + X_{14}X_{45}X_{53}X_{31} X_{18}X_{86}X_{69}X_{91} X_{29}X_{97}X_{78}X_{82} X_{34}X_{47}X_{75}X_{53} + X_{47}X_{78}X_{86}X_{64} + X_{56}X_{69}X_{97}X_{75}$
- (II)  $-X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{18}X_{82}X_{21} X_{18}X_{86}X_{61} + X_{19}X_{96}X_{61} + X_{23}X_{34}X_{42} X_{27}X_{78}X_{82} + X_{27}X_{79}X_{92} X_{34}X_{47}X_{73} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{19}X_{92}X_{23}X_{31} X_{57}X_{79}X_{96}X_{65} + X_{47}X_{78}X_{86}X_{65}X_{54}$
- (III)  $-X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{18}X_{82}X_{21} + X_{23}X_{34}X_{42} X_{34}X_{47}X_{73} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{57}X_{76}X_{65} + X_{69}X_{97}X_{76} X_{18}X_{86}X_{69}X_{91} X_{29}X_{97}X_{78}X_{82} + X_{47}X_{78}X_{86}X_{65}X_{54}$

- (IV)  $-X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{16}X_{68}X_{81} X_{16}X_{69}X_{91} + X_{23}X_{34}X_{42} + X_{28}X_{87}X_{72} X_{29}X_{97}X_{72} X_{45}X_{56}X_{64} + X_{47}X_{76}X_{64} X_{68}X_{87}X_{76} X_{14}X_{42}X_{28}X_{81} + X_{14}X_{45}X_{53}X_{31} X_{34}X_{47}X_{75}X_{53} + X_{56}X_{69}X_{97}X_{75}$
- $(V) -X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{14}X_{43}X_{31} + X_{16}X_{68}X_{81} X_{16}X_{69}X_{91} + X_{23}X_{34}X_{42} + X_{28}X_{87}X_{72} X_{29}X_{97}X_{72} X_{34}X_{47}X_{73} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} + X_{69}X_{97}X_{76} X_{14}X_{42}X_{28}X_{81} + X_{47}X_{76}X_{65}X_{54}$

#### 1.28 $K^{4,3,2,2}$

- (I)  $X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} + X_{28}X_{89}X_{92} X_{13}X_{35}X_{54}X_{41} X_{24}X_{46}X_{63}X_{32} X_{28}X_{85}X_{57}X_{72} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54} X_{68}X_{89}X_{97}X_{76} + X_{19}X_{97}X_{72}X_{24}X_{41}$
- (II)  $X_{15}X_{53}X_{31} X_{15}X_{54}X_{41} + X_{23}X_{36}X_{62} X_{24}X_{46}X_{62} + X_{28}X_{89}X_{92} X_{36}X_{65}X_{53} + X_{57}X_{76}X_{65} X_{19}X_{92}X_{23}X_{31} X_{28}X_{85}X_{57}X_{72} + X_{46}X_{68}X_{85}X_{54} X_{68}X_{89}X_{97}X_{76} + X_{19}X_{97}X_{72}X_{24}X_{41}$
- (III)  $-X_{14}X_{42}X_{21} + X_{28}X_{89}X_{92} X_{36}X_{65}X_{53} X_{45}X_{56}X_{64} + X_{56}X_{68}X_{85} + X_{57}X_{76}X_{65} + X_{14}X_{45}X_{53}X_{31} X_{19}X_{92}X_{23}X_{31} + X_{19}X_{97}X_{72}X_{21} + X_{23}X_{36}X_{64}X_{42} X_{28}X_{85}X_{57}X_{72} X_{68}X_{89}X_{97}X_{76}$
- (IV)  $X_{15}X_{53}X_{31} X_{15}X_{54}X_{41} + X_{23}X_{36}X_{62} X_{24}X_{46}X_{62} X_{25}X_{57}X_{72} + X_{25}X_{58}X_{82} X_{36}X_{65}X_{53} + X_{46}X_{65}X_{54} + X_{57}X_{76}X_{65} X_{58}X_{86}X_{65} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + X_{19}X_{97}X_{72}X_{24}X_{41} X_{19}X_{98}X_{82}X_{23}X_{31}$
- (V)  $X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} X_{19}X_{92}X_{21} X_{24}X_{43}X_{32} X_{28}X_{87}X_{72} + X_{28}X_{89}X_{92} + X_{34}X_{45}X_{53} + X_{36}X_{64}X_{43} + X_{58}X_{87}X_{75} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} X_{36}X_{67}X_{75}X_{53} X_{45}X_{58}X_{86}X_{64} + X_{19}X_{97}X_{72}X_{24}X_{41}$
- $\begin{array}{l} (\mathrm{VI}) \ \ -X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{15}X_{53}X_{31} X_{15}X_{54}X_{41} X_{17}X_{79}X_{91} + X_{23}X_{36}X_{62} \\ X_{24}X_{46}X_{62} X_{36}X_{65}X_{53} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87} + X_{17}X_{72}X_{24}X_{41} + \\ X_{46}X_{68}X_{85}X_{54} X_{29}X_{98}X_{85}X_{57}X_{72} \end{array}$
- (VII)  $X_{15}X_{53}X_{31} X_{15}X_{54}X_{41} + X_{23}X_{36}X_{62} X_{24}X_{46}X_{62} + X_{27}X_{75}X_{52} X_{27}X_{79}X_{92} X_{28}X_{85}X_{52} + X_{28}X_{89}X_{92} + X_{67}X_{79}X_{96} X_{68}X_{89}X_{96} X_{19}X_{92}X_{23}X_{31} + X_{19}X_{92}X_{24}X_{41} X_{36}X_{67}X_{75}X_{53} + X_{46}X_{68}X_{85}X_{54}$
- (VIII)  $X_{13}X_{32}X_{21} X_{13}X_{35}X_{51} X_{14}X_{42}X_{21} + X_{14}X_{45}X_{51} X_{19}X_{92}X_{21} X_{26}X_{63}X_{32} + X_{26}X_{64}X_{42} + X_{28}X_{89}X_{92} X_{45}X_{56}X_{64} + X_{56}X_{68}X_{85} + X_{19}X_{97}X_{72}X_{21} X_{28}X_{85}X_{57}X_{72} + X_{35}X_{57}X_{76}X_{63} X_{68}X_{89}X_{97}X_{76}$ 
  - $\begin{array}{l} {\rm (IX)}\ \ X_{13}X_{32}X_{21}-X_{13}X_{35}X_{51}-X_{14}X_{42}X_{21}+X_{14}X_{45}X_{51}-X_{26}X_{63}X_{32}+X_{26}X_{64}X_{42}+X_{27}X_{75}X_{52}-X_{27}X_{79}X_{92}-X_{28}X_{85}X_{52}+X_{28}X_{89}X_{92}+X_{35}X_{56}X_{63}-X_{45}X_{56}X_{64}+X_{56}X_{68}X_{85}-X_{67}X_{75}X_{56}+X_{67}X_{79}X_{96}-X_{68}X_{89}X_{96} \end{array}$

### 1.29 $PdP_{5c}$ (3)

- (I)  $X_{19}X_{92}X_{21} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{19}X_{96}X_{68}X_{81} X_{28}X_{87}X_{79}X_{92} + X_{14}X_{43}X_{32}X_{28}X_{81} X_{14}X_{45}X_{53}X_{32}X_{21} + X_{45}X_{57}X_{79}X_{96}X_{64}$
- (II)  $-X_{18}X_{82}X_{21} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} X_{69}X_{97}X_{76} + X_{14}X_{43}X_{32}X_{21} + X_{18}X_{86}X_{69}X_{91} + X_{29}X_{97}X_{78}X_{82} + X_{45}X_{57}X_{76}X_{64} X_{57}X_{78}X_{86}X_{65} X_{14}X_{45}X_{53}X_{32}X_{29}X_{91}$
- (III)  $X_{15}X_{53}X_{31} X_{34}X_{45}X_{53} X_{69}X_{97}X_{76} X_{15}X_{52}X_{29}X_{91} X_{18}X_{82}X_{23}X_{31} + X_{18}X_{86}X_{69}X_{91} + X_{23}X_{34}X_{45}X_{52} + X_{29}X_{97}X_{78}X_{82} + X_{45}X_{57}X_{76}X_{64} X_{57}X_{78}X_{86}X_{64}X_{45}$
- (IV)  $-X_{18}X_{82}X_{21} + X_{29}X_{98}X_{82} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} + X_{45}X_{56}X_{64} X_{56}X_{67}X_{75} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{79}X_{98}X_{87} + X_{14}X_{43}X_{32}X_{21} + X_{18}X_{86}X_{67}X_{79}X_{91} X_{14}X_{45}X_{53}X_{32}X_{29}X_{91}$
- (V)  $X_{14}X_{42}X_{21} X_{18}X_{82}X_{21} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} X_{19}X_{96}X_{61} X_{23}X_{34}X_{42} + X_{23}X_{35}X_{52} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{14}X_{45}X_{52}X_{21} X_{35}X_{57}X_{78}X_{86}X_{63} + X_{34}X_{45}X_{57}X_{79}X_{96}X_{63}$
- $\begin{array}{l} (\mathrm{VI}) \ \ -X_{15}X_{52}X_{21} + X_{15}X_{54}X_{41} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} X_{19}X_{96}X_{61} + X_{27}X_{78}X_{82} \\ X_{27}X_{79}X_{92} X_{43}X_{35}X_{54} X_{18}X_{82}X_{24}X_{41} + X_{24}X_{43}X_{35}X_{52} X_{35}X_{57}X_{78}X_{86}X_{63} + \\ X_{57}X_{79}X_{96}X_{63}X_{35} \end{array}$
- (VII)  $X_{14}X_{42}X_{21} + X_{18}X_{86}X_{61} X_{19}X_{96}X_{61} X_{23}X_{34}X_{42} + X_{23}X_{35}X_{52} + X_{58}X_{87}X_{75} X_{59}X_{97}X_{75} X_{14}X_{45}X_{52}X_{21} X_{18}X_{87}X_{72}X_{21} + X_{19}X_{97}X_{72}X_{21} X_{35}X_{58}X_{86}X_{63} + X_{34}X_{45}X_{59}X_{96}X_{63}$
- (VIII)  $-X_{12}X_{24}X_{41} + X_{19}X_{94}X_{41} X_{19}X_{98}X_{81} + X_{24}X_{43}X_{32} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + X_{45}X_{57}X_{76}X_{64} X_{57}X_{78}X_{86}X_{65} + X_{12}X_{29}X_{97}X_{78}X_{81} X_{29}X_{94}X_{45}X_{53}X_{32}$ 
  - $\begin{array}{l} ({\rm IX}) \ \ -X_{18}X_{82}X_{21} + X_{35}X_{54}X_{43} X_{47}X_{75}X_{54} + X_{47}X_{76}X_{64} + X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} \\ X_{69}X_{97}X_{76} + X_{14}X_{43}X_{32}X_{21} + X_{18}X_{86}X_{69}X_{91} + X_{29}X_{97}X_{78}X_{82} X_{35}X_{56}X_{64}X_{43} \\ X_{14}X_{43}X_{32}X_{29}X_{91} \end{array}$
  - $(X) \quad -X_{19}X_{98}X_{81} X_{25}X_{54}X_{42} X_{28}X_{89}X_{92} + X_{35}X_{54}X_{43} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + X_{78}X_{89}X_{97} + X_{14}X_{42}X_{28}X_{81} X_{14}X_{43}X_{35}X_{51} + X_{19}X_{92}X_{25}X_{51} + X_{57}X_{76}X_{63}X_{35} X_{35}X_{57}X_{78}X_{86}X_{63}$
  - $({\rm XI}) \ -X_{19}X_{98}X_{81} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} + X_{35}X_{59}X_{93} X_{45}X_{59}X_{94} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + X_{19}X_{94}X_{42}X_{21} X_{21}X_{19}X_{93}X_{32} + X_{45}X_{57}X_{76}X_{64} + X_{78}X_{81}X_{19}X_{97} X_{35}X_{57}X_{78}X_{86}X_{63}$
- $\begin{array}{l} (\mathrm{XII}) \ \ -X_{12}X_{23}X_{31} + X_{14}X_{43}X_{31} X_{26}X_{68}X_{82} + X_{35}X_{54}X_{43} X_{47}X_{75}X_{54} + X_{47}X_{76}X_{64} + \\ X_{12}X_{26}X_{69}X_{91} X_{14}X_{43}X_{39}X_{91} + X_{23}X_{39}X_{98}X_{82} X_{35}X_{56}X_{64}X_{43} + X_{56}X_{68}X_{87}X_{75} \\ X_{69}X_{98}X_{87}X_{76} \end{array}$

- (XIII)  $X_{15}X_{54}X_{41} + X_{18}X_{89}X_{91} X_{36}X_{67}X_{73} + X_{36}X_{68}X_{83} X_{43}X_{35}X_{54} + X_{57}X_{73}X_{35} X_{68}X_{89}X_{96} X_{15}X_{52}X_{29}X_{91} X_{18}X_{82}X_{24}X_{41} + X_{24}X_{43}X_{35}X_{52} X_{35}X_{57}X_{78}X_{83} + X_{29}X_{96}X_{67}X_{78}X_{82}$
- $(XIV) -X_{18}X_{82}X_{21} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} X_{19}X_{96}X_{61} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{36}X_{64}X_{43} + X_{36}X_{65}X_{53} + X_{14}X_{43}X_{32}X_{21} X_{57}X_{78}X_{86}X_{65} X_{14}X_{45}X_{53}X_{32}X_{21} + X_{45}X_{57}X_{79}X_{96}X_{64}$
- $(XV) \ \ X_{19}X_{94}X_{41} X_{19}X_{98}X_{81} + X_{23}X_{35}X_{52} X_{56}X_{67}X_{75} + X_{58}X_{87}X_{75} X_{79}X_{98}X_{87} X_{12}X_{23}X_{34}X_{41} + X_{12}X_{29}X_{98}X_{81} X_{29}X_{94}X_{45}X_{52} + X_{34}X_{45}X_{56}X_{63} X_{35}X_{58}X_{86}X_{63} + X_{67}X_{79}X_{98}X_{86}$
- (XVI)  $X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{15}X_{54}X_{41} X_{18}X_{82}X_{21} X_{46}X_{65}X_{54} + X_{57}X_{76}X_{65} X_{69}X_{97}X_{76} + X_{18}X_{86}X_{69}X_{91} + X_{29}X_{97}X_{78}X_{82} + X_{34}X_{46}X_{65}X_{53} X_{57}X_{78}X_{86}X_{65} X_{15}X_{53}X_{32}X_{29}X_{91}$
- (XVII)  $X_{24}X_{45}X_{52} X_{34}X_{45}X_{53} + X_{57}X_{76}X_{65} X_{69}X_{97}X_{76} X_{15}X_{52}X_{29}X_{91} + X_{15}X_{53}X_{34}X_{41} X_{18}X_{82}X_{24}X_{41} + X_{18}X_{86}X_{69}X_{91} + X_{29}X_{97}X_{78}X_{82} X_{57}X_{78}X_{86}X_{65}$
- $\begin{array}{ll} ({\rm XVIII}) & -X_{19}X_{98}X_{81} X_{21}X_{19}X_{92} + X_{23}X_{39}X_{92} + X_{36}X_{65}X_{53} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + \\ & X_{19}X_{94}X_{42}X_{21} X_{23}X_{36}X_{64}X_{42} X_{39}X_{94}X_{45}X_{53} + X_{45}X_{57}X_{76}X_{64} X_{57}X_{78}X_{86}X_{65} + \\ & X_{78}X_{81}X_{19}X_{97} \end{array}$ 
  - (XIX)  $X_{19}X_{92}X_{21} X_{19}X_{98}X_{81} X_{24}X_{49}X_{92} X_{46}X_{65}X_{54} + X_{57}X_{76}X_{65} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} X_{21}X_{19}X_{93}X_{32} + X_{24}X_{46}X_{63}X_{32} + X_{35}X_{54}X_{49}X_{93} + X_{78}X_{81}X_{19}X_{97} X_{35}X_{57}X_{78}X_{86}X_{63}$
  - $(XX) \ \ X_{13}X_{38}X_{81} + X_{19}X_{95}X_{51} X_{19}X_{98}X_{81} X_{23}X_{38}X_{82} X_{29}X_{95}X_{52} X_{69}X_{97}X_{76} + \\ X_{69}X_{98}X_{86} X_{13}X_{34}X_{45}X_{51} + X_{23}X_{34}X_{45}X_{52} + X_{29}X_{97}X_{78}X_{82} + X_{45}X_{57}X_{76}X_{64} \\ X_{57}X_{78}X_{86}X_{64}X_{45}$
  - (XXI)  $X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{15}X_{54}X_{41} + X_{19}X_{92}X_{21} X_{19}X_{97}X_{71} X_{58}X_{86}X_{65} X_{15}X_{53}X_{32}X_{21} + X_{18}X_{86}X_{67}X_{71} X_{18}X_{89}X_{92}X_{21} + X_{34}X_{46}X_{65}X_{53} X_{46}X_{67}X_{75}X_{54} + X_{58}X_{89}X_{97}X_{75}$
- (XXII)  $X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{15}X_{54}X_{41} X_{17}X_{72}X_{21} + X_{17}X_{78}X_{81} X_{46}X_{65}X_{54} + X_{59}X_{96}X_{65} X_{15}X_{53}X_{32}X_{21} X_{19}X_{96}X_{68}X_{81} + X_{19}X_{97}X_{72}X_{21} X_{59}X_{97}X_{78}X_{85} + X_{34}X_{46}X_{68}X_{85}X_{53}$
- $(XXIII) -X_{12}X_{23}X_{31} + X_{14}X_{43}X_{31} + X_{23}X_{39}X_{92} X_{28}X_{89}X_{92} + X_{35}X_{54}X_{43} X_{47}X_{75}X_{54} + X_{47}X_{76}X_{64} + X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} X_{69}X_{97}X_{76} + X_{78}X_{89}X_{97} X_{14}X_{43}X_{39}X_{91} X_{35}X_{56}X_{64}X_{43} + X_{12}X_{28}X_{86}X_{69}X_{91}$
- $(XXIV) -X_{18}X_{82}X_{21} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} X_{19}X_{96}X_{61} + X_{23}X_{34}X_{42} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{34}X_{47}X_{73} + X_{35}X_{57}X_{73} X_{23}X_{35}X_{54}X_{42} X_{57}X_{78}X_{86}X_{65} + X_{47}X_{79}X_{96}X_{65}X_{54} + X_{47}X_{79}X_{96}X_{65}X_{65} + X_{47}X_{79}X_{96}X_{65}X_{65}X_{65} + X_{47}X_{79}X_{96}X_{65}X_{65}X_{65} + X_{47}X_{79}X_{96}X_{65}X_{65}X_{65} + X_{47}X_{79}X_{96}X_{65}X_{65}X_{65} + X_{47}X_{79$
- $\begin{array}{l} ({\rm XXV}) \ \ -X_{19}X_{98}X_{81} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} + X_{35}X_{59}X_{93} + X_{45}X_{56}X_{64} X_{45}X_{59}X_{94} \\ X_{56}X_{67}X_{75} + X_{58}X_{87}X_{75} X_{79}X_{98}X_{87} + X_{81}X_{19}X_{98} + X_{19}X_{94}X_{42}X_{21} X_{21}X_{19}X_{93}X_{32} \\ X_{35}X_{58}X_{86}X_{63} + X_{67}X_{79}X_{98}X_{86} \end{array}$

- (XXVI)  $X_{14}X_{42}X_{21} X_{18}X_{82}X_{21} + X_{18}X_{89}X_{91} + X_{25}X_{54}X_{42} + X_{34}X_{47}X_{73} X_{36}X_{67}X_{73} + X_{36}X_{68}X_{83} + X_{37}X_{75}X_{53} X_{37}X_{78}X_{83} X_{47}X_{75}X_{54} X_{68}X_{89}X_{96} X_{14}X_{42}X_{29}X_{91} X_{25}X_{53}X_{34}X_{42} + X_{29}X_{96}X_{67}X_{78}X_{82}$
- (XXVII)  $-X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} X_{15}X_{52}X_{21} + X_{19}X_{92}X_{21} + X_{23}X_{35}X_{52} X_{35}X_{54}X_{43} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{15}X_{54}X_{43}X_{31} X_{19}X_{96}X_{68}X_{81} X_{28}X_{87}X_{79}X_{92} + X_{57}X_{79}X_{96}X_{65}$
- $\begin{array}{l} (\text{XXVIII}) \ \ -X_{19}X_{98}X_{81} X_{21}X_{19}X_{92} + X_{23}X_{39}X_{92} + X_{36}X_{65}X_{53} + X_{45}X_{56}X_{64} X_{56}X_{67}X_{75} \\ X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{79}X_{98}X_{87} + X_{81}X_{19}X_{98} + X_{19}X_{94}X_{42}X_{21} X_{23}X_{36}X_{64}X_{42} \\ X_{39}X_{94}X_{45}X_{53} + X_{67}X_{79}X_{98}X_{86} \end{array}$
- (XXIX)  $X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{15}X_{54}X_{41} + X_{18}X_{87}X_{71} + X_{19}X_{92}X_{21} X_{19}X_{97}X_{71} + X_{34}X_{45}X_{53} X_{45}X_{56}X_{64} X_{47}X_{75}X_{54} + X_{47}X_{76}X_{64} X_{68}X_{87}X_{76} X_{15}X_{53}X_{32}X_{21} X_{18}X_{89}X_{92}X_{21} + X_{56}X_{68}X_{89}X_{97}X_{75}$
- $(XXX) \ \ X_{15}X_{53}X_{31} X_{15}X_{59}X_{91} X_{18}X_{83}X_{31} X_{25}X_{53}X_{32} + X_{25}X_{59}X_{92} + X_{28}X_{83}X_{32} X_{28}X_{89}X_{92} X_{69}X_{97}X_{76} + X_{78}X_{89}X_{97} + X_{18}X_{86}X_{69}X_{91} + X_{45}X_{57}X_{76}X_{64} X_{57}X_{78}X_{86}X_{64}X_{45}$
- $(XXXI) \quad -X_{19}X_{98}X_{81} X_{21}X_{19}X_{92} + X_{23}X_{39}X_{92} + X_{35}X_{54}X_{43} X_{39}X_{94}X_{43} X_{47}X_{75}X_{54} + \\ \quad X_{47}X_{76}X_{64} + X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + X_{19}X_{94}X_{42}X_{21} + \\ \quad X_{78}X_{81}X_{19}X_{97} X_{23}X_{35}X_{56}X_{64}X_{42}$
- $(XXXII) -X_{15}X_{52}X_{21} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} X_{19}X_{96}X_{61} + X_{23}X_{35}X_{52} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{35}X_{54}X_{43} + X_{15}X_{54}X_{43}X_{31} X_{18}X_{82}X_{23}X_{31} X_{57}X_{78}X_{86}X_{65} + X_{57}X_{79}X_{96}X_{65}$
- $\begin{array}{l} ({\rm XXXIII}) \ \ X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{15}X_{54}X_{41} + X_{16}X_{67}X_{71} X_{16}X_{68}X_{81} + X_{19}X_{92}X_{21} \\ X_{19}X_{97}X_{71} X_{21}X_{19}X_{92} + X_{59}X_{97}X_{75} X_{59}X_{98}X_{85} + X_{81}X_{19}X_{98} X_{15}X_{53}X_{32}X_{21} \\ X_{46}X_{67}X_{75}X_{54} + X_{34}X_{46}X_{68}X_{85}X_{53} \end{array}$
- $\begin{array}{l} (\mathrm{XXXIV}) \ -X_{12}X_{24}X_{41} + X_{12}X_{28}X_{81} + X_{15}X_{54}X_{41} X_{16}X_{68}X_{81} + X_{16}X_{69}X_{91} X_{28}X_{87}X_{72} + \\ X_{29}X_{97}X_{72} X_{43}X_{35}X_{54} + X_{68}X_{87}X_{76} X_{69}X_{97}X_{76} X_{15}X_{52}X_{29}X_{91} + X_{24}X_{43}X_{35}X_{52} \\ X_{35}X_{57}X_{76}X_{63} + X_{57}X_{76}X_{63}X_{35} \end{array}$
- $\begin{array}{l} (\mathrm{XXXV}) \ \ X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{15}X_{54}X_{41} X_{18}X_{82}X_{21} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} \\ X_{19}X_{96}X_{61} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} X_{46}X_{65}X_{54} X_{15}X_{53}X_{32}X_{21} + X_{34}X_{46}X_{65}X_{53} \\ X_{57}X_{78}X_{86}X_{65} + X_{57}X_{79}X_{96}X_{65} \end{array}$
- $\begin{array}{l} ({\rm XXXVI}) \ \ X_{14}X_{48}X_{81} + X_{19}X_{95}X_{51} X_{19}X_{98}X_{81} X_{24}X_{48}X_{82} X_{29}X_{95}X_{52} + X_{29}X_{98}X_{82} + \\ X_{56}X_{63}X_{35} X_{56}X_{67}X_{75} + X_{58}X_{87}X_{75} X_{79}X_{98}X_{87} X_{14}X_{43}X_{35}X_{51} + X_{24}X_{43}X_{35}X_{52} \\ X_{35}X_{58}X_{86}X_{63} + X_{67}X_{79}X_{98}X_{86} \end{array}$
- $(XXXVII) -X_{18}X_{82}X_{21} + X_{18}X_{86}X_{61} + X_{19}X_{92}X_{21} X_{19}X_{96}X_{61} + X_{27}X_{78}X_{82} X_{27}X_{79}X_{92} + X_{34}X_{45}X_{53} X_{45}X_{56}X_{64} + X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} X_{47}X_{75}X_{53}X_{34} + X_{47}X_{79}X_{96}X_{64} + X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} X_{47}X_{75}X_{78}X_{86} X_{47}X_{75}X_{78}X_{86} X_{47}X_{75}X_{78}X_{86} X_{47}X_{77}X_{78}X_{86} X_{47}X_{77}X_{78}X_{86} X_{47}X_{77}X_{78}X_{86} X_{47}X_{77}X_{78}X_{86} X_{47}X_{78}X_{86} X_{47}X_{78}X_{$
- $(XXXVIII) \quad -X_{18}X_{87}X_{71} X_{19}X_{92}X_{21} + X_{19}X_{97}X_{71} X_{23}X_{36}X_{62} + X_{23}X_{39}X_{92} + X_{24}X_{46}X_{62} X_{24}X_{49}X_{92} + X_{36}X_{65}X_{53} X_{39}X_{95}X_{53} X_{46}X_{65}X_{54} + X_{49}X_{95}X_{54} + X_{68}X_{87}X_{76} + X_{18}X_{89}X_{92}X_{21} X_{68}X_{89}X_{97}X_{76}$

- $(XXXIX) \ X_{19}X_{92}X_{21} X_{19}X_{98}X_{81} X_{21}X_{19}X_{92} X_{23}X_{36}X_{62} + X_{23}X_{39}X_{92} + X_{24}X_{46}X_{62} X_{24}X_{49}X_{92} + X_{36}X_{65}X_{53} X_{39}X_{95}X_{53} + X_{49}X_{95}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{79}X_{98}X_{87} + X_{81}X_{19}X_{98} X_{46}X_{67}X_{75}X_{54} + X_{67}X_{79}X_{98}X_{86}$ 
  - (XL)  $X_{19}X_{92}X_{21} X_{19}X_{98}X_{81} X_{21}X_{19}X_{92} X_{23}X_{36}X_{62} + X_{23}X_{39}X_{92} + X_{24}X_{46}X_{62} X_{24}X_{49}X_{92} + X_{36}X_{65}X_{53} X_{39}X_{95}X_{53} X_{46}X_{65}X_{54} + X_{49}X_{95}X_{54} + X_{57}X_{76}X_{65} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} X_{57}X_{78}X_{86}X_{65} + X_{78}X_{81}X_{19}X_{97}$
  - **1.30**  $\mathbb{C}^3/(\mathbb{Z}_2 \times \mathbb{Z}_5)$  (1,0,1)(0,1,4)
    - $\begin{array}{ll} (\mathrm{I}) & -X_{34}X_{4,10}X_{10,3} + X_{39}X_{9,10}X_{10,3} + X_{4,10}X_{10,9}X_{94} + X_{56}X_{6,10}X_{10,5} X_{59}X_{9,10}X_{10,5} X_{6,10}X_{10,9}X_{96} + X_{12}X_{25}X_{51} X_{12}X_{27}X_{71} + X_{16}X_{62}X_{21} X_{16}X_{65}X_{51} X_{18}X_{82}X_{21} + X_{18}X_{87}X_{71} X_{25}X_{56}X_{62} + X_{27}X_{78}X_{82} + X_{34}X_{48}X_{83} + X_{37}X_{74}X_{43} X_{37}X_{78}X_{83} X_{39}X_{94}X_{43} X_{48}X_{87}X_{74} + X_{59}X_{96}X_{65} \end{array}$
  - **1.31**  $L^{2,3,2}/\mathbb{Z}_2$  (1,0,0,1)
    - (I)  $-X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} X_{57}X_{7,10}X_{10,8}X_{85} + X_{12}X_{24}X_{41} X_{12}X_{29}X_{91} + X_{13}X_{32}X_{21} X_{13}X_{36}X_{64}X_{41} X_{24}X_{45}X_{53}X_{32} + X_{36}X_{68}X_{85}X_{53} + X_{45}X_{57}X_{76}X_{64} X_{68}X_{89}X_{97}X_{76}$
    - (II)  $-X_{1,10}X_{10,2}X_{23}X_{31} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} X_{57}X_{7,10}X_{10,8}X_{85} + X_{12}X_{24}X_{41} X_{12}X_{29}X_{91} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} X_{35}X_{56}X_{63} + X_{56}X_{68}X_{85} + X_{45}X_{57}X_{76}X_{64} X_{68}X_{89}X_{97}X_{76}$
  - (III)  $-X_{1,10}X_{10,2}X_{21} X_{7,10}X_{10,8}X_{87} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} + X_{12}X_{24}X_{41} X_{12}X_{29}X_{91} + X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} X_{24}X_{43}X_{32} + X_{34}X_{46}X_{63} + X_{35}X_{54}X_{43} + X_{58}X_{87}X_{75} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} X_{35}X_{58}X_{86}X_{63} X_{46}X_{67}X_{75}X_{54}$
  - $(IV) -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{27}X_{7,10}X_{10,2} X_{57}X_{7,10}X_{10,8}X_{85} + X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} X_{19}X_{98}X_{81} X_{27}X_{79}X_{92} + X_{34}X_{46}X_{63} + X_{38}X_{85}X_{53} X_{38}X_{86}X_{63} + X_{45}X_{57}X_{74} X_{46}X_{67}X_{74} + X_{19}X_{92}X_{24}X_{41} X_{24}X_{45}X_{53}X_{32} + X_{67}X_{79}X_{98}X_{86}$
  - (V)  $X_{12}X_{2,10}X_{10,1} X_{18}X_{8,10}X_{10,1} X_{2,10}X_{10,7}X_{72} + X_{78}X_{8,10}X_{10,7} X_{12}X_{23}X_{31} + X_{18}X_{89}X_{91} + X_{29}X_{97}X_{72} X_{35}X_{56}X_{63} X_{46}X_{65}X_{54} + X_{56}X_{68}X_{85} + X_{57}X_{76}X_{65} X_{57}X_{78}X_{85} X_{14}X_{42}X_{29}X_{91} + X_{14}X_{46}X_{63}X_{31} + X_{23}X_{35}X_{54}X_{42} X_{68}X_{89}X_{97}X_{76}$
  - $(\text{VI}) \quad -X_{18}X_{8,10}X_{10,1} + X_{2,10}X_{10,1}X_{12} X_{2,10}X_{10,7}X_{72} + X_{78}X_{8,10}X_{10,7} + X_{12}X_{24}X_{41} X_{12}X_{29}X_{91} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} + X_{18}X_{89}X_{91} X_{23}X_{31}X_{12} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} + X_{29}X_{97}X_{72} X_{35}X_{56}X_{63} + X_{56}X_{68}X_{85} X_{57}X_{78}X_{85} + X_{45}X_{57}X_{76}X_{64} X_{68}X_{89}X_{97}X_{76}$
  - **1.32**  $L^{1,4,1}/\mathbb{Z}_2$  (1,0,0,1)
    - $\begin{array}{l} \text{(I)} \quad -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,9}X_{91} + X_{29}X_{9,10}X_{10,2} X_{79}X_{9,10}X_{10,7} X_{8,10}X_{10,9}X_{98} + \\ \quad X_{58}X_{8,10}X_{10,7}X_{75} + X_{12}X_{24}X_{41} X_{12}X_{29}X_{91} + X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} X_{24}X_{43}X_{32} + \\ \quad X_{34}X_{46}X_{63} + X_{35}X_{54}X_{43} X_{35}X_{58}X_{86}X_{63} X_{46}X_{67}X_{75}X_{54} + X_{67}X_{79}X_{98}X_{86} \end{array}$

 $\begin{aligned} \text{(II)} \quad -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,9}X_{91} + X_{29}X_{9,10}X_{10,2} + X_{78}X_{8,10}X_{10,7} - X_{79}X_{9,10}X_{10,7} - \\ X_{8,10}X_{10,9}X_{98} + X_{12}X_{24}X_{41} - X_{12}X_{29}X_{91} + X_{13}X_{32}X_{21} - X_{13}X_{34}X_{41} + X_{34}X_{46}X_{63} + \\ X_{38}X_{85}X_{53} - X_{38}X_{86}X_{63} + X_{45}X_{57}X_{74} - X_{46}X_{67}X_{74} - X_{57}X_{78}X_{85} - X_{24}X_{45}X_{53}X_{32} + \\ X_{67}X_{79}X_{98}X_{86} \end{aligned}$ 

### 1.33 $\mathbf{PdP}_2/\mathbb{Z}_2$ (1, 1, 1, 1)

- (I)  $-X_{12}X_{2,10}X_{10,1} + X_{18}X_{8,10}X_{10,1} + X_{2,10}X_{10,9}X_{98}X_{82} X_{78}X_{8,10}X_{10,9}X_{97} + X_{12}X_{23}X_{31} + X_{14}X_{42}X_{21} X_{18}X_{82}X_{21} X_{23}X_{34}X_{42} + X_{45}X_{57}X_{74} X_{46}X_{67}X_{74} X_{57}X_{76}X_{65} + X_{67}X_{78}X_{86} + X_{69}X_{97}X_{76} X_{69}X_{98}X_{86} X_{14}X_{45}X_{53}X_{31} + X_{34}X_{46}X_{65}X_{53}$
- (II)  $X_{18}X_{8,10}X_{10,1} X_{13}X_{32}X_{2,10}X_{10,1} + X_{2,10}X_{10,9}X_{98}X_{82} X_{78}X_{8,10}X_{10,9}X_{97} + X_{13}X_{35}X_{51} X_{14}X_{45}X_{51} X_{18}X_{82}X_{21} X_{35}X_{54}X_{43} + X_{45}X_{57}X_{74} + X_{46}X_{65}X_{54} X_{46}X_{67}X_{74} X_{57}X_{76}X_{65} + X_{67}X_{78}X_{86} + X_{69}X_{97}X_{76} X_{69}X_{98}X_{86} + X_{14}X_{43}X_{32}X_{21}$
- $(III) \quad -X_{13}X_{3,10}X_{10,1} + X_{23}X_{3,10}X_{10,2} X_{28}X_{8,10}X_{10,2} + X_{98}X_{8,10}X_{10,9} + X_{12}X_{28}X_{8,10}X_{10,1} \\ X_{78}X_{8,10}X_{10,9}X_{97} X_{12}X_{23}X_{31} + X_{13}X_{35}X_{51} + X_{14}X_{43}X_{31} X_{14}X_{45}X_{51} X_{35}X_{54}X_{43} + \\ X_{45}X_{57}X_{74} + X_{46}X_{65}X_{54} X_{46}X_{67}X_{74} X_{57}X_{76}X_{65} + X_{67}X_{78}X_{86} + X_{69}X_{97}X_{76} \\ X_{69}X_{98}X_{86}$

#### 1.34 $PdP_{6a}$ (2)

- (I)  $X_{2,10}X_{10,8}X_{82} + X_{67}X_{7,10}X_{10,6} X_{68}X_{8,10}X_{10,6} X_{7,10}X_{10,8}X_{87} + X_{8,10}X_{10,9}X_{98} X_{14}X_{42}X_{2,10}X_{10,9}X_{91} X_{13}X_{35}X_{51} + X_{14}X_{45}X_{51} X_{29}X_{98}X_{82} X_{34}X_{45}X_{53} + X_{35}X_{57}X_{73} + X_{36}X_{65}X_{53} X_{36}X_{67}X_{73} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{13}X_{34}X_{42}X_{29}X_{91}$
- (II)  $X_{2,10}X_{10,8}X_{82} + X_{67}X_{7,10}X_{10,6} X_{68}X_{8,10}X_{10,6} X_{7,10}X_{10,8}X_{87} + X_{8,10}X_{10,9}X_{98} X_{12}X_{2,10}X_{10,9}X_{91} + X_{12}X_{24}X_{41} X_{24}X_{43}X_{32} X_{29}X_{98}X_{82} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{13}X_{32}X_{29}X_{91} X_{13}X_{35}X_{54}X_{41} + X_{36}X_{65}X_{54}X_{43}$
- (III)  $-X_{12}X_{2,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} + X_{67}X_{7,10}X_{10,6} X_{7,10}X_{10,8}X_{87} + X_{2,10}X_{10,8}X_{89}X_{92} X_{68}X_{89}X_{9,10}X_{10,6} + X_{12}X_{24}X_{41} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} X_{24}X_{43}X_{32} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{13}X_{35}X_{54}X_{41} + X_{36}X_{65}X_{54}X_{43}$
- $\begin{array}{l} \text{(IV)} \ \ X_{2,10}X_{10,8}X_{82} X_{2,10}X_{10,9}X_{92} + X_{67}X_{7,10}X_{10,6} X_{68}X_{8,10}X_{10,6} X_{7,10}X_{10,8}X_{87} + \\ X_{8,10}X_{10,9}X_{98} X_{13}X_{32}X_{21} + X_{13}X_{34}X_{41} + X_{19}X_{92}X_{21} + X_{29}X_{93}X_{32} X_{29}X_{98}X_{82} \\ X_{34}X_{45}X_{53} + X_{36}X_{65}X_{53} X_{36}X_{67}X_{73} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{19}X_{93}X_{34}X_{41} + \\ X_{45}X_{57}X_{73}X_{34} \end{array}$

### 1.35 $K^{2,5,1,3}$

- (I)  $X_{19}X_{9,10}X_{10,1} + X_{12}X_{2,10}X_{10,8}X_{81} X_{14}X_{42}X_{2,10}X_{10,1} X_{79}X_{9,10}X_{10,8}X_{87} X_{12}X_{23}X_{31} + X_{14}X_{43}X_{31} X_{35}X_{56}X_{63} X_{19}X_{96}X_{68}X_{81} + X_{23}X_{35}X_{54}X_{42} X_{37}X_{75}X_{54}X_{43} + X_{37}X_{79}X_{96}X_{63} + X_{56}X_{68}X_{87}X_{75}$
- (II)  $-X_{14}X_{4,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} X_{79}X_{9,10}X_{10,8}X_{87} X_{37}X_{74}X_{43} + X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} + X_{14}X_{43}X_{32}X_{21} X_{19}X_{96}X_{68}X_{81} X_{24}X_{45}X_{53}X_{32} + X_{37}X_{79}X_{96}X_{65}X_{53}$

- (III)  $-X_{28}X_{8,10}X_{10,2} + X_{29}X_{9,10}X_{10,2} X_{69}X_{9,10}X_{10,7}X_{76} + X_{56}X_{68}X_{8,10}X_{10,7}X_{75} X_{12}X_{23}X_{31} + X_{12}X_{28}X_{81} + X_{14}X_{43}X_{31} X_{16}X_{68}X_{81} + X_{16}X_{69}X_{91} X_{35}X_{56}X_{63} + X_{37}X_{76}X_{63} X_{14}X_{42}X_{29}X_{91} + X_{23}X_{35}X_{54}X_{42} X_{37}X_{75}X_{54}X_{43}$
- $\begin{array}{l} \text{(IV)} \ \ X_{19}X_{9,10}X_{10,1} + X_{12}X_{2,10}X_{10,8}X_{81} X_{14}X_{42}X_{2,10}X_{10,1} X_{79}X_{9,10}X_{10,8}X_{87} X_{12}X_{23}X_{31} + \\ \ \ X_{14}X_{43}X_{31} + X_{23}X_{34}X_{42} X_{34}X_{45}X_{53} X_{37}X_{74}X_{43} + X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + \\ \ \ X_{68}X_{87}X_{76} X_{19}X_{96}X_{68}X_{81} + X_{37}X_{79}X_{96}X_{65}X_{53} \end{array}$
- $(V) -X_{14}X_{4,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} X_{79}X_{9,10}X_{10,8}X_{87} X_{24}X_{43}X_{32} + X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} + X_{14}X_{43}X_{32}X_{21} X_{19}X_{96}X_{68}X_{81} X_{37}X_{75}X_{54}X_{43} + X_{37}X_{79}X_{96}X_{63} + X_{56}X_{68}X_{87}X_{75}$
- $\begin{array}{l} (\mathrm{VI}) \ -X_{14}X_{4,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} \\ X_{67}X_{79}X_{9,10}X_{10,8}X_{86} + X_{14}X_{42}X_{21} X_{19}X_{98}X_{81} X_{23}X_{34}X_{42} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} \\ X_{35}X_{57}X_{73} X_{56}X_{69}X_{95} + X_{57}X_{79}X_{95} + X_{69}X_{98}X_{86} + X_{34}X_{45}X_{56}X_{67}X_{73} \end{array}$
- $\begin{array}{l} \text{(VII)} \ \ -X_{14}X_{4,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} \\ X_{79}X_{9,10}X_{10,8}X_{87} + X_{14}X_{42}X_{21} X_{23}X_{34}X_{42} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} X_{35}X_{57}X_{73} \\ X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{19}X_{96}X_{68}X_{81} + X_{34}X_{45}X_{57}X_{73} + X_{65}X_{57}X_{79}X_{96} \end{array}$
- $\begin{array}{l} (\text{VIII}) \ \ -X_{14}X_{4,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} \\ X_{57}X_{79}X_{9,10}X_{10,8}X_{85} X_{19}X_{98}X_{81} X_{24}X_{43}X_{32} + X_{36}X_{64}X_{43} X_{36}X_{69}X_{93} X_{37}X_{74}X_{43} + \\ X_{37}X_{79}X_{93} X_{45}X_{56}X_{64} + X_{45}X_{57}X_{74} + X_{14}X_{43}X_{32}X_{21} + X_{56}X_{69}X_{98}X_{85} \end{array}$ 
  - $\begin{array}{l} ({\rm IX}) \ -X_{14}X_{4,10}X_{10,1} + X_{19}X_{9,10}X_{10,1} X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} \\ X_{79}X_{9,10}X_{10,8}X_{87} X_{19}X_{98}X_{81} X_{24}X_{43}X_{32} X_{36}X_{69}X_{93} + X_{37}X_{79}X_{93} X_{58}X_{86}X_{65} + \\ X_{58}X_{87}X_{75} + X_{69}X_{98}X_{86} + X_{14}X_{43}X_{32}X_{21} + X_{36}X_{65}X_{54}X_{43} X_{37}X_{75}X_{54}X_{43} \end{array}$
  - $(X) \quad -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} X_{14}X_{4,10}X_{10,9}X_{91} X_{16}X_{68}X_{81} + X_{16}X_{69}X_{91} X_{24}X_{43}X_{32} + X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} + X_{37}X_{76}X_{63} X_{69}X_{97}X_{76} + X_{14}X_{43}X_{32}X_{21} X_{37}X_{75}X_{54}X_{43} + X_{56}X_{68}X_{87}X_{75}$
  - $(XI) \quad -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} \\ X_{14}X_{4,10}X_{10,9}X_{91} X_{16}X_{68}X_{81} + X_{16}X_{69}X_{91} X_{37}X_{74}X_{43} + X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + \\ X_{68}X_{87}X_{76} X_{69}X_{97}X_{76} + X_{14}X_{43}X_{32}X_{21} X_{24}X_{45}X_{53}X_{32} + X_{37}X_{76}X_{65}X_{53}$
- $\begin{array}{l} ({\rm XII}) \ -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{24}X_{4,10}X_{10,2} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} \\ X_{14}X_{4,10}X_{10,9}X_{91} + X_{14}X_{42}X_{21} X_{16}X_{68}X_{81} + X_{16}X_{69}X_{91} X_{23}X_{34}X_{42} + X_{23}X_{35}X_{52} \\ X_{24}X_{45}X_{52} X_{35}X_{57}X_{73} X_{57}X_{76}X_{65} + X_{65}X_{57}X_{76} + X_{68}X_{87}X_{76} X_{69}X_{97}X_{76} + \\ X_{34}X_{45}X_{57}X_{73} \end{array}$

# **1.36** $K^{4,4,2,2}$

 $\begin{array}{ll} \text{(I)} & X_{12}X_{2,10}X_{10,1} - X_{19}X_{9,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{86} - X_{13}X_{32}X_{2,10}X_{10,8}X_{81} - X_{12}X_{25}X_{51} + \\ & X_{13}X_{35}X_{51} - X_{35}X_{54}X_{43} + X_{47}X_{75}X_{54} + X_{19}X_{97}X_{78}X_{81} - X_{47}X_{78}X_{86}X_{64} - X_{56}X_{69}X_{97}X_{75} + \\ & X_{25}X_{56}X_{64}X_{43}X_{32} \end{array}$ 

- (II)  $-X_{19}X_{9,10}X_{10,1} X_{12}X_{2,10}X_{10,8}X_{81} + X_{13}X_{32}X_{2,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{86} + X_{12}X_{24}X_{41} + X_{35}X_{56}X_{63} X_{67}X_{78}X_{86} X_{13}X_{35}X_{54}X_{41} + X_{19}X_{97}X_{78}X_{81} X_{24}X_{46}X_{63}X_{32} + X_{46}X_{67}X_{75}X_{54} X_{56}X_{69}X_{97}X_{75}$
- (III)  $X_{67}X_{7,10}X_{10,6} X_{7,10}X_{10,9}X_{97} + X_{28}X_{8,10}X_{10,9}X_{92} X_{47}X_{78}X_{8,10}X_{10,6}X_{64} + X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} X_{23}X_{34}X_{42} X_{56}X_{67}X_{75} + X_{19}X_{97}X_{78}X_{81} + X_{25}X_{56}X_{64}X_{42} + X_{34}X_{47}X_{75}X_{53} X_{19}X_{92}X_{25}X_{53}X_{31}$
- (IV)  $X_{23}X_{3,10}X_{10,2} X_{13}X_{3,10}X_{10,8}X_{81} X_{19}X_{9,10}X_{10,2}X_{21} + X_{69}X_{9,10}X_{10,8}X_{86} X_{23}X_{35}X_{52} X_{35}X_{54}X_{43} + X_{47}X_{75}X_{54} + X_{13}X_{35}X_{52}X_{21} + X_{19}X_{97}X_{78}X_{81} + X_{43}X_{35}X_{56}X_{64} X_{47}X_{78}X_{86}X_{64} X_{56}X_{69}X_{97}X_{75}$
- (V)  $-X_{19}X_{9,10}X_{10,1} X_{12}X_{2,10}X_{10,8}X_{81} + X_{13}X_{32}X_{2,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{86} + X_{12}X_{24}X_{41} X_{13}X_{34}X_{41} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{67}X_{78}X_{86} X_{69}X_{97}X_{76} + X_{19}X_{97}X_{78}X_{81} X_{24}X_{46}X_{65}X_{53}X_{32}$
- (VI)  $X_{28}X_{8,10}X_{10,2} X_{29}X_{9,10}X_{10,2} + X_{67}X_{79}X_{9,10}X_{10,6} X_{47}X_{78}X_{8,10}X_{10,6}X_{64} X_{12}X_{25}X_{51} + X_{12}X_{29}X_{91} + X_{13}X_{35}X_{51} + X_{17}X_{78}X_{81} X_{17}X_{79}X_{91} X_{35}X_{54}X_{43} + X_{47}X_{75}X_{54} X_{56}X_{67}X_{75} X_{13}X_{32}X_{28}X_{81} + X_{25}X_{56}X_{64}X_{43}X_{32}$
- $(\text{VII}) \ -X_{19}X_{9,10}X_{10,1} + X_{2,10}X_{10,1}X_{12} X_{12}X_{2,10}X_{10,8}X_{81} + X_{69}X_{9,10}X_{10,8}X_{86} X_{23}X_{31}X_{12} + X_{23}X_{35}X_{52} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{67}X_{78}X_{86} X_{69}X_{97}X_{76} + X_{12}X_{24}X_{43}X_{31} + X_{19}X_{97}X_{78}X_{81} X_{24}X_{46}X_{65}X_{52} X_{35}X_{57}X_{74}X_{43}$
- (VIII)  $X_{7,10}X_{10,8}X_{87} X_{29}X_{9,10}X_{10,8}X_{82} X_{47}X_{7,10}X_{10,6}X_{64} + X_{57}X_{79}X_{9,10}X_{10,6}X_{65} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{23}X_{34}X_{42} + X_{26}X_{64}X_{42} X_{26}X_{65}X_{52} + X_{34}X_{47}X_{73} + X_{35}X_{52}X_{23} X_{35}X_{57}X_{73} + X_{18}X_{82}X_{23}X_{31} X_{18}X_{87}X_{79}X_{91}$ 
  - (IX)  $X_{23}X_{3,10}X_{10,2} X_{13}X_{3,10}X_{10,8}X_{81} X_{19}X_{9,10}X_{10,2}X_{21} + X_{69}X_{9,10}X_{10,8}X_{86} + X_{19}X_{98}X_{81} X_{23}X_{35}X_{52} X_{48}X_{86}X_{64} + X_{48}X_{87}X_{74} X_{56}X_{69}X_{95} + X_{57}X_{79}X_{95} X_{79}X_{98}X_{87} + X_{13}X_{35}X_{52}X_{21} X_{35}X_{57}X_{74}X_{43} + X_{43}X_{35}X_{56}X_{64}$
  - $(X) \quad -X_{1,10}X_{10,2}X_{21} + X_{28}X_{8,10}X_{10,2} X_{8,10}X_{10,9}X_{98} + X_{1,10}X_{10,9}X_{97}X_{78}X_{81} + X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} + X_{13}X_{32}X_{21} X_{13}X_{34}X_{41} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{67}X_{78}X_{86} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} X_{24}X_{46}X_{65}X_{53}X_{32}$
  - (XI)  $X_{13}X_{3,10}X_{10,1} X_{19}X_{9,10}X_{10,1} + X_{1,10}X_{10,2}X_{21} X_{1,10}X_{10,8}X_{81} X_{23}X_{3,10}X_{10,2} + X_{69}X_{9,10}X_{10,8}X_{86} + X_{23}X_{34}X_{42} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{67}X_{78}X_{86} X_{69}X_{97}X_{76} X_{13}X_{34}X_{42}X_{21} + X_{19}X_{97}X_{78}X_{81} X_{46}X_{65}X_{53}X_{34}$
- $(XII) \ X_{28}X_{8,10}X_{10,2} X_{29}X_{9,10}X_{10,2} X_{47}X_{78}X_{8,10}X_{10,6}X_{64} + X_{57}X_{79}X_{9,10}X_{10,6}X_{65} + X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{17}X_{78}X_{81} X_{17}X_{79}X_{91} X_{23}X_{34}X_{42} + X_{26}X_{64}X_{42} X_{26}X_{65}X_{52} + X_{29}X_{91}X_{12} X_{31}X_{12}X_{23} + X_{34}X_{47}X_{73} + X_{35}X_{52}X_{23} X_{35}X_{57}X_{73}$
- (XIII)  $X_{28}X_{8,10}X_{10,2} X_{29}X_{9,10}X_{10,2} + X_{46}X_{6,10}X_{10,4} X_{56}X_{6,10}X_{10,5} X_{47}X_{78}X_{8,10}X_{10,4} + X_{57}X_{79}X_{9,10}X_{10,5} + X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{17}X_{78}X_{81} X_{17}X_{79}X_{91} + X_{29}X_{91}X_{12} X_{31}X_{12}X_{23} + X_{34}X_{47}X_{73} X_{35}X_{57}X_{73} X_{23}X_{34}X_{46}X_{62} + X_{35}X_{56}X_{62}X_{23}$

- $(XV) -X_{19}X_{9,10}X_{10,1} + X_{2,10}X_{10,1}X_{12} X_{12}X_{2,10}X_{10,8}X_{81} + X_{69}X_{9,10}X_{10,8}X_{86} + X_{12}X_{23}X_{31} X_{23}X_{34}X_{42} + X_{26}X_{64}X_{42} X_{26}X_{65}X_{52} X_{31}X_{12}X_{23} + X_{34}X_{47}X_{73} + X_{35}X_{52}X_{23} X_{35}X_{57}X_{73} + X_{57}X_{76}X_{65} X_{69}X_{97}X_{76} + X_{19}X_{97}X_{78}X_{81} X_{47}X_{78}X_{86}X_{64}$
- $(XVI) \ X_{28}X_{8,10}X_{10,2} X_{29}X_{9,10}X_{10,2} + X_{46}X_{6,10}X_{10,4} X_{6,10}X_{10,7}X_{76} + X_{79}X_{9,10}X_{10,7} X_{47}X_{78}X_{8,10}X_{10,4} + X_{12}X_{23}X_{31} X_{12}X_{28}X_{81} + X_{17}X_{78}X_{81} X_{17}X_{79}X_{91} X_{23}X_{34}X_{42} + X_{25}X_{54}X_{42} + X_{29}X_{91}X_{12} X_{46}X_{65}X_{54} X_{25}X_{53}X_{31}X_{12} + X_{34}X_{47}X_{76}X_{65}X_{53}$
- $(XVII) \ X_{28}X_{8,10}X_{10,2} X_{29}X_{9,10}X_{10,2} + X_{67}X_{79}X_{9,10}X_{10,6} X_{78}X_{8,10}X_{10,6}X_{67} X_{12}X_{28}X_{81} + X_{17}X_{78}X_{81} X_{17}X_{79}X_{91} X_{24}X_{46}X_{62} + X_{25}X_{56}X_{62} + X_{29}X_{91}X_{12} X_{37}X_{74}X_{43} + X_{37}X_{75}X_{53} + X_{46}X_{67}X_{74} X_{56}X_{67}X_{75} + X_{12}X_{24}X_{43}X_{31} X_{25}X_{53}X_{31}X_{12}$
- $(XVIII) \ X_{28}X_{8,10}X_{10,2} X_{29}X_{9,10}X_{10,2} + X_{67}X_{79}X_{9,10}X_{10,6} X_{78}X_{8,10}X_{10,6}X_{67} + X_{12}X_{24}X_{41} X_{12}X_{28}X_{81} X_{13}X_{34}X_{41} + X_{13}X_{35}X_{51} + X_{17}X_{78}X_{81} X_{17}X_{79}X_{91} X_{24}X_{46}X_{62} X_{25}X_{51}X_{12} + X_{25}X_{56}X_{62} + X_{29}X_{91}X_{12} + X_{34}X_{46}X_{67}X_{73} X_{35}X_{56}X_{67}X_{73}$ 
  - $(XIX) \quad -X_{12}X_{2,10}X_{10,1} + X_{18}X_{8,10}X_{10,1} X_{19}X_{9,10}X_{10,1} + X_{2,10}X_{10,1}X_{12} X_{68}X_{8,10}X_{10,6} + \\ X_{69}X_{9,10}X_{10,6} + X_{12}X_{23}X_{31} X_{18}X_{87}X_{71} + X_{19}X_{97}X_{71} X_{23}X_{34}X_{42} + X_{26}X_{64}X_{42} \\ X_{26}X_{65}X_{52} X_{31}X_{12}X_{23} + X_{34}X_{47}X_{73} + X_{35}X_{52}X_{23} X_{35}X_{57}X_{73} X_{47}X_{76}X_{64} + \\ X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{69}X_{97}X_{76}$

### 1.37 $PdP_{6b}$ (3)

- (I)  $X_{1,10}X_{10,2}X_{21} X_{1,10}X_{10,7}X_{79}X_{91} X_{29}X_{98}X_{8,10}X_{10,2} + X_{68}X_{8,10}X_{10,7}X_{76} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} X_{56}X_{68}X_{85} + X_{57}X_{79}X_{98}X_{85} + X_{23}X_{35}X_{56}X_{64}X_{42} X_{35}X_{57}X_{76}X_{64}X_{43}$
- (II)  $-X_{14}X_{42}X_{2,10}X_{10,1} + X_{19}X_{97}X_{7,10}X_{10,1} + X_{2,10}X_{10,8}X_{89}X_{92} X_{67}X_{7,10}X_{10,8}X_{86} + X_{14}X_{43}X_{31} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} X_{78}X_{89}X_{97} X_{19}X_{92}X_{23}X_{31} + X_{23}X_{35}X_{54}X_{42} X_{35}X_{57}X_{74}X_{43} + X_{57}X_{78}X_{86}X_{65}$
- (III)  $-X_{14}X_{4,10}X_{10,1} + X_{24}X_{4,10}X_{10,2} X_{29}X_{98}X_{86}X_{6,10}X_{10,2} + X_{19}X_{98}X_{87}X_{76}X_{6,10}X_{10,1} + X_{14}X_{43}X_{31} X_{19}X_{93}X_{31} + X_{29}X_{93}X_{32} X_{37}X_{74}X_{43} + X_{37}X_{75}X_{53} + X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{24}X_{45}X_{53}X_{32}$
- (IV)  $X_{17}X_{7,10}X_{10,1} + X_{2,10}X_{10,8}X_{82} X_{67}X_{7,10}X_{10,8}X_{86} X_{13}X_{34}X_{42}X_{2,10}X_{10,1} X_{17}X_{79}X_{91} X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} X_{29}X_{98}X_{82} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{13}X_{32}X_{29}X_{91} + X_{57}X_{79}X_{98}X_{86}X_{65}$
- $\begin{array}{l} (\mathrm{V}) \ \ X_{2,10}X_{10,9}X_{92} X_{14}X_{42}X_{2,10}X_{10,1} X_{6,10}X_{10,9}X_{98}X_{86} + X_{19}X_{98}X_{87}X_{76}X_{6,10}X_{10,1} + \\ X_{14}X_{43}X_{31} + X_{23}X_{34}X_{42} X_{34}X_{45}X_{53} X_{37}X_{74}X_{43} + X_{37}X_{75}X_{53} + X_{45}X_{57}X_{74} \\ X_{57}X_{76}X_{65} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{19}X_{92}X_{23}X_{31} \end{array}$

- (VI)  $X_{17}X_{7,10}X_{10,1} + X_{2,10}X_{10,8}X_{82} X_{14}X_{42}X_{2,10}X_{10,1} X_{67}X_{7,10}X_{10,8}X_{86} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{14}X_{43}X_{31} X_{17}X_{79}X_{91} X_{29}X_{98}X_{82} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{23}X_{35}X_{54}X_{42} X_{35}X_{57}X_{74}X_{43} + X_{57}X_{79}X_{98}X_{86}X_{65}$
- (VII)  $X_{2,10}X_{10,9}X_{92} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} X_{14}X_{42}X_{2,10}X_{10,1} + X_{19}X_{98}X_{87}X_{7,10}X_{10,1} + X_{14}X_{43}X_{31} + X_{23}X_{34}X_{42} X_{34}X_{45}X_{53} X_{37}X_{74}X_{43} + X_{37}X_{75}X_{53} X_{19}X_{92}X_{23}X_{31} + X_{45}X_{56}X_{67}X_{74} X_{56}X_{68}X_{87}X_{75}$
- (VIII)  $-X_{14}X_{4,10}X_{10,1} + X_{24}X_{4,10}X_{10,2} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{29}X_{98}X_{8,10}X_{10,2} + X_{19}X_{98}X_{87}X_{7,10}X_{10,1} + X_{14}X_{43}X_{31} X_{19}X_{93}X_{31} + X_{29}X_{93}X_{32} X_{37}X_{74}X_{43} + X_{37}X_{75}X_{53} X_{24}X_{45}X_{53}X_{32} + X_{45}X_{56}X_{67}X_{74} X_{56}X_{68}X_{87}X_{75}$ 
  - (IX)  $X_{1,10}X_{10,2}X_{21} + X_{78}X_{8,10}X_{10,7} X_{1,10}X_{10,7}X_{79}X_{91} X_{29}X_{98}X_{8,10}X_{10,2} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} X_{67}X_{78}X_{86} + X_{23}X_{35}X_{54}X_{42} X_{35}X_{57}X_{74}X_{43} + X_{57}X_{79}X_{98}X_{86}X_{65}$
  - $(X) \ X_{2,10}X_{10,9}X_{92} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} X_{14}X_{42}X_{2,10}X_{10,1} + X_{19}X_{98}X_{87}X_{7,10}X_{10,1} + X_{14}X_{43}X_{31} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} X_{19}X_{92}X_{23}X_{31} + X_{23}X_{35}X_{54}X_{42} X_{35}X_{57}X_{74}X_{43}$
  - (XI)  $X_{1,10}X_{10,2}X_{21} X_{1,10}X_{10,7}X_{71} X_{28}X_{8,10}X_{10,2} + X_{68}X_{8,10}X_{10,7}X_{76} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{19}X_{97}X_{71} + X_{28}X_{89}X_{92} X_{56}X_{68}X_{85} + X_{57}X_{78}X_{85} X_{78}X_{89}X_{97} X_{19}X_{92}X_{23}X_{31} + X_{23}X_{35}X_{56}X_{64}X_{42} X_{35}X_{57}X_{76}X_{64}X_{43}$
- $(XII) \ \, X_{1,10}X_{10,2}X_{21} + X_{78}X_{8,10}X_{10,7} X_{1,10}X_{10,7}X_{79}X_{91} X_{29}X_{98}X_{8,10}X_{10,2} X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} X_{67}X_{78}X_{86} + X_{13}X_{32}X_{29}X_{91} X_{13}X_{34}X_{42}X_{21} + X_{57}X_{79}X_{98}X_{86}X_{65}$
- $\begin{array}{l} (\mathrm{XIII}) \ -X_{7,10}X_{10,8}X_{87} X_{14}X_{42}X_{2,10}X_{10,1} + X_{19}X_{97}X_{7,10}X_{10,1} + X_{2,10}X_{10,8}X_{89}X_{92} + X_{14}X_{43}X_{31} + \\ X_{23}X_{34}X_{42} X_{34}X_{45}X_{53} X_{37}X_{74}X_{43} + X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} \\ X_{19}X_{92}X_{23}X_{31} + X_{37}X_{76}X_{65}X_{53} X_{68}X_{89}X_{97}X_{76} \end{array}$
- $(XIV) -X_{14}X_{4,10}X_{10,1} + X_{24}X_{4,10}X_{10,2} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{29}X_{98}X_{8,10}X_{10,2} + X_{19}X_{98}X_{87}X_{7,10}X_{10,1} + X_{14}X_{43}X_{31} X_{19}X_{93}X_{31} X_{24}X_{43}X_{32} + X_{29}X_{93}X_{32} + X_{35}X_{54}X_{43} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} X_{35}X_{57}X_{74}X_{43}$
- $\begin{array}{l} ({\rm XV}) \ \ X_{2,10}X_{10,9}X_{92} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} X_{13}X_{34}X_{42}X_{2,10}X_{10,1} + \\ \ \ X_{19}X_{98}X_{87}X_{7,10}X_{10,1} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} + X_{34}X_{45}X_{53} \\ \ \ X_{45}X_{57}X_{74} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} \end{array}$
- $\begin{array}{l} (\mathrm{XVI}) \ \ X_{1,10}X_{10,3}X_{31} X_{1,10}X_{10,9}X_{91} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} + \\ X_{12}X_{2,10}X_{10,9}X_{91} X_{2,10}X_{10,3}X_{34}X_{42} + X_{7,10}X_{10,9}X_{98}X_{87} + X_{25}X_{54}X_{42} + X_{34}X_{45}X_{53} \\ X_{45}X_{57}X_{74} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} X_{12}X_{25}X_{53}X_{31} \end{array}$
- $(XVII) \ X_{1,10}X_{10,4}X_{41} X_{1,10}X_{10,9}X_{91} X_{2,10}X_{10,4}X_{42} + X_{2,10}X_{10,9}X_{92} X_{6,10}X_{10,9}X_{98}X_{86} + \\ X_{6,10}X_{10,9}X_{98}X_{87}X_{76} + X_{13}X_{39}X_{91} + X_{23}X_{34}X_{42} X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} + X_{37}X_{75}X_{53} + \\ X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{13}X_{37}X_{74}X_{41}$

- $(XVIII) \ X_{1,10}X_{10,4}X_{41} X_{1,10}X_{10,9}X_{91} X_{2,10}X_{10,4}X_{42} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} + X_{2,10}X_{10,8}X_{89}X_{92} + X_{13}X_{39}X_{91} + X_{23}X_{34}X_{42} X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} + X_{45}X_{57}X_{74} X_{57}X_{76}X_{65} + X_{68}X_{87}X_{76} X_{13}X_{37}X_{74}X_{41} + X_{37}X_{76}X_{65}X_{53} X_{68}X_{89}X_{97}X_{76}$ 
  - $(XIX) \ X_{1,10}X_{10,2}X_{21} X_{1,10}X_{10,7}X_{71} X_{28}X_{8,10}X_{10,2} + X_{68}X_{8,10}X_{10,7}X_{76} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} + X_{19}X_{97}X_{71} X_{25}X_{53}X_{32} + X_{28}X_{89}X_{92} + X_{34}X_{45}X_{53} X_{56}X_{68}X_{85} + X_{57}X_{78}X_{85} X_{78}X_{89}X_{97} X_{13}X_{34}X_{42}X_{21} + X_{25}X_{56}X_{64}X_{42} X_{45}X_{57}X_{76}X_{64}$
  - $(XX) \quad -X_{2,10}X_{10,4}X_{42} + X_{3,10}X_{10,4}X_{43} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} + \\ \quad X_{12}X_{2,10}X_{10,9}X_{91} X_{13}X_{3,10}X_{10,9}X_{91} + X_{7,10}X_{10,9}X_{98}X_{87} X_{12}X_{25}X_{51} + X_{13}X_{35}X_{51} + \\ \quad X_{25}X_{54}X_{42} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} X_{68}X_{87}X_{76} X_{35}X_{57}X_{74}X_{43}$
  - $(XXI) \ X_{1,10}X_{10,4}X_{41} X_{1,10}X_{10,9}X_{91} X_{2,10}X_{10,4}X_{42} + X_{2,10}X_{10,9}X_{92} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} + X_{7,10}X_{10,9}X_{98}X_{87} + X_{13}X_{39}X_{91} + X_{23}X_{34}X_{42} X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} + X_{37}X_{75}X_{53} X_{13}X_{37}X_{74}X_{41} + X_{45}X_{56}X_{67}X_{74} X_{56}X_{68}X_{87}X_{75}$
- $\begin{array}{l} (\mathrm{XXII}) \ \ X_{1,10}X_{10,3}X_{31} X_{1,10}X_{10,9}X_{91} X_{21}X_{1,10}X_{10,2} + X_{24}X_{4,10}X_{10,2} X_{34}X_{4,10}X_{10,3} \\ X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{8,10}X_{10,9}X_{98} + X_{91}X_{1,10}X_{10,9} + X_{7,10}X_{10,9}X_{98}X_{87} + \\ X_{15}X_{52}X_{21} X_{15}X_{53}X_{31} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} + X_{46}X_{67}X_{74} + X_{57}X_{76}X_{65} \\ X_{68}X_{87}X_{76} X_{24}X_{46}X_{65}X_{52} \end{array}$
- $\begin{array}{l} (\mathrm{XXIII}) \ \ X_{1,10}X_{10,2}X_{21} X_{1,10}X_{10,7}X_{71} X_{28}X_{8,10}X_{10,2} + X_{8,10}X_{10,7}X_{78} + X_{13}X_{32}X_{21} X_{19}X_{92}X_{21} + X_{19}X_{97}X_{71} X_{25}X_{53}X_{32} + X_{25}X_{54}X_{42} + X_{28}X_{89}X_{92} + X_{34}X_{45}X_{53} X_{45}X_{57}X_{74} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} X_{13}X_{34}X_{42}X_{21} + X_{57}X_{78}X_{86}X_{65} \end{array}$

### **1.38** $PdP_{6c}$ (3)

- (I)  $-X_{7,10}X_{10,8}X_{87} X_{1,10}X_{10,2}X_{24}X_{41} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} X_{35}X_{56}X_{63} X_{13}X_{32}X_{29}X_{91} + X_{13}X_{35}X_{54}X_{41} + X_{24}X_{46}X_{63}X_{32} + X_{56}X_{68}X_{87}X_{75} X_{46}X_{68}X_{89}X_{97}X_{75}X_{54}$
- (II)  $X_{12}X_{2,10}X_{10,1} X_{18}X_{8,10}X_{10,1} X_{2,10}X_{10,7}X_{72} + X_{56}X_{68}X_{8,10}X_{10,7}X_{75} X_{12}X_{24}X_{41} + X_{18}X_{89}X_{91} + X_{29}X_{97}X_{72} X_{35}X_{56}X_{63} X_{13}X_{32}X_{29}X_{91} + X_{13}X_{35}X_{54}X_{41} + X_{24}X_{46}X_{63}X_{32} X_{46}X_{68}X_{89}X_{97}X_{75}X_{54}$
- (III)  $-X_{7,10}X_{10,8}X_{87} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} X_{1,10}X_{10,2}X_{24}X_{45}X_{51} X_{12}X_{29}X_{91} X_{23}X_{36}X_{62} + X_{24}X_{46}X_{62} X_{35}X_{57}X_{73} + X_{45}X_{57}X_{74} + X_{12}X_{23}X_{35}X_{51} + X_{36}X_{68}X_{87}X_{73} X_{46}X_{68}X_{89}X_{97}X_{74}$
- $\begin{array}{lll} \text{(IV)} & -X_{1,10}X_{10,2}X_{21} X_{7,10}X_{10,8}X_{87} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} + X_{12}X_{23}X_{31} \\ & X_{12}X_{29}X_{91} + X_{14}X_{42}X_{21} + X_{45}X_{56}X_{64} X_{14}X_{45}X_{53}X_{31} X_{23}X_{36}X_{64}X_{42} + X_{36}X_{68}X_{87}X_{75}X_{53} \\ & X_{56}X_{68}X_{89}X_{97}X_{75} \end{array}$
- (V)  $-X_{19}X_{9,10}X_{10,1} + X_{14}X_{42}X_{2,10}X_{10,1} X_{2,10}X_{10,7}X_{79}X_{92} + X_{78}X_{89}X_{9,10}X_{10,7} X_{14}X_{43}X_{31} + X_{48}X_{86}X_{64} + X_{57}X_{79}X_{95} + X_{19}X_{92}X_{23}X_{31} X_{23}X_{36}X_{64}X_{42} + X_{36}X_{65}X_{54}X_{43} X_{48}X_{89}X_{95}X_{54} X_{57}X_{78}X_{86}X_{65}$

- (VI)  $X_{12}X_{2,10}X_{10,1} X_{2,10}X_{10,8}X_{82} + X_{69}X_{9,10}X_{10,8}X_{86} X_{13}X_{32}X_{29}X_{9,10}X_{10,1} X_{12}X_{24}X_{41} X_{35}X_{56}X_{63} + X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} + X_{13}X_{35}X_{54}X_{41} + X_{24}X_{46}X_{63}X_{32} + X_{29}X_{97}X_{78}X_{82} X_{46}X_{69}X_{97}X_{75}X_{54}$
- $(\text{VII}) \ -X_{7,10}X_{10,8}X_{87} X_{1,10}X_{10,2}X_{24}X_{41} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} + X_{24}X_{43}X_{32} X_{36}X_{64}X_{43} + X_{48}X_{86}X_{64} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{13}X_{32}X_{29}X_{91} + X_{13}X_{36}X_{65}X_{54}X_{41} X_{48}X_{89}X_{97}X_{75}X_{54}$
- (VIII)  $X_{1,10}X_{10,9}X_{91} X_{8,10}X_{10,9}X_{98} X_{1,10}X_{10,2}X_{24}X_{41} + X_{29}X_{98}X_{8,10}X_{10,2} + X_{57}X_{79}X_{95} X_{79}X_{98}X_{87} X_{13}X_{32}X_{29}X_{91} + X_{13}X_{35}X_{54}X_{41} + X_{24}X_{46}X_{63}X_{32} X_{35}X_{57}X_{76}X_{63} X_{46}X_{69}X_{95}X_{54} + X_{69}X_{98}X_{87}X_{76}$ 
  - $(IX) -X_{18}X_{8,10}X_{10,1} + X_{2,10}X_{10,1}X_{12} X_{2,10}X_{10,7}X_{72} + X_{36}X_{68}X_{8,10}X_{10,7}X_{75}X_{53} + X_{12}X_{23}X_{31} X_{12}X_{29}X_{91} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} + X_{18}X_{89}X_{91} X_{23}X_{36}X_{62} X_{24}X_{41}X_{12} + X_{24}X_{46}X_{62} + X_{29}X_{97}X_{72} X_{46}X_{68}X_{89}X_{97}X_{75}X_{54}$
  - $(X) \quad -X_{19}X_{9,10}X_{10,1} X_{2,10}X_{10,9}X_{92} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + \\ \quad X_{14}X_{42}X_{2,10}X_{10,1} X_{14}X_{43}X_{31} X_{23}X_{34}X_{42} + X_{34}X_{46}X_{63} + X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} + \\ \quad X_{19}X_{92}X_{23}X_{31} + X_{56}X_{68}X_{87}X_{75} X_{46}X_{68}X_{89}X_{97}X_{75}X_{54}$
  - $(XI) \quad -X_{18}X_{8,10}X_{10,1} X_{2,10}X_{10,7}X_{72} + X_{14}X_{42}X_{2,10}X_{10,1} + X_{56}X_{68}X_{8,10}X_{10,7}X_{75} + X_{13}X_{35}X_{51} X_{14}X_{45}X_{51} + X_{18}X_{89}X_{91} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} + X_{29}X_{97}X_{72} X_{35}X_{56}X_{63} + X_{45}X_{56}X_{64} X_{13}X_{32}X_{29}X_{91} X_{68}X_{89}X_{97}X_{75}X_{56}$
- $(XII) \ X_{14}X_{4,10}X_{10,1} X_{19}X_{9,10}X_{10,1} X_{24}X_{4,10}X_{10,2} X_{7,10}X_{10,8}X_{87} + X_{89}X_{9,10}X_{10,8} + X_{29}X_{97}X_{7,10}X_{10,2} X_{14}X_{43}X_{31} + X_{19}X_{93}X_{31} X_{29}X_{93}X_{32} + X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} + X_{24}X_{46}X_{63}X_{32} + X_{56}X_{68}X_{87}X_{75} X_{46}X_{68}X_{89}X_{97}X_{75}X_{54}$
- (XIII)  $-X_{68}X_{8,10}X_{10,6} + X_{69}X_{9,10}X_{10,6} X_{12}X_{29}X_{9,10}X_{10,1} + X_{28}X_{8,10}X_{10,1}X_{12} + X_{12}X_{23}X_{31} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{23}X_{36}X_{62} X_{24}X_{41}X_{12} + X_{24}X_{46}X_{62} X_{28}X_{87}X_{72} + X_{29}X_{97}X_{72} + X_{36}X_{68}X_{87}X_{75}X_{53} X_{46}X_{69}X_{97}X_{75}X_{54}$
- $(XIV) \ X_{1,10}X_{10,9}X_{91} X_{8,10}X_{10,9}X_{98} X_{1,10}X_{10,2}X_{24}X_{41} + X_{29}X_{97}X_{78}X_{8,10}X_{10,2} + X_{12}X_{23}X_{31} X_{12}X_{29}X_{91} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{23}X_{36}X_{62} + X_{24}X_{46}X_{62} X_{67}X_{78}X_{86} + X_{69}X_{98}X_{86} + X_{36}X_{67}X_{75}X_{53} X_{46}X_{69}X_{97}X_{75}X_{54}$
- $(XV) \quad -X_{19}X_{9,10}X_{10,1} X_{2,10}X_{10,9}X_{92} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + \\ \quad X_{14}X_{42}X_{2,10}X_{10,1} X_{14}X_{43}X_{31} + X_{48}X_{86}X_{64} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} + X_{19}X_{92}X_{23}X_{31} \\ \quad X_{23}X_{36}X_{64}X_{42} + X_{36}X_{65}X_{54}X_{43} X_{48}X_{89}X_{97}X_{75}X_{54}$
- $(XVI) -X_{2,10}X_{10,8}X_{82} X_{12}X_{29}X_{9,10}X_{10,1} + X_{14}X_{42}X_{2,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{87}X_{76} + X_{12}X_{23}X_{31} + X_{29}X_{98}X_{82} + X_{36}X_{65}X_{53} + X_{45}X_{56}X_{64} X_{56}X_{69}X_{95} X_{57}X_{76}X_{65} + X_{57}X_{79}X_{95} X_{79}X_{98}X_{87} X_{14}X_{45}X_{53}X_{31} X_{23}X_{36}X_{64}X_{42}$
- $(XVII) \quad -X_{1,10}X_{10,4}X_{41} + X_{2,10}X_{10,4}X_{42} X_{2,10}X_{10,9}X_{92} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} + X_{1,10}X_{10,8}X_{89}X_{91} X_{13}X_{39}X_{91} + X_{23}X_{39}X_{92} + X_{48}X_{86}X_{64} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{23}X_{36}X_{64}X_{42} + X_{13}X_{36}X_{65}X_{54}X_{41} X_{48}X_{89}X_{97}X_{75}X_{54}$

- $\begin{array}{l} ({\rm XVIII}) \ \ X_{14}X_{4,10}X_{10,1} X_{24}X_{4,10}X_{10,2} X_{67}X_{7,10}X_{10,6} + X_{68}X_{8,10}X_{10,6} X_{19}X_{98}X_{8,10}X_{10,1} + \\ X_{29}X_{97}X_{7,10}X_{10,2} + X_{19}X_{93}X_{31} X_{29}X_{93}X_{32} X_{49}X_{97}X_{74} + X_{49}X_{98}X_{84} X_{14}X_{45}X_{53}X_{31} + \\ X_{24}X_{45}X_{53}X_{32} + X_{45}X_{56}X_{67}X_{74} X_{56}X_{68}X_{84}X_{45} \end{array}$ 
  - $\begin{array}{l} ({\rm XIX}) \ -X_{19}X_{9,10}X_{10,1} X_{2,10}X_{10,9}X_{92} + X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + X_{14}X_{42}X_{2,10}X_{10,1} \\ X_{67}X_{7,10}X_{10,8}X_{86} X_{14}X_{43}X_{31} + X_{35}X_{54}X_{43} X_{46}X_{65}X_{54} + X_{46}X_{67}X_{74} + X_{19}X_{92}X_{23}X_{31} \\ X_{23}X_{35}X_{54}X_{42} + X_{48}X_{86}X_{65}X_{54} X_{48}X_{89}X_{97}X_{74} \end{array}$
  - $(XX) -X_{1,10}X_{10,2}X_{21} X_{7,10}X_{10,8}X_{87} + X_{1,10}X_{10,8}X_{89}X_{91} + X_{29}X_{97}X_{7,10}X_{10,2} + X_{13}X_{35}X_{51} + X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} X_{35}X_{56}X_{63} + X_{45}X_{56}X_{64} X_{13}X_{32}X_{29}X_{91} + X_{56}X_{68}X_{87}X_{75} X_{68}X_{89}X_{97}X_{75}X_{56}$
  - $(XXI) \ X_{2,10}X_{10,1}X_{12} X_{2,10}X_{10,8}X_{82} X_{12}X_{29}X_{9,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{86} + X_{12}X_{23}X_{31} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{23}X_{36}X_{62} X_{24}X_{41}X_{12} + X_{24}X_{46}X_{62} X_{67}X_{78}X_{86} + X_{29}X_{97}X_{78}X_{82} + X_{36}X_{67}X_{75}X_{53} X_{46}X_{69}X_{97}X_{75}X_{54}$
- $\begin{array}{l} ({\rm XXII}) \ \ X_{2,10}X_{10,1}X_{12} X_{2,10}X_{10,8}X_{82} X_{12}X_{29}X_{9,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{86} X_{23}X_{36}X_{62} + \\ X_{24}X_{46}X_{62} X_{35}X_{57}X_{73} + X_{36}X_{67}X_{73} + X_{45}X_{57}X_{74} X_{67}X_{78}X_{86} + X_{12}X_{23}X_{35}X_{51} \\ X_{24}X_{45}X_{51}X_{12} + X_{29}X_{97}X_{78}X_{82} X_{46}X_{69}X_{97}X_{74} \end{array}$
- $\begin{array}{l} (\mathrm{XXIII}) \ -X_{19}X_{9,10}X_{10,1} X_{2,10}X_{10,9}X_{92} X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + \\ X_{13}X_{34}X_{42}X_{2,10}X_{10,1} X_{13}X_{32}X_{21} + X_{19}X_{92}X_{21} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} X_{34}X_{46}X_{63} + \\ X_{46}X_{65}X_{54} + X_{48}X_{86}X_{64} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} X_{48}X_{89}X_{97}X_{75}X_{54} \end{array}$
- $(XXIV) -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,9}X_{91} X_{8,10}X_{10,9}X_{98} + X_{29}X_{98}X_{8,10}X_{10,2} + X_{12}X_{23}X_{31} X_{12}X_{29}X_{91} + X_{14}X_{42}X_{21} + X_{36}X_{65}X_{53} + X_{45}X_{56}X_{64} X_{56}X_{69}X_{95} X_{57}X_{76}X_{65} + X_{57}X_{79}X_{95} X_{79}X_{98}X_{87} X_{14}X_{45}X_{53}X_{31} X_{23}X_{36}X_{64}X_{42} + X_{69}X_{98}X_{87}X_{76}$
- $(XXV) \ X_{14}X_{4,10}X_{10,1} X_{19}X_{9,10}X_{10,1} X_{24}X_{4,10}X_{10,2} X_{7,10}X_{10,8}X_{87} + X_{89}X_{9,10}X_{10,8} + X_{29}X_{97}X_{7,10}X_{10,2} X_{14}X_{43}X_{31} + X_{19}X_{93}X_{31} + X_{24}X_{43}X_{32} X_{29}X_{93}X_{32} X_{36}X_{64}X_{43} + X_{48}X_{86}X_{64} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} + X_{36}X_{65}X_{54}X_{43} X_{48}X_{89}X_{97}X_{75}X_{54}$
- $(XXVI) \ X_{1,10}X_{10,9}X_{91} X_{8,10}X_{10,9}X_{98} X_{1,10}X_{10,2}X_{24}X_{41} + X_{29}X_{98}X_{8,10}X_{10,2} + X_{12}X_{23}X_{31} X_{12}X_{29}X_{91} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{23}X_{36}X_{62} + X_{24}X_{46}X_{62} + X_{36}X_{65}X_{53} X_{57}X_{76}X_{65} + X_{57}X_{79}X_{95} X_{79}X_{98}X_{87} X_{46}X_{69}X_{95}X_{54} + X_{69}X_{98}X_{87}X_{76}$
- $\begin{array}{l} (\text{XXVII}) \ \ X_{14}X_{4,10}X_{10,1} X_{19}X_{9,10}X_{10,1} X_{24}X_{4,10}X_{10,2} + X_{29}X_{9,10}X_{10,2} X_{79}X_{9,10}X_{10,7} + \\ X_{78}X_{89}X_{9,10}X_{10,7} X_{14}X_{43}X_{31} + X_{19}X_{93}X_{31} + X_{24}X_{43}X_{32} X_{29}X_{93}X_{32} X_{36}X_{64}X_{43} + \\ X_{48}X_{86}X_{64} + X_{57}X_{79}X_{95} + X_{36}X_{65}X_{54}X_{43} X_{48}X_{89}X_{95}X_{54} X_{57}X_{78}X_{86}X_{65} \end{array}$
- (XXVIII)  $X_{2,10}X_{10,1}X_{12} X_{2,10}X_{10,8}X_{82} X_{12}X_{29}X_{9,10}X_{10,1} + X_{69}X_{9,10}X_{10,8}X_{87}X_{76} + X_{12}X_{23}X_{31} X_{15}X_{53}X_{31} + X_{15}X_{54}X_{41} X_{23}X_{36}X_{62} X_{24}X_{41}X_{12} + X_{24}X_{46}X_{62} + X_{29}X_{98}X_{82} + X_{36}X_{65}X_{53} X_{57}X_{76}X_{65} + X_{57}X_{79}X_{95} X_{79}X_{98}X_{87} X_{46}X_{69}X_{95}X_{54}$ 
  - $\begin{array}{l} (\mathrm{XXIX}) \ -X_{1,10}X_{10,4}X_{41} + X_{1,10}X_{10,9}X_{91} + X_{2,10}X_{10,4}X_{42} X_{8,10}X_{10,9}X_{98} X_{2,10}X_{10,7}X_{79}X_{92} + \\ X_{68}X_{8,10}X_{10,7}X_{76} + X_{13}X_{34}X_{41} X_{13}X_{39}X_{91} X_{23}X_{34}X_{42} + X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} + \\ X_{45}X_{56}X_{64} X_{47}X_{76}X_{64} + X_{53}X_{34}X_{45} + X_{47}X_{79}X_{98}X_{84} X_{56}X_{68}X_{84}X_{45} \end{array}$

- $(XXX) \quad -X_{1,10}X_{10,4}X_{41} + X_{2,10}X_{10,4}X_{42} + X_{6,10}X_{10,7}X_{76} X_{6,10}X_{10,8}X_{86} + X_{1,10}X_{10,8}X_{89}X_{91} X_{2,10}X_{10,7}X_{79}X_{92} + X_{13}X_{34}X_{41} X_{13}X_{39}X_{91} X_{23}X_{34}X_{42} + X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} + X_{45}X_{56}X_{64} X_{47}X_{76}X_{64} + X_{47}X_{79}X_{94} + X_{48}X_{86}X_{64} X_{48}X_{89}X_{94} + X_{53}X_{34}X_{45} X_{56}X_{64}X_{45}$
- $(XXXI) \quad -X_{1,10}X_{10,2}X_{21} + X_{1,10}X_{10,8}X_{81} + X_{27}X_{7,10}X_{10,2} X_{7,10}X_{10,8}X_{87} X_{13}X_{32}X_{21} + X_{13}X_{35}X_{51} + X_{14}X_{42}X_{21} X_{14}X_{45}X_{51} + X_{19}X_{92}X_{21} X_{19}X_{98}X_{81} + X_{26}X_{63}X_{32} X_{26}X_{64}X_{42} X_{27}X_{79}X_{92} X_{35}X_{56}X_{63} + X_{45}X_{56}X_{64} + X_{79}X_{98}X_{87} + X_{56}X_{68}X_{87}X_{75} X_{68}X_{87}X_{75}X_{56}$
- $(XXXII) \quad -X_{1,10}X_{10,4}X_{41} + X_{1,10}X_{10,9}X_{91} + X_{2,10}X_{10,4}X_{42} X_{2,10}X_{10,9}X_{92} + X_{6,10}X_{10,9}X_{97}X_{76} X_{6,10}X_{10,9}X_{98}X_{86} + X_{13}X_{34}X_{41} X_{13}X_{39}X_{91} X_{23}X_{34}X_{42} + X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} + X_{45}X_{57}X_{74} X_{49}X_{97}X_{74} + X_{49}X_{98}X_{84} + X_{53}X_{34}X_{45} X_{57}X_{76}X_{65} X_{58}X_{84}X_{45} + X_{58}X_{86}X_{65}$
- $(XXXIII) -X_{1,10}X_{10,4}X_{41} + X_{1,10}X_{10,9}X_{91} + X_{2,10}X_{10,4}X_{42} X_{2,10}X_{10,9}X_{92} X_{67}X_{7,10}X_{10,6} + \\ X_{68}X_{8,10}X_{10,6} + X_{7,10}X_{10,9}X_{97} X_{8,10}X_{10,9}X_{98} + X_{13}X_{34}X_{41} X_{13}X_{39}X_{91} X_{23}X_{34}X_{42} + \\ X_{23}X_{39}X_{92} X_{34}X_{45}X_{53} X_{49}X_{97}X_{74} + X_{49}X_{98}X_{84} + X_{53}X_{34}X_{45} + X_{45}X_{56}X_{67}X_{74} \\ X_{56}X_{68}X_{84}X_{45}$

### 1.39 $L^{5,6,1}$

 $\begin{array}{l} \text{(I)} \quad -X_{12}X_{2,11}X_{11,1} - X_{1,10}X_{10,2}X_{21} + X_{89}X_{9,10}X_{10,8} + X_{8,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} + \\ X_{2,11}X_{11,10}X_{10,2} - X_{8,11}X_{11,10}X_{10,8} - X_{9,10}X_{10,11}X_{11,9} + X_{12}X_{23}X_{31} + X_{14}X_{42}X_{21} - \\ X_{14}X_{43}X_{31} + X_{35}X_{57}X_{73} - X_{36}X_{67}X_{73} - X_{57}X_{76}X_{65} + X_{67}X_{79}X_{96} + X_{68}X_{87}X_{76} - \\ X_{68}X_{89}X_{96} - X_{79}X_{98}X_{87} - X_{23}X_{35}X_{54}X_{42} + X_{36}X_{65}X_{54}X_{43} \end{array}$ 

### 1.40 $K^{2,5,1,4}$

- $\begin{array}{l} \text{(I)} \quad -X_{1,10}X_{10,9}X_{91} + X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + X_{12}X_{2,11}X_{11,9}X_{91} X_{13}X_{32}X_{2,11}X_{11,1} \\ X_{57}X_{7,10}X_{10,8}X_{85} + X_{1,10}X_{10,11}X_{11,1} X_{9,10}X_{10,11}X_{11,9} X_{12}X_{24}X_{41} + X_{13}X_{34}X_{41} + \\ X_{24}X_{43}X_{32} X_{34}X_{46}X_{63} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54} X_{68}X_{89}X_{97}X_{76} \end{array}$
- $(\mathrm{II}) \ -X_{13}X_{3,11}X_{11,1} X_{1,10}X_{10,9}X_{91} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{23}X_{3,11}X_{11,2} + \\ X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} X_{57}X_{7,10}X_{10,8}X_{85} + X_{1,10}X_{10,11}X_{11,1} X_{9,10}X_{10,11}X_{11,9} \\ X_{34}X_{46}X_{63} + X_{13}X_{34}X_{42}X_{21} X_{23}X_{35}X_{54}X_{42} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54} \\ X_{68}X_{89}X_{97}X_{76}$
- $(\mathrm{III}) \ -X_{13}X_{3,11}X_{11,1} X_{1,10}X_{10,9}X_{91} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{23}X_{3,11}X_{11,2} + \\ X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} X_{45}X_{57}X_{7,10}X_{10,8}X_{84} + X_{1,10}X_{10,11}X_{11,1} X_{9,10}X_{10,11}X_{11,9} \\ X_{23}X_{35}X_{52} + X_{24}X_{45}X_{52} X_{24}X_{46}X_{62} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} X_{78}X_{89}X_{97} + \\ X_{13}X_{36}X_{62}X_{21} + X_{46}X_{67}X_{78}X_{84}$
- $\begin{array}{l} \text{(IV)} \ \ -X_{13}X_{3,11}X_{11,1} X_{1,10}X_{10,9}X_{91} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{23}X_{3,11}X_{11,2} + \\ X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} X_{57}X_{7,10}X_{10,8}X_{86}X_{65} + X_{1,10}X_{10,11}X_{11,1} X_{9,10}X_{10,11}X_{11,9} + \\ X_{13}X_{32}X_{21} X_{23}X_{35}X_{52} X_{24}X_{43}X_{32} X_{46}X_{67}X_{74} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} + \\ X_{24}X_{46}X_{65}X_{52} + X_{35}X_{57}X_{74}X_{43} \end{array}$

- $\begin{array}{l} (\mathrm{V}) \ -X_{13}X_{3,11}X_{11,1} X_{1,10}X_{10,9}X_{91} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{23}X_{3,11}X_{11,2} \\ X_{57}X_{7,10}X_{10,5} + X_{58}X_{8,10}X_{10,5} + X_{7,10}X_{10,9}X_{97} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} \\ X_{34}X_{46}X_{63} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86} + X_{13}X_{34}X_{42}X_{21} \\ X_{23}X_{35}X_{54}X_{42} + X_{35}X_{57}X_{76}X_{63} \end{array}$
- $\begin{array}{l} (\text{VI}) \ \ X_{1,11}X_{11,2}X_{21} X_{29}X_{9,11}X_{11,2} + X_{7,10}X_{10,9}X_{97} X_{1,11}X_{11,10}X_{10,9}X_{91} X_{57}X_{7,10}X_{10,8}X_{85} + \\ X_{89}X_{9,11}X_{11,10}X_{10,8} X_{12}X_{24}X_{41} + X_{12}X_{29}X_{91} X_{13}X_{32}X_{21} + X_{24}X_{43}X_{32} X_{35}X_{54}X_{43} + \\ X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} + X_{48}X_{85}X_{54} X_{48}X_{86}X_{64} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} + \\ X_{13}X_{36}X_{64}X_{41} \end{array}$
- $\begin{array}{l} (\mathrm{VII}) \ -X_{13}X_{3,11}X_{11,1} X_{1,10}X_{10,9}X_{91} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{23}X_{3,11}X_{11,2} \\ X_{7,10}X_{10,8}X_{87} + X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + X_{1,10}X_{10,11}X_{11,1} X_{9,10}X_{10,11}X_{11,9} \\ X_{23}X_{34}X_{42} X_{34}X_{46}X_{63} X_{37}X_{75}X_{53} + X_{37}X_{76}X_{63} + X_{45}X_{53}X_{34} X_{45}X_{58}X_{84} + \\ X_{46}X_{68}X_{84} + X_{58}X_{87}X_{75} + X_{13}X_{34}X_{42}X_{21} X_{68}X_{89}X_{97}X_{76} \end{array}$

### **1.41** $K^{4,4,2,4}$

- (I)  $X_{12}X_{2,11}X_{11,9}X_{91} X_{14}X_{42}X_{2,11}X_{11,1} X_{1,10}X_{10,7}X_{79}X_{91} + X_{58}X_{8,10}X_{10,7}X_{75} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} X_{12}X_{23}X_{31} + X_{14}X_{45}X_{53}X_{31} + X_{23}X_{36}X_{64}X_{42} X_{36}X_{67}X_{75}X_{53} X_{45}X_{58}X_{86}X_{64} + X_{67}X_{79}X_{98}X_{86}$
- (II)  $X_{1,11}X_{11,2}X_{21} X_{29}X_{9,11}X_{11,2} X_{8,10}X_{10,9}X_{98} + X_{58}X_{8,10}X_{10,7}X_{75} X_{1,11}X_{11,10}X_{10,7}X_{79}X_{91} + X_{9,11}X_{11,10}X_{10,9} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{45}X_{53}X_{31} + X_{23}X_{36}X_{64}X_{42} X_{36}X_{67}X_{75}X_{53} X_{45}X_{58}X_{86}X_{64} + X_{67}X_{79}X_{98}X_{86}$
- (III)  $X_{1,11}X_{11,2}X_{21} X_{7,10}X_{10,8}X_{87} X_{1,11}X_{11,7}X_{79}X_{91} X_{29}X_{9,10}X_{10,11}X_{11,2} + X_{67}X_{79}X_{9,10}X_{10,8}X_{86} + X_{7,10}X_{10,11}X_{11,7} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{58}X_{87}X_{75} + X_{14}X_{45}X_{53}X_{31} + X_{23}X_{36}X_{64}X_{42} X_{36}X_{67}X_{75}X_{53} X_{45}X_{58}X_{86}X_{64}$
- $\begin{array}{l} \text{(IV)} \ \ X_{17}X_{7,10}X_{10,1} X_{29}X_{9,11}X_{11,2} X_{14}X_{42}X_{2,10}X_{10,1} X_{7,10}X_{10,11}X_{11,8}X_{87} + X_{67}X_{79}X_{9,11}X_{11,8}X_{86} + \\ \ \ X_{2,10}X_{10,11}X_{11,2} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{17}X_{79}X_{91} + X_{58}X_{87}X_{75} + X_{14}X_{45}X_{53}X_{31} + \\ \ \ X_{23}X_{36}X_{64}X_{42} X_{36}X_{67}X_{75}X_{53} X_{45}X_{58}X_{86}X_{64} \end{array}$
- $(V) \ \ X_{17}X_{7,10}X_{10,1} X_{29}X_{9,11}X_{11,2} X_{14}X_{42}X_{2,10}X_{10,1} X_{57}X_{7,10}X_{10,11}X_{11,8}X_{85} + X_{67}X_{79}X_{9,11}X_{11,8}X_{86} + X_{2,10}X_{10,11}X_{11,2} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{14}X_{43}X_{31} X_{17}X_{79}X_{91} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} + X_{48}X_{85}X_{54} X_{48}X_{86}X_{64} + X_{23}X_{36}X_{64}X_{42}$
- $\begin{array}{l} (\mathrm{VI}) \ -X_{19}X_{9,11}X_{11,1} X_{7,10}X_{10,8}X_{87} X_{12}X_{2,11}X_{11,10}X_{10,1} + X_{13}X_{32}X_{2,11}X_{11,1} + X_{19}X_{97}X_{7,10}X_{10,1} + \\ X_{89}X_{9,11}X_{11,10}X_{10,8} + X_{12}X_{24}X_{41} + X_{35}X_{56}X_{63} + X_{46}X_{65}X_{54} X_{56}X_{67}X_{75} X_{58}X_{86}X_{65} + \\ X_{58}X_{87}X_{75} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} X_{13}X_{35}X_{54}X_{41} X_{24}X_{46}X_{63}X_{32} \end{array}$
- $\begin{array}{lll} (\mathrm{VII}) & -X_{14}X_{4,11}X_{11,1} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{24}X_{4,11}X_{11,2} + X_{78}X_{8,10}X_{10,7} \\ & X_{1,10}X_{10,7}X_{79}X_{91} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} X_{35}X_{54}X_{43} X_{57}X_{78}X_{85} \\ & X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87} + X_{14}X_{43}X_{32}X_{21} X_{24}X_{46}X_{63}X_{32} + X_{35}X_{57}X_{76}X_{63} + \\ & X_{46}X_{68}X_{85}X_{54} \end{array}$

- - $\begin{array}{ll} \text{(IX)} & X_{1,11}X_{11,2}X_{21} X_{57}X_{7,10}X_{10,5} + X_{58}X_{8,10}X_{10,5} X_{68}X_{8,10}X_{10,6} X_{1,11}X_{11,7}X_{79}X_{91} \\ & X_{29}X_{9,10}X_{10,11}X_{11,2} + X_{67}X_{79}X_{9,10}X_{10,6} + X_{7,10}X_{10,11}X_{11,7} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} \\ & X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} X_{35}X_{58}X_{84}X_{43} + X_{23}X_{36}X_{68}X_{84}X_{42} \end{array}$
  - $(X) \ X_{1,11}X_{11,2}X_{21} X_{1,11}X_{11,7}X_{79}X_{91} X_{29}X_{9,10}X_{10,11}X_{11,2} X_{57}X_{7,10}X_{10,8}X_{85} + X_{67}X_{79}X_{9,10}X_{10,8}X_{86} + X_{7,10}X_{10,11}X_{11,7} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} + X_{48}X_{85}X_{54} X_{48}X_{86}X_{64} + X_{23}X_{36}X_{64}X_{42}$
  - $(XI) \ X_{78}X_{8,10}X_{10,7} + X_{12}X_{2,11}X_{11,9}X_{91} X_{14}X_{42}X_{2,11}X_{11,1} X_{1,10}X_{10,7}X_{79}X_{91} X_{8,10}X_{10,11}X_{11,9}X_{98} + \\ X_{1,10}X_{10,11}X_{11,1} X_{12}X_{23}X_{31} + X_{14}X_{43}X_{31} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} + \\ X_{48}X_{85}X_{54} X_{48}X_{86}X_{64} X_{57}X_{78}X_{85} + X_{23}X_{36}X_{64}X_{42} + X_{67}X_{79}X_{98}X_{86}$
- $(XII) \ \ X_{17}X_{7,10}X_{10,1} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} X_{7,10}X_{10,8}X_{87} X_{8,11}X_{11,9}X_{98} \\ X_{14}X_{4,11}X_{11,10}X_{10,1} + X_{23}X_{34}X_{4,11}X_{11,2} + X_{8,11}X_{11,10}X_{10,8} X_{17}X_{79}X_{91} X_{23}X_{35}X_{52} + \\ X_{35}X_{56}X_{63} X_{56}X_{67}X_{75} + X_{58}X_{87}X_{75} + X_{14}X_{45}X_{52}X_{21} + X_{67}X_{79}X_{98}X_{86} X_{34}X_{45}X_{58}X_{86}X_{63} \\$
- (XIII)  $X_{12}X_{2,11}X_{11,9}X_{91} X_{14}X_{42}X_{2,11}X_{11,1} X_{1,10}X_{10,7}X_{79}X_{91} + X_{58}X_{8,10}X_{10,7}X_{75} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} X_{12}X_{23}X_{31} + X_{23}X_{34}X_{42} X_{34}X_{46}X_{63} X_{37}X_{75}X_{53} + X_{37}X_{76}X_{63} X_{45}X_{58}X_{84} + X_{46}X_{68}X_{84} X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87} + X_{14}X_{45}X_{53}X_{31}$
- $({\rm XIV}) \ -X_{7,10}X_{10,8}X_{87} + X_{1,11}X_{11,2}X_{24}X_{41} X_{1,11}X_{11,7}X_{79}X_{91} X_{29}X_{9,10}X_{10,11}X_{11,2} + \\ X_{67}X_{79}X_{9,10}X_{10,8}X_{86} + X_{7,10}X_{10,11}X_{11,7} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{15}X_{53}X_{31} \\ X_{15}X_{54}X_{41} + X_{23}X_{36}X_{62} X_{24}X_{46}X_{62} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} \\ X_{36}X_{67}X_{75}X_{53}$
- $(XV) -X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{23}X_{3,11}X_{11,2} X_{3,11}X_{11,4}X_{43} X_{1,10}X_{10,7}X_{79}X_{91} + X_{1,10}X_{10,11}X_{11,4}X_{41} + X_{58}X_{8,10}X_{10,7}X_{75} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{15}X_{52}X_{21} X_{15}X_{54}X_{41} X_{23}X_{35}X_{52} + X_{35}X_{56}X_{63} + X_{43}X_{35}X_{54} X_{56}X_{67}X_{75} X_{58}X_{86}X_{63}X_{35} + X_{67}X_{79}X_{98}X_{86}$
- $(XVI) \ X_{1,11}X_{11,2}X_{21} X_{29}X_{9,11}X_{11,2} + X_{78}X_{8,10}X_{10,7} X_{8,10}X_{10,9}X_{98} X_{1,11}X_{11,10}X_{10,7}X_{79}X_{91} + X_{9,11}X_{11,10}X_{10,9} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} + X_{23}X_{34}X_{42} X_{34}X_{46}X_{63} X_{35}X_{54}X_{43} X_{57}X_{78}X_{85} X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87} + X_{35}X_{57}X_{76}X_{63} + X_{46}X_{68}X_{85}X_{54}$
- $\begin{array}{l} ({\rm XVII}) \ \ X_{1,11}X_{11,2}X_{21} X_{29}X_{9,11}X_{11,2} X_{8,10}X_{10,9}X_{98} + X_{58}X_{8,10}X_{10,7}X_{75} X_{1,11}X_{11,10}X_{10,7}X_{79}X_{91} + \\ X_{9,11}X_{11,10}X_{10,9} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{23}X_{34}X_{42} X_{34}X_{46}X_{63} \\ X_{37}X_{75}X_{53} + X_{37}X_{76}X_{63} X_{45}X_{58}X_{84} + X_{46}X_{68}X_{84} X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87} + \\ X_{14}X_{45}X_{53}X_{31} \end{array}$
- $(XVIII) \ X_{1,11}X_{11,2}X_{21} X_{29}X_{9,11}X_{11,2} + X_{78}X_{8,10}X_{10,7} X_{8,10}X_{10,9}X_{98} X_{1,11}X_{11,10}X_{10,7}X_{79}X_{91} + X_{9,11}X_{11,10}X_{10,9} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{14}X_{42}X_{21} + X_{14}X_{43}X_{31} X_{35}X_{54}X_{43} + X_{35}X_{57}X_{73} X_{36}X_{67}X_{73} + X_{48}X_{85}X_{54} X_{48}X_{86}X_{64} X_{57}X_{78}X_{85} + X_{23}X_{36}X_{64}X_{42} + X_{67}X_{79}X_{98}X_{86}$

- $(XIX) \ X_{12}X_{2,11}X_{11,1} X_{19}X_{9,11}X_{11,1} X_{7,10}X_{10,8}X_{87} + X_{19}X_{97}X_{7,10}X_{10,1} X_{2,11}X_{11,10}X_{10,1}X_{12} + X_{89}X_{9,11}X_{11,10}X_{10,8} X_{12}X_{23}X_{31} + X_{15}X_{53}X_{31} X_{15}X_{54}X_{41} + X_{23}X_{36}X_{62} + X_{24}X_{41}X_{12} X_{24}X_{46}X_{62} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} X_{36}X_{67}X_{75}X_{53}$
- $(XX) \quad -X_{14}X_{4,11}X_{11,1} X_{1,11}X_{11,2}X_{21} + X_{1,11}X_{11,9}X_{91} + X_{24}X_{4,11}X_{11,2} + X_{78}X_{8,10}X_{10,7} \\ X_{1,10}X_{10,7}X_{79}X_{91} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} X_{24}X_{43}X_{32} X_{35}X_{54}X_{43} + \\ X_{35}X_{57}X_{73} + X_{36}X_{64}X_{43} X_{36}X_{67}X_{73} + X_{48}X_{85}X_{54} X_{48}X_{86}X_{64} X_{57}X_{78}X_{85} + \\ X_{14}X_{43}X_{32}X_{21} + X_{67}X_{79}X_{98}X_{86}$
- $(XXI) \ \ X_{12}X_{2,11}X_{11,1} X_{19}X_{9,11}X_{11,1} X_{1,10}X_{10,7}X_{71} + X_{89}X_{9,11}X_{11,8} X_{14}X_{42}X_{2,11}X_{11,1} + \\ X_{58}X_{8,10}X_{10,7}X_{75} + X_{1,10}X_{10,11}X_{11,1} X_{8,10}X_{10,11}X_{11,8} X_{12}X_{23}X_{31} + X_{19}X_{97}X_{71} + \\ X_{23}X_{34}X_{42} X_{34}X_{46}X_{63} X_{37}X_{75}X_{53} + X_{37}X_{76}X_{63} X_{45}X_{58}X_{84} + X_{46}X_{68}X_{84} + \\ X_{14}X_{45}X_{53}X_{31} X_{68}X_{89}X_{97}X_{76}$
- $(XXII) \ \ X_{17}X_{7,10}X_{10,1} X_{29}X_{9,11}X_{11,2} X_{2,10}X_{10,1}X_{12} X_{7,10}X_{10,11}X_{11,8}X_{87} + X_{67}X_{79}X_{9,11}X_{11,8}X_{86} + \\ \ \ X_{2,10}X_{10,11}X_{11,2} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} + X_{15}X_{53}X_{31} X_{15}X_{54}X_{41} X_{17}X_{79}X_{91} + \\ \ \ \ X_{23}X_{36}X_{62} + X_{24}X_{41}X_{12} X_{24}X_{46}X_{62} + X_{46}X_{65}X_{54} X_{58}X_{86}X_{65} + X_{58}X_{87}X_{75} \\ \ \ \ \ X_{36}X_{67}X_{75}X_{53}$
- $(XXIII) \ X_{17}X_{7,10}X_{10,1} X_{29}X_{9,11}X_{11,2} X_{14}X_{42}X_{2,10}X_{10,1} + X_{79}X_{9,11}X_{11,8}X_{87} X_{7,10}X_{10,11}X_{11,8}X_{87} + X_{2,10}X_{10,11}X_{11,2} X_{12}X_{23}X_{31} + X_{12}X_{29}X_{91} X_{17}X_{79}X_{91} + X_{23}X_{34}X_{42} X_{34}X_{46}X_{63} X_{37}X_{75}X_{53} + X_{37}X_{76}X_{63} X_{45}X_{58}X_{84} + X_{46}X_{68}X_{84} + X_{58}X_{87}X_{75} X_{68}X_{87}X_{76} + X_{14}X_{45}X_{53}X_{31}$
- $(XXIV) \ \ X_{12}X_{2,11}X_{11,1} X_{19}X_{9,11}X_{11,1} X_{1,10}X_{10,7}X_{71} X_{2,11}X_{11,1}X_{12} + X_{89}X_{9,11}X_{11,8} + \\ X_{58}X_{8,10}X_{10,7}X_{75} + X_{1,10}X_{10,11}X_{11,1} X_{8,10}X_{10,11}X_{11,8} X_{12}X_{23}X_{31} + X_{15}X_{53}X_{31} \\ X_{15}X_{54}X_{41} + X_{19}X_{97}X_{71} + X_{23}X_{36}X_{62} + X_{24}X_{41}X_{12} X_{24}X_{46}X_{62} + X_{46}X_{65}X_{54} \\ X_{58}X_{86}X_{65} + X_{67}X_{78}X_{86} X_{78}X_{89}X_{97} X_{36}X_{67}X_{75}X_{53}$
- $(XXV) \quad -X_{1,10}X_{10,9}X_{91} X_{2,11}X_{11,1}X_{12} X_{57}X_{7,10}X_{10,5} + X_{58}X_{8,10}X_{10,5} + X_{7,10}X_{10,9}X_{97} + \\ X_{12}X_{2,11}X_{11,9}X_{91} X_{8,10}X_{10,11}X_{11,9}X_{98} + X_{1,10}X_{10,11}X_{11,1} X_{12}X_{23}X_{31} + X_{15}X_{53}X_{31} \\ X_{15}X_{54}X_{41} + X_{23}X_{36}X_{62} + X_{24}X_{41}X_{12} X_{24}X_{46}X_{62} X_{36}X_{65}X_{53} + X_{46}X_{65}X_{54} + \\ X_{57}X_{76}X_{65} X_{58}X_{86}X_{65} X_{69}X_{97}X_{76} + X_{69}X_{98}X_{86}$ 
  - **1.42**  $\mathbb{C}^3/(\mathbb{Z}_2 \times \mathbb{Z}_6)$  (1,0,1)(1,0,5)
    - $(I) \ \ X_{12}X_{2,10}X_{10,1} X_{19}X_{9,10}X_{10,1} X_{2,10}X_{10,9}X_{92} X_{34}X_{4,10}X_{10,3} + X_{39}X_{9,10}X_{10,3} + \\ X_{4,10}X_{10,9}X_{94} X_{56}X_{6,11}X_{11,5} X_{5,12}X_{12,6}X_{65} + X_{78}X_{8,11}X_{11,7} + X_{7,12}X_{12,8}X_{87} + \\ X_{5,12}X_{12,11}X_{11,5} + X_{6,11}X_{11,12}X_{12,6} X_{7,12}X_{12,11}X_{11,7} X_{8,11}X_{11,12}X_{12,8} X_{12}X_{25}X_{51} \\ X_{16}X_{62}X_{21} + X_{16}X_{65}X_{51} + X_{19}X_{92}X_{21} + X_{25}X_{56}X_{62} + X_{34}X_{48}X_{83} + X_{37}X_{74}X_{43} \\ X_{37}X_{78}X_{83} X_{39}X_{94}X_{43} X_{48}X_{87}X_{74}$
  - **1.43** SPP/( $\mathbb{Z}_2 \times \mathbb{Z}_2$ ) (1,0,0,1)(0,1,1,0)
    - (I)  $X_{7,10}X_{10,8}X_{87} X_{14}X_{42}X_{2,11}X_{11,1} X_{1,12}X_{12,2}X_{23}X_{31} X_{7,10}X_{10,11}X_{11,9}X_{97} X_{89}X_{9,12}X_{12,10}X_{10,8} + X_{1,12}X_{12,10}X_{10,11}X_{11,1} + X_{2,11}X_{11,9}X_{9,12}X_{12,2} X_{35}X_{56}X_{63} X_{46}X_{65}X_{54} + X_{56}X_{67}X_{75} + X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{67}X_{78}X_{86} + X_{78}X_{89}X_{97} + X_{14}X_{46}X_{63}X_{31} + X_{23}X_{35}X_{54}X_{42}$

- (II)  $-X_{12}X_{2,11}X_{11,1} X_{1,12}X_{12,2}X_{21} + X_{7,10}X_{10,8}X_{87} X_{7,10}X_{10,11}X_{11,9}X_{97} X_{89}X_{9,12}X_{12,10}X_{10,8} + X_{1,12}X_{12,10}X_{10,11}X_{11,1} + X_{2,11}X_{11,9}X_{9,12}X_{12,2} + X_{12}X_{24}X_{41} + X_{13}X_{32}X_{21} X_{58}X_{87}X_{75} X_{67}X_{78}X_{86} + X_{78}X_{89}X_{97} X_{13}X_{36}X_{64}X_{41} X_{24}X_{45}X_{53}X_{32} + X_{36}X_{67}X_{75}X_{53} + X_{45}X_{58}X_{86}X_{64}$
- $(\text{III}) \ -X_{12}X_{2,11}X_{11,1} + X_{7,10}X_{10,8}X_{87} X_{1,12}X_{12,2}X_{23}X_{31} X_{7,10}X_{10,11}X_{11,9}X_{97} X_{89}X_{9,12}X_{12,10}X_{10,8} + \\ X_{1,12}X_{12,10}X_{10,11}X_{11,1} + X_{2,11}X_{11,9}X_{9,12}X_{12,2} + X_{12}X_{24}X_{41} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} + \\ X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} X_{35}X_{56}X_{63} + X_{56}X_{67}X_{75} X_{58}X_{87}X_{75} X_{67}X_{78}X_{86} + \\ X_{78}X_{89}X_{97} + X_{45}X_{58}X_{86}X_{64}$
- $\begin{array}{l} \text{(IV)} \ \ X_{7,10}X_{10,8}X_{87} + X_{13}X_{32}X_{2,12}X_{12,1} + X_{1,11}X_{11,2}X_{24}X_{41} X_{7,10}X_{10,11}X_{11,9}X_{97} X_{89}X_{9,12}X_{12,10}X_{10,8} \\ X_{1,11}X_{11,12}X_{12,1} X_{2,12}X_{12,11}X_{11,2} + X_{9,12}X_{12,11}X_{11,9} + X_{10,11}X_{11,12}X_{12,10} X_{13}X_{34}X_{41} \\ X_{24}X_{43}X_{32} + X_{34}X_{46}X_{63} + X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} X_{46}X_{65}X_{54} + X_{56}X_{67}X_{75} + \\ X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{67}X_{78}X_{86} + X_{78}X_{89}X_{97} \end{array}$
- $\begin{array}{l} (\mathrm{V}) \ \ -X_{29}X_{9,11}X_{11,2} + X_{29}X_{9,12}X_{12,2} + X_{7,10}X_{10,8}X_{87} X_{7,10}X_{10,9}X_{97} + X_{1,11}X_{11,2}X_{24}X_{41} \\ X_{1,12}X_{12,2}X_{23}X_{31} \ \ -X_{89}X_{9,12}X_{12,10}X_{10,8} \ -X_{1,11}X_{11,10}X_{10,1} \ + X_{1,12}X_{12,10}X_{10,1} \ + \\ X_{9,11}X_{11,10}X_{10,9} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} X_{35}X_{56}X_{63} + \\ X_{56}X_{67}X_{75} \ -X_{58}X_{87}X_{75} \ -X_{67}X_{78}X_{86} \ +X_{78}X_{89}X_{97} \ +X_{45}X_{58}X_{86}X_{64} \end{array}$
- $\begin{array}{l} (\mathrm{VI}) \ \ X_{13}X_{3,12}X_{12,1} + X_{1,11}X_{11,4}X_{41} X_{23}X_{3,12}X_{12,2} X_{2,11}X_{11,4}X_{42} + X_{7,10}X_{10,8}X_{87} \\ X_{7,10}X_{10,11}X_{11,9}X_{97} X_{89}X_{9,12}X_{12,10}X_{10,8} X_{1,11}X_{11,12}X_{12,1} + X_{10,11}X_{11,12}X_{12,10} + \\ X_{2,11}X_{11,9}X_{9,12}X_{12,2} X_{13}X_{34}X_{41} + X_{34}X_{46}X_{63} X_{35}X_{56}X_{63} X_{46}X_{65}X_{54} + X_{56}X_{67}X_{75} + \\ X_{58}X_{86}X_{65} X_{58}X_{87}X_{75} X_{67}X_{78}X_{86} + X_{78}X_{89}X_{97} + X_{23}X_{35}X_{54}X_{42} \end{array}$
- $\begin{array}{l} (\mathrm{VII}) \ \ -X_{12}X_{2,11}X_{11,1} X_{7,11}X_{11,9}X_{97} X_{89}X_{9,12}X_{12,8} X_{1,12}X_{12,2}X_{23}X_{31} X_{58}X_{8,10}X_{10,7}X_{75} + \\ X_{1,12}X_{12,11}X_{11,1} + X_{7,11}X_{11,10}X_{10,7} + X_{8,10}X_{10,12}X_{12,8} X_{10,12}X_{12,11}X_{11,10} + X_{2,11}X_{11,9}X_{9,12}X_{12,2} + \\ X_{12}X_{24}X_{41} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} X_{35}X_{56}X_{63} + \\ X_{56}X_{67}X_{75} X_{67}X_{78}X_{86} + X_{78}X_{89}X_{97} + X_{45}X_{58}X_{86}X_{64} \end{array}$
- $\begin{array}{l} (\text{VIII}) \ \ -X_{12}X_{2,11}X_{11,1} + X_{2,11}X_{11,9}X_{92} + X_{2,12}X_{12,1}X_{12} X_{2,12}X_{12,9}X_{92} + X_{7,10}X_{10,8}X_{87} \\ X_{89}X_{9,10}X_{10,8} X_{7,10}X_{10,11}X_{11,9}X_{97} + X_{1,10}X_{10,11}X_{11,1} X_{1,10}X_{10,12}X_{12,1} + X_{9,10}X_{10,12}X_{12,9} + \\ X_{12}X_{24}X_{41} + X_{16}X_{63}X_{31} X_{16}X_{64}X_{41} X_{23}X_{31}X_{12} + X_{23}X_{35}X_{52} X_{24}X_{45}X_{52} \\ X_{35}X_{56}X_{63} + X_{56}X_{67}X_{75} X_{58}X_{87}X_{75} X_{67}X_{78}X_{86} + X_{78}X_{89}X_{97} + X_{45}X_{58}X_{86}X_{64} \end{array}$
- **1.44**  $L^{1,5,1}/\mathbb{Z}_2$  (1,0,0,1)
  - $\begin{array}{ll} \text{(I)} & X_{7,10}X_{10,8}X_{87} X_{7,10}X_{10,9}X_{97} X_{89}X_{9,10}X_{10,8} + X_{14}X_{42}X_{2,11}X_{11,1} + X_{1,12}X_{12,2}X_{23}X_{31} + \\ & X_{9,10}X_{10,12}X_{12,9} + X_{9,11}X_{11,10}X_{10,9} X_{1,12}X_{12,9}X_{9,11}X_{11,1} X_{2,11}X_{11,10}X_{10,12}X_{12,2} \\ & X_{14}X_{43}X_{31} X_{23}X_{34}X_{42} + X_{34}X_{46}X_{63} + X_{35}X_{54}X_{43} X_{35}X_{56}X_{63} X_{46}X_{65}X_{54} + \\ & X_{56}X_{68}X_{85} + X_{57}X_{76}X_{65} X_{57}X_{78}X_{85} X_{68}X_{87}X_{76} + X_{78}X_{89}X_{97} \end{array}$
  - $\begin{array}{l} \text{(II)} \ \ -X_{13}X_{3,12}X_{12,1} X_{1,11}X_{11,4}X_{41} + X_{23}X_{3,12}X_{12,2} + X_{2,11}X_{11,4}X_{42} + X_{7,10}X_{10,8}X_{87} \\ X_{7,10}X_{10,9}X_{97} X_{89}X_{9,10}X_{10,8} + X_{1,11}X_{11,12}X_{12,1} + X_{9,10}X_{10,12}X_{12,9} + X_{9,11}X_{11,10}X_{10,9} \\ X_{9,11}X_{11,12}X_{12,9} X_{2,11}X_{11,10}X_{10,12}X_{12,2} X_{23}X_{34}X_{42} + X_{34}X_{46}X_{63} X_{35}X_{56}X_{63} \\ X_{46}X_{65}X_{54} + X_{56}X_{68}X_{85} + X_{57}X_{76}X_{65} X_{57}X_{78}X_{85} X_{68}X_{87}X_{76} + X_{78}X_{89}X_{97} + \\ X_{13}X_{35}X_{54}X_{41} \end{array}$

- **1.45**  $\mathcal{C}/(\mathbb{Z}_3 \times \mathbb{Z}_2)$  (1,0,0,2)(0,1,1,0)
  - (I)  $-X_{13}X_{34}X_{4,12}X_{12,1} X_{1,11}X_{11,4}X_{42}X_{21} + X_{58}X_{8,10}X_{10,7}X_{75} X_{79}X_{9,11}X_{11,10}X_{10,7} X_{8,10}X_{10,12}X_{12,9}X_{98} + X_{1,11}X_{11,10}X_{10,12}X_{12,1} + X_{4,12}X_{12,9}X_{9,11}X_{11,4} + X_{13}X_{35}X_{52}X_{21} + X_{26}X_{63}X_{34}X_{42} X_{26}X_{67}X_{75}X_{52} X_{35}X_{58}X_{86}X_{63} + X_{67}X_{79}X_{98}X_{86}$
  - (II)  $X_{12}X_{24}X_{4,11}X_{11,1} + X_{1,12}X_{12,4}X_{43}X_{31} + X_{58}X_{8,10}X_{10,7}X_{75} X_{79}X_{9,11}X_{11,10}X_{10,7} X_{8,10}X_{10,12}X_{12,9}X_{98} X_{1,12}X_{12,11}X_{11,1} X_{4,11}X_{11,12}X_{12,4} + X_{9,11}X_{11,12}X_{12,9} + X_{10,12}X_{12,11}X_{11,10} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} X_{24}X_{43}X_{32} + X_{26}X_{63}X_{32} X_{26}X_{67}X_{75}X_{52} X_{35}X_{58}X_{86}X_{63} + X_{67}X_{79}X_{98}X_{86}$
- $\begin{array}{ll} \text{(III)} & X_{12}X_{2,11}X_{11,1} + X_{1,12}X_{12,3}X_{31} X_{2,11}X_{11,4}X_{42} X_{34}X_{4,12}X_{12,3} + X_{58}X_{8,10}X_{10,7}X_{75} \\ & X_{79}X_{9,11}X_{11,10}X_{10,7} X_{8,10}X_{10,12}X_{12,9}X_{98} X_{1,12}X_{12,11}X_{11,1} + X_{10,12}X_{12,11}X_{11,10} + \\ & X_{4,12}X_{12,9}X_{9,11}X_{11,4} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} + X_{26}X_{63}X_{34}X_{42} X_{26}X_{67}X_{75}X_{52} \\ & X_{35}X_{58}X_{86}X_{63} + X_{67}X_{79}X_{98}X_{86} \end{array}$
- $\begin{array}{l} \text{(IV)} \ \ X_{12}X_{2,11}X_{11,1} + X_{1,12}X_{12,3}X_{31} X_{2,11}X_{11,4}X_{42} X_{34}X_{4,12}X_{12,3} X_{79}X_{9,11}X_{11,7} \\ X_{8,12}X_{12,9}X_{98} X_{57}X_{7,10}X_{10,8}X_{85} + X_{7,10}X_{10,11}X_{11,7} + X_{8,12}X_{12,10}X_{10,8} X_{1,12}X_{12,10}X_{10,11}X_{11,1} + \\ X_{4,12}X_{12,9}X_{9,11}X_{11,4} + X_{25}X_{57}X_{72} X_{26}X_{67}X_{72} + X_{38}X_{85}X_{53} X_{38}X_{86}X_{63} X_{12}X_{25}X_{53}X_{31} + \\ X_{26}X_{63}X_{34}X_{42} + X_{67}X_{79}X_{98}X_{86} \end{array}$
- $(V) \ \ X_{12}X_{24}X_{4,11}X_{11,1} + X_{1,12}X_{12,4}X_{43}X_{31} + X_{58}X_{8,10}X_{10,7}X_{75} X_{79}X_{9,11}X_{11,10}X_{10,7} \\ X_{8,10}X_{10,12}X_{12,9}X_{98} X_{1,12}X_{12,11}X_{11,1} X_{4,11}X_{11,12}X_{12,4} + X_{9,11}X_{11,12}X_{12,9} + X_{10,12}X_{12,11}X_{11,10} \\ X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} X_{27}X_{75}X_{52} + X_{27}X_{76}X_{62} X_{35}X_{58}X_{83} + X_{36}X_{68}X_{83} \\ X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87} X_{24}X_{43}X_{36}X_{62}$
- $\begin{array}{l} \text{(VI)} \ \ X_{12}X_{2,11}X_{11,1} + X_{1,12}X_{12,3}X_{31} X_{2,11}X_{11,4}X_{42} X_{34}X_{4,12}X_{12,3} + X_{78}X_{8,10}X_{10,7} \\ X_{79}X_{9,11}X_{11,10}X_{10,7} X_{8,10}X_{10,12}X_{12,9}X_{98} X_{1,12}X_{12,11}X_{11,1} + X_{10,12}X_{12,11}X_{11,10} + \\ X_{4,12}X_{12,9}X_{9,11}X_{11,4} + X_{25}X_{57}X_{72} X_{26}X_{67}X_{72} + X_{38}X_{85}X_{53} X_{38}X_{86}X_{63} X_{57}X_{78}X_{85} \\ X_{12}X_{25}X_{53}X_{31} + X_{26}X_{63}X_{34}X_{42} + X_{67}X_{79}X_{98}X_{86} \end{array}$
- $(\text{VII}) \ \ X_{7,10}X_{10,9}X_{97} + X_{89}X_{9,10}X_{10,8} + X_{12}X_{24}X_{4,11}X_{11,1} + X_{1,12}X_{12,4}X_{43}X_{31} X_{57}X_{7,10}X_{10,8}X_{85} X_{1,12}X_{12,11}X_{11,1} X_{4,11}X_{11,12}X_{12,4} X_{9,10}X_{10,12}X_{12,9} X_{9,11}X_{11,10}X_{10,9} + X_{9,11}X_{11,12}X_{12,9} + X_{10,12}X_{12,11}X_{11,10} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} X_{24}X_{43}X_{32} + X_{26}X_{63}X_{32} X_{26}X_{65}X_{52} X_{35}X_{56}X_{63} + X_{56}X_{68}X_{85} + X_{57}X_{76}X_{65} X_{68}X_{89}X_{97}X_{76}$
- $\begin{array}{lll} (\text{VIII}) & X_{5,10}X_{10,7}X_{75} X_{5,10}X_{10,8}X_{85} + X_{89}X_{9,10}X_{10,8} + X_{12}X_{24}X_{4,11}X_{11,1} + X_{1,12}X_{12,4}X_{43}X_{31} \\ & X_{79}X_{9,11}X_{11,10}X_{10,7} X_{1,12}X_{12,11}X_{11,1} X_{4,11}X_{11,12}X_{12,4} X_{9,10}X_{10,12}X_{12,9} + X_{9,11}X_{11,12}X_{12,9} + \\ & X_{10,12}X_{12,11}X_{11,10} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} X_{24}X_{43}X_{32} + X_{26}X_{63}X_{32} X_{35}X_{56}X_{63} + \\ & X_{56}X_{68}X_{85} + X_{67}X_{79}X_{96} X_{68}X_{89}X_{96} X_{26}X_{67}X_{75}X_{52} \end{array}$ 
  - $\begin{array}{l} \text{(IX)} \ \ X_{12}X_{2,11}X_{11,1} + X_{1,12}X_{12,3}X_{31} X_{2,11}X_{11,4}X_{42} X_{34}X_{4,12}X_{12,3} + X_{5,10}X_{10,7}X_{75} \\ X_{5,10}X_{10,8}X_{85} + X_{89}X_{9,10}X_{10,8} X_{79}X_{9,11}X_{11,10}X_{10,7} X_{1,12}X_{12,11}X_{11,1} X_{9,10}X_{10,12}X_{12,9} + \\ X_{10,12}X_{12,11}X_{11,10} + X_{4,12}X_{12,9}X_{9,11}X_{11,4} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} X_{35}X_{56}X_{63} + \\ X_{56}X_{68}X_{85} + X_{67}X_{79}X_{96} X_{68}X_{89}X_{96} + X_{26}X_{63}X_{34}X_{42} X_{26}X_{67}X_{75}X_{52} \end{array}$

- $(X) \ \ X_{12}X_{2,11}X_{11,1} + X_{1,12}X_{12,3}X_{31} X_{2,11}X_{11,4}X_{42} X_{34}X_{4,12}X_{12,3} + X_{58}X_{8,10}X_{10,7}X_{75} \\ X_{79}X_{9,11}X_{11,10}X_{10,7} X_{8,10}X_{10,12}X_{12,9}X_{98} X_{1,12}X_{12,11}X_{11,1} + X_{10,12}X_{12,11}X_{11,10} + \\ X_{4,12}X_{12,9}X_{9,11}X_{11,4} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} X_{27}X_{75}X_{52} + X_{27}X_{76}X_{62} + X_{34}X_{42}X_{23} \\ X_{35}X_{58}X_{83} X_{36}X_{62}X_{23} + X_{36}X_{68}X_{83} X_{68}X_{87}X_{76} + X_{79}X_{98}X_{87}$
- $\begin{array}{l} ({\rm XI}) \ \ X_{12}X_{2,11}X_{11,1} + X_{1,12}X_{12,3}X_{31} X_{2,11}X_{11,4}X_{42} X_{34}X_{4,12}X_{12,3} + X_{7,11}X_{11,9}X_{97} + \\ X_{89}X_{9,12}X_{12,8} + X_{58}X_{8,10}X_{10,7}X_{75} X_{1,12}X_{12,11}X_{11,1} + X_{4,12}X_{12,11}X_{11,4} X_{7,11}X_{11,10}X_{10,7} \\ X_{8,10}X_{10,12}X_{12,8} X_{9,12}X_{12,11}X_{11,9} + X_{10,12}X_{12,11}X_{11,10} X_{12}X_{23}X_{31} + X_{23}X_{35}X_{52} \\ X_{27}X_{75}X_{52} + X_{27}X_{76}X_{62} + X_{34}X_{42}X_{23} X_{35}X_{58}X_{83} X_{36}X_{62}X_{23} + X_{36}X_{68}X_{83} \\ X_{68}X_{89}X_{97}X_{76} \end{array}$

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# References