

\mathcal{O}_{11} -rational Points and Matrices for $d = 11$ case

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1 \mathcal{O}_{11} -rational point representatives

Below, $v = \sqrt{11}$, and $\tau = \frac{1+i\sqrt{11}}{2}$.

Depth	\mathcal{O}_{11} -Rational Points
1	$(0, 0)$
3	$(\frac{\tau}{3}, \frac{2}{3}v), (\frac{1}{3} + \frac{2}{3}\tau, \frac{5}{3}v)$
4	$(0, v)$
5	$(\frac{1}{5} + \frac{1}{5}\tau, \frac{3}{5}v), (\frac{2}{5} + \frac{2}{5}\tau, \frac{2}{5}v), (\frac{1}{5} + \frac{2}{5}\tau, \frac{1}{5}v), (\frac{3}{5} + \frac{1}{5}\tau, \frac{1}{5}v)$
9	$(0, \frac{2}{3}v), (0, \frac{4}{3}v), (\frac{\tau}{3}, \frac{1}{3}v), (\frac{\tau}{3}, v), (\frac{1}{3} + \frac{2}{3}\tau, \frac{1}{3}v), (\frac{1}{3} + \frac{2}{3}\tau, v), (\frac{1}{9} + \frac{5}{9}\tau, v), (\frac{2}{9} + \frac{1}{9}\tau, \frac{7}{9}v), (\frac{4}{9} + \frac{2}{9}\tau, \frac{10}{9}v),$ $(\frac{1}{3} + \frac{2}{9}\tau, \frac{5}{3}v), (\frac{1}{3} + \frac{5}{9}\tau, \frac{13}{9}v), (\frac{2}{3} + \frac{1}{9}\tau, \frac{1}{9}v)$
11	$(0, \frac{21}{11}v), 1 \leq j \leq 10$
12	$(\frac{\tau}{3}, \frac{2}{3}v), (\frac{2}{3} + \frac{1}{3}\tau, 0)$
15	$(\frac{1}{5} + \frac{1}{15}\tau, \frac{17}{15}v), (\frac{1}{5} + \frac{11}{15}\tau, \frac{3}{5}v), (\frac{2}{5} + \frac{2}{15}\tau, \frac{8}{15}v), (\frac{2}{5} + \frac{7}{15}\tau, v), (\frac{1}{15} + \frac{2}{15}\tau, \frac{7}{15}v), (\frac{2}{15} + \frac{4}{15}\tau, \frac{28}{15}v),$ $(\frac{4}{15} + \frac{8}{15}\tau, \frac{22}{15}v), (\frac{8}{15} + \frac{1}{15}\tau, \frac{1}{3}v), (\frac{1}{5} + \frac{8}{15}\tau, v), (\frac{2}{5} + \frac{1}{15}\tau, \frac{3}{5}v), (\frac{3}{5} + \frac{4}{15}\tau, \frac{13}{15}v), (\frac{4}{5} + \frac{2}{15}\tau, \frac{2}{5}v),$ $(\frac{1}{15} + \frac{11}{15}\tau, \frac{5}{3}v), (\frac{2}{15} + \frac{7}{15}\tau, \frac{23}{15}v), (\frac{7}{15} + \frac{2}{15}\tau, \frac{1}{3}v), (\frac{11}{15} + \frac{1}{15}\tau, \frac{9}{5}v)$
16	$(0, \frac{1}{2}v), (0, \frac{3}{2}v), (\frac{\tau}{2}, \frac{1}{4}v), (\frac{\tau}{2}, \frac{3}{4}v), (\frac{1}{2}, \frac{1}{4}v), (\frac{1}{2}, \frac{3}{4}v), (\frac{1}{2} + \frac{1}{2}\tau, \frac{1}{4}v), (\frac{1}{2} + \frac{1}{2}\tau, \frac{3}{4}v)$
20	$(\frac{1}{5} + \frac{1}{5}\tau, \frac{8}{5}v), (\frac{2}{5} + \frac{2}{5}\tau, \frac{7}{5}v), (\frac{1}{5} + \frac{2}{5}\tau, \frac{6}{5}v), (\frac{3}{5} + \frac{1}{5}\tau, \frac{6}{5}v)$
23	$(\frac{1}{23} + \frac{6}{23}\tau, \frac{25}{23}v), (\frac{2}{23} + \frac{12}{23}\tau, \frac{8}{23}v), (\frac{3}{23} + \frac{18}{23}\tau, \frac{41}{23}v), (\frac{4}{23} + \frac{1}{23}\tau, \frac{5}{23}v), (\frac{5}{23} + \frac{7}{23}\tau, \frac{45}{23}v), (\frac{6}{23} + \frac{13}{23}\tau, \frac{43}{23}v),$ $(\frac{7}{23} + \frac{2}{23}\tau, \frac{20}{23}v), (\frac{8}{23} + \frac{1}{23}\tau, \frac{23}{23}v), (\frac{9}{23} + \frac{13}{23}\tau, \frac{34}{23}v), (\frac{10}{23} + \frac{4}{23}\tau, \frac{34}{23}v), (\frac{11}{23} + \frac{9}{23}\tau, \frac{37}{23}v),$ $(\frac{12}{23} + \frac{18}{23}\tau, \frac{10}{23}v), (\frac{13}{23} + \frac{4}{23}\tau, \frac{31}{23}v), (\frac{14}{23} + \frac{13}{23}\tau, \frac{13}{23}v), (\frac{15}{23} + \frac{8}{23}\tau, \frac{32}{23}v), (\frac{16}{23} + \frac{3}{23}\tau, \frac{21}{23}v), (\frac{17}{23} + \frac{12}{23}\tau, \frac{3}{23}v),$ $(\frac{18}{23} + \frac{7}{23}\tau, \frac{17}{23}v), (\frac{19}{23} + \frac{2}{23}\tau, \frac{23}{23}v), (\frac{20}{23} + \frac{1}{23}\tau, \frac{23}{23}v), (\frac{21}{23} + \frac{1}{23}\tau, \frac{23}{23}v), (\frac{22}{23} + \frac{1}{23}\tau, \frac{23}{23}v)$
25	$(0, \frac{2}{5}v), (0, \frac{4}{5}v), (0, \frac{6}{5}v), (\frac{1}{5} + \frac{1}{5}\tau, \frac{1}{5}v), (\frac{1}{5} + \frac{1}{5}\tau, v), (\frac{1}{5} + \frac{1}{5}\tau, \frac{7}{5}v), (\frac{1}{5} + \frac{1}{5}\tau, \frac{9}{5}v), (\frac{2}{5} + \frac{2}{5}\tau, 0),$ $(\frac{2}{5} + \frac{2}{5}\tau, \frac{4}{5}v), (\frac{2}{5} + \frac{2}{5}\tau, \frac{6}{5}v), (\frac{2}{5} + \frac{2}{5}\tau, \frac{8}{5}v), (\frac{3}{5} + \frac{1}{5}\tau, v), (\frac{3}{5} + \frac{1}{5}\tau, \frac{7}{5}v), (\frac{3}{5} + \frac{1}{5}\tau, \frac{9}{5}v), (\frac{1}{5} + \frac{2}{5}\tau, v),$ $(\frac{1}{5} + \frac{2}{5}\tau, \frac{7}{5}v), (\frac{1}{5} + \frac{2}{5}\tau, \frac{9}{5}v), (\frac{2}{5} + \frac{22}{25}\tau, \frac{23}{25}v), (\frac{2}{5} + \frac{19}{25}\tau, \frac{3}{25}v), (\frac{3}{5} + \frac{16}{25}\tau, \frac{1}{25}v), (\frac{4}{25} + \frac{13}{25}\tau, \frac{31}{25}v),$ $(\frac{6}{25} + \frac{7}{25}\tau, \frac{23}{25}v), (\frac{8}{25} + \frac{1}{25}\tau, \frac{41}{25}v), (\frac{13}{25} + \frac{11}{25}\tau, \frac{19}{25}v), (\frac{14}{25} + \frac{8}{25}\tau, \frac{8}{25}v), (\frac{16}{25} + \frac{2}{25}\tau, \frac{14}{25}v), (\frac{1}{25} + \frac{11}{25}\tau, \frac{9}{25}v),$ $(\frac{2}{25} + \frac{22}{25}\tau, \frac{6}{25}v), (\frac{3}{25} + \frac{8}{25}\tau, \frac{27}{25}v), (\frac{4}{25} + \frac{19}{25}\tau, \frac{41}{25}v), (\frac{6}{25} + \frac{16}{25}\tau, \frac{8}{25}v), (\frac{7}{25} + \frac{2}{25}\tau, \frac{25}{25}v), (\frac{8}{25} + \frac{13}{25}\tau, \frac{31}{25}v),$ $(\frac{12}{25} + \frac{7}{25}\tau, \frac{9}{25}v), (\frac{14}{25} + \frac{4}{25}\tau, \frac{36}{25}v), (\frac{16}{25} + \frac{1}{25}\tau, \frac{33}{25}v)$
27	$(\frac{1}{9} + \frac{2}{27}\tau, \frac{47}{27}v), (\frac{1}{9} + \frac{11}{27}\tau, \frac{1}{9}v), (\frac{1}{9} + \frac{20}{27}\tau, \frac{49}{27}v), (\frac{2}{9} + \frac{4}{27}\tau, \frac{26}{27}v), (\frac{2}{9} + \frac{13}{27}\tau, \frac{1}{27}v), (\frac{4}{9} + \frac{8}{27}\tau, \frac{50}{27}v),$ $(\frac{5}{9} + \frac{1}{27}\tau, \frac{5}{3}v), (\frac{5}{9} + \frac{10}{27}\tau, \frac{41}{27}v), (\frac{7}{9} + \frac{5}{27}\tau, \frac{1}{27}v), (\frac{1}{3}, \frac{5}{9}v), (\frac{1}{3}, \frac{11}{9}v), (\frac{1}{3}, \frac{17}{9}v), (\frac{1}{3} + \frac{2}{9}\tau, \frac{1}{3}v),$ $(\frac{1}{3} + \frac{2}{9}\tau, v), (\frac{1}{3} + \frac{1}{3}\tau, \frac{1}{9}v), (\frac{1}{3} + \frac{1}{3}\tau, \frac{7}{9}v), (\frac{1}{3} + \frac{1}{3}\tau, \frac{13}{9}v), (\frac{1}{3} + \frac{5}{9}\tau, \frac{1}{9}v), (\frac{1}{3} + \frac{5}{9}\tau, \frac{7}{9}v),$ $(\frac{2}{3} + \frac{1}{9}\tau, \frac{7}{9}v), (\frac{2}{3} + \frac{1}{9}\tau, \frac{13}{9}v), (\frac{1}{27} + \frac{5}{27}\tau, \frac{7}{27}v), (\frac{2}{27} + \frac{10}{27}\tau, \frac{10}{27}v), (\frac{4}{27} + \frac{20}{27}\tau, \frac{4}{27}v), (\frac{7}{27} + \frac{8}{27}\tau, \frac{23}{27}v),$ $(\frac{8}{27} + \frac{13}{27}\tau, \frac{13}{27}v), (\frac{11}{27} + \frac{1}{27}\tau, \frac{35}{27}v), (\frac{13}{27} + \frac{11}{27}\tau, \frac{13}{27}v), (\frac{17}{27} + \frac{4}{27}\tau, \frac{17}{27}v), (\frac{22}{27} + \frac{2}{27}\tau, \frac{32}{27}v), (\frac{1}{9} + \frac{5}{9}\tau, \frac{1}{3}v),$ $(\frac{1}{9} + \frac{5}{9}\tau, \frac{5}{3}v), (\frac{2}{9} + \frac{1}{9}\tau, \frac{1}{9}v), (\frac{2}{9} + \frac{13}{9}\tau, \frac{1}{9}v), (\frac{1}{3}, \frac{1}{9}v), (\frac{1}{3}, \frac{7}{9}v), (\frac{1}{3}, \frac{13}{9}v), (\frac{1}{3} + \frac{1}{3}\tau, \frac{5}{9}v),$ $(\frac{1}{3} + \frac{1}{3}\tau, \frac{11}{9}v), (\frac{1}{3} + \frac{1}{3}\tau, \frac{17}{9}v), (\frac{4}{9} + \frac{2}{9}\tau, \frac{4}{9}v), (\frac{4}{9} + \frac{2}{9}\tau, \frac{16}{9}v)$
31	$(\frac{1}{31} + \frac{3}{31}\tau, \frac{49}{31}v), (\frac{2}{31} + \frac{6}{31}\tau, \frac{10}{31}v), (\frac{3}{31} + \frac{9}{31}\tau, \frac{7}{31}v), (\frac{4}{31} + \frac{12}{31}\tau, \frac{40}{31}v), (\frac{5}{31} + \frac{15}{31}\tau, \frac{47}{31}v), (\frac{6}{31} + \frac{18}{31}\tau, \frac{28}{31}v),$ $(\frac{7}{31} + \frac{21}{31}\tau, \frac{45}{31}v), (\frac{8}{31} + \frac{24}{31}\tau, \frac{33}{31}v), (\frac{9}{31} + \frac{27}{31}\tau, \frac{31}{31}v), (\frac{10}{31} + \frac{30}{31}\tau, \frac{13}{31}v), (\frac{11}{31} + \frac{33}{31}\tau, \frac{31}{31}v),$ $(\frac{12}{31} + \frac{36}{31}\tau, \frac{31}{31}v), (\frac{13}{31} + \frac{39}{31}\tau, \frac{9}{31}v), (\frac{14}{31} + \frac{42}{31}\tau, \frac{31}{31}v), (\frac{15}{31} + \frac{45}{31}\tau, \frac{31}{31}v), (\frac{16}{31} + \frac{48}{31}\tau, \frac{31}{31}v),$ $(\frac{17}{31} + \frac{51}{31}\tau, \frac{39}{31}v), (\frac{18}{31} + \frac{54}{31}\tau, \frac{19}{31}v), (\frac{19}{31} + \frac{57}{31}\tau, \frac{31}{31}v), (\frac{20}{31} + \frac{60}{31}\tau, \frac{31}{31}v), (\frac{21}{31} + \frac{63}{31}\tau, \frac{31}{31}v),$ $(\frac{22}{31} + \frac{66}{31}\tau, \frac{19}{31}v), (\frac{23}{31} + \frac{69}{31}\tau, \frac{13}{31}v), (\frac{24}{31} + \frac{72}{31}\tau, \frac{41}{31}v), (\frac{25}{31} + \frac{75}{31}\tau, \frac{31}{31}v), (\frac{26}{31} + \frac{78}{31}\tau, \frac{31}{31}v),$ $(\frac{27}{31} + \frac{81}{31}\tau, \frac{31}{31}v), (\frac{28}{31} + \frac{84}{31}\tau, \frac{31}{31}v), (\frac{29}{31} + \frac{87}{31}\tau, \frac{31}{31}v), (\frac{30}{31} + \frac{90}{31}\tau, \frac{31}{31}v)$

$$\begin{aligned}
A_{15,9} &= \begin{bmatrix} -7+\tau & \tau & 3\tau \\ -3+2\tau & 0 & 2+\tau \\ 1+2\tau & 1 & 3-\tau \end{bmatrix}, A_{15,10} = \begin{bmatrix} -4+\tau & -2+\tau & 1+\tau \\ \tau & 0 & 1 \\ 1+2\tau & 1+\tau & 2-\tau \end{bmatrix}, A_{15,11} = \begin{bmatrix} -6+\tau & 1-2\tau & 1-\tau \\ -1+2\tau & -1 & -1 \\ 1+2\tau & -2 & -1 \end{bmatrix}, \\
A_{15,12} &= \begin{bmatrix} -3 & 2-2\tau & 3-2\tau \\ 2\tau & -3 & -4 \\ 1+2\tau & -4 & -4 \end{bmatrix}, A_{15,13} = \begin{bmatrix} -10+5\tau & -3+4\tau & 7+3\tau \\ -2+3\tau & 1+\tau & 4 \\ 3+\tau & 2 & 2-2\tau \end{bmatrix}, A_{15,14} = \begin{bmatrix} -8+5\tau & -1+2\tau & -9-5\tau \\ -1+2\tau & 1 & -5 \\ 3+\tau & 1 & -4+3\tau \end{bmatrix}, \\
A_{15,15} &= \begin{bmatrix} -2+\tau & -1 & -1-\tau \\ 1+\tau & 0 & -2+\tau \\ 3+\tau & -1+\tau & -3+2\tau \end{bmatrix}, A_{15,16} = \begin{bmatrix} -9+6\tau & -9-\tau & 10+\tau \\ 2+\tau & -2+2\tau & 1-2\tau \\ 3+\tau & -1+2\tau & 1-2\tau \end{bmatrix}, A_{16,1} = \begin{bmatrix} -1+2\tau & 0 & 3 \\ 0 & 1 & 0 \\ 4 & 0 & 1-2\tau \end{bmatrix}, \\
A_{16,2} &= \begin{bmatrix} -3+6\tau & 0 & -8 \\ 0 & 1 & 0 \\ 4 & 0 & -1+2\tau \end{bmatrix}, A_{16,3} = \begin{bmatrix} -2+\tau & 1-2\tau & 1-2\tau \\ 2\tau & -4-\tau & -5-\tau \\ 4 & -4+2\tau & -4+3\tau \end{bmatrix}, A_{16,4} = \begin{bmatrix} -3+3\tau & 2-2\tau & -1-\tau \\ 2\tau & -1-\tau & -2 \\ 4 & -2 & -1+\tau \end{bmatrix}, \\
A_{16,5} &= \begin{bmatrix} -1+\tau & -2 & -1-\tau \\ 2 & 1+\tau & -2+2\tau \\ 4 & 2\tau & -3+3\tau \end{bmatrix}, A_{16,6} = \begin{bmatrix} -2+3\tau & 3+\tau & -1-\tau \\ 2 & 2-\tau & -1 \\ 4 & 2-2\tau & -2+\tau \end{bmatrix}, A_{16,7} = \begin{bmatrix} -3+\tau & -1+2\tau & 4+3\tau \\ 2+2\tau & 5-\tau & 8-5\tau \\ 4 & 2-2\tau & 1-5\tau \end{bmatrix}, \\
A_{16,8} &= \begin{bmatrix} -4+3\tau & 3-2\tau & 3 \\ 2+2\tau & -2-\tau & 1-\tau \\ 4 & -2 & -\tau \end{bmatrix}, A_{20,1} = \begin{bmatrix} -6-5\tau & -13+8\tau & 13+\tau \\ -2 & \tau & 1-\tau \\ -4+2\tau & 4+2\tau & 2-3\tau \end{bmatrix}, A_{20,2} = \begin{bmatrix} -4-5\tau & -11+3\tau & 1+3\tau \\ -4 & -2+3\tau & 3 \\ -4+2\tau & 2+2\tau & 2-\tau \end{bmatrix}, \\
A_{20,3} &= \begin{bmatrix} -9+3\tau & -3-4\tau & 4-\tau \\ -2+2\tau & -3-\tau & 2-\tau \\ 2+2\tau & -4+2\tau & -1-\tau \end{bmatrix}, A_{20,4} = \begin{bmatrix} -9+3\tau & -2-7\tau & 11 \\ 2\tau & -5+\tau & 1-2\tau \\ 2+2\tau & -6+2\tau & 1-3\tau \end{bmatrix}, A_{23,1} = \begin{bmatrix} -5\tau & -8+4\tau & 28-2\tau \\ -1-\tau & -2+\tau & 6-2\tau \\ -5+\tau & 3+2\tau & 2-9\tau \end{bmatrix}, \\
A_{23,2} &= \begin{bmatrix} 2-2\tau & 4 & -3+\tau \\ -2-2\tau & 5-3\tau & -1+3\tau \\ -5+\tau & -3-3\tau & 5 \end{bmatrix}, A_{23,3} = \begin{bmatrix} 4-9\tau & 13-3\tau & 7+3\tau \\ -3-3\tau & 5-3\tau & 4 \\ -5+\tau & -2-2\tau & 2-2\tau \end{bmatrix}, A_{23,4} = \begin{bmatrix} -\tau & -1+\tau & -3+\tau \\ -1 & 0 & -1+\tau \\ -5+\tau & 4+\tau & 3+4\tau \end{bmatrix}, \\
A_{23,5} &= \begin{bmatrix} -9\tau & 3-4\tau & 23-3\tau \\ -2-\tau & -1-\tau & 4-2\tau \\ -5+\tau & -2 & -4\tau \end{bmatrix}, A_{23,6} = \begin{bmatrix} 2-9\tau & -6+2\tau & -24+3\tau \\ -3-2\tau & -2+\tau & -7+4\tau \\ -5+\tau & 1+\tau & 1+4\tau \end{bmatrix}, A_{23,7} = \begin{bmatrix} -4\tau & -4+2\tau & -1+\tau \\ -2 & 1+\tau & 1 \\ -5+\tau & 2+\tau & 1 \end{bmatrix}, \\
A_{23,8} &= \begin{bmatrix} 1-6\tau & 2+\tau & 11-\tau \\ -3-\tau & 2 & 3-2\tau \\ -5+\tau & 1-\tau & -3\tau \end{bmatrix}, A_{23,9} = \begin{bmatrix} -9\tau & 3-6\tau & -1+2\tau \\ -3 & -1 & 0 \\ -5+\tau & -3 & -1 \end{bmatrix}, A_{23,10} = \begin{bmatrix} 2-5\tau & -\tau & 3 \\ -4-\tau & 0 & 1-\tau \\ -5+\tau & -1 & -\tau \end{bmatrix}, \\
A_{23,11} &= \begin{bmatrix} 1-7\tau & -14+\tau & -4+5\tau \\ -4 & -1+3\tau & 3 \\ -5+\tau & 3\tau & 3 \end{bmatrix}, A_{23,12} = \begin{bmatrix} -9+7\tau & -1+2\tau & 4+\tau \\ -1+2\tau & 1 & 1 \\ 4+\tau & 1 & 1-\tau \end{bmatrix}, A_{23,13} = \begin{bmatrix} -6+\tau & -5-\tau & 3+3\tau \\ -2+4\tau & -6+3\tau & 9-2\tau \\ 4+\tau & 1+3\tau & 1-4\tau \end{bmatrix}, \\
A_{23,14} &= \begin{bmatrix} -7+6\tau & 8-\tau & 11+\tau \\ \tau & 2-\tau & 2-\tau \\ 4+\tau & -2\tau & 2-3\tau \end{bmatrix}, A_{23,15} = \begin{bmatrix} -5+2\tau & -2\tau & -2-4\tau \\ -1+3\tau & -3 & -8 \\ 4+\tau & -2+\tau & -5+4\tau \end{bmatrix}, A_{23,16} = \begin{bmatrix} -8+6\tau & -4 & -18-7\tau \\ 2\tau & -2+\tau & -8+\tau \\ 4+\tau & \tau & -7+6\tau \end{bmatrix}, \\
A_{23,17} &= \begin{bmatrix} -5+4\tau & -2+3\tau & 1-\tau \\ 1+\tau & 2 & -1 \\ 4+\tau & 3 & -1 \end{bmatrix}, A_{23,18} = \begin{bmatrix} -3 & -3\tau & 5-\tau \\ 3\tau & -8+3\tau & -4-3\tau \\ 4+\tau & -2+4\tau & -6+\tau \end{bmatrix}, A_{23,19} = \begin{bmatrix} -5+3\tau & -1+\tau & 6+3\tau \\ 1+2\tau & \tau & 6-2\tau \\ 4+\tau & 2 & 4-4\tau \end{bmatrix}, \\
A_{23,20} &= \begin{bmatrix} -1 & 0 & 0 \\ 2+\tau & -1 & 0 \\ 4+\tau & -3+\tau & -1 \end{bmatrix}, A_{23,21} = \begin{bmatrix} -10+7\tau & -3-8\tau & 5-5\tau \\ 2+2\tau & -6+\tau & -3-\tau \\ 4+\tau & -5+2\tau & -3 \end{bmatrix}, A_{23,22} = \begin{bmatrix} -5+3\tau & -8+2\tau & 3-3\tau \\ 3+\tau & 1+3\tau & -3-\tau \\ 4+\tau & 3+3\tau & -5 \end{bmatrix}, \\
A_{25,1} &= \begin{bmatrix} -1+2\tau & 0 & -2 \\ 0 & 1 & 0 \\ 5 & 0 & -1+2\tau \end{bmatrix}, A_{25,2} = \begin{bmatrix} -2+4\tau & 0 & 9 \\ 0 & 1 & 0 \\ 5 & 0 & 2-4\tau \end{bmatrix}, A_{25,3} = \begin{bmatrix} -3+6\tau & 0 & 20 \\ 0 & 1 & 0 \\ 5 & 0 & 3-6\tau \end{bmatrix}, A_{25,4} = \begin{bmatrix} -4+8\tau & 0 & 9 \\ 0 & 1 & 0 \\ 5 & 0 & 1-2\tau \end{bmatrix}, \\
A_{25,5} &= \begin{bmatrix} -1+\tau & 1 & 1 \\ 1+\tau & 2-\tau & 1-\tau \\ 5 & -1-2\tau & -1-\tau \end{bmatrix}, A_{25,6} = \begin{bmatrix} -3+5\tau & 4+3\tau & 1-2\tau \\ 1+\tau & 1 & 0 \\ 5 & 4-2\tau & -2 \end{bmatrix}, A_{25,7} = \begin{bmatrix} -4+7\tau & -3-2\tau & -11-\tau \\ 1+\tau & 0 & -2+\tau \\ 5 & -2+\tau & -2+3\tau \end{bmatrix}, \\
A_{25,8} &= \begin{bmatrix} -5+9\tau & 3+3\tau & -4-\tau \\ 1+\tau & 2 & -1 \\ 5 & 2-\tau & -1+\tau \end{bmatrix}, A_{25,9} = \begin{bmatrix} -2 & -2 & 1 \\ 2+2\tau & 3+2\tau & -2-\tau \\ 5 & 7-\tau & -5+\tau \end{bmatrix}, A_{25,10} = \begin{bmatrix} -4+4\tau & 2\tau & 3 \\ 2+2\tau & 3 & 1-\tau \\ 5 & 2-\tau & -\tau \end{bmatrix}, \\
A_{25,11} &= \begin{bmatrix} -5+6\tau & -9-\tau & -3\tau \\ 2+2\tau & -5+2\tau & -2-\tau \\ 5 & -1+3\tau & -3+\tau \end{bmatrix}, A_{25,12} = \begin{bmatrix} -6+8\tau & 14 & 7-4\tau \\ 2+2\tau & 3-2\tau & -\tau \\ 5 & 1-3\tau & -2-\tau \end{bmatrix}, A_{25,13} = \begin{bmatrix} -4+5\tau & -3+\tau & 3 \\ 3+\tau & -1+\tau & 1-\tau \\ 5 & 1+\tau & -\tau \end{bmatrix}, \\
A_{25,14} &= \begin{bmatrix} -5+7\tau & 6-2\tau & 12 \\ 3+\tau & -1-\tau & 2-2\tau \\ 5 & -1-\tau & 1-3\tau \end{bmatrix}, A_{25,15} = \begin{bmatrix} -6+9\tau & -14+5\tau & 3-4\tau \\ 3+\tau & 1+2\tau & -2 \\ 5 & 2+2\tau & -2 \end{bmatrix}, A_{25,16} = \begin{bmatrix} -4+5\tau & -8-\tau & -1-3\tau \\ 1+2\tau & -3+\tau & -2 \\ 5 & -2+3\tau & -3+\tau \end{bmatrix},
\end{aligned}$$

$$\begin{aligned}
A_{25,17} &= \begin{bmatrix} -5+7\tau & 10+2\tau & 7-3\tau \\ 1+2\tau & 5-\tau & 1-2\tau \\ 5 & 2-3\tau & -2-\tau \end{bmatrix}, A_{25,18} = \begin{bmatrix} -6+9\tau & -6+2\tau & -4-\tau \\ 1+2\tau & -2+\tau & -1 \\ 5 & 1+\tau & -1+\tau \end{bmatrix}, A_{25,19} = \begin{bmatrix} -5-4\tau & -1 & -2+\tau \\ -8+\tau & -1+\tau & \tau \\ -2+3\tau & 1 & 1 \end{bmatrix}, \\
A_{25,20} &= \begin{bmatrix} -3-3\tau & -6+2\tau & 4 \\ -7+\tau & -1+3\tau & 2-2\tau \\ -2+3\tau & 3+\tau & -1-\tau \end{bmatrix}, A_{25,21} = \begin{bmatrix} 1-2\tau & 0 & -2 \\ -6+\tau & 1 & 2\tau \\ -2+3\tau & 1-\tau & 3 \end{bmatrix}, A_{25,22} = \begin{bmatrix} -9-2\tau & 10+5\tau & 6+5\tau \\ -5+\tau & 6 & 4+\tau \\ -2+3\tau & 5-4\tau & 5-3\tau \end{bmatrix}, \\
A_{25,23} &= \begin{bmatrix} -7-\tau & 3-4\tau & 3 \\ -3+\tau & -2-\tau & 1-\tau \\ -2+3\tau & -4 & -\tau \end{bmatrix}, A_{25,24} = \begin{bmatrix} -13-\tau & 13-8\tau & 6+5\tau \\ -1+\tau & -\tau & 2 \\ -2+3\tau & -4-2\tau & 4-2\tau \end{bmatrix}, A_{25,25} = \begin{bmatrix} -5-2\tau & 5-6\tau & 10-\tau \\ -5+2\tau & -6-2\tau & 3-5\tau \\ -2+3\tau & -7+\tau & -3-3\tau \end{bmatrix}, \\
A_{25,26} &= \begin{bmatrix} -12-2\tau & -4 & -4+5\tau \\ -4+2\tau & -2+\tau & 2+\tau \\ -2+3\tau & \tau & 3 \end{bmatrix}, A_{25,27} = \begin{bmatrix} -4-\tau & 1-4\tau & 5 \\ -2+2\tau & -6+\tau & 1-3\tau \\ -2+3\tau & -7+2\tau & -1-3\tau \end{bmatrix}, A_{25,28} = \begin{bmatrix} -15 & 3-4\tau & 5-7\tau \\ -4+\tau & -1-\tau & -2\tau \\ -1+3\tau & -2 & -4 \end{bmatrix}, \\
A_{25,29} &= \begin{bmatrix} -9-3\tau & 3-2\tau & 2-\tau \\ -8+2\tau & -1-\tau & -\tau \\ -1+3\tau & -1 & -1 \end{bmatrix}, A_{25,30} = \begin{bmatrix} -9 & -2-\tau & 2-3\tau \\ -3+\tau & -2 & -\tau \\ -1+3\tau & -1+\tau & -3 \end{bmatrix}, A_{25,31} = \begin{bmatrix} -13-2\tau & 1-6\tau & 1+3\tau \\ -7+2\tau & -2-2\tau & 2+\tau \\ -1+3\tau & -4+\tau & 2-\tau \end{bmatrix}, \\
A_{25,32} &= \begin{bmatrix} -2-2\tau & 2 & 3-\tau \\ -6+2\tau & 1-\tau & -1-2\tau \\ -1+3\tau & -\tau & -3 \end{bmatrix}, A_{25,33} = \begin{bmatrix} -3 & \tau & 2-3\tau \\ -1+\tau & 2 & -2-\tau \\ -1+3\tau & 3-\tau & -9 \end{bmatrix}, A_{25,34} = \begin{bmatrix} -10-\tau & -3-4\tau & 1+3\tau \\ -5+2\tau & -5 & 3 \\ -1+3\tau & -3+2\tau & 2-\tau \end{bmatrix}, \\
A_{25,35} &= \begin{bmatrix} -15 & -4+7\tau & 4+\tau \\ -3+2\tau & 1+\tau & 1 \\ -1+3\tau & 4 & 1-\tau \end{bmatrix}, A_{25,36} = \begin{bmatrix} -12 & -6+2\tau & 5-7\tau \\ -2+2\tau & 1+\tau & -3-\tau \\ -1+3\tau & 1+\tau & -5 \end{bmatrix}, A_{25,37} = \begin{bmatrix} -11 & 2+7\tau & 9-3\tau \\ -1+2\tau & 5-\tau & -2\tau \\ -1+3\tau & 6-2\tau & -2-2\tau \end{bmatrix}, \\
A_{27,1} &= \begin{bmatrix} -6-7\tau & -8+6\tau & 4+\tau \\ -1 & \tau & 1 \\ -5+2\tau & 3+\tau & 1-\tau \end{bmatrix}, A_{27,2} = \begin{bmatrix} 1-\tau & 1 & 4+\tau \\ -3-\tau & -\tau & 8-6\tau \\ -5+2\tau & -1 & -6-7\tau \end{bmatrix}, A_{27,3} = \begin{bmatrix} -2-9\tau & 8+7\tau & -1+5\tau \\ -5-2\tau & 7+\tau & 2+2\tau \\ -5+2\tau & 4-3\tau & 3-\tau \end{bmatrix}, \\
A_{27,4} &= \begin{bmatrix} -3-4\tau & 2-4\tau & -1+2\tau \\ -2 & -1 & 0 \\ -5+2\tau & -4 & 2 \end{bmatrix}, A_{27,5} = \begin{bmatrix} 2-\tau & \tau & -1 \\ -4-\tau & 4-2\tau & 1+\tau \\ -5+2\tau & -1-3\tau & 3-\tau \end{bmatrix}, A_{27,6} = \begin{bmatrix} -5-8\tau & 7+4\tau & 4+\tau \\ -4 & 3 & 1 \\ -5+2\tau & 3-2\tau & 1-\tau \end{bmatrix}, \\
A_{27,7} &= \begin{bmatrix} -5-7\tau & 10+6\tau & 13+\tau \\ -3+\tau & 3-\tau & 1-\tau \\ -5+2\tau & 5-3\tau & 2-3\tau \end{bmatrix}, A_{27,8} = \begin{bmatrix} -3-7\tau & 10-6\tau & 1+3\tau \\ -5 & -1-3\tau & 3 \\ -5+2\tau & -4-\tau & 2-\tau \end{bmatrix}, A_{27,9} = \begin{bmatrix} 2-\tau & 1 & 1+\tau \\ -5+\tau & -2 & -3\tau \\ -5+2\tau & -2+\tau & -2-3\tau \end{bmatrix}, \\
A_{27,10} &= \begin{bmatrix} -4-\tau & -4+2\tau & +2\tau \\ -1+\tau & \tau & 2 \\ -3+3\tau & 3+2\tau & 4-\tau \end{bmatrix}, A_{27,11} = \begin{bmatrix} -9-2\tau & -7+\tau & -3+5\tau \\ -1+\tau & -1+\tau & 2 \\ -3+3\tau & 2\tau & 4 \end{bmatrix}, A_{27,12} = \begin{bmatrix} -14-3\tau & -6+\tau & -1+2\tau \\ -1+\tau & 1 & 0 \\ -3+3\tau & \tau & 1 \end{bmatrix}, \\
A_{27,13} &= \begin{bmatrix} -2-\tau & -1 & -3+2\tau \\ -3+\tau & 0 & 1+2\tau \\ -3+3\tau & -1+\tau & 6+\tau \end{bmatrix}, A_{27,14} = \begin{bmatrix} -7-2\tau & -4\tau & 3 \\ -3+\tau & -3 & 1-\tau \\ -3+3\tau & -4+\tau & -\tau \end{bmatrix}, A_{27,15} = \begin{bmatrix} -\tau & -1 & 1 \\ -4+\tau & -1+\tau & -\tau \\ -3+3\tau & 2\tau & -1-\tau \end{bmatrix}, \\
A_{27,16} &= \begin{bmatrix} -5-2\tau & 2-5\tau & 10-3\tau \\ -4+\tau & -4-\tau & 2-4\tau \\ -3+3\tau & -6+\tau & -4-3\tau \end{bmatrix}, A_{27,17} = \begin{bmatrix} -10-3\tau & -4 & 8-6\tau \\ -4+\tau & -2+\tau & -2\tau \\ -3+3\tau & \tau & -4-\tau \end{bmatrix}, A_{27,18} = \begin{bmatrix} 1-2\tau & 0 & 3 \\ -6+\tau & -1 & -3\tau \\ -3+3\tau & -1+\tau & -4-\tau \end{bmatrix}, \\
A_{27,19} &= \begin{bmatrix} -4-3\tau & -3+6\tau & 1+4\tau \\ -6+\tau & 5+3\tau & 6+\tau \\ -3+3\tau & 8-2\tau & 5-3\tau \end{bmatrix}, A_{27,20} = \begin{bmatrix} -5-2\tau & -1-\tau & -1+\tau \\ -3+2\tau & -2+\tau & 1 \\ -3+3\tau & -1+\tau & 1 \end{bmatrix}, A_{27,21} = \begin{bmatrix} -10-3\tau & -1-5\tau & -5+7\tau \\ -3+2\tau & -2 & 3+\tau \\ -3+3\tau & -4+\tau & 5 \end{bmatrix}, \\
A_{27,22} &= \begin{bmatrix} -6+3\tau & 3-\tau & 5+3\tau \\ -1+\tau & 1-\tau & 2 \\ 3+2\tau & -1-\tau & 5-3\tau \end{bmatrix}, A_{27,23} = \begin{bmatrix} -9+4\tau & -1+5\tau & 4-\tau \\ -2+2\tau & 1+2\tau & 2-\tau \\ 3+2\tau & 5-\tau & -1-\tau \end{bmatrix}, A_{27,24} = \begin{bmatrix} -6 & 6+2\tau & 5 \\ -4+4\tau & 7-4\tau & 2-3\tau \\ 3+2\tau & -1-3\tau & -2-\tau \end{bmatrix}, \\
A_{27,25} &= \begin{bmatrix} -7+3\tau & 6-\tau & 3 \\ -1+2\tau & 2-2\tau & 1-\tau \\ 3+2\tau & -1-2\tau & -\tau \end{bmatrix}, A_{27,26} = \begin{bmatrix} -5+\tau & 2+3\tau & 4-\tau \\ -2+3\tau & 6-\tau & -2\tau \\ 3+2\tau & 4-3\tau & -2-\tau \end{bmatrix}, A_{27,27} = \begin{bmatrix} -10+5\tau & -7+6\tau & 5-2\tau \\ 1+\tau & 2 & -1 \\ 3+2\tau & 4+\tau & -1-\tau \end{bmatrix}, \\
A_{27,28} &= \begin{bmatrix} -5+\tau & 4-\tau & 2+3\tau \\ -1+3\tau & 1-2\tau & 7-\tau \\ 3+2\tau & -2-2\tau & 5-4\tau \end{bmatrix}, A_{27,29} = \begin{bmatrix} -15+7\tau & -5+8\tau & 3-4\tau \\ 1+2\tau & 3 & -2 \\ 3+2\tau & 4 & -2 \end{bmatrix}, A_{27,30} = \begin{bmatrix} -10+4\tau & -4\tau & 3 \\ 2+2\tau & -3 & 1-\tau \\ 3+2\tau & -4+\tau & -\tau \end{bmatrix}, \\
A_{27,31} &= \begin{bmatrix} -3-\tau & -2 & -2+2\tau \\ -5+2\tau & -1+\tau & 2+2\tau \\ 3\tau & \tau & 5-\tau \end{bmatrix}, A_{27,32} = \begin{bmatrix} -15+\tau & 7+4\tau & 4+\tau \\ -5+2\tau & 3 & 1 \\ 3\tau & 3-2\tau & 1-\tau \end{bmatrix}, A_{27,33} = \begin{bmatrix} -1 & 0 & 0 \\ -1+\tau & -1 & 0 \\ 3\tau & \tau & -1 \end{bmatrix}, \\
A_{27,34} &= \begin{bmatrix} -13+2\tau & -8\tau & 8 \\ -1+\tau & -1 & 0 \\ 3\tau & -6+\tau & 1-2\tau \end{bmatrix}, A_{27,35} = \begin{bmatrix} -1 & 0 & 0 \\ +\tau & -1 & 0 \\ 3\tau & -1+\tau & -1 \end{bmatrix}, A_{27,36} = \begin{bmatrix} -7+\tau & -4-\tau & 2-3\tau \\ +\tau & \tau & -2 \\ 3\tau & -2+2\tau & -4 \end{bmatrix},
\end{aligned}$$

$$\begin{aligned}
A_{27,37} &= \begin{bmatrix} -13+2\tau & -5-6\tau & 7-5\tau \\ +\tau & -1+\tau & -2 \\ 3\tau & -5+2\tau & -3-\tau \end{bmatrix}, A_{27,38} = \begin{bmatrix} -5 & -3-\tau & 1+\tau \\ -3+2\tau & -2+\tau & 1 \\ 3\tau & -2+2\tau & 2-\tau \end{bmatrix}, A_{27,39} = \begin{bmatrix} -11+\tau & -2-\tau & -1+6\tau \\ -3+2\tau & -2 & 3+\tau \\ 3\tau & -1+\tau & 5-\tau \end{bmatrix}, \\
A_{27,40} &= \begin{bmatrix} -17+2\tau & 6+8\tau & 8+4\tau \\ -3+2\tau & 3 & 2 \\ 3\tau & 5-2\tau & 3-2\tau \end{bmatrix}, A_{27,41} = \begin{bmatrix} -4 & -2 & -2+5\tau \\ -2+2\tau & \tau & 6+\tau \\ 3\tau & \tau & 11-2\tau \end{bmatrix}, A_{27,42} = \begin{bmatrix} -16+2\tau & -8+6\tau & 4+\tau \\ -2+2\tau & \tau & 1 \\ 3\tau & 3+\tau & 1-\tau \end{bmatrix}, \\
A_{31,1} &= \begin{bmatrix} -11-4\tau & 4-8\tau & -4+8\tau \\ -1 & -1 & 0 \\ -4+3\tau & -5 & 5 \end{bmatrix}, A_{31,2} = \begin{bmatrix} -2-\tau & -3+2\tau & 3 \\ -2 & \tau & 1-\tau \\ -4+3\tau & 5+2\tau & 1-3\tau \end{bmatrix}, A_{31,3} = \begin{bmatrix} -1-\tau & -4+2\tau & 2+2\tau \\ -3 & -1+3\tau & 4 \\ -4+3\tau & 8+3\tau & 9-5\tau \end{bmatrix}, \\
A_{31,4} &= \begin{bmatrix} -8-4\tau & 4 & 12-7\tau \\ -4 & 2-\tau & 2-3\tau \\ -4+3\tau & -\tau & -5-2\tau \end{bmatrix}, A_{31,5} = \begin{bmatrix} -9-5\tau & -1+2\tau & -8+5\tau \\ -5 & 1 & -1+2\tau \\ -4+3\tau & 1 & 3+\tau \end{bmatrix}, A_{31,6} = \begin{bmatrix} -4-4\tau & -10+2\tau & 10-\tau \\ -6 & -4+3\tau & 4-3\tau \\ -4+3\tau & 2+3\tau & -1-3\tau \end{bmatrix}, \\
A_{31,7} &= \begin{bmatrix} -7-6\tau & -10+2\tau & -4+4\tau \\ -7 & -3+2\tau & 2\tau \\ -4+3\tau & 1+2\tau & 3 \end{bmatrix}, A_{31,8} = \begin{bmatrix} -13-5\tau & 7-3\tau & -1+2\tau \\ -2+\tau & -1 & 0 \\ -4+3\tau & -1-\tau & 1 \end{bmatrix}, A_{31,9} = \begin{bmatrix} -1-\tau & -2 & -1+\tau \\ -3+\tau & -1+\tau & 1+\tau \\ -4+3\tau & -1+3\tau & 5 \end{bmatrix}, \\
A_{31,10} &= \begin{bmatrix} -11-5\tau & -13-2\tau & -6+9\tau \\ -4+\tau & -4+2\tau & 3+\tau \\ -4+3\tau & -2+3\tau & 5 \end{bmatrix}, A_{31,11} = \begin{bmatrix} -1-2\tau & 2 & 1 \\ -5+\tau & 1-2\tau & 1-\tau \\ -4+3\tau & -2-\tau & -1-\tau \end{bmatrix}, A_{31,12} = \begin{bmatrix} 1-2\tau & 1-2\tau & -2+\tau \\ -6+\tau & -7+\tau & 4+\tau \\ -4+3\tau & -5+4\tau & 5-2\tau \end{bmatrix}, \\
A_{31,13} &= \begin{bmatrix} -11-5\tau & -13+5\tau & -4+7\tau \\ -3+2\tau & 2+\tau & 2 \\ -4+3\tau & 2+2\tau & 4 \end{bmatrix}, A_{31,14} = \begin{bmatrix} -10-5\tau & -21+4\tau & 5+7\tau \\ -4+2\tau & 3\tau & 3-\tau \\ -4+3\tau & 1+4\tau & 5-2\tau \end{bmatrix}, A_{31,15} = \begin{bmatrix} -3-3\tau & -2\tau & -1+\tau \\ -5+2\tau & -3+\tau & 1 \\ -4+3\tau & -2+\tau & 1 \end{bmatrix}, \\
A_{31,16} &= \begin{bmatrix} -1 & 0 & -1+2\tau \\ -2+\tau & -1 & 4+3\tau \\ 1+3\tau & 1+\tau & 18-5\tau \end{bmatrix}, A_{31,17} = \begin{bmatrix} -4 & 2 & 1-\tau \\ -4+2\tau & 3-\tau & -\tau \\ 1+3\tau & -1-2\tau & -3 \end{bmatrix}, A_{31,18} = \begin{bmatrix} -9 & -3-3\tau & 4-3\tau \\ -6+3\tau & -4 & -1-2\tau \\ 1+3\tau & -3+2\tau & -3 \end{bmatrix}, \\
A_{31,19} &= \begin{bmatrix} -12+3\tau & -7\tau & 7 \\ -1+\tau & -1 & 0 \\ 1+3\tau & -6+\tau & 1-2\tau \end{bmatrix}, A_{31,20} = \begin{bmatrix} -3 & -1-2\tau & 4-3\tau \\ -3+2\tau & -4 & -3-3\tau \\ 1+3\tau & -6+3\tau & -9 \end{bmatrix}, A_{31,21} = \begin{bmatrix} -15+2\tau & -8-7\tau & 9+5\tau \\ -5+3\tau & -6 & 5 \\ 1+3\tau & -5+3\tau & 4-3\tau \end{bmatrix}, \\
A_{31,22} &= \begin{bmatrix} -12+3\tau & -7+7\tau & 7 \\ +\tau & 1 & 0 \\ 1+3\tau & 5+\tau & 1-2\tau \end{bmatrix}, A_{31,23} = \begin{bmatrix} -10+2\tau & -8 & 3-5\tau \\ -2+2\tau & -3+\tau & -1-\tau \\ 1+3\tau & -1+3\tau & -5 \end{bmatrix}, A_{31,24} = \begin{bmatrix} -10+\tau & 10-2\tau & 4+4\tau \\ -4+3\tau & 4-3\tau & 6 \\ 1+3\tau & -2-3\tau & 4-3\tau \end{bmatrix}, \\
A_{31,25} &= \begin{bmatrix} -6+\tau & -1+2\tau & 1+\tau \\ -1+2\tau & 1 & 1 \\ 1+3\tau & 3 & 2-\tau \end{bmatrix}, A_{31,26} = \begin{bmatrix} -13+2\tau & 15-\tau & 9-3\tau \\ -3+3\tau & 5-3\tau & 2-2\tau \\ 1+3\tau & -4\tau & -2-2\tau \end{bmatrix}, A_{31,27} = \begin{bmatrix} -10+2\tau & -2-2\tau & 1-\tau \\ 2\tau & -1+\tau & -1 \\ 1+3\tau & -2+\tau & -1 \end{bmatrix}, \\
A_{31,28} &= \begin{bmatrix} -5 & -2+\tau & \tau \\ -2+3\tau & \tau & 2 \\ 1+3\tau & 2+\tau & 2-\tau \end{bmatrix}, A_{31,29} = \begin{bmatrix} -5 & 1-4\tau & 4+\tau \\ -1+3\tau & -6+\tau & 2-2\tau \\ 1+3\tau & -7+2\tau & 2-3\tau \end{bmatrix}, A_{31,30} = \begin{bmatrix} -13+2\tau & -5+7\tau & 6-7\tau \\ 3\tau & 4 & -5 \\ 1+3\tau & 5 & -5 \end{bmatrix}, \\
A_{33,1} &= \begin{bmatrix} 5-\tau & 3+\tau & -2-3\tau \\ -4-3\tau & 1-4\tau & -6+5\tau \\ -6+\tau & -5-\tau & 3+3\tau \end{bmatrix}, A_{33,2} = \begin{bmatrix} 5-2\tau & 4 & -2 \\ -4-3\tau & 1-4\tau & 2\tau \\ -6+\tau & -5-\tau & 3 \end{bmatrix}, A_{33,3} = \begin{bmatrix} 5-3\tau & 5-\tau & -7-2\tau \\ -4-3\tau & 1-4\tau & -8+6\tau \\ -6+\tau & -5-\tau & 3+4\tau \end{bmatrix}, \\
A_{33,4} &= \begin{bmatrix} 5-4\tau & 11-\tau & -3+5\tau \\ -4-3\tau & 4-6\tau & 7+\tau \\ -6+\tau & -4-3\tau & 5-2\tau \end{bmatrix}, A_{33,5} = \begin{bmatrix} 5-5\tau & -2-2\tau & -4 \\ -4-3\tau & -5+\tau & -2+2\tau \\ -6+\tau & -1+2\tau & 1+\tau \end{bmatrix}, A_{33,6} = \begin{bmatrix} 5-6\tau & 3+2\tau & 1+\tau \\ -4-3\tau & 5-\tau & 2 \\ -6+\tau & 1-2\tau & 1-\tau \end{bmatrix}, \\
A_{33,7} &= \begin{bmatrix} 5-7\tau & 17-4\tau & 9+8\tau \\ -4-3\tau & 4-6\tau & 13-2\tau \\ -6+\tau & -4-3\tau & 5-5\tau \end{bmatrix}, A_{33,8} = \begin{bmatrix} 5-8\tau & 5+2\tau & -2+\tau \\ -4-3\tau & 5-\tau & \tau \\ -6+\tau & 1-2\tau & 1 \end{bmatrix}, A_{33,9} = \begin{bmatrix} 5-9\tau & -6-2\tau & -11+\tau \\ -4-3\tau & -5+\tau & -4+3\tau \\ -6+\tau & -1+2\tau & 1+2\tau \end{bmatrix}, \\
A_{33,10} &= \begin{bmatrix} 5-11\tau & -20-3\tau & -1+8\tau \\ -4-3\tau & -8+3\tau & 4+\tau \\ -6+\tau & -2+4\tau & 4-\tau \end{bmatrix}, A_{33,11} = \begin{bmatrix} -1 & 0 & 0 \\ -1+2\tau & 1 & 0 \\ 5+\tau & 1-2\tau & -1 \end{bmatrix}, A_{33,12} = \begin{bmatrix} -2+\tau & -1 & -1-\tau \\ -1+2\tau & -1 & -3 \\ 5+\tau & -1+2\tau & -4+3\tau \end{bmatrix}, \\
A_{33,13} &= \begin{bmatrix} -3+2\tau & 2 & 1 \\ -1+2\tau & 1 & 1 \\ 5+\tau & 1-2\tau & -\tau \end{bmatrix}, A_{33,14} = \begin{bmatrix} -4+3\tau & -3 & -1-\tau \\ -1+2\tau & -1 & -1 \\ 5+\tau & -1+2\tau & -2+\tau \end{bmatrix}, A_{33,15} = \begin{bmatrix} -5+4\tau & -9+4\tau & 6-3\tau \\ -1+2\tau & -2+2\tau & 1-\tau \\ 5+\tau & 4+3\tau & -3-2\tau \end{bmatrix}, \\
A_{33,16} &= \begin{bmatrix} -6+5\tau & 5 & -17-6\tau \\ -1+2\tau & 1 & -8 \\ 5+\tau & 1-2\tau & -9+8\tau \end{bmatrix}, A_{33,17} = \begin{bmatrix} -7+6\tau & -1+6\tau & 2-3\tau \\ -1+2\tau & 2\tau & 1-\tau \\ 5+\tau & 6-\tau & -3 \end{bmatrix}, A_{33,18} = \begin{bmatrix} -8+7\tau & 6+8\tau & 8-6\tau \\ -1+2\tau & 4+\tau & -2\tau \\ 5+\tau & 7-3\tau & -4-\tau \end{bmatrix}, \\
A_{33,19} &= \begin{bmatrix} -9+8\tau & -8 & -17-6\tau \\ -1+2\tau & -1 & -5 \\ 5+\tau & -1+2\tau & -6+5\tau \end{bmatrix}, A_{33,20} = \begin{bmatrix} -11+10\tau & -10 & -8-4\tau \\ -1+2\tau & -1 & -2 \\ 5+\tau & -1+2\tau & -3+2\tau \end{bmatrix}, A_{36,1} = \begin{bmatrix} -1+2\tau & 0 & 2 \\ 0 & 1 & 0 \\ 6 & 0 & 1-2\tau \end{bmatrix},
\end{aligned}$$

$$\begin{aligned}
A_{36,2} &= \begin{bmatrix} -5+10\tau & 0 & -9 \\ 0 & 1 & 0 \\ 6 & 0 & -1+2\tau \end{bmatrix}, A_{36,3} = \begin{bmatrix} -1 & 0 & 0 \\ 2\tau & 1 & 0 \\ 6 & 2-2\tau & -1 \end{bmatrix}, A_{36,4} = \begin{bmatrix} -5+8\tau & 13+3\tau & 10-5\tau \\ 2\tau & 3 & 2-\tau \\ 6 & 4-4\tau & -3-2\tau \end{bmatrix}, \\
A_{36,5} &= \begin{bmatrix} -5 & -1-\tau & 4-7\tau \\ 2+4\tau & -3+2\tau & -18+5\tau \\ 6 & 2\tau & -5+8\tau \end{bmatrix}, A_{36,6} = \begin{bmatrix} -9+8\tau & -17 & 25-\tau \\ 2+4\tau & -7+4\tau & 11-6\tau \\ 6 & 4\tau & -1-6\tau \end{bmatrix}, A_{36,7} = \begin{bmatrix} 3-\tau & -1+2\tau & -1+2\tau \\ -4-2\tau & 7-\tau & 6-\tau \\ -6+2\tau & 4-4\tau & 3-3\tau \end{bmatrix}, \\
A_{36,8} &= \begin{bmatrix} -5-9\tau & 4-7\tau & 4+\tau \\ -2 & -1-\tau & 1 \\ -6+2\tau & -4 & 1-\tau \end{bmatrix}, A_{36,9} = \begin{bmatrix} 1-\tau & 1 & -1 \\ -4 & -1-\tau & \tau \\ -6+2\tau & -2 & 1+\tau \end{bmatrix}, A_{36,10} = \begin{bmatrix} -6+3\tau & -1+\tau & 11+8\tau \\ 2\tau & \tau & 11-2\tau \\ 4+2\tau & 2 & 14-9\tau \end{bmatrix}, \\
A_{36,11} &= \begin{bmatrix} -6+\tau & 5+\tau & 3+\tau \\ -2+4\tau & 6-3\tau & 5-2\tau \\ 4+2\tau & -4\tau & -3\tau \end{bmatrix}, A_{36,12} = \begin{bmatrix} -10+5\tau & -3+4\tau & 3 \\ 2+2\tau & 2+\tau & 1-\tau \\ 4+2\tau & 4 & -\tau \end{bmatrix}, A_{37,1} = \begin{bmatrix} 1-2\tau & 0 & 6 \\ -5-\tau & 1 & 6-6\tau \\ -5+3\tau & -\tau & -7-4\tau \end{bmatrix}, \\
A_{37,2} &= \begin{bmatrix} -11-6\tau & -6+12\tau & -6+12\tau \\ -1 & 1 & 0 \\ -5+3\tau & 7 & 7 \end{bmatrix}, A_{37,3} = \begin{bmatrix} -1-4\tau & 3-6\tau & 4+3\tau \\ -6-\tau & -5-3\tau & 6-\tau \\ -5+3\tau & -8+2\tau & 3-3\tau \end{bmatrix}, A_{37,4} = \begin{bmatrix} -5-3\tau & -3+\tau & 6-3\tau \\ -2 & -1+\tau & 1-\tau \\ -5+3\tau & 1+\tau & -3-2\tau \end{bmatrix}, \\
A_{37,5} &= \begin{bmatrix} 1-4\tau & -2\tau & 6 \\ -7-\tau & -3 & 4-4\tau \\ -5+3\tau & -2+\tau & -3-2\tau \end{bmatrix}, A_{37,6} = \begin{bmatrix} -8-5\tau & 1+5\tau & -7+6\tau \\ -3 & 2 & \tau \\ -5+3\tau & 4-\tau & 4+\tau \end{bmatrix}, A_{37,7} = \begin{bmatrix} -6-9\tau & -9-5\tau & 1+3\tau \\ -8-\tau & -7 & 2+\tau \\ -5+3\tau & -3+3\tau & 2-\tau \end{bmatrix}, \\
A_{37,8} &= \begin{bmatrix} -7-5\tau & 6+2\tau & 9-3\tau \\ -4 & 3-\tau & 2-2\tau \\ -5+3\tau & 2-2\tau & -2-2\tau \end{bmatrix}, A_{37,9} = \begin{bmatrix} -2-3\tau & -7-\tau & -3+4\tau \\ -5 & -6+2\tau & 2+3\tau \\ -5+3\tau & -2+5\tau & 8-\tau \end{bmatrix}, A_{37,10} = \begin{bmatrix} -6-6\tau & 6-6\tau & 13-3\tau \\ -6 & -1-3\tau & 4-3\tau \\ -5+3\tau & -5 & -2-3\tau \end{bmatrix}, \\
A_{37,11} &= \begin{bmatrix} -3-2\tau & 4-4\tau & 6 \\ -2+\tau & -3 & -2\tau \\ -5+3\tau & -7-\tau & 1-4\tau \end{bmatrix}, A_{37,12} = \begin{bmatrix} -6-7\tau & 1-2\tau & -7+3\tau \\ -7 & -1 & -1+2\tau \\ -5+3\tau & -1 & 2+\tau \end{bmatrix}, A_{37,13} = \begin{bmatrix} -8-5\tau & 3-5\tau & -13+9\tau \\ -3+\tau & -1-\tau & 2+2\tau \\ -5+3\tau & -4 & 6+2\tau \end{bmatrix}, \\
A_{37,14} &= \begin{bmatrix} -9-6\tau & 3-5\tau & -14+9\tau \\ -4+\tau & -2 & 1+2\tau \\ -5+3\tau & -3 & 5+2\tau \end{bmatrix}, A_{37,15} = \begin{bmatrix} -6-5\tau & 14-5\tau & -3+7\tau \\ -5+\tau & 1-4\tau & 5+\tau \\ -5+3\tau & -4-3\tau & 6-\tau \end{bmatrix}, A_{37,16} = \begin{bmatrix} 1-2\tau & 1-2\tau & \tau \\ -6+\tau & -5+\tau & 2-\tau \\ -5+3\tau & -4+2\tau & 1-\tau \end{bmatrix}, \\
A_{37,17} &= \begin{bmatrix} 1-\tau & 1 & -1 \\ -4+2\tau & -1-\tau & 2+\tau \\ -5+3\tau & -1-2\tau & 4+\tau \end{bmatrix}, A_{37,18} = \begin{bmatrix} -11-8\tau & -13+11\tau & 11+\tau \\ -5+2\tau & 4+\tau & 1-2\tau \\ -5+3\tau & 5+\tau & 1-2\tau \end{bmatrix}, A_{37,19} = \begin{bmatrix} -7-\tau & -6-2\tau & 4 \\ -7+4\tau & -7+3\tau & 2-2\tau \\ 2+3\tau & 3\tau & -1-\tau \end{bmatrix}, \\
A_{37,20} &= \begin{bmatrix} -11+2\tau & \tau & -3\tau \\ -5+3\tau & 0 & -2-\tau \\ 2+3\tau & 1 & -3+\tau \end{bmatrix}, A_{37,21} = \begin{bmatrix} -5+\tau & -2 & -4\tau \\ -3+2\tau & -1+\tau & -4-2\tau \\ 2+3\tau & \tau & -9+3\tau \end{bmatrix}, A_{37,22} = \begin{bmatrix} -9+3\tau & 5\tau & 5 \\ -1+\tau & 1 & 0 \\ 2+3\tau & 6-\tau & 1-2\tau \end{bmatrix}, \\
A_{37,23} &= \begin{bmatrix} -20+4\tau & -6+2\tau & 2+9\tau \\ -6+4\tau & -2+\tau & 5+2\tau \\ 2+3\tau & 1+\tau & 5-2\tau \end{bmatrix}, A_{37,24} = \begin{bmatrix} -13+3\tau & -6+6\tau & 6+6\tau \\ -4+3\tau & 1+3\tau & 6 \\ 2+3\tau & 5 & 5-3\tau \end{bmatrix}, A_{37,25} = \begin{bmatrix} -16+5\tau & 7+9\tau & 9-8\tau \\ -2+2\tau & 4+\tau & 1-2\tau \\ 2+3\tau & 7-3\tau & -5-\tau \end{bmatrix}, \\
A_{37,26} &= \begin{bmatrix} -9+3\tau & -4-2\tau & -4\tau \\ \tau & -1+\tau & -2 \\ 2+3\tau & -3+2\tau & -5+\tau \end{bmatrix}, A_{37,27} = \begin{bmatrix} -19+4\tau & -7\tau & 3-9\tau \\ -5+4\tau & -3-\tau & -4-2\tau \\ 2+3\tau & -4+\tau & -5+\tau \end{bmatrix}, A_{37,28} = \begin{bmatrix} -1-\tau & -2 & -1+\tau \\ -3+3\tau & 1+3\tau & 5-\tau \\ 2+3\tau & 7+\tau & 3-4\tau \end{bmatrix}, \\
A_{37,29} &= \begin{bmatrix} -13+4\tau & -1-9\tau & 11-\tau \\ -1+2\tau & -4-\tau & 3-2\tau \\ 2+3\tau & -8+2\tau & -3\tau \end{bmatrix}, A_{37,30} = \begin{bmatrix} -4-\tau & -3 & 1 \\ -4+4\tau & -2+3\tau & 1-\tau \\ 2+3\tau & 3+2\tau & -1-\tau \end{bmatrix}, A_{37,31} = \begin{bmatrix} -15+4\tau & 8-\tau & 4+5\tau \\ -2+3\tau & 2-\tau & 4 \\ 2+3\tau & -2\tau & 4-2\tau \end{bmatrix}, \\
A_{37,32} &= \begin{bmatrix} -16+5\tau & -12-\tau & 9+6\tau \\ 2\tau & -2+\tau & 4-\tau \\ 2+3\tau & -2+3\tau & 5-3\tau \end{bmatrix}, A_{37,33} = \begin{bmatrix} -15+4\tau & 7-5\tau & 1-7\tau \\ -1+3\tau & -1-\tau & -4 \\ 2+3\tau & -3-\tau & -5+\tau \end{bmatrix}, A_{37,34} = \begin{bmatrix} -5+\tau & -2+4\tau & 5+\tau \\ 1+2\tau & 5-\tau & 1-2\tau \\ 2+3\tau & 8-\tau & 3-4\tau \end{bmatrix}, \\
A_{37,35} &= \begin{bmatrix} -1-\tau & 2-2\tau & 4 \\ 3\tau & -7+3\tau & -6-2\tau \\ 2+3\tau & -7+4\tau & -7-\tau \end{bmatrix}, A_{37,36} = \begin{bmatrix} -13+3\tau & 7-9\tau & 8-9\tau \\ 1+3\tau & -6 & -7 \\ 2+3\tau & -7 & -7 \end{bmatrix},
\end{aligned}$$