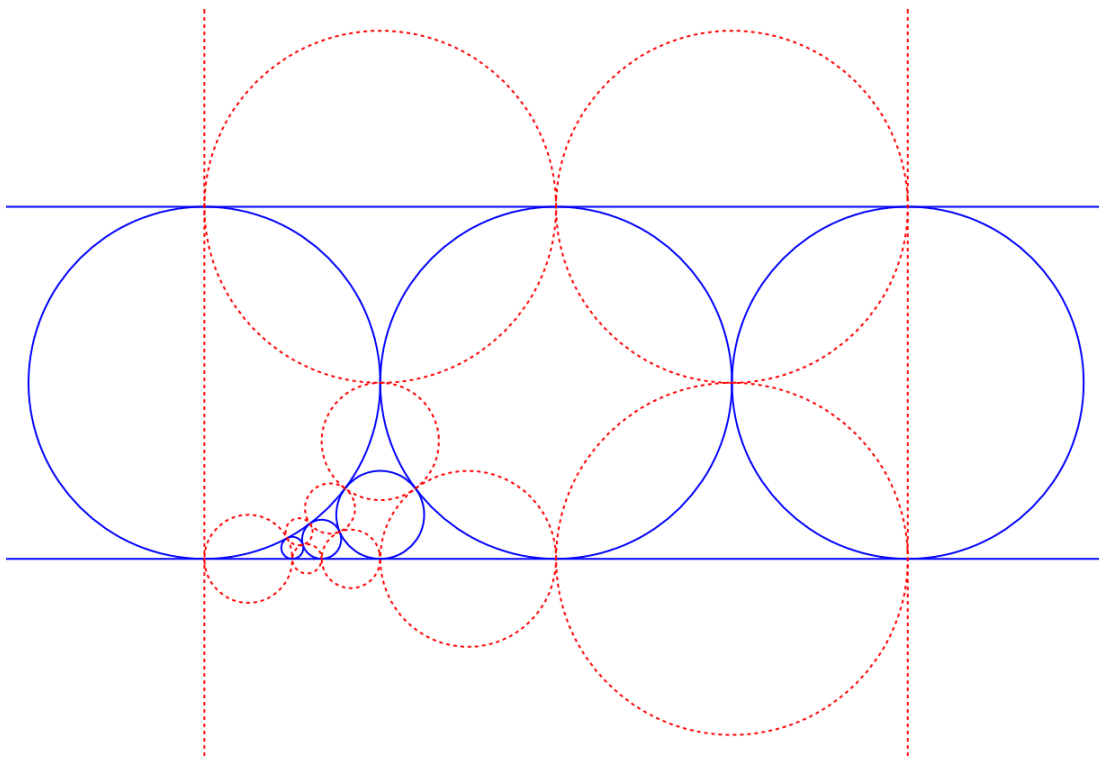# Appendix

For each polyhedron, we have included an adjacency dictionary for the respective edge-graph, a figure showing the cluster and co-cluster, the inversive coordinate vector, the Gram matrix, and the bend matrices. We label each polyhedron by the number of vertices and faces. For example, 8v12f_0 has 8 vertices and 12 faces, and we use "_0" to distinguish from other polyhedra with the same number of vertices and faces.

8v12f_0

8v12f_0 = Graph({0:[1, 2, 3, 4, 5, 6, 7], 1:[0, 7, 6, 2], 2:[0, 1, 6, 5, 4, 3], 3:[0, 2, 4], 4:[0, 3, 2, 5], 5:[0, 4, 2, 6], 6:[0, 5, 2, 1, 7], 7:[0, 6, 1]})

$$V = \begin{pmatrix}
0 & 0 & 0 & -1 \\
0 & 0 & -1 & 0 \\
0 & 1 & 0 & 1 \\
0 & 4 & 1 & 0 \\
4 & 16 & 8 & 1 \\
4 & 13 & 7 & 2 \\
4 & 12 & 7 & 0 \\
4 & 9 & 6 & 1 \\
4 & 7 & 5 & 2 \\
4 & 6 & 5 & 0 \\
4 & 4 & 4 & 1 \\
4 & 3 & 3 & 2 \\
4 & 2 & 3 & 0 \\
4 & 1 & 2 & 1 \\
4 & 1 & 1 & 2 \\
8 & 1 & 3 & 0 \\
12 & 1 & 3 & 2 \\
16 & 1 & 4 & 1 \\
4 & 0 & 0 & 1 \\
8 & 0 & 1 & 0
\end{pmatrix}$$

$$G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 2 & 1 & 1 & 0 \\
0 & -1 & 0 & 1 & 8 & 7 & 7 & 6 & 5 & 5 & 4 & 3 & 3 & 2 & 1 & 3 & 3 & 4 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 2 & 1 & 0 & 2 & 1 & 0 & 2 & 1 & 0 & 4 & 4 & 7 & 1 & 4 \\
0 & 1 & 0 & -1 & 0 & 1 & 1 & 2 & 3 & 3 & 4 & 5 & 5 & 6 & 7 & 13 & 21 & 28 & 8 & 15 \\
1 & 8 & 1 & 0 & -1 & 0 & 0 & 1 & 4 & 4 & 7 & 12 & 12 & 17 & 24 & 42 & 72 & 97 & 31 & 56 \\
2 & 7 & 0 & 1 & 0 & -1 & 1 & 0 & 1 & 3 & 4 & 7 & 9 & 12 & 17 & 33 & 55 & 76 & 24 & 45 \\
0 & 7 & 2 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 4 & 9 & 7 & 12 & 19 & 29 & 53 & 70 & 24 & 41 \\
1 & 6 & 1 & 2 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 4 & 4 & 7 & 12 & 20 & 36 & 49 & 17 & 30 \\
2 & 5 & 0 & 3 & 4 & 1 & 3 & 0 & -1 & 1 & 0 & 1 & 3 & 4 & 7 & 15 & 25 & 36 & 12 & 23 \\
0 & 5 & 2 & 3 & 4 & 3 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 4 & 9 & 11 & 23 & 30 & 12 & 19 \\
1 & 4 & 1 & 4 & 7 & 4 & 4 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 4 & 6 & 12 & 17 & 7 & 12 \\
2 & 3 & 0 & 5 & 12 & 7 & 9 & 4 & 1 & 3 & 0 & -1 & 1 & 0 & 1 & 5 & 7 & 12 & 4 & 9 \\
0 & 3 & 2 & 5 & 12 & 9 & 7 & 4 & 3 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 5 & 6 & 4 & 5 \\
1 & 2 & 1 & 6 & 17 & 12 & 12 & 7 & 4 & 4 & 1 & 0 & 0 & -1 & 0 & 0 & 0 & 1 & 1 & 2 \\
2 & 1 & 0 & 7 & 24 & 17 & 19 & 12 & 7 & 9 & 4 & 1 & 3 & 0 & -1 & 3 & 1 & 4 & 0 & 3 \\
0 & 3 & 4 & 13 & 42 & 33 & 29 & 20 & 15 & 11 & 6 & 5 & 1 & 0 & 3 & -1 & 1 & 0 & 2 & 1 \\
2 & 3 & 4 & 21 & 72 & 55 & 53 & 36 & 25 & 23 & 12 & 7 & 5 & 0 & 1 & 1 & -1 & 0 & 0 & 1 \\
1 & 4 & 7 & 28 & 97 & 76 & 70 & 49 & 36 & 30 & 17 & 12 & 6 & 1 & 4 & 0 & 0 & -1 & 1 & 0 \\
1 & 0 & 1 & 8 & 31 & 24 & 24 & 17 & 12 & 12 & 7 & 4 & 4 & 1 & 0 & 2 & 0 & 1 & -1 & 0 \\
0 & 1 & 4 & 15 & 56 & 45 & 41 & 30 & 23 & 19 & 12 & 9 & 5 & 2 & 3 & 1 & 1 & 0 & 0 & -1
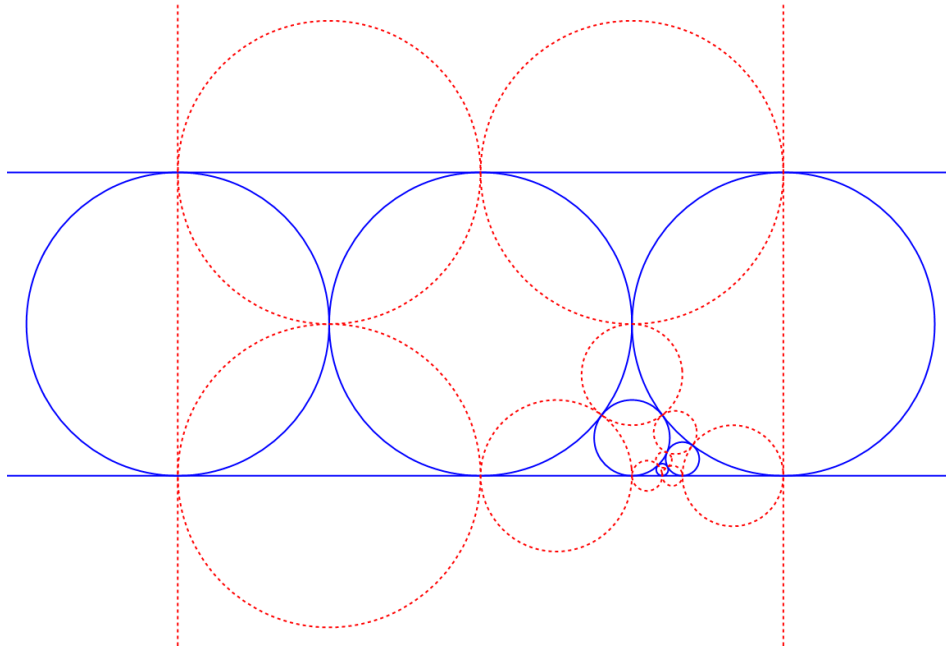\end{pmatrix}$$

$$
\left\{\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 2 \\
0 & 0 & 0 & 0 & 28 & -12 & 36 & 21 \\
0 & 0 & 0 & 0 & 45 & -20 & 60 & 36 \\
0 & 0 & 0 & 0 & 66 & -30 & 90 & 55 \\
0 & 0 & 0 & 0 & 91 & -42 & 126 & 78 \\
0 & 0 & 0 & 0 & 420 & -195 & 588 & 364 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 120 & -56 & 168 & 105
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 12 & -3 & 12 & 4 \\
0 & 0 & 0 & 0 & 88 & -24 & 96 & 33 \\
0 & 0 & 0 & 0 & 35 & -10 & 38 & 14 \\
0 & 0 & 0 & 0 & 6 & -2 & 6 & 3 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 30 & -5 & 30 & 6 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 20 & -4 & 20 & 5
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 2 \\
0 & 0 & 0 & 0 & 100 & -36 & 60 & 93 \\
0 & 0 & 0 & 0 & 51 & -18 & 30 & 46 \\
0 & 0 & 0 & 0 & 18 & -6 & 10 & 15 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 12 & -3 & 4 & 12 \\
0 & 0 & 0 & 0 & 6 & -2 & 3 & 6 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 84 & -35 & 108 & 60 \\
0 & 0 & 0 & 0 & 28 & -12 & 36 & 21 \\
0 & 0 & 0 & 0 & 15 & -6 & 18 & 10 \\
0 & 0 & 0 & 0 & 170 & -70 & 218 & 119 \\
0 & 0 & 0 & 0 & 493 & -204 & 636 & 348 \\
0 & 0 & 0 & 0 & 2870 & -1189 & 3710 & 2030 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 984 & -408 & 1272 & 697
\end{pmatrix}
, \text{integral}\right\},\right.
$$

$$
\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 2 \\
0 & 0 & 0 & 0 & 120 & -48 & 136 & 81 \\
0 & 0 & 0 & 0 & 15 & -6 & 18 & 10 \\
0 & 0 & 0 & 0 & 6 & -2 & 6 & 3 \\
0 & 0 & 0 & 0 & 93 & -36 & 100 & 60 \\
0 & 0 & 0 & 0 & 828 & -323 & 900 & 540 \\
0 & 0 & 0 & 0 & 46 & -18 & 51 & 30 \\
0 & 0 & 0 & 0 & 276 & -108 & 300 & 181
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 2 \\
0 & 0 & 0 & 0 & 28 & -12 & 36 & 21 \\
0 & 0 & 0 & 0 & 15 & -6 & 18 & 10 \\
0 & 0 & 0 & 0 & 186 & -78 & 226 & 135 \\
0 & 0 & 0 & 0 & 541 & -228 & 660 & 396 \\
0 & 0 & 0 & 0 & 3420 & -1443 & 4180 & 2508 \\
0 & 0 & 0 & 0 & 90 & -38 & 111 & 66 \\
0 & 0 & 0 & 0 & 1080 & -456 & 1320 & 793
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 6 & 3 & 6 & -2 \\
0 & 0 & 0 & 0 & 70 & 30 & 78 & -21 \\
0 & 0 & 0 & 0 & 35 & 14 & 38 & -10 \\
0 & 0 & 0 & 0 & 12 & 4 & 12 & -3 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 2 & 2 & 2 & -1
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 6 & 3 & -2 & 6 \\
0 & 0 & 0 & 0 & 100 & 60 & -36 & 93 \\
0 & 0 & 0 & 0 & 51 & 30 & -18 & 46 \\
0 & 0 & 0 & 0 & 18 & 10 & -6 & 15 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 2 & 2 & -1 & 2 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}
, \text{integral}\right\},
$$

$$
\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 40 & -15 & 48 & 24 \\
0 & 0 & 0 & 0 & 104 & -40 & 128 & 65 \\
0 & 0 & 0 & 0 & 15 & -6 & 18 & 10 \\
0 & 0 & 0 & 0 & 6 & -2 & 6 & 3 \\
0 & 0 & 0 & 0 & 77 & -28 & 92 & 44 \\
0 & 0 & 0 & 0 & 570 & -209 & 690 & 330 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 228 & -84 & 276 & 133
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 2 \\
0 & 0 & 0 & 0 & 136 & -48 & 120 & 81 \\
0 & 0 & 0 & 0 & 51 & -18 & 46 & 30 \\
0 & 0 & 0 & 0 & 6 & -2 & 6 & 3 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 108 & -35 & 84 & 60 \\
0 & 0 & 0 & 0 & 18 & -6 & 15 & 10 \\
0 & 0 & 0 & 0 & 36 & -12 & 28 & 21
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & -2 & 3 & 6 & 6 \\
0 & 0 & 0 & 0 & -28 & 44 & 92 & 77 \\
0 & 0 & 0 & 0 & -15 & 24 & 48 & 40 \\
0 & 0 & 0 & 0 & -6 & 10 & 18 & 15 \\
0 & 0 & 0 & 0 & -1 & 2 & 2 & 2 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}
, \text{integral}\right\},\left\{
\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 2 \\
0 & 0 & 0 & 0 & 36 & -20 & 60 & 45 \\
0 & 0 & 0 & 0 & 21 & -12 & 36 & 28 \\
0 & 0 & 0 & 0 & 10 & -6 & 18 & 15 \\
0 & 0 & 0 & 0 & 3 & -2 & 6 & 6 \\
0 & 0 & 0 & 0 & 4 & -3 & 12 & 12 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}
, \text{integral}\right\}\right\}
$$

8v12f_1

8v12f_1=Graph({ 0:[1, 2, 3, 4, 5, 6, 7], 1:[0, 7, 3, 2], 2:[0, 1, 3], 3:[0, 2, 1, 7, 4], 4:[0, 3, 7, 6, 5], 5:[0, 4, 6], 6:[0, 5, 4, 7], 7:[0, 6, 4, 3, 1]})
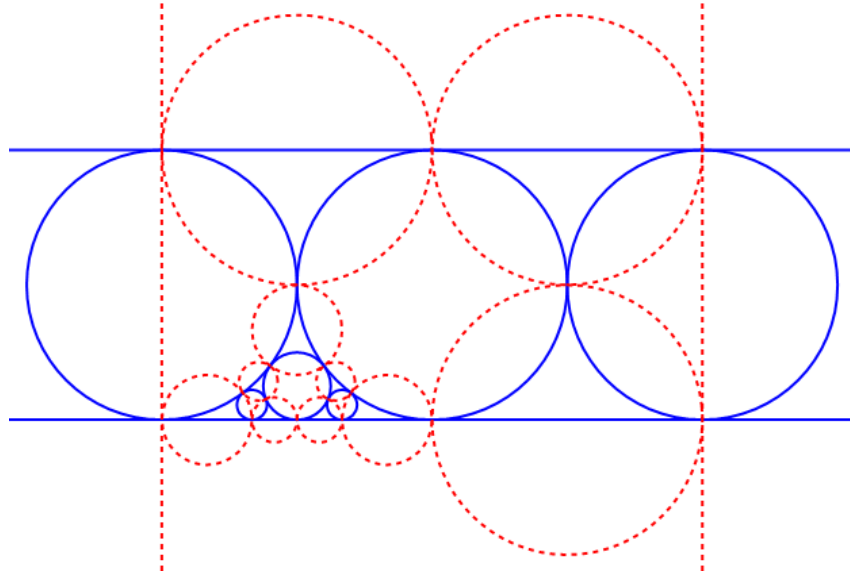
$$V = \begin{pmatrix}
0 & 0 & 0 & -1 \\
0 & 0 & -1 & 0 \\
0 & 1 & 0 & 1 \\
0 & 1 & 1 & 0 \\
4 & 1 & 2 & 1 \\
4 & 1 & 1 & 2 \\
12 & 2 & 5 & 0 \\
12 & 1 & 3 & 2 \\
36 & 4 & 12 & 1 \\
28 & 3 & 9 & 2 \\
16 & 1 & 4 & 1 \\
96 & 10 & 31 & 0 \\
256 & 25 & 80 & 1 \\
196 & 19 & 61 & 2 \\
100 & 9 & 30 & 1 \\
76 & 7 & 23 & 2 \\
40 & 3 & 11 & 0 \\
160 & 15 & 49 & 0 \\
4 & 0 & 0 & 1 \\
8 & 0 & 1 & 0
\end{pmatrix}$$

$$G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 0 & 2 & 1 & 2 & 1 & 0 & 1 & 2 & 1 & 2 & 0 & 0 & 1 & 0 \\
0 & -1 & 0 & 1 & 2 & 1 & 5 & 3 & 12 & 9 & 4 & 31 & 80 & 61 & 30 & 23 & 11 & 49 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 6 & 4 & 17 & 12 & 7 & 48 & 127 & 96 & 49 & 36 & 20 & 80 & 1 & 4 \\
0 & 1 & 0 & -1 & 0 & 1 & 1 & 3 & 6 & 5 & 4 & 17 & 48 & 37 & 20 & 15 & 9 & 31 & 2 & 3 \\
1 & 2 & 1 & 0 & -1 & 0 & 0 & 0 & 1 & 0 & 1 & 6 & 17 & 12 & 7 & 4 & 4 & 12 & 1 & 2 \\
2 & 1 & 0 & 1 & 0 & -1 & 5 & 1 & 12 & 7 & 4 & 37 & 96 & 71 & 36 & 25 & 15 & 61 & 0 & 3 \\
0 & 5 & 6 & 1 & 0 & 5 & -1 & 3 & 0 & 1 & 2 & 1 & 6 & 5 & 4 & 3 & 3 & 5 & 4 & 3 \\
2 & 3 & 4 & 3 & 0 & 1 & 3 & -1 & 4 & 1 & 0 & 15 & 36 & 25 & 12 & 7 & 5 & 23 & 0 & 1 \\
1 & 12 & 17 & 6 & 1 & 12 & 0 & 4 & -1 & 0 & 1 & 0 & 1 & 0 & 1 & 0 & 2 & 2 & 7 & 4 \\
2 & 9 & 12 & 5 & 0 & 7 & 1 & 1 & 0 & -1 & 0 & 5 & 12 & 7 & 4 & 1 & 3 & 9 & 4 & 3 \\
1 & 4 & 7 & 4 & 1 & 4 & 2 & 0 & 1 & 0 & -1 & 4 & 7 & 4 & 1 & 0 & 0 & 4 & 1 & 0 \\
0 & 31 & 48 & 17 & 6 & 37 & 1 & 15 & 0 & 5 & 4 & -1 & 0 & 1 & 2 & 3 & 3 & 1 & 20 & 9 \\
1 & 80 & 127 & 48 & 17 & 96 & 6 & 36 & 1 & 12 & 7 & 0 & -1 & 0 & 1 & 4 & 4 & 0 & 49 & 20 \\
2 & 61 & 96 & 37 & 12 & 71 & 5 & 25 & 0 & 7 & 4 & 1 & 0 & -1 & 0 & 1 & 3 & 1 & 36 & 15 \\
1 & 30 & 49 & 20 & 7 & 36 & 4 & 12 & 1 & 4 & 1 & 2 & 1 & 0 & -1 & 0 & 0 & 0 & 17 & 6 \\
2 & 23 & 36 & 15 & 4 & 25 & 3 & 7 & 0 & 1 & 0 & 3 & 4 & 1 & 0 & -1 & 1 & 3 & 12 & 5 \\
0 & 11 & 20 & 9 & 4 & 15 & 3 & 5 & 2 & 3 & 0 & 3 & 4 & 3 & 0 & 1 & -1 & 1 & 6 & 1 \\
0 & 49 & 80 & 31 & 12 & 61 & 5 & 23 & 2 & 9 & 4 & 1 & 0 & 1 & 0 & 3 & 1 & -1 & 30 & 11 \\
1 & 0 & 1 & 2 & 1 & 0 & 4 & 0 & 7 & 4 & 1 & 20 & 49 & 36 & 17 & 12 & 6 & 30 & -1 & 0 \\
0 & 1 & 4 & 3 & 2 & 3 & 3 & 1 & 4 & 3 & 0 & 9 & 20 & 15 & 6 & 5 & 1 & 11 & 0 & -1
\end{pmatrix}$$

8v12f_2

8v12f_2=Graph({ 0:[1, 2, 3, 4, 5, 6], 1:[0, 6, 7, 5, 2], 2:[0, 1, 5, 4, 3], 3:[0, 2, 4], 4:[0, 3, 2, 5], 5:[0, 4, 2, 1, 7, 6], 6:[0, 5, 7, 1], 7:[1, 6, 5]})

$$V = \begin{pmatrix} 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & 4 & 1 & 0 \\ 4 & 16 & 8 & 1 \\ 4 & 13 & 7 & 2 \\ 4 & 12 & 7 & 0 \\ 4 & 9 & 6 & 1 \\ 4 & 7 & 5 & 2 \\ 4 & 6 & 5 & 0 \\ 4 & 4 & 4 & 1 \\ 4 & 3 & 3 & 2 \\ 4 & 2 & 3 & 0 \\ 4 & 1 & 2 & 1 \\ 4 & 1 & 1 & 2 \\ 8 & 1 & 3 & 0 \\ 12 & 1 & 3 & 2 \\ 16 & 1 & 4 & 1 \\ 4 & 0 & 0 & 1 \\ 8 & 0 & 1 & 0 \end{pmatrix}$$

$$G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 2 & 1 & 1 & 0 \\
0 & -1 & 0 & 1 & 8 & 7 & 7 & 6 & 5 & 5 & 4 & 3 & 3 & 2 & 1 & 3 & 3 & 4 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 2 & 1 & 0 & 2 & 1 & 0 & 2 & 1 & 0 & 4 & 4 & 7 & 1 & 4 \\
0 & 1 & 0 & -1 & 0 & 1 & 1 & 2 & 3 & 3 & 4 & 5 & 5 & 6 & 7 & 13 & 21 & 28 & 8 & 15 \\
1 & 8 & 1 & 0 & -1 & 0 & 0 & 1 & 4 & 4 & 7 & 12 & 12 & 17 & 24 & 42 & 72 & 97 & 31 & 56 \\
2 & 7 & 0 & 1 & 0 & -1 & 1 & 0 & 1 & 3 & 4 & 7 & 9 & 12 & 17 & 33 & 55 & 76 & 24 & 45 \\
0 & 7 & 2 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 4 & 9 & 7 & 12 & 19 & 29 & 53 & 70 & 24 & 41 \\
1 & 6 & 1 & 2 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 4 & 4 & 7 & 12 & 20 & 36 & 49 & 17 & 30 \\
2 & 5 & 0 & 3 & 4 & 1 & 3 & 0 & -1 & 1 & 0 & 1 & 3 & 4 & 7 & 15 & 25 & 36 & 12 & 23 \\
0 & 5 & 2 & 3 & 4 & 3 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 4 & 9 & 11 & 23 & 30 & 12 & 19 \\
1 & 4 & 1 & 4 & 7 & 4 & 4 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 4 & 6 & 12 & 17 & 7 & 12 \\
2 & 3 & 0 & 5 & 12 & 7 & 9 & 4 & 1 & 3 & 0 & -1 & 1 & 0 & 1 & 5 & 7 & 12 & 4 & 9 \\
0 & 3 & 2 & 5 & 12 & 9 & 7 & 4 & 3 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 5 & 6 & 4 & 5 \\
1 & 2 & 1 & 6 & 17 & 12 & 12 & 7 & 4 & 4 & 1 & 0 & 0 & -1 & 0 & 0 & 0 & 1 & 1 & 2 \\
2 & 1 & 0 & 7 & 24 & 17 & 19 & 12 & 7 & 9 & 4 & 1 & 3 & 0 & -1 & 3 & 1 & 4 & 0 & 3 \\
0 & 3 & 4 & 13 & 42 & 33 & 29 & 20 & 15 & 11 & 6 & 5 & 1 & 0 & 3 & -1 & 1 & 0 & 2 & 1 \\
2 & 3 & 4 & 21 & 72 & 55 & 53 & 36 & 25 & 23 & 12 & 7 & 5 & 0 & 1 & 1 & -1 & 0 & 0 & 1 \\
1 & 4 & 7 & 28 & 97 & 76 & 70 & 49 & 36 & 30 & 17 & 12 & 6 & 1 & 4 & 0 & 0 & -1 & 1 & 0 \\
1 & 0 & 1 & 8 & 31 & 24 & 24 & 17 & 12 & 12 & 7 & 4 & 4 & 1 & 0 & 2 & 0 & 1 & -1 & 0 \\
0 & 1 & 4 & 15 & 56 & 45 & 41 & 30 & 23 & 19 & 12 & 9 & 5 & 2 & 3 & 1 & 1 & 0 & 0 & -1
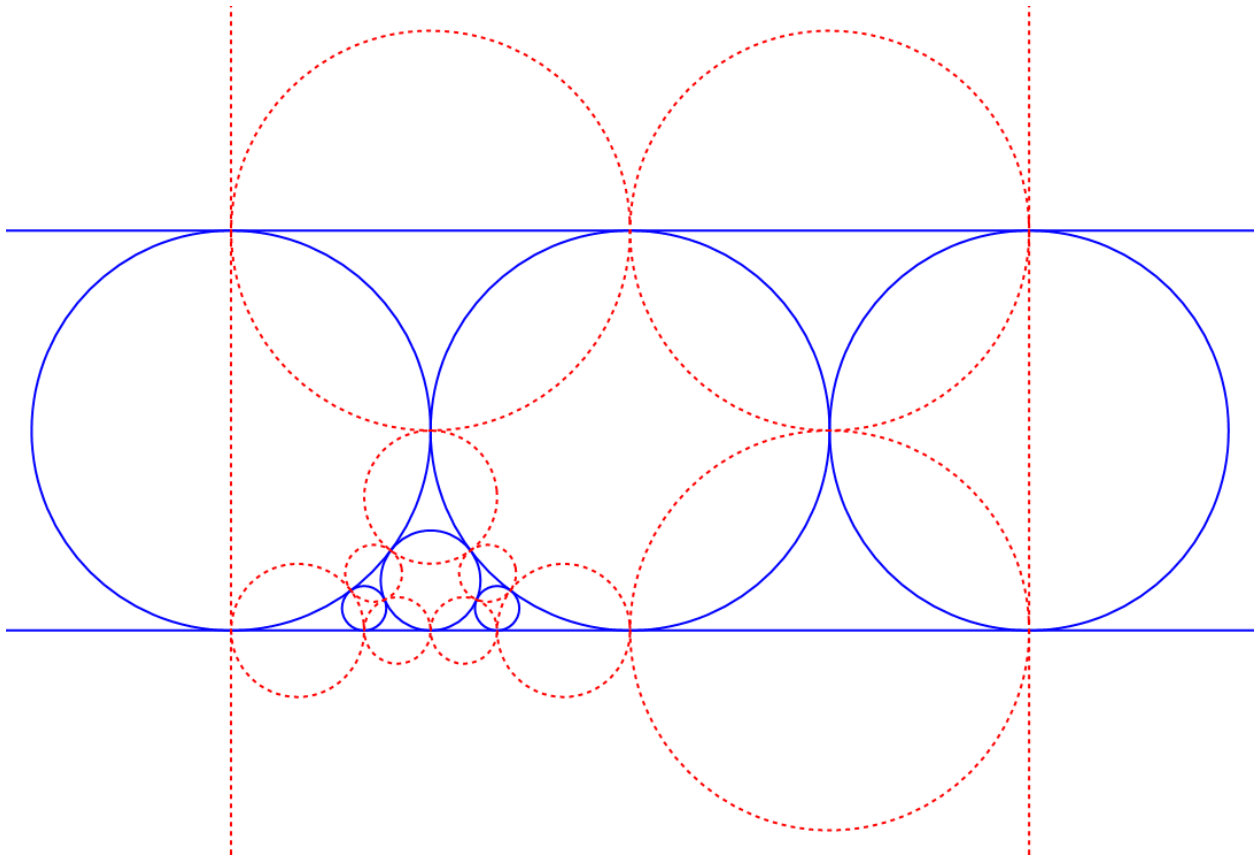\end{pmatrix}$$

$$\left\{\left\{\begin{pmatrix} 0&0&0&0&2&-1&2&2 \\ 0&0&0&0&28&-12&36&21 \\ 0&0&0&0&45&-20&60&36 \\ 0&0&0&0&66&-30&90&55 \\ 0&0&0&0&91&-42&126&78 \\ 0&0&0&0&420&-195&588&364 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&120&-56&168&105 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&12&-3&12&4 \\ 0&0&0&0&88&-24&96&33 \\ 0&0&0&0&35&-10&38&14 \\ 0&0&0&0&6&-2&6&3 \\ 0&0&0&0&1&0&0&0 \\ 0&0&0&0&30&-5&30&6 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&20&-4&20&5 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&2&-1&2&2 \\ 0&0&0&0&100&-36&60&93 \\ 0&0&0&0&51&-18&30&46 \\ 0&0&0&0&18&-6&10&15 \\ 0&0&0&0&1&0&0&0 \\ 0&0&0&0&12&-3&4&12 \\ 0&0&0&0&6&-2&3&6 \\ 0&0&0&0&0&0&0&1 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&84&-35&108&60 \\ 0&0&0&0&28&-12&36&21 \\ 0&0&0&0&15&-6&18&10 \\ 0&0&0&0&170&-70&218&119 \\ 0&0&0&0&493&-204&636&348 \\ 0&0&0&0&2870&-1189&3710&2030 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&984&-408&1272&697 \end{pmatrix}, \text{integral}\right\},\right.$$

$$\left\{\begin{pmatrix} 0&0&0&0&2&-1&2&2 \\ 0&0&0&0&120&-48&136&81 \\ 0&0&0&0&15&-6&18&10 \\ 0&0&0&0&6&-2&6&3 \\ 0&0&0&0&93&-36&100&60 \\ 0&0&0&0&828&-323&900&540 \\ 0&0&0&0&46&-18&51&30 \\ 0&0&0&0&276&-108&300&181 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&2&-1&2&2 \\ 0&0&0&0&28&-12&36&21 \\ 0&0&0&0&15&-6&18&10 \\ 0&0&0&0&186&-78&226&135 \\ 0&0&0&0&541&-228&660&396 \\ 0&0&0&0&3420&-1443&4180&2508 \\ 0&0&0&0&90&-38&111&66 \\ 0&0&0&0&1080&-456&1320&793 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&6&3&6&-2 \\ 0&0&0&0&70&30&78&-21 \\ 0&0&0&0&35&14&38&-10 \\ 0&0&0&0&12&4&12&-3 \\ 0&0&0&0&1&0&0&0 \\ 0&0&0&0&0&1&0&0 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&2&2&2&-1 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&6&3&-2&6 \\ 0&0&0&0&100&60&-36&93 \\ 0&0&0&0&51&30&-18&46 \\ 0&0&0&0&18&10&-6&15 \\ 0&0&0&0&1&0&0&0 \\ 0&0&0&0&0&1&0&0 \\ 0&0&0&0&2&2&-1&2 \\ 0&0&0&0&0&0&0&1 \end{pmatrix}, \text{integral}\right\},$$

$$\left\{\begin{pmatrix} 0&0&0&0&40&-15&48&24 \\ 0&0&0&0&104&-40&128&65 \\ 0&0&0&0&15&-6&18&10 \\ 0&0&0&0&6&-2&6&3 \\ 0&0&0&0&77&-28&92&44 \\ 0&0&0&0&570&-209&690&330 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&228&-84&276&133 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&2&-1&2&2 \\ 0&0&0&0&136&-48&120&81 \\ 0&0&0&0&51&-18&46&30 \\ 0&0&0&0&6&-2&6&3 \\ 0&0&0&0&1&0&0&0 \\ 0&0&0&0&108&-35&84&60 \\ 0&0&0&0&18&-6&15&10 \\ 0&0&0&0&36&-12&28&21 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&-2&3&6&6 \\ 0&0&0&0&-28&44&92&77 \\ 0&0&0&0&-15&24&48&40 \\ 0&0&0&0&-6&10&18&15 \\ 0&0&0&0&-1&2&2&2 \\ 0&0&0&0&0&1&0&0 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&0&0&0&1 \end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix} 0&0&0&0&2&-1&2&2 \\ 0&0&0&0&36&-20&60&45 \\ 0&0&0&0&21&-12&36&28 \\ 0&0&0&0&10&-6&18&15 \\ 0&0&0&0&3&-2&6&6 \\ 0&0&0&0&4&-3&12&12 \\ 0&0&0&0&0&0&1&0 \\ 0&0&0&0&0&0&0&1 \end{pmatrix}, \text{integral}\right\}\right\}$$

8v12f_3

8v12f_3=Graph({ 0:[1, 2, 3, 4, 5, 6, 7], 1:[0, 7, 6, 2], 2:[0, 1, 6, 4, 3], 3:[0, 2, 4], 4:[0, 3, 2, 6, 5], 5:[0, 4, 6], 6:[0, 5, 4, 2, 1, 7], 7:[0, 6, 1]})

8v12f_4

8v12f_4=Graph({ 0:[1, 2, 3, 4, 5, 6], 1:[0, 6, 5, 2], 2:[0, 1, 5, 7, 4, 3], 3:[0, 2, 4], 4:[0, 3, 2, 7, 5],
5:[0, 4, 7, 2, 1, 6], 6:[0, 5, 1], 7:[2, 5, 4]})
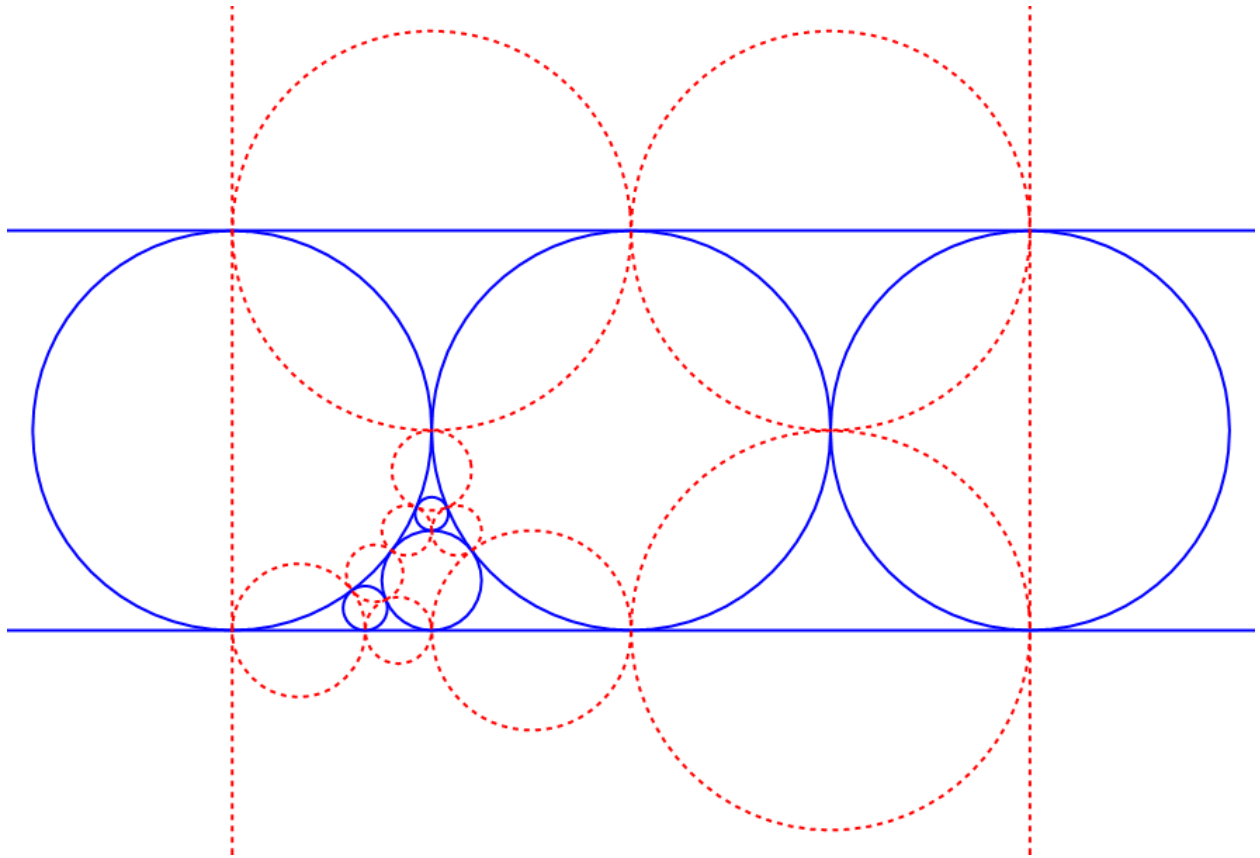
8v12f_5

8v12f_5=Graph({ 0:[1, 2, 3, 4, 5, 6, 7], 1:[0, 7, 4, 2], 2:[0, 1, 4, 3], 3:[0, 2, 4], 4:[0, 3, 2, 1, 7, 6, 5], 5:[0, 4, 6], 6:[0, 5, 4, 7], 7:[0, 6, 4, 1]})
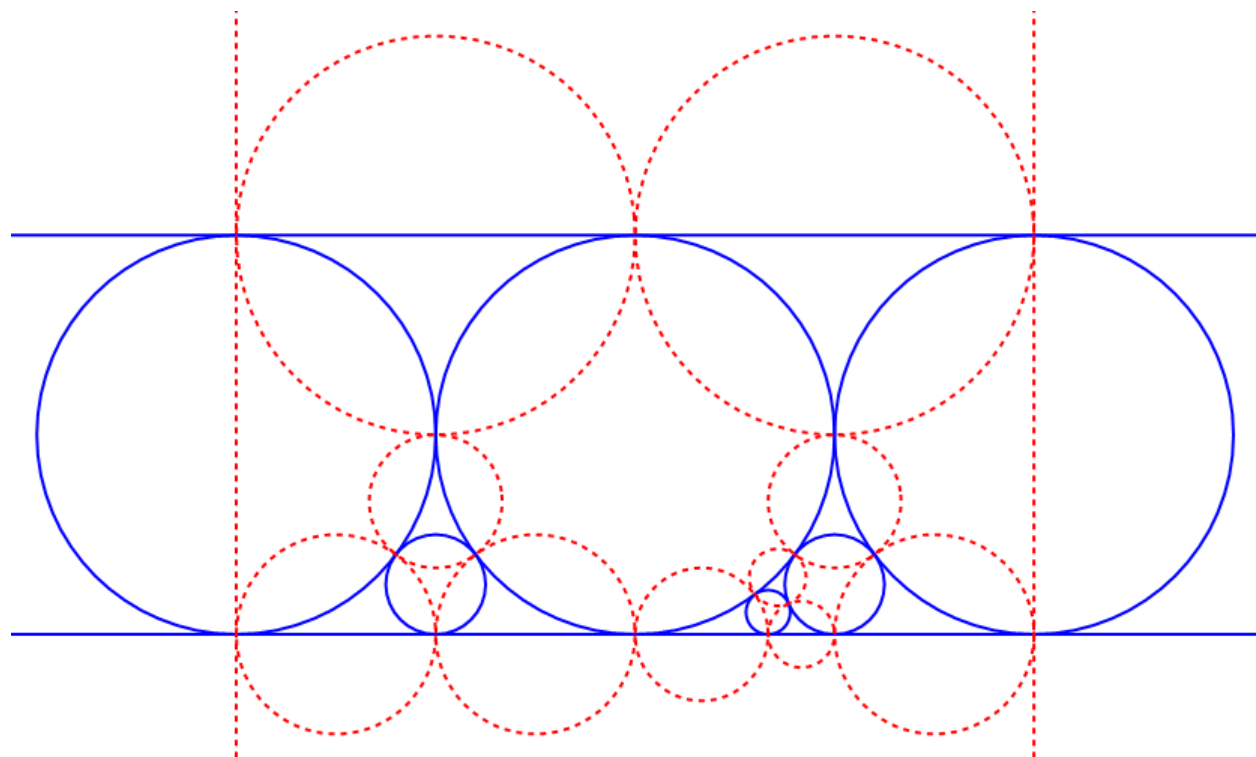
$$V = \begin{pmatrix} 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & 2 & 1 & 0 \\ 4 & 4 & 4 & 1 \\ 4 & 3 & 3 & 2 \\ 4 & 2 & 3 & 0 \\ 4 & 1 & 2 & 1 \\ 4 & 1 & 1 & 2 \\ 16 & 3 & 7 & 0 \\ 12 & 1 & 3 & 2 \\ 64 & 9 & 24 & 1 \\ 52 & 7 & 19 & 2 \\ 36 & 4 & 12 & 1 \\ 28 & 3 & 9 & 2 \\ 16 & 1 & 4 & 1 \\ 48 & 6 & 17 & 0 \\ 24 & 2 & 7 & 0 \\ 4 & 0 & 0 & 1 \\ 8 & 0 & 1 & 0 \end{pmatrix}$$

$$G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 2 & 1 & 2 & 1 & 2 & 1 & 0 & 0 & 1 & 0 \\
0 & -1 & 0 & 1 & 4 & 3 & 3 & 2 & 1 & 7 & 3 & 24 & 19 & 12 & 9 & 4 & 17 & 7 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 2 & 1 & 0 & 8 & 4 & 31 & 24 & 17 & 12 & 7 & 24 & 12 & 1 & 4 \\
0 & 1 & 0 & -1 & 0 & 1 & 1 & 2 & 3 & 9 & 9 & 40 & 33 & 24 & 19 & 12 & 31 & 17 & 4 & 7 \\
1 & 4 & 1 & 0 & -1 & 0 & 0 & 1 & 4 & 10 & 12 & 49 & 40 & 31 & 24 & 17 & 40 & 24 & 7 & 12 \\
2 & 3 & 0 & 1 & 0 & -1 & 1 & 0 & 1 & 9 & 7 & 40 & 31 & 24 & 17 & 12 & 33 & 19 & 4 & 9 \\
0 & 3 & 2 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 5 & 10 & 9 & 8 & 7 & 6 & 9 & 7 & 4 & 5 \\
1 & 2 & 1 & 2 & 1 & 0 & 0 & -1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 2 & 2 & 1 & 2 \\
2 & 1 & 0 & 3 & 4 & 1 & 3 & 0 & -1 & 7 & 1 & 24 & 17 & 12 & 7 & 4 & 19 & 9 & 0 & 3 \\
0 & 7 & 8 & 9 & 10 & 9 & 1 & 0 & 7 & -1 & 5 & 0 & 1 & 2 & 3 & 4 & 1 & 3 & 6 & 5 \\
2 & 3 & 4 & 9 & 12 & 7 & 5 & 0 & 1 & 5 & -1 & 12 & 7 & 4 & 1 & 0 & 9 & 3 & 0 & 1 \\
1 & 24 & 31 & 40 & 49 & 40 & 10 & 1 & 24 & 0 & 12 & -1 & 0 & 1 & 4 & 7 & 0 & 4 & 17 & 12 \\
2 & 19 & 24 & 33 & 40 & 31 & 9 & 0 & 17 & 1 & 7 & 0 & -1 & 0 & 1 & 4 & 1 & 3 & 12 & 9 \\
1 & 12 & 17 & 24 & 31 & 24 & 8 & 1 & 12 & 2 & 4 & 1 & 0 & -1 & 0 & 1 & 0 & 0 & 7 & 4 \\
2 & 9 & 12 & 19 & 24 & 17 & 7 & 0 & 7 & 3 & 1 & 4 & 1 & 0 & -1 & 0 & 3 & 1 & 4 & 3 \\
1 & 4 & 7 & 12 & 17 & 12 & 6 & 1 & 4 & 4 & 0 & 7 & 4 & 1 & 0 & -1 & 4 & 0 & 1 & 0 \\
0 & 17 & 24 & 31 & 40 & 33 & 9 & 2 & 19 & 1 & 9 & 0 & 1 & 0 & 3 & 4 & -1 & 1 & 12 & 7 \\
0 & 7 & 12 & 17 & 24 & 19 & 7 & 2 & 9 & 3 & 3 & 4 & 3 & 0 & 1 & 0 & 1 & -1 & 4 & 1 \\
1 & 0 & 1 & 4 & 7 & 4 & 4 & 1 & 0 & 6 & 0 & 17 & 12 & 7 & 4 & 1 & 12 & 4 & -1 & 0 \\
0 & 1 & 4 & 7 & 12 & 9 & 5 & 2 & 3 & 5 & 1 & 12 & 9 & 4 & 3 & 0 & 7 & 1 & 0 & -1
\end{pmatrix}$$

$$\left\{\left\{\begin{pmatrix}
0&0&0&0&19&-3&-24&9\\
0&0&0&0&39&-8&-48&18\\
0&0&1&0&0&0&0&0\\
0&0&0&0&9&-3&-8&3\\
0&0&0&1&0&0&0&0\\
0&0&0&0&0&1&0&0\\
0&0&0&0&3&0&-3&1\\
0&0&0&0&6&0&-8&3
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&1&-3&0&3\\
0&0&0&0&3&-8&0&6\\
0&0&1&0&7&-20&4&17\\
0&0&0&0&143&-403&80&341\\
0&0&0&0&85&-240&48&204\\
0&0&0&0&42&-119&24&102\\
0&0&0&0&0&0&1&0\\
0&0&0&0&14&-40&8&35
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&85&-51&48&15\\
0&0&0&0&143&-88&80&26\\
0&0&1&0&7&-4&4&1\\
0&0&0&0&3&-3&0&1\\
0&0&0&1&0&0&0&0\\
0&0&0&0&14&-7&8&2\\
0&0&0&0&0&0&1&0\\
0&0&0&0&42&-24&24&7
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&1&-3&0&3\\
0&0&0&0&9&-24&-8&24\\
0&0&1&0&0&0&0&0\\
0&0&0&0&39&-99&-48&109\\
0&0&0&0&19&-48&-24&54\\
0&0&0&0&6&-15&-8&18\\
0&0&0&0&3&-8&-3&9\\
0&0&0&0&0&0&0&1
\end{pmatrix}, \text{"integral"}\right\},\right.$$

$$\left\{\begin{pmatrix}
0&0&0&0&6&-15&0&10\\
0&0&0&0&3&-8&0&6\\
0&0&1&0&0&0&0&0\\
0&0&0&0&28&-63&0&36\\
0&0&0&0&21&-48&0&28\\
0&0&0&0&15&-35&0&21\\
0&0&0&0&0&0&1&0\\
0&0&0&0&10&-24&0&15
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&1&-3&0&3\\
0&0&0&0&3&-8&0&6\\
0&0&1&0&0&0&0&0\\
0&0&0&0&183&-483&-80&381\\
0&0&0&0&109&-288&-48&228\\
0&0&0&0&54&-143&-24&114\\
0&0&0&0&9&-24&-3&19\\
0&0&0&0&18&-48&-8&39
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&7&21&24&-3\\
0&0&0&0&15&40&48&-6\\
0&0&1&0&1&4&4&-1\\
0&0&0&0&5&5&8&-1\\
0&0&0&1&0&0&0&0\\
0&0&0&0&0&0&1&0\\
0&0&0&0&2&8&8&-1
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&21&-35&0&15\\
0&0&0&0&28&-48&0&21\\
0&0&1&0&0&0&0&0\\
0&0&0&0&3&-3&0&1\\
0&0&0&0&6&-8&0&3\\
0&0&0&0&10&-15&0&6\\
0&0&0&0&0&0&1&0\\
0&0&0&0&15&-24&0&10
\end{pmatrix}, \text{"integral"}\right\},$$

$$\left\{\begin{pmatrix}
0&0&0&0&3&-3&-8&9\\
0&0&0&0&9&-8&-24&24\\
0&0&1&0&0&0&0&0\\
0&0&0&0&9&-3&-24&19\\
0&0&0&0&3&0&-8&6\\
0&0&0&0&0&1&0&0\\
0&0&0&0&1&0&-3&3\\
0&0&0&0&0&0&0&1
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&109&-99&-48&39\\
0&0&0&0&183&-168&-80&66\\
0&0&1&0&0&0&0&0\\
0&0&0&0&3&-3&0&1\\
0&0&0&0&1&0&0&0\\
0&0&0&0&18&-15&-8&6\\
0&0&0&0&9&-8&-3&3\\
0&0&0&0&54&-48&-24&19
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&-1&5&8&5\\
0&0&0&0&-3&16&24&12\\
0&0&1&0&-1&4&4&1\\
0&0&0&0&-3&21&24&7\\
0&0&0&0&-1&8&8&2\\
0&0&0&0&0&1&0&0\\
0&0&0&0&0&0&0&1
\end{pmatrix}, \text{"integral"}\right\}, \left\{\begin{pmatrix}
0&0&0&0&1&-3&0&3\\
0&0&0&0&5&-16&8&20\\
0&0&1&0&1&-4&4&7\\
0&0&0&0&15&-51&48&85\\
0&0&0&0&7&-24&24&42\\
0&0&0&0&2&-7&8&14\\
0&0&0&0&0&0&1&0\\
0&0&0&0&0&0&0&1
\end{pmatrix}, \text{"integral"}\right\}\right\}$$

8v12f_7

8v12f_7=Graph({ 0:[1, 2, 3, 4, 5, 6], 1:[0, 6, 5, 7, 3, 2], 2:[0, 1, 3], 3:[0, 2, 1, 7, 5, 4], 4:[0, 3, 5], 5:[0, 4, 3, 7, 1, 6], 6:[0, 5, 1], 7:[1, 5, 3]})
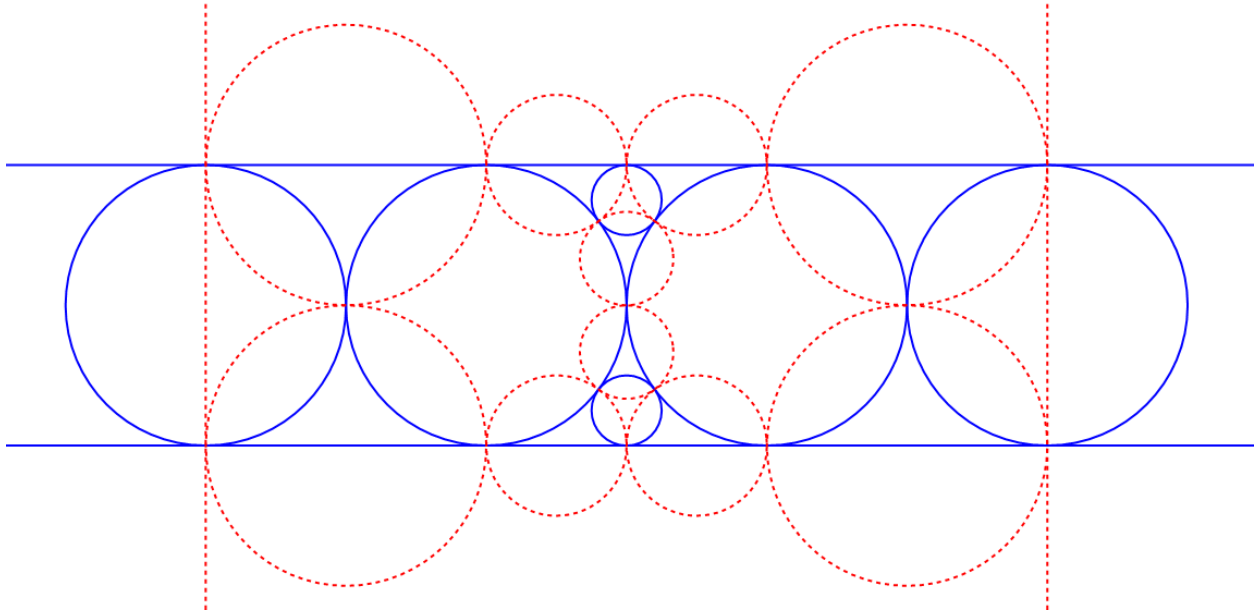
$$V = \begin{pmatrix} 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & 1 & 1 & 0 \\ 4 & 1 & 2 & 1 \\ 4 & 1 & 1 & 2 \\ 12 & 2 & 5 & 0 \\ 20 & 2 & 5 & 4 \\ 36 & 4 & 12 & 1 \\ 28 & 3 & 9 & 2 \\ 16 & 1 & 4 & 1 \\ 32 & 3 & 9 & 4 \\ 48 & 4 & 12 & 7 \\ 24 & 2 & 7 & 0 \\ 32 & 2 & 7 & 4 \\ 24 & 1 & 5 & 0 \\ 28 & 1 & 5 & 2 \\ 36 & 1 & 6 & 1 \\ 4 & 0 & 0 & 1 \\ 12 & 0 & 1 & 0 \end{pmatrix}$$

$$
G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 0 & 4 & 1 & 2 & 1 & 4 & 7 & 0 & 4 & 0 & 2 & 1 & 1 & 0 \\
0 & -1 & 0 & 1 & 2 & 1 & 5 & 5 & 12 & 9 & 4 & 9 & 12 & 7 & 7 & 5 & 5 & 6 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 6 & 6 & 17 & 12 & 7 & 12 & 17 & 12 & 12 & 12 & 12 & 17 & 1 & 6 \\
0 & 1 & 0 & -1 & 0 & 1 & 1 & 5 & 6 & 5 & 4 & 7 & 12 & 5 & 9 & 7 & 9 & 12 & 2 & 5 \\
1 & 2 & 1 & 0 & -1 & 0 & 0 & 0 & 1 & 0 & 1 & 0 & 1 & 2 & 2 & 4 & 4 & 7 & 1 & 4 \\
2 & 1 & 0 & 1 & 0 & -1 & 5 & 1 & 12 & 7 & 4 & 5 & 6 & 9 & 5 & 9 & 7 & 12 & 0 & 5 \\
0 & 5 & 6 & 1 & 0 & 5 & -1 & 7 & 0 & 1 & 2 & 5 & 12 & 1 & 9 & 5 & 9 & 12 & 4 & 7 \\
4 & 5 & 6 & 5 & 0 & 1 & 7 & -1 & 12 & 5 & 2 & 1 & 0 & 9 & 1 & 9 & 5 & 12 & 0 & 7 \\
1 & 12 & 17 & 6 & 1 & 12 & 0 & 12 & -1 & 0 & 1 & 6 & 17 & 0 & 12 & 6 & 12 & 17 & 7 & 12 \\
2 & 9 & 12 & 5 & 0 & 7 & 1 & 5 & 0 & -1 & 0 & 1 & 6 & 1 & 5 & 5 & 7 & 12 & 4 & 9 \\
1 & 4 & 7 & 4 & 1 & 4 & 2 & 2 & 1 & 0 & -1 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & 1 & 2 \\
4 & 9 & 12 & 7 & 0 & 5 & 5 & 1 & 6 & 1 & 0 & -1 & 0 & 5 & 1 & 7 & 5 & 12 & 2 & 9 \\
7 & 12 & 17 & 12 & 1 & 6 & 12 & 0 & 17 & 6 & 1 & 0 & -1 & 12 & 0 & 12 & 6 & 17 & 1 & 12 \\
0 & 7 & 12 & 5 & 2 & 9 & 1 & 9 & 0 & 1 & 0 & 5 & 12 & -1 & 7 & 1 & 5 & 6 & 4 & 5 \\
4 & 7 & 12 & 9 & 2 & 5 & 9 & 1 & 12 & 5 & 0 & 1 & 0 & 7 & -1 & 5 & 1 & 6 & 0 & 5 \\
0 & 5 & 12 & 7 & 4 & 9 & 5 & 9 & 6 & 5 & 0 & 7 & 12 & 1 & 5 & -1 & 1 & 0 & 2 & 1 \\
2 & 5 & 12 & 9 & 4 & 7 & 9 & 5 & 12 & 7 & 0 & 5 & 6 & 5 & 1 & 1 & -1 & 0 & 0 & 1 \\
1 & 6 & 17 & 12 & 7 & 12 & 12 & 12 & 17 & 12 & 1 & 12 & 17 & 6 & 6 & 0 & 0 & -1 & 1 & 0 \\
1 & 0 & 1 & 2 & 1 & 0 & 4 & 0 & 7 & 4 & 1 & 2 & 1 & 4 & 0 & 2 & 0 & 1 & -1 & 0 \\
0 & 1 & 6 & 5 & 4 & 5 & 7 & 7 & 12 & 9 & 2 & 9 & 12 & 5 & 5 & 1 & 1 & 0 & 0 & -1
\end{pmatrix}
$$

$$
\left\{ \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -6 & 7 & 15 & 18 \\
0 & 0 & 0 & 2 & -1 & 0 & 2 & 2 \\
0 & 0 & 0 & 0 & -8 & 15 & 21 & 21 \\
0 & 0 & 0 & 3 & -2 & 2 & 4 & 6 \\
0 & 0 & 0 & 0 & -7 & 14 & 18 & 24 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 4 & -4 & 4 & 9 & 12 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -2 & 0 & 6 & 6 \\
0 & 0 & 0 & 2 & -1 & 0 & 2 & 2 \\
0 & 0 & 0 & 0 & -16 & 11 & 57 & 45 \\
0 & 0 & 0 & 3 & -6 & 3 & 19 & 18 \\
0 & 0 & 0 & 0 & -15 & 10 & 54 & 48 \\
0 & 0 & 0 & 0 & -8 & 6 & 27 & 24 \\
0 & 0 & 0 & 4 & -4 & 1 & 12 & 12 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -2 & 0 & 6 & 6 \\
0 & 0 & 0 & 2 & -1 & 0 & 2 & 2 \\
0 & 0 & 0 & 0 & -8 & 6 & 42 & 9 \\
0 & 0 & 0 & 3 & -6 & 3 & 27 & 10 \\
0 & 0 & 0 & 0 & -15 & 10 & 78 & 24 \\
0 & 0 & 0 & 0 & -16 & 11 & 78 & 24 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 4 & -4 & 1 & 15 & 9
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & 14 & 2 & 12 & -18 \\
0 & 0 & 0 & 0 & 5 & 1 & 3 & -8 \\
0 & 0 & 0 & 0 & 8 & 2 & 6 & -15 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 16 & 3 & 6 & -24 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 2 & 2 & 0 & 2 & -1
\end{pmatrix}, \text{integral} \right\},
\right.
$$

$$
\left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & 14 & 2 & -12 & 6 \\
0 & 0 & 0 & 0 & 5 & 1 & -5 & 0 \\
0 & 0 & 0 & 0 & 16 & 3 & -15 & -3 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 8 & 2 & -9 & 0 \\
0 & 0 & 0 & 2 & 2 & 0 & -1 & 2 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -6 & 7 & 39 & -6 \\
0 & 0 & 0 & 2 & -1 & 0 & 2 & 2 \\
0 & 0 & 0 & 0 & 0 & 1 & 3 & -3 \\
0 & 0 & 0 & 3 & -2 & 2 & 12 & -2 \\
0 & 0 & 0 & 0 & -7 & 14 & 66 & -24 \\
0 & 0 & 0 & 0 & -8 & 15 & 66 & -24 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 4 & -4 & 4 & 24 & -3
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -2 & 18 & 12 & -18 \\
0 & 0 & 0 & 2 & -1 & 0 & 2 & 2 \\
0 & 0 & 0 & 0 & 0 & 10 & 6 & -15 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 18 & 6 & -24 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 6 & 3 & -8 \\
0 & 0 & 0 & 0 & 0 & 3 & 1 & -3
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & 6 & 10 & -12 & 6 \\
0 & 0 & 0 & 0 & 1 & 2 & -2 & 0 \\
0 & 0 & 0 & 0 & 8 & 11 & -15 & -3 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 5 & 5 & -9 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 2 & 2 & 3 & -4 & 2 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\},
$$

$$
\left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & 6 & 10 & 36 & -42 \\
0 & 0 & 0 & 0 & 1 & 2 & 6 & -8 \\
0 & 0 & 0 & 0 & 0 & 1 & 3 & -3 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 5 & 5 & 15 & -24 \\
0 & 0 & 0 & 0 & 8 & 11 & 30 & -48 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 2 & 2 & 3 & 11 & -13
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -2 & 18 & 36 & -42 \\
0 & 0 & 0 & 2 & -1 & 0 & 2 & 2 \\
0 & 0 & 0 & 0 & 0 & 1 & 3 & -3 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 18 & 30 & -48 \\
0 & 0 & 0 & 0 & 0 & 10 & 15 & -24 \\
0 & 0 & 0 & 0 & 0 & 3 & 6 & -8 \\
0 & 0 & 0 & 0 & 0 & 6 & 10 & -15
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & -2 & 0 & 6 & 6 \\
0 & 0 & 0 & 4 & -3 & 0 & 12 & 12 \\
0 & 0 & 0 & 0 & -8 & 3 & 57 & 45 \\
0 & 0 & 0 & 5 & -4 & 0 & 20 & 20 \\
0 & 0 & 0 & 0 & -3 & 1 & 27 & 24 \\
0 & 0 & 0 & 0 & -8 & 3 & 54 & 48 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{
\begin{pmatrix}
0 & 0 & 0 & 3 & 2 & -1 & 15 & 18 \\
0 & 0 & 0 & 4 & 1 & -1 & 9 & 12 \\
0 & 0 & 0 & 0 & 8 & -1 & 21 & 21 \\
0 & 0 & 0 & 5 & 0 & -1 & 5 & 8 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 8 & -1 & 18 & 24 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\} \right\}
$$

8v9f_0 (8.2.14)

8v9f_0=Graph({0: [1, 2, 3, 4, 5], 1: [0, 6, 7], 2: [0, 7, 5, 4, 3], 3: [0, 2, 4], 4: [0, 3, 2, 5], 5: [0, 4, 2, 6], 6: [1, 5, 7], 7: [1, 6, 2]})
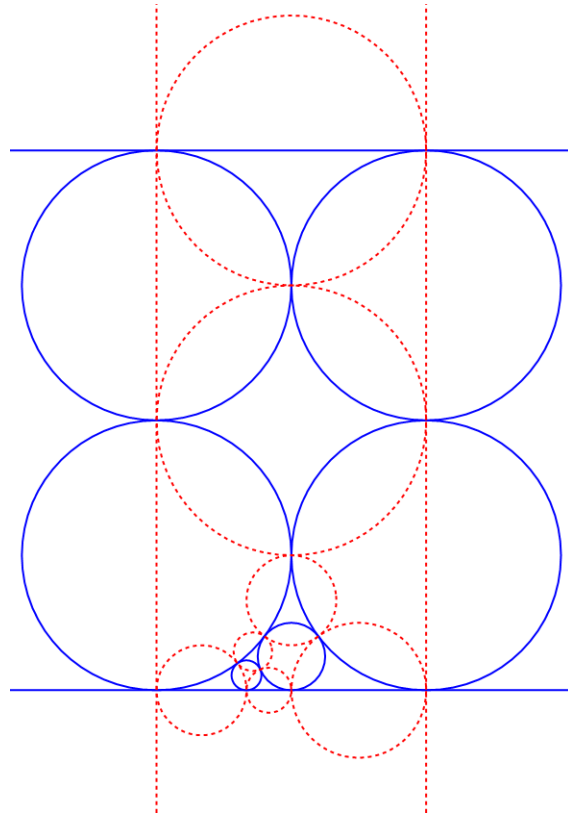
$$
V = \begin{pmatrix}
0 & 0 & 0 & -1 \\
0 & 0 & -1 & 0 \\
0 & 1 & 0 & 1 \\
0 & 3 & 1 & 0 \\
4 & 9 & 6 & 1 \\
4 & 7 & 5 & 2 \\
4 & 6 & 5 & 0 \\
4 & 4 & 4 & 1 \\
4 & 3 & 3 & 2 \\
4 & 2 & 3 & 0 \\
4 & 1 & 2 & 1 \\
4 & 1 & 1 & 2 \\
12 & 1 & 2 & 3 \\
8 & 1 & 0 & 3 \\
16 & 1 & 1 & 4 \\
8 & 0 & 0 & 1 \\
4 & 0 & 1 & 0
\end{pmatrix}
$$

$$G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 0 & 1 & 2 & 0 & 1 & 2 & 3 & 3 & 4 & 1 & 0 \\
0 & -1 & 0 & 1 & 6 & 5 & 5 & 4 & 3 & 3 & 2 & 1 & 2 & 0 & 1 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 2 & 1 & 0 & 2 & 1 & 0 & 3 & 1 & 4 & 3 & 2 \\
0 & 1 & 0 & -1 & 0 & 1 & 1 & 2 & 3 & 3 & 4 & 5 & 16 & 12 & 23 & 12 & 5 \\
1 & 6 & 1 & 0 & -1 & 0 & 0 & 1 & 4 & 4 & 7 & 12 & 41 & 35 & 64 & 35 & 12 \\
2 & 5 & 0 & 1 & 0 & -1 & 1 & 0 & 1 & 3 & 4 & 7 & 28 & 24 & 45 & 26 & 9 \\
0 & 5 & 2 & 1 & 0 & 1 & -1 & 0 & 3 & 1 & 4 & 9 & 28 & 26 & 45 & 24 & 7 \\
1 & 4 & 1 & 2 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 4 & 15 & 15 & 26 & 15 & 4 \\
2 & 3 & 0 & 3 & 4 & 1 & 3 & 0 & -1 & 1 & 0 & 1 & 8 & 8 & 15 & 10 & 3 \\
0 & 3 & 2 & 3 & 4 & 3 & 1 & 0 & 1 & -1 & 0 & 3 & 8 & 10 & 15 & 8 & 1 \\
1 & 2 & 1 & 4 & 7 & 4 & 4 & 1 & 0 & 0 & -1 & 0 & 1 & 3 & 4 & 3 & 0 \\
2 & 1 & 0 & 5 & 12 & 7 & 9 & 4 & 1 & 3 & 0 & -1 & 0 & 0 & 1 & 2 & 1 \\
3 & 2 & 3 & 16 & 41 & 28 & 28 & 15 & 8 & 8 & 1 & 0 & -1 & 1 & 0 & 1 & 0 \\
3 & 0 & 1 & 12 & 35 & 24 & 26 & 15 & 8 & 10 & 3 & 0 & 1 & -1 & 0 & 1 & 2 \\
4 & 1 & 4 & 23 & 64 & 45 & 45 & 26 & 15 & 15 & 4 & 1 & 0 & 0 & -1 & 0 & 1 \\
1 & 0 & 3 & 12 & 35 & 26 & 24 & 15 & 10 & 8 & 3 & 2 & 1 & 1 & 0 & -1 & 0 \\
0 & 1 & 2 & 5 & 12 & 9 & 7 & 4 & 3 & 1 & 0 & 1 & 0 & 2 & 1 & 0 & -1
\end{pmatrix}$$

$$\left\{\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 10 & 15 & 46 & -28 \\
0 & 0 & 0 & 0 & 3 & 6 & 16 & -10 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 21 & 28 & 91 & -55 \\
0 & 0 & 0 & 0 & 141 & 196 & 630 & -378 \\
0 & 0 & 0 & 0 & 130 & 183 & 585 & -351 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 120 & 168 & 540 & -323
\end{pmatrix}, \text{integral}\right\},
\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 1 & 1 & -1 \\
0 & 0 & 0 & 0 & 15 & 18 & 22 & -28 \\
0 & 0 & 1 & 0 & 4 & 4 & 2 & -6 \\
0 & 0 & 0 & 0 & 1 & 0 & 1 & -1 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 2 & 2 & 2 & -3 \\
0 & 0 & 0 & 0 & 2 & 2 & 1 & -2
\end{pmatrix}, \text{integral}\right\},
\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 1 & 1 & -1 \\
0 & 0 & 0 & 0 & 3 & 6 & 16 & -10 \\
0 & 0 & 1 & 0 & 2 & 10 & 23 & -13 \\
0 & 0 & 0 & 0 & 5 & 20 & 47 & -27 \\
0 & 0 & 0 & 0 & 17 & 80 & 184 & -104 \\
0 & 0 & 0 & 0 & 12 & 61 & 138 & -78 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 12 & 60 & 138 & -77
\end{pmatrix}, \text{integral}\right\},\right.$$

$$\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 6 & 3 & 16 & -10 \\
0 & 0 & 0 & 0 & 15 & 10 & 46 & -28 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 1 & -1 \\
0 & 0 & 0 & 0 & 25 & 8 & 60 & -36 \\
0 & 0 & 0 & 0 & 30 & 11 & 75 & -45 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 24 & 8 & 60 & -35
\end{pmatrix}, \text{integral}\right\},
\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 4 & 5 & -1 & 5 \\
0 & 0 & 0 & 0 & 67 & 70 & -16 & 86 \\
0 & 0 & 1 & 0 & 26 & 26 & -13 & 39 \\
0 & 0 & 0 & 0 & 5 & 4 & -1 & 5 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 4 & 4 & -1 & 6 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\},
\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 1 & 1 & -1 \\
0 & 0 & 0 & 0 & 3 & 6 & 16 & -10 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 21 & 36 & 91 & -63 \\
0 & 0 & 0 & 0 & 141 & 252 & 630 & -434 \\
0 & 0 & 0 & 0 & 120 & 217 & 540 & -372 \\
0 & 0 & 0 & 0 & 10 & 18 & 46 & -31 \\
0 & 0 & 0 & 0 & 130 & 234 & 585 & -402
\end{pmatrix}, \text{integral}\right\},$$

$$\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 1 & 1 & -1 \\
0 & 0 & 0 & 0 & 15 & 18 & 46 & -36 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 1 & -1 \\
0 & 0 & 0 & 0 & 25 & 24 & 60 & -52 \\
0 & 0 & 0 & 0 & 24 & 25 & 60 & -52 \\
0 & 0 & 0 & 0 & 6 & 6 & 16 & -13 \\
0 & 0 & 0 & 0 & 30 & 30 & 75 & -64
\end{pmatrix}, \text{integral}\right\},
\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 1 & 1 & -1 \\
0 & 0 & 0 & 0 & -3 & 12 & 19 & -7 \\
0 & 0 & 1 & 0 & -4 & 4 & 2 & 2 \\
0 & 0 & 0 & 0 & -1 & 2 & 2 & 0 \\
0 & 0 & 0 & 0 & -1 & 2 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\},
\left\{\begin{pmatrix}
0 & 0 & 0 & 0 & 2 & -1 & 2 & 0 \\
0 & 0 & 0 & 0 & 15 & -6 & 22 & -4 \\
0 & 0 & 1 & 0 & 4 & -4 & 2 & 2 \\
0 & 0 & 0 & 0 & 1 & 0 & 1 & -1 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 2 & -1 & 1 & 1 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}\right\}$$

8v6f_0

8v6f_0=Graph({0: [1, 2, 3], 1: [0, 4, 5], 2: [0, 6, 3], 3: [0, 2, 7], 4: [1, 7, 5], 5: [1, 4, 6], 6: [2, 5, 7], 7: [3, 6, 4]})
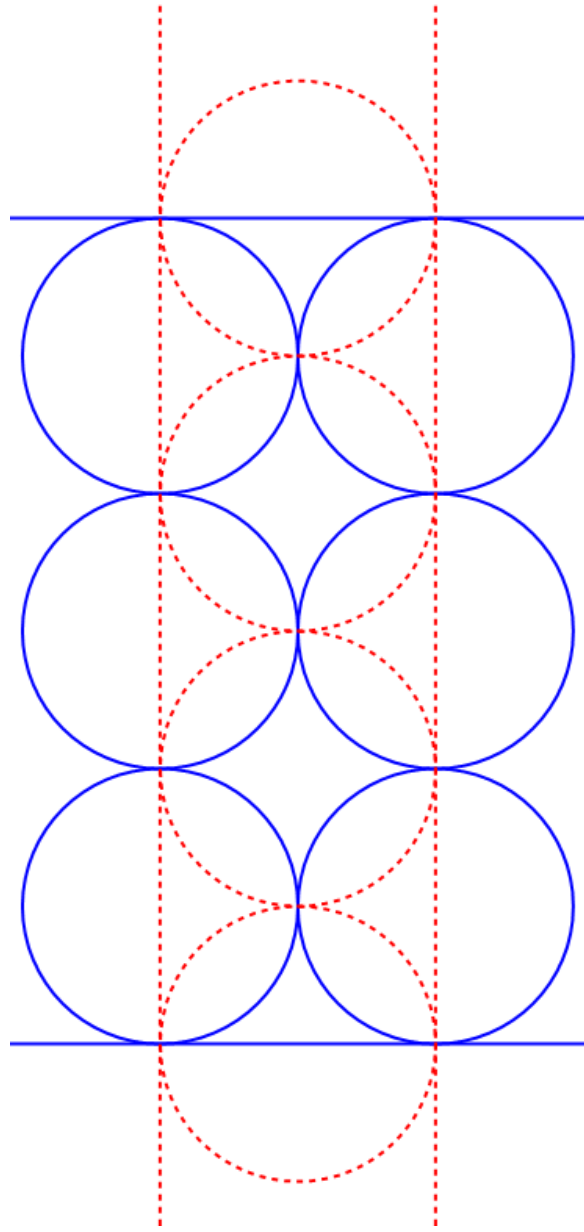
$$
V = \begin{pmatrix}
0 & 0 & 0 & -1 \\
0 & 0 & -1 & 0 \\
0 & 1 & 0 & 1 \\
0 & 1 & 1 & 0 \\
4 & 1 & 2 & 1 \\
4 & 1 & 1 & 2 \\
12 & 1 & 2 & 3 \\
8 & 1 & 0 & 3 \\
16 & 1 & 1 & 4 \\
28 & 1 & 2 & 5 \\
24 & 1 & 0 & 5 \\
36 & 1 & 1 & 6 \\
12 & 0 & 0 & 1 \\
4 & 0 & 1 & 0
\end{pmatrix}
$$

$$
G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 1 & 2 & 3 & 3 & 4 & 5 & 5 & 6 & 1 & 0 \\
0 & -1 & 0 & 1 & 2 & 1 & 2 & 0 & 1 & 2 & 0 & 1 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 3 & 1 & 4 & 9 & 7 & 12 & 5 & 2 \\
0 & 1 & 0 & -1 & 0 & 1 & 4 & 4 & 7 & 12 & 12 & 17 & 6 & 1 \\
1 & 2 & 1 & 0 & -1 & 0 & 1 & 3 & 4 & 7 & 9 & 12 & 5 & 0 \\
2 & 1 & 0 & 1 & 0 & -1 & 0 & 0 & 1 & 4 & 4 & 7 & 4 & 1 \\
3 & 2 & 3 & 4 & 1 & 0 & -1 & 1 & 0 & 1 & 3 & 4 & 3 & 0 \\
3 & 0 & 1 & 4 & 3 & 0 & 1 & -1 & 0 & 3 & 1 & 4 & 3 & 2 \\
4 & 1 & 4 & 7 & 4 & 1 & 0 & 0 & -1 & 0 & 0 & 1 & 2 & 1 \\
5 & 2 & 9 & 12 & 7 & 4 & 1 & 3 & 0 & -1 & 1 & 0 & 1 & 0 \\
5 & 0 & 7 & 12 & 9 & 4 & 3 & 1 & 0 & 1 & -1 & 0 & 1 & 2 \\
6 & 1 & 12 & 17 & 12 & 7 & 4 & 4 & 1 & 0 & 0 & -1 & 0 & 1 \\
1 & 0 & 5 & 6 & 5 & 4 & 3 & 3 & 2 & 1 & 1 & 0 & -1 & 0 \\
0 & 1 & 2 & 1 & 0 & 1 & 0 & 2 & 1 & 0 & 2 & 1 & 0 & -1
\end{pmatrix}
$$

$$
\left\{\left\{\begin{pmatrix}
0 & 0 & 0 & 1 & 4 & 4 & -2 & 2 \\
0 & 0 & 0 & 1 & 3 & 5 & -2 & 2 \\
0 & 0 & 0 & 1 & -1 & 1 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 4 & 4 & -3 & 4 \\
0 & 0 & 0 & 0 & 2 & 2 & -2 & 3
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 2 & -2 \\
0 & 0 & 0 & 1 & -1 & 1 & 2 & -2 \\
0 & 0 & 0 & 1 & 3 & 5 & 4 & -4 \\
0 & 0 & 0 & 1 & 4 & 4 & 4 & -4 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 2 & 2 & 3 & -2 \\
0 & 0 & 0 & 0 & 4 & 4 & 4 & -3
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 2 & -2 \\
0 & 0 & 0 & 1 & -1 & 1 & 2 & -2 \\
0 & 0 & 0 & 1 & 11 & 13 & 52 & -20 \\
0 & 0 & 0 & 1 & 12 & 12 & 52 & -20 \\
0 & 0 & 0 & 1 & 4 & 4 & 18 & -8 \\
0 & 0 & 0 & 1 & 3 & 5 & 18 & -8 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 6 & 6 & 26 & -9
\end{pmatrix}, \text{integral}\right\},\right.
$$

$$
\left\{\begin{pmatrix}
0 & 0 & 0 & 1 & 12 & 12 & -18 & 50 \\
0 & 0 & 0 & 1 & 11 & 13 & -18 & 50 \\
0 & 0 & 0 & 1 & -1 & 1 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 4 & 4 & -6 & 16 \\
0 & 0 & 0 & 1 & 3 & 5 & -6 & 16 \\
0 & 0 & 0 & 0 & 6 & 6 & -9 & 26 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 0 & 0 & -1 & 2 & 2 & 0 \\
0 & 0 & 0 & 1 & -1 & 1 & 2 & -2 \\
0 & 0 & 0 & 1 & -1 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & -1 & 2 & 0 & 2 \\
0 & 0 & 0 & 2 & -3 & 2 & 2 & -2 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 2 & -2 \\
0 & 0 & 0 & 0 & 2 & -1 & 2 & 0 \\
0 & 0 & 0 & 0 & 2 & -1 & 0 & 2 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 2 & 0 & -1 & 2 & -2 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}\right\}
$$

8v9f_1
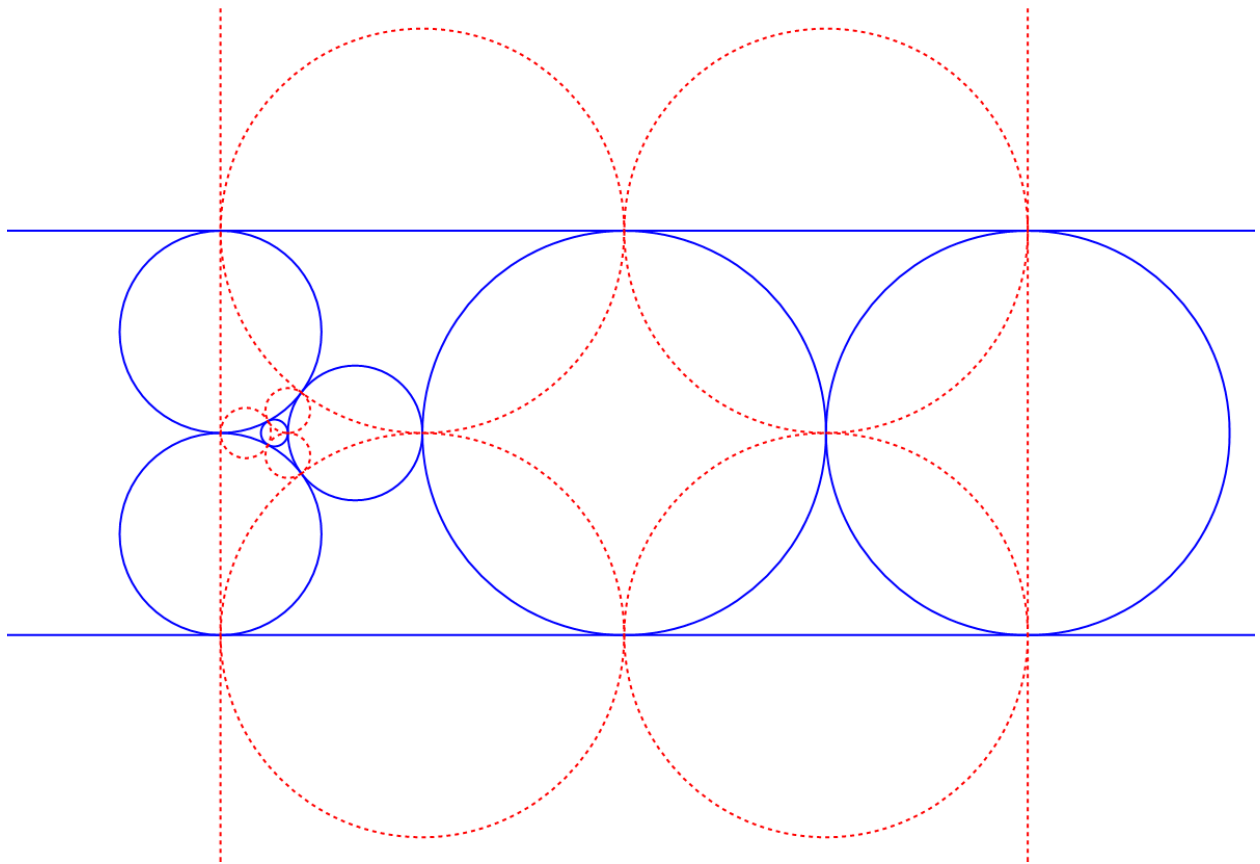
$$V = \begin{pmatrix} 0 & 0 & 0 & -1 \\ 0 & 0 & -1 & 0 \\ 0 & 1 & 0 & 1 \\ 0 & \frac{1}{2} & 1 & 0 \\ 8 & \frac{3}{2} & 2 & 3 \\ 16 & \frac{9}{2} & 3 & 8 \\ 8 & \frac{1}{2} & 2 & 1 \\ 8 & \frac{1}{2} & 1 & 2 \\ 8 & 1 & 0 & 3 \\ 24 & \frac{9}{2} & 3 & 10 \\ 32 & \frac{15}{2} & 4 & 15 \\ 16 & 4 & 1 & 8 \\ 16 & \frac{1}{2} & 3 & 0 \\ 24 & \frac{1}{2} & 3 & 2 \\ 32 & \frac{1}{2} & 4 & 1 \\ 8 & 0 & 0 & 1 \\ 16 & 0 & 1 & 0 \end{pmatrix}$$

$$G = \begin{pmatrix}
-1 & 0 & 1 & 0 & 3 & 8 & 1 & 2 & 3 & 10 & 15 & 8 & 0 & 2 & 1 & 1 & 0 \\
0 & -1 & 0 & 1 & 2 & 3 & 2 & 1 & 0 & 3 & 4 & 1 & 3 & 3 & 4 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 3 & 2 & 1 & 2 & 1 & 0 & 8 & 10 & 15 & 3 & 8 \\
0 & 1 & 0 & -1 & 0 & 1 & 0 & 1 & 2 & 3 & 4 & 3 & 1 & 3 & 4 & 2 & 3 \\
3 & 2 & 1 & 0 & -1 & 0 & 1 & 0 & 1 & 0 & 1 & 2 & 8 & 8 & 15 & 3 & 10 \\
8 & 3 & 0 & 1 & 0 & -1 & 8 & 3 & 2 & 1 & 0 & 1 & 31 & 33 & 56 & 10 & 33 \\
1 & 2 & 3 & 0 & 1 & 8 & -1 & 0 & 3 & 8 & 15 & 10 & 0 & 0 & 1 & 1 & 2 \\
2 & 1 & 2 & 1 & 0 & 3 & 0 & -1 & 0 & 1 & 4 & 3 & 3 & 1 & 4 & 0 & 3 \\
3 & 0 & 1 & 2 & 1 & 2 & 3 & 0 & -1 & 0 & 1 & 0 & 10 & 8 & 15 & 1 & 8 \\
10 & 3 & 2 & 3 & 0 & 1 & 8 & 1 & 0 & -1 & 0 & 1 & 33 & 31 & 56 & 8 & 33 \\
15 & 4 & 1 & 4 & 1 & 0 & 15 & 4 & 1 & 0 & -1 & 0 & 56 & 56 & 97 & 15 & 56 \\
8 & 1 & 0 & 3 & 2 & 1 & 10 & 3 & 0 & 1 & 0 & -1 & 33 & 33 & 56 & 8 & 31 \\
0 & 3 & 8 & 1 & 8 & 31 & 0 & 3 & 10 & 33 & 56 & 33 & -1 & 1 & 0 & 2 & 1 \\
2 & 3 & 10 & 3 & 8 & 33 & 0 & 1 & 8 & 31 & 56 & 33 & 1 & -1 & 0 & 0 & 1 \\
1 & 4 & 15 & 4 & 15 & 56 & 1 & 4 & 15 & 56 & 97 & 56 & 0 & 0 & -1 & 1 & 0 \\
1 & 0 & 3 & 2 & 3 & 10 & 1 & 0 & 1 & 8 & 15 & 8 & 2 & 0 & 1 & -1 & 0 \\
0 & 1 & 8 & 3 & 10 & 33 & 2 & 3 & 8 & 33 & 56 & 31 & 1 & 1 & 0 & 0 & -1
\end{pmatrix}$$

$$\left\{ \left\{ \begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 1 & -1 \\
0 & 0 & 0 & 8 & -2 & 5 & 4 & -4 \\
0 & 0 & 0 & 0 & -1 & 8 & 8 & 0 \\
0 & 0 & 0 & 0 & 0 & 2 & 2 & -1 \\
0 & 0 & 0 & 7 & -1 & 8 & 8 & -7 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 8 & -2 & 6 & 6 & -5
\end{pmatrix}, \text{integral} \right\}, \left\{ \begin{pmatrix}
0 & 0 & 0 & 0 & 0 & 2 & -1 & 2 \\
0 & 0 & 0 & 8 & -2 & 5 & 4 & -4 \\
0 & 0 & 0 & 0 & -1 & 8 & 0 & 8 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 7 & -1 & 8 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 8 & -2 & 6 & 3 & -2 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{ \begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 1 & -1 \\
0 & 0 & 0 & 1 & 14 & -17 & 2 & 1 \\
0 & 0 & 0 & 6 & 79 & -100 & 12 & 6 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 4 & 2 & -1 & 2 & -2 \\
0 & 0 & 0 & 7 & 10 & -12 & 5 & -3 \\
0 & 0 & 0 & 7 & 10 & -12 & 4 & -2
\end{pmatrix}, \text{integral} \right\}, \right.$$

$$\left\{ \begin{pmatrix}
0 & 0 & 0 & 0 & -6 & 36 & 37 & 20 \\
0 & 0 & 0 & 8 & -2 & 5 & 4 & -4 \\
0 & 0 & 0 & 2 & -1 & 4 & 4 & 2 \\
0 & 0 & 0 & 2 & -8 & 46 & 46 & 25 \\
0 & 0 & 0 & 2 & -43 & 256 & 256 & 142 \\
0 & 0 & 0 & 8 & -8 & 41 & 40 & 16 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 2 & -2 & 10 & 10 & 5
\end{pmatrix}, \text{integral} \right\}, \left\{ \begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 1 & -1 \\
0 & 0 & 0 & 8 & 6 & 13 & 12 & -12 \\
0 & 0 & 0 & 2 & 55 & 60 & 60 & -54 \\
0 & 0 & 0 & 1 & 2 & 2 & 2 & -2 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 8 & 8 & 9 & -8 \\
0 & 0 & 0 & 0 & 10 & 10 & 10 & -9
\end{pmatrix}, \text{integral} \right\}, \left\{ \begin{pmatrix}
0 & 0 & 0 & 1 & 2 & 2 & -1 & 1 \\
0 & 0 & 0 & 8 & 6 & 13 & -4 & 4 \\
0 & 0 & 0 & 2 & 55 & 60 & -52 & 58 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 10 & 10 & -9 & 10 \\
0 & 0 & 0 & 0 & 8 & 8 & -8 & 9
\end{pmatrix}, \text{integral} \right\},$$

$$\left\{ \begin{pmatrix}
0 & 0 & 0 & 2 & -8 & 46 & 27 & 44 \\
0 & 0 & 0 & 8 & -2 & 5 & 4 & -4 \\
0 & 0 & 0 & 2 & -1 & 4 & 4 & 2 \\
0 & 0 & 0 & 0 & -6 & 36 & 20 & 37 \\
0 & 0 & 0 & 2 & -43 & 256 & 144 & 254 \\
0 & 0 & 0 & 8 & -8 & 41 & 24 & 32 \\
0 & 0 & 0 & 2 & -2 & 10 & 7 & 8 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{ \begin{pmatrix}
0 & 0 & 0 & 1 & 0 & 0 & 1 & -1 \\
0 & 0 & 0 & 2 & 0 & -1 & 2 & 0 \\
0 & 0 & 0 & 8 & -1 & 0 & 8 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 6 & 1 & -4 & 4 & -2 \\
0 & 0 & 0 & 3 & 0 & -1 & 2 & -1 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\}, \left\{ \begin{pmatrix}
0 & 0 & 0 & 7 & -4 & 16 & 33 & 25 \\
0 & 0 & 0 & 5 & -2 & 7 & 10 & 5 \\
0 & 0 & 0 & 2 & -1 & 4 & 4 & 2 \\
0 & 0 & 0 & 7 & -4 & 16 & 32 & 26 \\
0 & 0 & 0 & 6 & -19 & 96 & 208 & 202 \\
0 & 0 & 0 & 3 & -4 & 19 & 38 & 35 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral} \right\} \right\}$$

Square Cupola
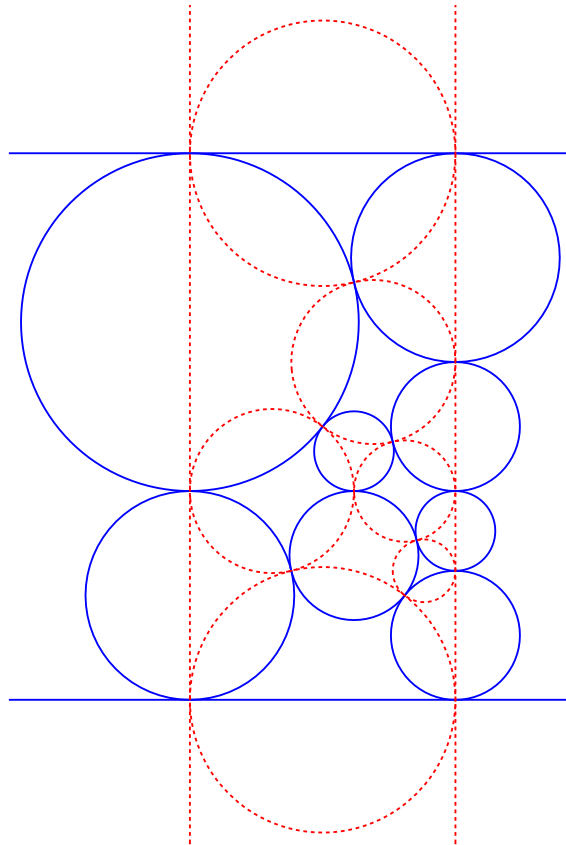
$$V = \begin{pmatrix}
0 & 0 & 0 & -1 \\
0 & 0 & -1 & 0 \\
0 & \frac{1}{2}\left(1+\sqrt{5}\right) & 0 & 1 \\
0 & \text{⊘ 0.786...} & 1 & 0 \\
4 & \frac{1}{2}\left(1+\sqrt{5}\right) & \sqrt{2\left(-1+\sqrt{5}\right)} & \sqrt{5} \\
2\sqrt{2\left(1+\sqrt{5}\right)} & \sqrt{\frac{1}{2}\left(11+5\sqrt{5}\right)} & 1 & 2\sqrt{2+\sqrt{5}} \\
2\left(1+\sqrt{5}\right) & \frac{1}{2}\left(3+\sqrt{5}\right) & 0 & 2+\sqrt{5} \\
4\sqrt{2+\sqrt{5}} & \sqrt{2+\sqrt{5}} & 1 & 2\sqrt{2+\sqrt{5}} \\
2\left(1+\sqrt{5}\right) & 1 & \sqrt{2\left(1+\sqrt{5}\right)} & 1 \\
4\sqrt{2+\sqrt{5}} & \sqrt{\frac{1}{2}\left(1+\sqrt{5}\right)} & \sqrt{5} & \sqrt{2\left(1+\sqrt{5}\right)} \\
4\left(2+\sqrt{5}\right) & \frac{1}{2}\left(3+\sqrt{5}\right) & \sqrt{2\left(1+\sqrt{5}\right)} & 4+\sqrt{5} \\
2\left(3+\sqrt{5}\right) & \frac{1}{2}\left(1+\sqrt{5}\right) & 0 & 2+\sqrt{5} \\
2\sqrt{22+10\sqrt{5}} & \sqrt{\frac{1}{2}\left(1+\sqrt{5}\right)} & 1 & 2\sqrt{2+\sqrt{5}} \\
2\left(3+\sqrt{5}\right) & \frac{1}{2}\left(-1+\sqrt{5}\right) & \sqrt{2\left(-1+\sqrt{5}\right)} & \sqrt{5} \\
4\left(2+\sqrt{5}\right) & 1 & 0 & 2+\sqrt{5} \\
2\sqrt{58+26\sqrt{5}} & \text{⊘ 0.786...} & 1 & 2\sqrt{2+\sqrt{5}} \\
2\left(3+\sqrt{5}\right) & 0 & 0 & 1 \\
2\sqrt{2\left(1+\sqrt{5}\right)} & 0 & 1 & 0
\end{pmatrix}$$

$$\begin{pmatrix}
-1 & 0 & 1 & 0 & \sqrt{5} & 2\sqrt{2+\sqrt{5}} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & \sqrt{2(1+\sqrt{5})} & 4+\sqrt{5} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & \sqrt{5} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & 0 \\
0 & -1 & 0 & 1 & \sqrt{2(-1+\sqrt{5})} & 1 & 0 & 1 & \sqrt{2(1+\sqrt{5})} & \sqrt{5} & \sqrt{2(1+\sqrt{5})} & 0 & 1 & \sqrt{2(-1+\sqrt{5})} & 0 & 0 & 1 \\
1 & 0 & -1 & 0 & 1 & 0 & 1 & \sqrt{2(1+\sqrt{5})} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 3+2\sqrt{5} & 2+\sqrt{5} & \sqrt{22+10\sqrt{5}} & 4+\sqrt{5} & 5+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} \\
0 & 1 & 0 & -1 & 0 & 1 & \sqrt{2(1+\sqrt{5})} & \sqrt{5} & 0 & 1 & 2\sqrt{2+\sqrt{5}} & 2\sqrt{2+\sqrt{5}} & 2+\sqrt{5} & \sqrt{2(1+\sqrt{5})} & \sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 \\
\sqrt{5} & \sqrt{2(-1+\sqrt{5})} & 1 & 0 & -1 & 0 & 1 & 0 & 1 & 0 & 1 & \sqrt{5} & \sqrt{2(1+\sqrt{5})} & \sqrt{5} & 4+\sqrt{5} & 4\sqrt{2+\sqrt{5}} & 4+\sqrt{5} & \sqrt{2(1+\sqrt{5})} \\
2\sqrt{2+\sqrt{5}} & 1 & 0 & 1 & 0 & -1 & 0 & 1 & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2\sqrt{2+\sqrt{5}} & 3+2\sqrt{5} & 4\sqrt{2+\sqrt{5}} & 2\sqrt{22+10\sqrt{5}} & 11+4\sqrt{5} & 2\sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} \\
2+\sqrt{5} & 0 & 1 & \sqrt{2(1+\sqrt{5})} & 1 & 0 & -1 & 0 & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 2+\sqrt{5} & 1 & 2\sqrt{2+\sqrt{5}} & 4+\sqrt{5} & 3+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 5+2\sqrt{5} & \sqrt{22+10\sqrt{5}} \\
2\sqrt{2+\sqrt{5}} & 1 & \sqrt{2(1+\sqrt{5})} & \sqrt{5} & 0 & 1 & 0 & -1 & 2\sqrt{2+\sqrt{5}} & 1 & 0 & 0 & 1 & \sqrt{2(1+\sqrt{5})} & 2\sqrt{2+\sqrt{5}} & 3+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} \\
1 & \sqrt{2(1+\sqrt{5})} & 2+\sqrt{5} & 0 & 1 & \sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & -1 & 0 & 2+\sqrt{5} & 4+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & 3+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & 0 \\
\sqrt{2(1+\sqrt{5})} & \sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & 0 & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & 0 & -1 & 0 & \sqrt{2(1+\sqrt{5})} & 1 & 0 & 2\sqrt{2+\sqrt{5}} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 \\
4+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & 0 & 2+\sqrt{5} & 0 & -1 & 1 & 0 & 1 & 2+\sqrt{5} & \sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} \\
2+\sqrt{5} & 0 & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & \sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & 0 & 4+\sqrt{5} & \sqrt{2(1+\sqrt{5})} & 1 & -1 & 0 & \sqrt{5} & 1 & 2\sqrt{2+\sqrt{5}} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} \\
2\sqrt{2+\sqrt{5}} & 1 & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & \sqrt{2(1+\sqrt{5})} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 1 & 2\sqrt{2+\sqrt{5}} & 1 & 0 & 0 & -1 & 0 & 0 & 1 & \sqrt{2(1+\sqrt{5})} & \sqrt{5} \\
\sqrt{5} & \sqrt{2(-1+\sqrt{5})} & 4+\sqrt{5} & \sqrt{2(1+\sqrt{5})} & \sqrt{5} & 4\sqrt{2+\sqrt{5}} & 4+\sqrt{5} & \sqrt{2(1+\sqrt{5})} & 1 & 0 & 1 & \sqrt{5} & 0 & -1 & 1 & 0 & 1 & 0 \\
2+\sqrt{5} & 0 & 5+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 4+\sqrt{5} & 2\sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 2+\sqrt{5} & 1 & 0 & 1 & -1 & 0 & 1 & \sqrt{2(1+\sqrt{5})} \\
2\sqrt{2+\sqrt{5}} & 0 & \sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & 4\sqrt{2+\sqrt{5}} & 11+4\sqrt{5} & 2\sqrt{22+10\sqrt{5}} & 3+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2\sqrt{2+\sqrt{5}} & 1 & 0 & 0 & -1 & 0 & 1 \\
1 & 0 & 3+2\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 4+\sqrt{5} & 2\sqrt{22+10\sqrt{5}} & 5+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & 2\sqrt{2+\sqrt{5}} & 3+2\sqrt{5} & 2+\sqrt{5} & \sqrt{2(1+\sqrt{5})} & 1 & 1 & 0 & -1 & 0 \\
0 & 1 & 2\sqrt{2+\sqrt{5}} & 1 & \sqrt{2(1+\sqrt{5})} & 3+2\sqrt{5} & \sqrt{22+10\sqrt{5}} & 2+\sqrt{5} & 0 & 1 & 2\sqrt{2+\sqrt{5}} & 2\sqrt{2+\sqrt{5}} & \sqrt{5} & 0 & \sqrt{2(1+\sqrt{5})} & 1 & 0 & -1
\end{pmatrix}$$

$$\left\{\left\{\begin{pmatrix}
0 & 0 & 0 & 3 & 5 & -1 & -1 & 3 & 2 & 0 \\
0 & 0 & -1 & 4 & 2 & 1 & 0 & 1 & 1 & -1 \\
0 & 0 & 1 & 0 & 2 & -2 & 0 & 2 & 2 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 2 & -1 & 0 & 0 & 2 & 2 & 0 \\
0 & 0 & -1 & 4 & 3 & 1 & 0 & 1 & 0 & -1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & -1 & 4 & 3 & 1 & -1 & 1 & 0 & 0
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 0 & -1 & 3 & 1 & 3 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 1 & 2 & 1 & 2 & -1 & 0 \\
0 & 0 & 0 & 0 & 3 & 1 & 3 & 1 & 0 & -1 \\
0 & 0 & -1 & 1 & 3 & 1 & 3 & 1 & 0 & -1 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 2 & 2 & 0 & 2 & -1 & 0 \\
0 & 0 & -1 & 0 & 3 & 1 & 3 & 1 & 0 & 0
\end{pmatrix}, \text{integral}\right\},\right.$$

$$\left\{\begin{pmatrix}
0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 3 & -4 & -2 & 5 & 4 & -3 & 5 & 7 \\
0 & 0 & 11 & -16 & -2 & 10 & 10 & -6 & 12 & 26 \\
0 & 0 & 10 & -15 & -2 & 10 & 10 & -6 & 12 & 26 \\
0 & 0 & 5 & -8 & 0 & 5 & 5 & -3 & 6 & 13 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 5 & -8 & -1 & 5 & 6 & -3 & 6 & 13 \\
0 & 0 & 6 & -8 & -2 & 10 & 6 & -5 & 8 & 14 \\
0 & 0 & 3 & -4 & -1 & 5 & 3 & -3 & 5 & 7 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 4 & -1 & -1 & 1 & 3 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & -1 & 0 & 1 & 0 & 1 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & -2 & -2 & 4 & 2 & 2 & 0 \\
0 & 0 & 3 & 0 & 0 & 1 & 3 & 1 & 0 & -1 \\
0 & 0 & 0 & 0 & -2 & -1 & 4 & 2 & 2 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 3 & 0 & -1 & 1 & 3 & 1 & 1 & -1 \\
0 & 0 & 3 & 0 & -3 & -1 & 7 & 3 & 2 & 0
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 11 & 15 & -2 & -6 & 10 & 10 & 12 & -5 \\
0 & 0 & 3 & 4 & -2 & -3 & 4 & 5 & 5 & -1 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 5 & 8 & 0 & -3 & 5 & 5 & 6 & -3 \\
0 & 0 & 6 & 8 & -2 & -5 & 6 & 10 & 8 & -2 \\
0 & 0 & 5 & 8 & -1 & -3 & 6 & 5 & 6 & -3 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 \\
0 & 0 & 3 & 4 & -1 & -3 & 3 & 5 & 5 & -1 \\
0 & 0 & 10 & 16 & -2 & -6 & 10 & 10 & 12 & -5
\end{pmatrix}, \text{integral}\right\},\right.$$

$$\left\{\begin{pmatrix}
0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & -1 & 0 & 1 & 0 & 1 & 0 \\
0 & 0 & 4 & -4 & -1 & 1 & 3 & 1 & 0 & 3 \\
0 & 0 & 3 & -3 & -3 & 3 & 7 & -1 & 2 & 3 \\
0 & 0 & 3 & -4 & 0 & 1 & 3 & 1 & 0 & 3 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & -2 & 2 & 4 & -1 & 2 & 0 \\
0 & 0 & 3 & -4 & -1 & 1 & 3 & 1 & 1 & 3 \\
0 & 0 & 0 & 0 & -2 & 2 & 4 & -2 & 2 & 1
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 1 & -1 & 0 & 0 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & -1 & 0 & 1 & 0 & 1 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 2 & 0 & 1 & 0 & -2 & 0 & -2 & 2 \\
0 & 0 & -1 & 0 & -3 & 0 & 3 & -1 & 6 & -1 \\
0 & 0 & 2 & 0 & 0 & 0 & -1 & 0 & -2 & 2 \\
0 & 0 & -1 & 0 & -3 & -1 & 3 & 0 & 6 & -1 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}, \left\{\begin{pmatrix}
0 & 0 & 1 & -1 & 2 & 2 & 0 & -2 & 2 & 1 \\
0 & 0 & -1 & 0 & 2 & 1 & 0 & 1 & 1 & 3 \\
0 & 0 & 0 & 5 & 3 & -1 & -1 & 2 & 3 \\
0 & 0 & -1 & 1 & 3 & 1 & -1 & 1 & 0 & 3 \\
0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 & 0 & 0 & 0 \\
0 & 0 & -1 & 0 & 3 & 1 & 0 & 1 & 0 & 3 \\
0 & 0 & 0 & 0 & 2 & 2 & 0 & -1 & 2 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1
\end{pmatrix}, \text{integral}\right\}\right\}$$