$Mo_{17}O_{47}$ Structure: A17B47_oP128_32_a8c_a23c-001

This structure originally had the label `A17B47_oP128_32_a8c_a23c`. Calls to that address will be redirected here.

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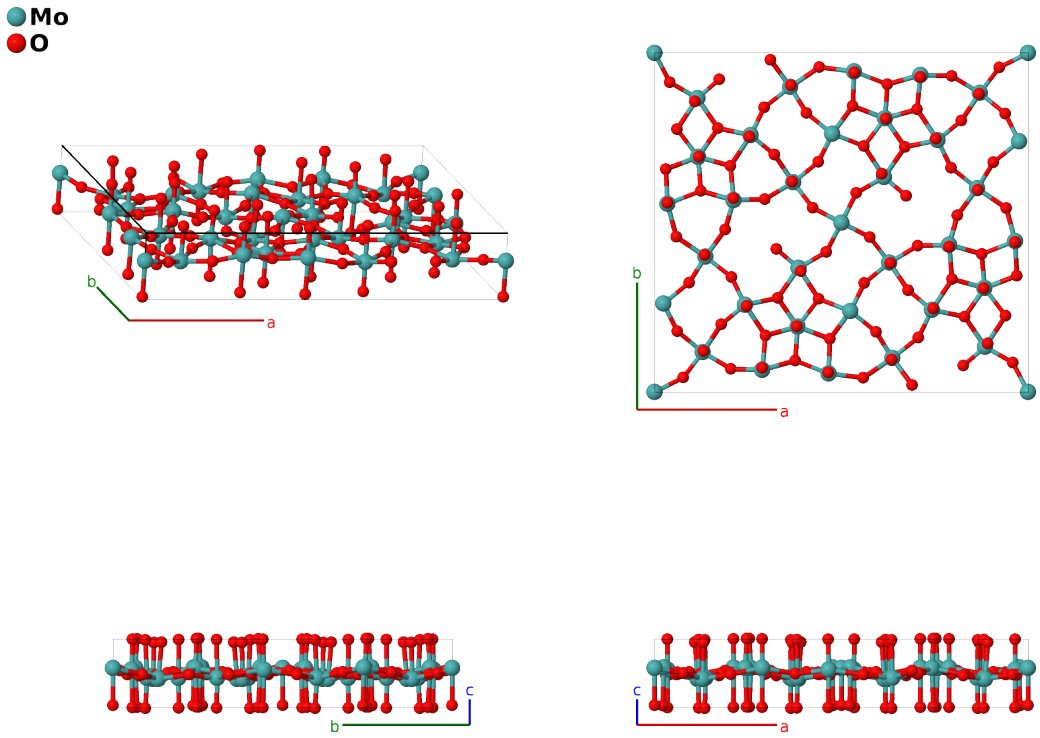
https://aflow.org/p/484W

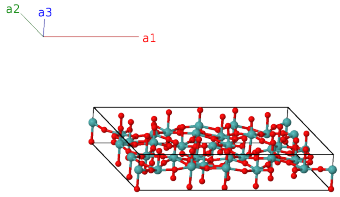
https://aflow.org/p/A17B47_oP128_32_a8c_a23c-001



Prototype	$Mo_{17}O_{47}$
AFLOW prototype label	A17B47_oP128_32_a8c_a23c-001
ICSD	28333
Pearson symbol	oP128
Space group number	32
Space group symbol	$Pba2$
AFLOW prototype command	`aflow --proto=A17B47_oP128_32_a8c_a23c-001 --params=`$a, b/a, c/a, z_1, z_2, x_3, y_3, z_3, x_4, y_4, z_4, x_5, y_5, z_5, x_6, y_6, z_6, x_7, y_7, z_7, x_8, y_8, z_8, x_9, y_9, z_9, x_{10}, y_{10}, z_{10}, x_{11}, y_{11}, z_{11}, x_{12}, y_{12}, z_{12}, x_{13}, y_{13}, z_{13}, x_{14}, y_{14}, z_{14}, x_{15}, y_{15}, z_{15}, x_{16}, y_{16}, z_{16}, x_{17}, y_{17}, z_{17}, x_{18}, y_{18}, z_{18}, x_{19}, y_{19}, z_{19}, x_{20}, y_{20}, z_{20}, x_{21}, y_{21}, z_{21}, x_{22}, y_{22}, z_{22}, x_{23}, y_{23}, z_{23}, x_{24}, y_{24}, z_{24}, x_{25}, y_{25}, z_{25}, x_{26}, y_{26}, z_{26}, x_{27}, y_{27}, z_{27}, x_{28}, y_{28}, z_{28}, x_{29}, y_{29}, z_{29}, x_{30}, y_{30}, z_{30}, x_{31}, y_{31}, z_{31}, x_{32}, y_{32}, z_{32}, x_{33}, y_{33}, z_{33}$

Simple Orthorhombic primitive vectors

$$\mathbf{a_1} = a\,\hat{\mathbf{x}}$$
$$\mathbf{a_2} = b\,\hat{\mathbf{y}}$$
$$\mathbf{a_3} = c\,\hat{\mathbf{z}}$$



Basis vectors

		Lattice coordinates		Cartesian coordinates	Wyckoff position	Atom type
$\mathbf{B_1}$	=	$z_1\,\mathbf{a}_3$	=	$cz_1\,\hat{\mathbf{z}}$	(2a)	Mo I
$\mathbf{B_2}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + z_1\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}b\,\hat{\mathbf{y}} + cz_1\,\hat{\mathbf{z}}$	(2a)	Mo I
$\mathbf{B_3}$	=	$z_2\,\mathbf{a}_3$	=	$cz_2\,\hat{\mathbf{z}}$	(2a)	O I
$\mathbf{B_4}$	=	$\frac{1}{2}\,\mathbf{a}_1 + \frac{1}{2}\,\mathbf{a}_2 + z_2\,\mathbf{a}_3$	=	$\frac{1}{2}a\,\hat{\mathbf{x}} + \frac{1}{2}b\,\hat{\mathbf{y}} + cz_2\,\hat{\mathbf{z}}$	(2a)	O I
$\mathbf{B_5}$	=	$x_3\,\mathbf{a}_1 + y_3\,\mathbf{a}_2 + z_3\,\mathbf{a}_3$	=	$ax_3\,\hat{\mathbf{x}} + by_3\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(4c)	Mo II
$\mathbf{B_6}$	=	$-x_3\,\mathbf{a}_1 - y_3\,\mathbf{a}_2 + z_3\,\mathbf{a}_3$	=	$-ax_3\,\hat{\mathbf{x}} - by_3\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(4c)	Mo II
$\mathbf{B_7}$	=	$\left(x_3 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_3 - \frac{1}{2}\right)\,\mathbf{a}_2 + z_3\,\mathbf{a}_3$	=	$a\left(x_3 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_3 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(4c)	Mo II
$\mathbf{B_8}$	=	$-\left(x_3 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_3 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_3\,\mathbf{a}_3$	=	$-a\left(x_3 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_3 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_3\,\hat{\mathbf{z}}$	(4c)	Mo II
$\mathbf{B_9}$	=	$x_4\,\mathbf{a}_1 + y_4\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	=	$ax_4\,\hat{\mathbf{x}} + by_4\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}}$	(4c)	Mo III
$\mathbf{B_{10}}$	=	$-x_4\,\mathbf{a}_1 - y_4\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	=	$-ax_4\,\hat{\mathbf{x}} - by_4\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}}$	(4c)	Mo III
$\mathbf{B_{11}}$	=	$\left(x_4 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_4 - \frac{1}{2}\right)\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	=	$a\left(x_4 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_4 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}}$	(4c)	Mo III
$\mathbf{B_{12}}$	=	$-\left(x_4 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_4 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_4\,\mathbf{a}_3$	=	$-a\left(x_4 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_4 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_4\,\hat{\mathbf{z}}$	(4c)	Mo III
$\mathbf{B_{13}}$	=	$x_5\,\mathbf{a}_1 + y_5\,\mathbf{a}_2 + z_5\,\mathbf{a}_3$	=	$ax_5\,\hat{\mathbf{x}} + by_5\,\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(4c)	Mo IV
$\mathbf{B_{14}}$	=	$-x_5\,\mathbf{a}_1 - y_5\,\mathbf{a}_2 + z_5\,\mathbf{a}_3$	=	$-ax_5\,\hat{\mathbf{x}} - by_5\,\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(4c)	Mo IV
$\mathbf{B_{15}}$	=	$\left(x_5 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_5 - \frac{1}{2}\right)\,\mathbf{a}_2 + z_5\,\mathbf{a}_3$	=	$a\left(x_5 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_5 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(4c)	Mo IV
$\mathbf{B_{16}}$	=	$-\left(x_5 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_5 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_5\,\mathbf{a}_3$	=	$-a\left(x_5 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_5 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_5\,\hat{\mathbf{z}}$	(4c)	Mo IV
$\mathbf{B_{17}}$	=	$x_6\,\mathbf{a}_1 + y_6\,\mathbf{a}_2 + z_6\,\mathbf{a}_3$	=	$ax_6\,\hat{\mathbf{x}} + by_6\,\hat{\mathbf{y}} + cz_6\,\hat{\mathbf{z}}$	(4c)	Mo V
$\mathbf{B_{18}}$	=	$-x_6\,\mathbf{a}_1 - y_6\,\mathbf{a}_2 + z_6\,\mathbf{a}_3$	=	$-ax_6\,\hat{\mathbf{x}} - by_6\,\hat{\mathbf{y}} + cz_6\,\hat{\mathbf{z}}$	(4c)	Mo V
$\mathbf{B_{19}}$	=	$\left(x_6 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_6 - \frac{1}{2}\right)\,\mathbf{a}_2 + z_6\,\mathbf{a}_3$	=	$a\left(x_6 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_6 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_6\,\hat{\mathbf{z}}$	(4c)	Mo V
$\mathbf{B_{20}}$	=	$-\left(x_6 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_6 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_6\,\mathbf{a}_3$	=	$-a\left(x_6 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_6 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_6\,\hat{\mathbf{z}}$	(4c)	Mo V
$\mathbf{B_{21}}$	=	$x_7\,\mathbf{a}_1 + y_7\,\mathbf{a}_2 + z_7\,\mathbf{a}_3$	=	$ax_7\,\hat{\mathbf{x}} + by_7\,\hat{\mathbf{y}} + cz_7\,\hat{\mathbf{z}}$	(4c)	Mo VI
$\mathbf{B_{22}}$	=	$-x_7\,\mathbf{a}_1 - y_7\,\mathbf{a}_2 + z_7\,\mathbf{a}_3$	=	$-ax_7\,\hat{\mathbf{x}} - by_7\,\hat{\mathbf{y}} + cz_7\,\hat{\mathbf{z}}$	(4c)	Mo VI
$\mathbf{B_{23}}$	=	$\left(x_7 + \frac{1}{2}\right)\,\mathbf{a}_1 - \left(y_7 - \frac{1}{2}\right)\,\mathbf{a}_2 + z_7\,\mathbf{a}_3$	=	$a\left(x_7 + \frac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_7 - \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_7\,\hat{\mathbf{z}}$	(4c)	Mo VI
$\mathbf{B_{24}}$	=	$-\left(x_7 - \frac{1}{2}\right)\,\mathbf{a}_1 + \left(y_7 + \frac{1}{2}\right)\,\mathbf{a}_2 + z_7\,\mathbf{a}_3$	=	$-a\left(x_7 - \frac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_7 + \frac{1}{2}\right)\,\hat{\mathbf{y}} + cz_7\,\hat{\mathbf{z}}$	(4c)	Mo VI
$\mathbf{B_{25}}$	=	$x_8\,\mathbf{a}_1 + y_8\,\mathbf{a}_2 + z_8\,\mathbf{a}_3$	=	$ax_8\,\hat{\mathbf{x}} + by_8\,\hat{\mathbf{y}} + cz_8\,\hat{\mathbf{z}}$	(4c)	Mo VII

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\begin{array}{lcccccc}
\mathbf{B_{26}} & = & -x_8\,\mathbf{a}_1 - y_8\,\mathbf{a}_2 + z_8\,\mathbf{a}_3 & = & -ax_8\,\hat{\mathbf{x}} - by_8\,\hat{\mathbf{y}} + cz_8\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VII} \\
\mathbf{B_{27}} & = & \left(x_8+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_8-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_8\,\mathbf{a}_3 & = & a\left(x_8+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_8-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_8\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VII} \\
\mathbf{B_{28}} & = & -\left(x_8-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_8+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_8\,\mathbf{a}_3 & = & -a\left(x_8-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_8+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_8\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VII} \\
\mathbf{B_{29}} & = & x_9\,\mathbf{a}_1 + y_9\,\mathbf{a}_2 + z_9\,\mathbf{a}_3 & = & ax_9\,\hat{\mathbf{x}} + by_9\,\hat{\mathbf{y}} + cz_9\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VIII} \\
\mathbf{B_{30}} & = & -x_9\,\mathbf{a}_1 - y_9\,\mathbf{a}_2 + z_9\,\mathbf{a}_3 & = & -ax_9\,\hat{\mathbf{x}} - by_9\,\hat{\mathbf{y}} + cz_9\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VIII} \\
\mathbf{B_{31}} & = & \left(x_9+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_9-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_9\,\mathbf{a}_3 & = & a\left(x_9+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_9-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_9\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VIII} \\
\mathbf{B_{32}} & = & -\left(x_9-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_9+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_9\,\mathbf{a}_3 & = & -a\left(x_9-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_9+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_9\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo VIII} \\
\mathbf{B_{33}} & = & x_{10}\,\mathbf{a}_1 + y_{10}\,\mathbf{a}_2 + z_{10}\,\mathbf{a}_3 & = & ax_{10}\,\hat{\mathbf{x}} + by_{10}\,\hat{\mathbf{y}} + cz_{10}\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo IX} \\
\mathbf{B_{34}} & = & -x_{10}\,\mathbf{a}_1 - y_{10}\,\mathbf{a}_2 + z_{10}\,\mathbf{a}_3 & = & -ax_{10}\,\hat{\mathbf{x}} - by_{10}\,\hat{\mathbf{y}} + cz_{10}\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo IX} \\
\mathbf{B_{35}} & = & \left(x_{10}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{10}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{10}\,\mathbf{a}_3 & = & a\left(x_{10}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{10}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{10}\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo IX} \\
\mathbf{B_{36}} & = & -\left(x_{10}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{10}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{10}\,\mathbf{a}_3 & = & -a\left(x_{10}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{10}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{10}\,\hat{\mathbf{z}} & \text{(4c)} & \text{Mo IX} \\
\mathbf{B_{37}} & = & x_{11}\,\mathbf{a}_1 + y_{11}\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3 & = & ax_{11}\,\hat{\mathbf{x}} + by_{11}\,\hat{\mathbf{y}} + cz_{11}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O II} \\
\mathbf{B_{38}} & = & -x_{11}\,\mathbf{a}_1 - y_{11}\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3 & = & -ax_{11}\,\hat{\mathbf{x}} - by_{11}\,\hat{\mathbf{y}} + cz_{11}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O II} \\
\mathbf{B_{39}} & = & \left(x_{11}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{11}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3 & = & a\left(x_{11}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{11}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{11}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O II} \\
\mathbf{B_{40}} & = & -\left(x_{11}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{11}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{11}\,\mathbf{a}_3 & = & -a\left(x_{11}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{11}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{11}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O II} \\
\mathbf{B_{41}} & = & x_{12}\,\mathbf{a}_1 + y_{12}\,\mathbf{a}_2 + z_{12}\,\mathbf{a}_3 & = & ax_{12}\,\hat{\mathbf{x}} + by_{12}\,\hat{\mathbf{y}} + cz_{12}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O III} \\
\mathbf{B_{42}} & = & -x_{12}\,\mathbf{a}_1 - y_{12}\,\mathbf{a}_2 + z_{12}\,\mathbf{a}_3 & = & -ax_{12}\,\hat{\mathbf{x}} - by_{12}\,\hat{\mathbf{y}} + cz_{12}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O III} \\
\mathbf{B_{43}} & = & \left(x_{12}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{12}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{12}\,\mathbf{a}_3 & = & a\left(x_{12}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{12}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{12}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O III} \\
\mathbf{B_{44}} & = & -\left(x_{12}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{12}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{12}\,\mathbf{a}_3 & = & -a\left(x_{12}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{12}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{12}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O III} \\
\mathbf{B_{45}} & = & x_{13}\,\mathbf{a}_1 + y_{13}\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3 & = & ax_{13}\,\hat{\mathbf{x}} + by_{13}\,\hat{\mathbf{y}} + cz_{13}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O IV} \\
\mathbf{B_{46}} & = & -x_{13}\,\mathbf{a}_1 - y_{13}\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3 & = & -ax_{13}\,\hat{\mathbf{x}} - by_{13}\,\hat{\mathbf{y}} + cz_{13}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O IV} \\
\mathbf{B_{47}} & = & \left(x_{13}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{13}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3 & = & a\left(x_{13}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{13}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{13}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O IV} \\
\mathbf{B_{48}} & = & -\left(x_{13}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{13}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{13}\,\mathbf{a}_3 & = & -a\left(x_{13}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{13}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{13}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O IV} \\
\mathbf{B_{49}} & = & x_{14}\,\mathbf{a}_1 + y_{14}\,\mathbf{a}_2 + z_{14}\,\mathbf{a}_3 & = & ax_{14}\,\hat{\mathbf{x}} + by_{14}\,\hat{\mathbf{y}} + cz_{14}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O V} \\
\mathbf{B_{50}} & = & -x_{14}\,\mathbf{a}_1 - y_{14}\,\mathbf{a}_2 + z_{14}\,\mathbf{a}_3 & = & -ax_{14}\,\hat{\mathbf{x}} - by_{14}\,\hat{\mathbf{y}} + cz_{14}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O V} \\
\mathbf{B_{51}} & = & \left(x_{14}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{14}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{14}\,\mathbf{a}_3 & = & a\left(x_{14}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{14}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{14}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O V} \\
\mathbf{B_{52}} & = & -\left(x_{14}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{14}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{14}\,\mathbf{a}_3 & = & -a\left(x_{14}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{14}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{14}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O V} \\
\mathbf{B_{53}} & = & x_{15}\,\mathbf{a}_1 + y_{15}\,\mathbf{a}_2 + z_{15}\,\mathbf{a}_3 & = & ax_{15}\,\hat{\mathbf{x}} + by_{15}\,\hat{\mathbf{y}} + cz_{15}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O VI} \\
\mathbf{B_{54}} & = & -x_{15}\,\mathbf{a}_1 - y_{15}\,\mathbf{a}_2 + z_{15}\,\mathbf{a}_3 & = & -ax_{15}\,\hat{\mathbf{x}} - by_{15}\,\hat{\mathbf{y}} + cz_{15}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O VI} \\
\mathbf{B_{55}} & = & \left(x_{15}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{15}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{15}\,\mathbf{a}_3 & = & a\left(x_{15}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{15}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{15}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O VI} \\
\mathbf{B_{56}} & = & -\left(x_{15}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{15}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{15}\,\mathbf{a}_3 & = & -a\left(x_{15}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{15}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{15}\,\hat{\mathbf{z}} & \text{(4c)} & \text{O VI}
\end{array}
$$

$$\mathbf{B_{57}} = x_{16}\,\mathbf{a}_1 + y_{16}\,\mathbf{a}_2 + z_{16}\,\mathbf{a}_3 = ax_{16}\,\hat{\mathbf{x}} + by_{16}\,\hat{\mathbf{y}} + cz_{16}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VII}$$

$$\mathbf{B_{58}} = -x_{16}\,\mathbf{a}_1 - y_{16}\,\mathbf{a}_2 + z_{16}\,\mathbf{a}_3 = -ax_{16}\,\hat{\mathbf{x}} - by_{16}\,\hat{\mathbf{y}} + cz_{16}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VII}$$

$$\mathbf{B_{59}} = \left(x_{16}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{16}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{16}\,\mathbf{a}_3 = a\left(x_{16}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{16}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{16}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VII}$$

$$\mathbf{B_{60}} = -\left(x_{16}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{16}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{16}\,\mathbf{a}_3 = -a\left(x_{16}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{16}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{16}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VII}$$

$$\mathbf{B_{61}} = x_{17}\,\mathbf{a}_1 + y_{17}\,\mathbf{a}_2 + z_{17}\,\mathbf{a}_3 = ax_{17}\,\hat{\mathbf{x}} + by_{17}\,\hat{\mathbf{y}} + cz_{17}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VIII}$$

$$\mathbf{B_{62}} = -x_{17}\,\mathbf{a}_1 - y_{17}\,\mathbf{a}_2 + z_{17}\,\mathbf{a}_3 = -ax_{17}\,\hat{\mathbf{x}} - by_{17}\,\hat{\mathbf{y}} + cz_{17}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VIII}$$

$$\mathbf{B_{63}} = \left(x_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{17}\,\mathbf{a}_3 = a\left(x_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{17}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VIII}$$

$$\mathbf{B_{64}} = -\left(x_{17}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{17}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{17}\,\mathbf{a}_3 = -a\left(x_{17}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{17}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{17}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O VIII}$$

$$\mathbf{B_{65}} = x_{18}\,\mathbf{a}_1 + y_{18}\,\mathbf{a}_2 + z_{18}\,\mathbf{a}_3 = ax_{18}\,\hat{\mathbf{x}} + by_{18}\,\hat{\mathbf{y}} + cz_{18}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O IX}$$

$$\mathbf{B_{66}} = -x_{18}\,\mathbf{a}_1 - y_{18}\,\mathbf{a}_2 + z_{18}\,\mathbf{a}_3 = -ax_{18}\,\hat{\mathbf{x}} - by_{18}\,\hat{\mathbf{y}} + cz_{18}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O IX}$$

$$\mathbf{B_{67}} = \left(x_{18}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{18}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{18}\,\mathbf{a}_3 = a\left(x_{18}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{18}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{18}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O IX}$$

$$\mathbf{B_{68}} = -\left(x_{18}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{18}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{18}\,\mathbf{a}_3 = -a\left(x_{18}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{18}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{18}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O IX}$$

$$\mathbf{B_{69}} = x_{19}\,\mathbf{a}_1 + y_{19}\,\mathbf{a}_2 + z_{19}\,\mathbf{a}_3 = ax_{19}\,\hat{\mathbf{x}} + by_{19}\,\hat{\mathbf{y}} + cz_{19}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O X}$$

$$\mathbf{B_{70}} = -x_{19}\,\mathbf{a}_1 - y_{19}\,\mathbf{a}_2 + z_{19}\,\mathbf{a}_3 = -ax_{19}\,\hat{\mathbf{x}} - by_{19}\,\hat{\mathbf{y}} + cz_{19}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O X}$$

$$\mathbf{B_{71}} = \left(x_{19}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{19}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{19}\,\mathbf{a}_3 = a\left(x_{19}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{19}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{19}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O X}$$

$$\mathbf{B_{72}} = -\left(x_{19}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{19}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{19}\,\mathbf{a}_3 = -a\left(x_{19}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{19}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{19}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O X}$$

$$\mathbf{B_{73}} = x_{20}\,\mathbf{a}_1 + y_{20}\,\mathbf{a}_2 + z_{20}\,\mathbf{a}_3 = ax_{20}\,\hat{\mathbf{x}} + by_{20}\,\hat{\mathbf{y}} + cz_{20}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XI}$$

$$\mathbf{B_{74}} = -x_{20}\,\mathbf{a}_1 - y_{20}\,\mathbf{a}_2 + z_{20}\,\mathbf{a}_3 = -ax_{20}\,\hat{\mathbf{x}} - by_{20}\,\hat{\mathbf{y}} + cz_{20}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XI}$$

$$\mathbf{B_{75}} = \left(x_{20}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{20}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{20}\,\mathbf{a}_3 = a\left(x_{20}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{20}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{20}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XI}$$

$$\mathbf{B_{76}} = -\left(x_{20}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{20}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{20}\,\mathbf{a}_3 = -a\left(x_{20}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{20}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{20}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XI}$$

$$\mathbf{B_{77}} = x_{21}\,\mathbf{a}_1 + y_{21}\,\mathbf{a}_2 + z_{21}\,\mathbf{a}_3 = ax_{21}\,\hat{\mathbf{x}} + by_{21}\,\hat{\mathbf{y}} + cz_{21}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XII}$$

$$\mathbf{B_{78}} = -x_{21}\,\mathbf{a}_1 - y_{21}\,\mathbf{a}_2 + z_{21}\,\mathbf{a}_3 = -ax_{21}\,\hat{\mathbf{x}} - by_{21}\,\hat{\mathbf{y}} + cz_{21}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XII}$$

$$\mathbf{B_{79}} = \left(x_{21}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{21}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{21}\,\mathbf{a}_3 = a\left(x_{21}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{21}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{21}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XII}$$

$$\mathbf{B_{80}} = -\left(x_{21}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{21}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{21}\,\mathbf{a}_3 = -a\left(x_{21}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{21}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{21}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XII}$$

$$\mathbf{B_{81}} = x_{22}\,\mathbf{a}_1 + y_{22}\,\mathbf{a}_2 + z_{22}\,\mathbf{a}_3 = ax_{22}\,\hat{\mathbf{x}} + by_{22}\,\hat{\mathbf{y}} + cz_{22}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIII}$$

$$\mathbf{B_{82}} = -x_{22}\,\mathbf{a}_1 - y_{22}\,\mathbf{a}_2 + z_{22}\,\mathbf{a}_3 = -ax_{22}\,\hat{\mathbf{x}} - by_{22}\,\hat{\mathbf{y}} + cz_{22}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIII}$$

$$\mathbf{B_{83}} = \left(x_{22}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{22}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{22}\,\mathbf{a}_3 = a\left(x_{22}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{22}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{22}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIII}$$

$$\mathbf{B_{84}} = -\left(x_{22}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{22}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{22}\,\mathbf{a}_3 = -a\left(x_{22}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{22}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{22}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIII}$$

$$\mathbf{B_{85}} = x_{23}\,\mathbf{a}_1 + y_{23}\,\mathbf{a}_2 + z_{23}\,\mathbf{a}_3 = ax_{23}\,\hat{\mathbf{x}} + by_{23}\,\hat{\mathbf{y}} + cz_{23}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIV}$$

$$\mathbf{B_{86}} = -x_{23}\,\mathbf{a}_1 - y_{23}\,\mathbf{a}_2 + z_{23}\,\mathbf{a}_3 = -ax_{23}\,\hat{\mathbf{x}} - by_{23}\,\hat{\mathbf{y}} + cz_{23}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIV}$$

$$\mathbf{B_{87}} = \left(x_{23}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{23}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{23}\,\mathbf{a}_3 = a\left(x_{23}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{23}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{23}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIV}$$

$$\mathbf{B_{88}} = -\left(x_{23}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{23}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{23}\,\mathbf{a}_3 = -a\left(x_{23}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{23}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{23}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIV}$$

$$\mathbf{B_{89}} = x_{24}\,\mathbf{a}_1 + y_{24}\,\mathbf{a}_2 + z_{24}\,\mathbf{a}_3 = ax_{24}\,\hat{\mathbf{x}} + by_{24}\,\hat{\mathbf{y}} + cz_{24}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XV}$$

$$\mathbf{B_{90}} = -x_{24}\,\mathbf{a}_1 - y_{24}\,\mathbf{a}_2 + z_{24}\,\mathbf{a}_3 = -ax_{24}\,\hat{\mathbf{x}} - by_{24}\,\hat{\mathbf{y}} + cz_{24}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XV}$$

$$\mathbf{B_{91}} = \left(x_{24}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{24}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{24}\,\mathbf{a}_3 = a\left(x_{24}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{24}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{24}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XV}$$

$$\mathbf{B_{92}} = -\left(x_{24}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{24}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{24}\,\mathbf{a}_3 = -a\left(x_{24}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{24}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{24}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XV}$$

$$\mathbf{B_{93}} = x_{25}\,\mathbf{a}_1 + y_{25}\,\mathbf{a}_2 + z_{25}\,\mathbf{a}_3 = ax_{25}\,\hat{\mathbf{x}} + by_{25}\,\hat{\mathbf{y}} + cz_{25}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVI}$$

$$\mathbf{B_{94}} = -x_{25}\,\mathbf{a}_1 - y_{25}\,\mathbf{a}_2 + z_{25}\,\mathbf{a}_3 = -ax_{25}\,\hat{\mathbf{x}} - by_{25}\,\hat{\mathbf{y}} + cz_{25}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVI}$$

$$\mathbf{B_{95}} = \left(x_{25}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{25}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{25}\,\mathbf{a}_3 = a\left(x_{25}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{25}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{25}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVI}$$

$$\mathbf{B_{96}} = -\left(x_{25}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{25}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{25}\,\mathbf{a}_3 = -a\left(x_{25}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{25}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{25}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVI}$$

$$\mathbf{B_{97}} = x_{26}\,\mathbf{a}_1 + y_{26}\,\mathbf{a}_2 + z_{26}\,\mathbf{a}_3 = ax_{26}\,\hat{\mathbf{x}} + by_{26}\,\hat{\mathbf{y}} + cz_{26}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVII}$$

$$\mathbf{B_{98}} = -x_{26}\,\mathbf{a}_1 - y_{26}\,\mathbf{a}_2 + z_{26}\,\mathbf{a}_3 = -ax_{26}\,\hat{\mathbf{x}} - by_{26}\,\hat{\mathbf{y}} + cz_{26}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVII}$$

$$\mathbf{B_{99}} = \left(x_{26}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{26}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{26}\,\mathbf{a}_3 = a\left(x_{26}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{26}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{26}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVII}$$

$$\mathbf{B_{100}} = -\left(x_{26}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{26}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{26}\,\mathbf{a}_3 = -a\left(x_{26}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{26}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{26}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVII}$$

$$\mathbf{B_{101}} = x_{27}\,\mathbf{a}_1 + y_{27}\,\mathbf{a}_2 + z_{27}\,\mathbf{a}_3 = ax_{27}\,\hat{\mathbf{x}} + by_{27}\,\hat{\mathbf{y}} + cz_{27}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVIII}$$

$$\mathbf{B_{102}} = -x_{27}\,\mathbf{a}_1 - y_{27}\,\mathbf{a}_2 + z_{27}\,\mathbf{a}_3 = -ax_{27}\,\hat{\mathbf{x}} - by_{27}\,\hat{\mathbf{y}} + cz_{27}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVIII}$$

$$\mathbf{B_{103}} = \left(x_{27}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{27}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{27}\,\mathbf{a}_3 = a\left(x_{27}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{27}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{27}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVIII}$$

$$\mathbf{B_{104}} = -\left(x_{27}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{27}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{27}\,\mathbf{a}_3 = -a\left(x_{27}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{27}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{27}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XVIII}$$

$$\mathbf{B_{105}} = x_{28}\,\mathbf{a}_1 + y_{28}\,\mathbf{a}_2 + z_{28}\,\mathbf{a}_3 = ax_{28}\,\hat{\mathbf{x}} + by_{28}\,\hat{\mathbf{y}} + cz_{28}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIX}$$

$$\mathbf{B_{106}} = -x_{28}\,\mathbf{a}_1 - y_{28}\,\mathbf{a}_2 + z_{28}\,\mathbf{a}_3 = -ax_{28}\,\hat{\mathbf{x}} - by_{28}\,\hat{\mathbf{y}} + cz_{28}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIX}$$

$$\mathbf{B_{107}} = \left(x_{28}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{28}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{28}\,\mathbf{a}_3 = a\left(x_{28}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{28}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{28}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIX}$$

$$\mathbf{B_{108}} = -\left(x_{28}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{28}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{28}\,\mathbf{a}_3 = -a\left(x_{28}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{28}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{28}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XIX}$$

$$\mathbf{B_{109}} = x_{29}\,\mathbf{a}_1 + y_{29}\,\mathbf{a}_2 + z_{29}\,\mathbf{a}_3 = ax_{29}\,\hat{\mathbf{x}} + by_{29}\,\hat{\mathbf{y}} + cz_{29}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XX}$$

$$\mathbf{B_{110}} = -x_{29}\,\mathbf{a}_1 - y_{29}\,\mathbf{a}_2 + z_{29}\,\mathbf{a}_3 = -ax_{29}\,\hat{\mathbf{x}} - by_{29}\,\hat{\mathbf{y}} + cz_{29}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XX}$$

$$\mathbf{B_{111}} = \left(x_{29}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{29}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{29}\,\mathbf{a}_3 = a\left(x_{29}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{29}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{29}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XX}$$

$$\mathbf{B_{112}} = -\left(x_{29}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{29}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{29}\,\mathbf{a}_3 = -a\left(x_{29}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{29}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{29}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XX}$$

$$\mathbf{B_{113}} = x_{30}\,\mathbf{a}_1 + y_{30}\,\mathbf{a}_2 + z_{30}\,\mathbf{a}_3 = ax_{30}\,\hat{\mathbf{x}} + by_{30}\,\hat{\mathbf{y}} + cz_{30}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXI}$$

$$\mathbf{B_{114}} = -x_{30}\,\mathbf{a}_1 - y_{30}\,\mathbf{a}_2 + z_{30}\,\mathbf{a}_3 = -ax_{30}\,\hat{\mathbf{x}} - by_{30}\,\hat{\mathbf{y}} + cz_{30}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXI}$$

$$\mathbf{B_{115}} = \left(x_{30}+\tfrac{1}{2}\right)\mathbf{a}_1 - \left(y_{30}-\tfrac{1}{2}\right)\mathbf{a}_2 + z_{30}\,\mathbf{a}_3 = a\left(x_{30}+\tfrac{1}{2}\right)\hat{\mathbf{x}} - b\left(y_{30}-\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{30}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXI}$$

$$\mathbf{B_{116}} = -\left(x_{30}-\tfrac{1}{2}\right)\mathbf{a}_1 + \left(y_{30}+\tfrac{1}{2}\right)\mathbf{a}_2 + z_{30}\,\mathbf{a}_3 = -a\left(x_{30}-\tfrac{1}{2}\right)\hat{\mathbf{x}} + b\left(y_{30}+\tfrac{1}{2}\right)\hat{\mathbf{y}} + cz_{30}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXI}$$

$$\mathbf{B_{117}} = x_{31}\,\mathbf{a}_1 + y_{31}\,\mathbf{a}_2 + z_{31}\,\mathbf{a}_3 = ax_{31}\,\hat{\mathbf{x}} + by_{31}\,\hat{\mathbf{y}} + cz_{31}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXII}$$

$$\mathbf{B_{118}} = -x_{31}\,\mathbf{a}_1 - y_{31}\,\mathbf{a}_2 + z_{31}\,\mathbf{a}_3 = -ax_{31}\,\hat{\mathbf{x}} - by_{31}\,\hat{\mathbf{y}} + cz_{31}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXII}$$

$$\mathbf{B_{119}} = \left(x_{31}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{31}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{31}\,\mathbf{a}_3 = a\left(x_{31}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{31}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{31}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXII}$$

$$\mathbf{B_{120}} = -\left(x_{31}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{31}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{31}\,\mathbf{a}_3 = -a\left(x_{31}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{31}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{31}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXII}$$

$$\mathbf{B_{121}} = x_{32}\,\mathbf{a}_1 + y_{32}\,\mathbf{a}_2 + z_{32}\,\mathbf{a}_3 = ax_{32}\,\hat{\mathbf{x}} + by_{32}\,\hat{\mathbf{y}} + cz_{32}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIII}$$

$$\mathbf{B_{122}} = -x_{32}\,\mathbf{a}_1 - y_{32}\,\mathbf{a}_2 + z_{32}\,\mathbf{a}_3 = -ax_{32}\,\hat{\mathbf{x}} - by_{32}\,\hat{\mathbf{y}} + cz_{32}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIII}$$

$$\mathbf{B_{123}} = \left(x_{32}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{32}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{32}\,\mathbf{a}_3 = a\left(x_{32}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{32}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{32}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIII}$$

$$\mathbf{B_{124}} = -\left(x_{32}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{32}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{32}\,\mathbf{a}_3 = -a\left(x_{32}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{32}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{32}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIII}$$

$$\mathbf{B_{125}} = x_{33}\,\mathbf{a}_1 + y_{33}\,\mathbf{a}_2 + z_{33}\,\mathbf{a}_3 = ax_{33}\,\hat{\mathbf{x}} + by_{33}\,\hat{\mathbf{y}} + cz_{33}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIV}$$

$$\mathbf{B_{126}} = -x_{33}\,\mathbf{a}_1 - y_{33}\,\mathbf{a}_2 + z_{33}\,\mathbf{a}_3 = -ax_{33}\,\hat{\mathbf{x}} - by_{33}\,\hat{\mathbf{y}} + cz_{33}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIV}$$

$$\mathbf{B_{127}} = \left(x_{33}+\tfrac{1}{2}\right)\,\mathbf{a}_1 - \left(y_{33}-\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{33}\,\mathbf{a}_3 = a\left(x_{33}+\tfrac{1}{2}\right)\,\hat{\mathbf{x}} - b\left(y_{33}-\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{33}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIV}$$

$$\mathbf{B_{128}} = -\left(x_{33}-\tfrac{1}{2}\right)\,\mathbf{a}_1 + \left(y_{33}+\tfrac{1}{2}\right)\,\mathbf{a}_2 + z_{33}\,\mathbf{a}_3 = -a\left(x_{33}-\tfrac{1}{2}\right)\,\hat{\mathbf{x}} + b\left(y_{33}+\tfrac{1}{2}\right)\,\hat{\mathbf{y}} + cz_{33}\,\hat{\mathbf{z}} \quad (4c) \quad \text{O XXIV}$$

References

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