Order 2

$$\langle X_0 X_1 \rangle = \langle X_0 \rangle \langle X_1 \rangle$$

Order 3

$$\langle X_0 X_1 X_2 \rangle = \langle X_0 \rangle \langle X_1 X_2 \rangle + \langle X_0 X_1 \rangle \langle X_2 \rangle + \langle X_0 X_2 \rangle \langle X_1 \rangle - 2\langle X_0 \rangle \langle X_1 \rangle \langle X_2 \rangle$$

Order 4

$$\begin{gathered}
\langle X_0 X_1 X_2 X_3 \rangle = \langle X_0 \rangle \langle X_1 X_2 X_3 \rangle + \langle X_0 X_2 X_3 \rangle \langle X_1 \rangle + \langle X_0 X_1 X_2 \rangle \langle X_3 \rangle + \langle X_0 X_1 X_3 \rangle \langle X_2 \rangle \\
+\langle X_0 X_1 \rangle \langle X_2 X_3 \rangle + \langle X_0 X_3 \rangle \langle X_1 X_2 \rangle + \langle X_0 X_2 \rangle \langle X_1 X_3 \rangle - 2\langle X_0 \rangle \langle X_1 \rangle \langle X_2 X_3 \rangle \\
-2\langle X_0 \rangle \langle X_1 X_2 \rangle \langle X_3 \rangle - 2\langle X_0 \rangle \langle X_1 X_3 \rangle \langle X_2 \rangle - 2\langle X_0 X_1 \rangle \langle X_2 \rangle \langle X_3 \rangle \\
-2\langle X_0 X_2 \rangle \langle X_1 \rangle \langle X_3 \rangle - 2\langle X_0 X_3 \rangle \langle X_1 \rangle \langle X_2 \rangle + 6\langle X_0 \rangle \langle X_1 \rangle \langle X_2 \rangle \langle X_3 \rangle
\end{gathered}$$

Order 5

$$\begin{gathered}
\langle X_0 X_1 X_2 X_3 X_4 \rangle = \langle X_0 \rangle \langle X_1 X_2 X_3 X_4 \rangle + \langle X_0 X_2 X_3 X_4 \rangle \langle X_1 \rangle + \langle X_0 X_1 X_3 X_4 \rangle \langle X_2 \rangle \\
+\langle X_0 X_1 X_2 X_3 \rangle \langle X_4 \rangle + \langle X_0 X_1 X_2 X_4 \rangle \langle X_3 \rangle + \langle X_0 X_1 \rangle \langle X_2 X_3 X_4 \rangle + \langle X_0 X_1 X_2 \rangle \langle X_3 X_4 \rangle \\
+\langle X_0 X_3 X_4 \rangle \langle X_1 X_2 \rangle + \langle X_0 X_2 \rangle \langle X_1 X_3 X_4 \rangle + \langle X_0 X_4 \rangle \langle X_1 X_2 X_3 \rangle + \langle X_0 X_2 X_3 \rangle \langle X_1 X_4 \rangle \\
+\langle X_0 X_1 X_4 \rangle \langle X_2 X_3 \rangle + \langle X_0 X_1 X_3 \rangle \langle X_2 X_4 \rangle + \langle X_0 X_2 X_4 \rangle \langle X_1 X_3 \rangle + \langle X_0 X_3 \rangle \langle X_1 X_2 X_4 \rangle \\
-2\langle X_0 \rangle \langle X_1 \rangle \langle X_2 X_3 X_4 \rangle - 2\langle X_0 \rangle \langle X_1 X_3 X_4 \rangle \langle X_2 \rangle - 2\langle X_0 X_3 X_4 \rangle \langle X_1 \rangle \langle X_2 \rangle \\
-2\langle X_0 \rangle \langle X_1 X_2 X_3 \rangle \langle X_4 \rangle - 2\langle X_0 X_2 X_3 \rangle \langle X_1 \rangle \langle X_4 \rangle - 2\langle X_0 \rangle \langle X_1 X_2 X_4 \rangle \langle X_3 \rangle \\
-2\langle X_0 X_2 X_4 \rangle \langle X_1 \rangle \langle X_3 \rangle - 2\langle X_0 X_1 X_2 \rangle \langle X_3 \rangle \langle X_4 \rangle - 2\langle X_0 X_1 X_3 \rangle \langle X_2 \rangle \langle X_4 \rangle \\
-2\langle X_0 X_1 X_4 \rangle \langle X_2 \rangle \langle X_3 \rangle - 2\langle X_0 \rangle \langle X_1 X_2 \rangle \langle X_3 X_4 \rangle - 2\langle X_0 X_1 \rangle \langle X_2 \rangle \langle X_3 X_4 \rangle \\
-2\langle X_0 X_2 \rangle \langle X_1 \rangle \langle X_3 X_4 \rangle - 2\langle X_0 \rangle \langle X_1 X_4 \rangle \langle X_2 X_3 \rangle - 2\langle X_0 X_1 \rangle \langle X_2 X_3 \rangle \langle X_4 \rangle \\
-2\langle X_0 X_4 \rangle \langle X_1 \rangle \langle X_2 X_3 \rangle - 2\langle X_0 \rangle \langle X_1 X_3 \rangle \langle X_2 X_4 \rangle - 2\langle X_0 X_1 \rangle \langle X_2 X_4 \rangle \langle X_3 \rangle \\
-2\langle X_0 X_3 \rangle \langle X_1 \rangle \langle X_2 X_4 \rangle - 2\langle X_0 X_3 \rangle \langle X_1 X_2 \rangle \langle X_4 \rangle - 2\langle X_0 X_4 \rangle \langle X_1 X_2 \rangle \langle X_3 \rangle \\
-2\langle X_0 X_2 \rangle \langle X_1 X_3 \rangle \langle X_4 \rangle - 2\langle X_0 X_4 \rangle \langle X_1 X_3 \rangle \langle X_2 \rangle - 2\langle X_0 X_2 \rangle \langle X_1 X_4 \rangle \langle X_3 \rangle \\
-2\langle X_0 X_3 \rangle \langle X_1 X_4 \rangle \langle X_2 \rangle + 6\langle X_0 \rangle \langle X_1 \rangle \langle X_2 \rangle \langle X_3 X_4 \rangle + 6\langle X_0 \rangle \langle X_1 \rangle \langle X_2 X_3 \rangle \langle X_4 \rangle \\
+6\langle X_0 \rangle \langle X_1 \rangle \langle X_2 X_4 \rangle \langle X_3 \rangle + 6\langle X_0 \rangle \langle X_1 X_2 \rangle \langle X_3 \rangle \langle X_4 \rangle + 6\langle X_0 \rangle \langle X_1 X_3 \rangle \langle X_2 \rangle \langle X_4 \rangle \\
+6\langle X_0 \rangle \langle X_1 X_4 \rangle \langle X_2 \rangle \langle X_3 \rangle + 6\langle X_0 X_1 \rangle \langle X_2 \rangle \langle X_3 \rangle \langle X_4 \rangle + 6\langle X_0 X_2 \rangle \langle X_1 \rangle \langle X_3 \rangle \langle X_4 \rangle \\
+6\langle X_0 X_3 \rangle \langle X_1 \rangle \langle X_2 \rangle \langle X_4 \rangle + 6\langle X_0 X_4 \rangle \langle X_1 \rangle \langle X_2 \rangle \langle X_3 \rangle - 24\langle X_0 \rangle \langle X_1 \rangle \langle X_2 \rangle \langle X_3 \rangle \langle X_4 \rangle
\end{gathered}$$