

$$\begin{aligned}
& \frac{-1/2(s_{23}-s_{14})(s_{13}-s_{24})(36)^2\langle 4|1+2|3|34\rangle}{(56)\Delta_{14|23|56}\langle 1|2+3|4|2|1+4|3|^2} + \\
& \frac{(s_{123}-s_{234})\langle 3|1+4|2|(-39/16[35]\langle 34\rangle[36]\langle 24|\langle 12\rangle[13]\dots\langle 11\text{ terms}\rangle\dots-73/32[35][12]\langle 23\rangle\langle 46\rangle\langle 13\rangle[34])}{(1|2+3|4|2|1+4|3|\Delta_{14|23|56}^2} + \\
& \frac{1/8\langle 34\rangle\langle 2|1+4|5|(s_{23}-s_{56})\langle 3|1+4|2|\langle 46\rangle[23]\rangle}{(14)\Delta_{14|23|56}^2\langle 2|1+4|3|} + \\
& \frac{-3/8(s_{23}-s_{14})\langle 3|1+4|2|s_{134}\langle 46\rangle^2[14]\rangle}{(56)\Delta_{14|23|56}^2\langle 2|1+4|3|} + \\
& \frac{\langle 46\rangle[24]\langle 1/4[13]\langle 23\rangle\langle 46\rangle[24]\langle 13\rangle\dots\langle 3\text{ terms}\rangle\dots-1/4\langle 14\rangle\langle 36\rangle[14][24]\langle 24\rangle)}{(56)\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{(s_{23}-s_{14})\langle 36\rangle(-1/2\langle 46\rangle[24]^2\langle 24\rangle\dots\langle 5\text{ terms}\rangle\dots-1[12]\langle 46\rangle\langle 13\rangle[34])}{(56)\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{\langle 46\rangle\langle 3/4[12]\langle 34\rangle\langle 36\rangle[34]\dots\langle 4\text{ terms}\rangle\dots+1\langle 46\rangle[24]\langle 34\rangle[14]\rangle}{(56)\Delta_{14|23|56}\langle 2|1+4|3|} + \\
& \frac{1/4\langle 46\rangle\langle 34\rangle[24]^2\langle 36\rangle}{(56)\Delta_{14|23|56}\langle 1|2+3|4|} + \\
& (123456 \rightarrow -432165) + \\
& \frac{3[35]\langle 3|1+4|2|\langle 26\rangle[13]\langle s_{124}-s_{134}\rangle\langle 24\rangle}{\Delta_{14|23|56}\langle 2|1+4|3|^3} + \\
& \frac{5/2[35]\langle 3|1+4|2|^2\langle 26\rangle[13]\langle s_{124}-s_{134}\rangle\langle 24\rangle}{\Delta_{14|23|56}^2\langle 2|1+4|3|^2} + \\
& \frac{1/2[12][25]\langle 26\rangle[24]\langle 24\rangle^2\dots\langle 28\text{ terms}\rangle\dots-1[35]\langle 34\rangle^2\langle 36\rangle[13][34]}{\Delta_{14|23|56}\langle 2|1+4|3|^2} + \\
& \frac{[35][13]\langle 13\rangle(s_{13}-s_{24})\langle 1[13]\langle 13\rangle\langle 36\rangle+1[12]\langle 26\rangle\langle 13\rangle-1\langle 46\rangle\langle 23\rangle[24]\rangle}{\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|^2} + \\
& \frac{(s_{124}-s_{134})\langle -1[12]\langle 46\rangle\langle 23\rangle[35]\dots\langle 9\text{ terms}\rangle\dots+1[12][45]\langle 46\rangle\langle 24\rangle\rangle}{\Delta_{14|23|56}\langle 2|1+4|3|^2} + \\
& \frac{(s_{13}-s_{24})(s_{124}-s_{134})\langle -3/2\langle 14\rangle[14][15]\langle 16\rangle\dots\langle 6\text{ terms}\rangle\dots-3/2\langle 26\rangle[25]\langle 23\rangle[23]\rangle}{\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|^2} + \\
& \frac{-2\langle 6|1+3|5\rangle\langle 24\rangle}{(12)\langle 2|1+4|3|^2} + \\
& \frac{2\langle 24\rangle[15]\langle 16\rangle}{(12)\langle 2|1+4|3|^2} + \\
& \frac{2\langle 14\rangle\langle 26\rangle[15]}{(12)\langle 2|1+4|3|^2} + \\
& \frac{-2\langle 46\rangle[13]\langle 36\rangle}{(56)\langle 2|1+4|3|^2} + \\
& \frac{2[25][15]\langle 24\rangle}{[56]\langle 2|1+4|3|^2} + \\
& \frac{-35/32s_{23}\langle 6|1+4|5|\langle 3|1+4|2|\langle s_{15}+s_{16}+s_{45}+s_{46}\rangle(s_{124}-s_{134})\langle 4|2+3|1\rangle\rangle}{\Delta_{14|23|56}^3\langle 2|1+4|3|} + \\
& \frac{127/64(s_{13}-s_{24})\langle 6|1+4|5|\langle 3|1+4|2|\langle 4|2+3|1\rangle\rangle}{\langle 2|1+4|3|\Delta_{14|23|56}^2} + \\
& \frac{-7/32(s_{123}+s_{234})\langle 6|1+4|5|\langle 3|1+4|2|\langle 4|2+3|1|\langle 1|2-3|4\rangle\rangle}{(1|2+3|4|\langle 2|1+4|3|\Delta_{14|23|56}^2} + \\
& \frac{(s_{124}-s_{134})\langle -125/32[35]\langle 34\rangle[12]\langle 23\rangle\langle 46\rangle[24]\dots\langle 42\text{ terms}\rangle\dots+3/16\langle 34\rangle\langle 46\rangle[25][14][24]\langle 24\rangle\rangle}{\langle 2|1+4|3|\Delta_{14|23|56}^2} + \\
& \frac{(s_{123}-s_{234})(s_{124}-s_{134})\langle 1/8[14]^2\langle 14\rangle^2[25]\langle 36\rangle\dots\langle 21\text{ terms}\rangle\dots-5/64[12]^2\langle 26\rangle\langle 13\rangle^2[35]\rangle}{(1|2+3|4|\langle 2|1+4|3|\Delta_{14|23|56}^2} + \\
& \frac{-1/2(s_{13}-s_{24})(s_{23}-s_{56})[15]\langle 16\rangle[23]\langle 13\rangle^2}{(14)\Delta_{14|23|56}\langle 1|2+3|4|^2\langle 2|1+4|3|} + \\
& \frac{\langle 13\rangle(s_{13}-s_{24})\langle 1/2[35]\langle 46\rangle\langle 23\rangle[24]^2\dots\langle 7\text{ terms}\rangle\dots-3/2[12][45]\langle 26\rangle[23]\langle 13\rangle\rangle}{\Delta_{14|23|56}\langle 1|2+3|4|^2\langle 2|1+4|3|} + \\
& \frac{\langle 13\rangle(s_{13}-s_{24})(s_{123}-s_{234})\langle 1[25][14]\langle 16\rangle-1/2[12][45]\langle 16\rangle+3/2\langle 46\rangle[45][24]\rangle}{\Delta_{14|23|56}\langle 1|2+3|4|^2\langle 2|1+4|3|} + \\
& \frac{\langle 46\rangle[23]\langle 13\rangle^2\langle -1/2[35]\langle 34\rangle[14]+1/2[12]\langle 12\rangle[15]-1/2[12][45]\langle 24\rangle\rangle}{(14)\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{\langle 13\rangle\langle 46\rangle(s_{23}-s_{56})\langle -1[25][13]\langle 13\rangle+1[12]\langle 13\rangle[35]+1/2[45]\langle 34\rangle[23]\rangle}{(14)\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{[24]\langle 23\rangle[15]\langle 1/2\langle 46\rangle[24][13]\langle 13\rangle-1/2[12][13]\langle 13\rangle\langle 16\rangle+1/2[12]\langle 14\rangle[24]\langle 26\rangle\rangle}{[14]\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{-3\langle 14\rangle^2[25][14]^2\langle 36\rangle\dots\langle 57\text{ terms}\rangle\dots-3/2\langle 23\rangle[23]\langle 36\rangle[25][13]\langle 13\rangle}{\Delta_{14|23|56}\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{-2\langle 46\rangle[45]\langle 13\rangle+4\langle 13\rangle[15]\langle 16\rangle+47/8[25]\langle 12\rangle\langle 36\rangle}{(12)\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{4[12]\langle 16\rangle\langle 36\rangle}{(56)\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{-4[23]\langle 36\rangle^2}{(56)\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{-4[45]\langle 34\rangle[25]}{[56]\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{4\langle 23\rangle[25]^2}{[56]\langle 1|2+3|4|\langle 2|1+4|3|} + \\
& \frac{(s_{123}-s_{234})\langle 33/32\langle 34\rangle\langle 23\rangle\langle 36\rangle[24][25][23]\dots\langle 19\text{ terms}\rangle\dots-1/8[13]\langle 34\rangle\langle 36\rangle[25][24]\langle 13\rangle\rangle}{\langle 1|2+3|4|\Delta_{14|23|56}^2} + \\
& \frac{\langle 13\rangle\langle 1/2[35]\langle 34\rangle[24]^2\langle 36\rangle\dots\langle 7\text{ terms}\rangle\dots+1/2[12][25]\langle 26\rangle[24]\langle 13\rangle\rangle}{\Delta_{14|23|56}\langle 1|2+3|4|^2} + \\
& \frac{2[24]\langle 13\rangle^2[15]\langle 16\rangle}{(12)\langle 14\rangle[14]\langle 1|2+3|4|^2} + \\
& \frac{34/3[12]\langle 1|2+3|5|\langle 13\rangle^2[15]}{(12)[56]\langle 1|2+3|1|^2\langle 1|2+3|4|} + \\
& \frac{6[12]\langle 13\rangle^2[15]\langle 16\rangle}{(12)\langle 14\rangle[14]\langle 1|2+3|1|\langle 1|2+3|4|} + \\
& \frac{4[12]\langle 13\rangle^2[15]\langle 16\rangle}{(12)\langle 14\rangle[14]\langle 1|5+6|1|\langle 1|2+3|4|} + \\
& \frac{12[12]\langle 46\rangle[24]^2\langle 16\rangle}{[23][34]\langle 56\rangle\langle 1|5+6|1|\langle 1|2+3|4|} + \\
& \frac{12[12][24]\langle 16\rangle\langle 36\rangle}{[34]\langle 56\rangle\langle 1|5+6|1|\langle 1|2+3|4|}
\end{aligned}$$