

$$\begin{aligned}
& \frac{-1/3\langle 12\rangle\langle 23\rangle\langle 34\rangle^2[14]\langle 46\rangle[35]}{(14)\Delta_{14|23|56}\langle 2|1+4|3\rangle^2} + \\
& \frac{-1/4\langle 34\rangle^2[14]\langle 46\rangle\langle 26\rangle(s_{14}-s_{56})[34]}{\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle^2} + \\
& \frac{-1/3[24][13][25]\langle 36\rangle\langle 24\rangle^2\dots\langle 8\text{ terms}\rangle\dots+1/2\langle 12\rangle\langle 23\rangle\langle 46\rangle[35][12]^2}{\langle 2|1+4|3\rangle^2\Delta_{14|23|56}} + \\
& \frac{\langle 26\rangle(-5/12\langle 34\rangle[24]^2[13]\langle 46\rangle\langle 24\rangle\dots\langle 4\text{ terms}\rangle\dots+5/6\langle 34\rangle^2[23][13]\langle 36\rangle[34])}{\langle 56\rangle\langle 2|1+4|3\rangle^2\Delta_{14|23|56}} + \\
& \frac{[35](s_{124}-s_{134})(-1/3\langle 23\rangle[12]\langle 46\rangle-1/4\langle 34\rangle\langle 36\rangle[13])}{\langle 2|1+4|3\rangle^2\Delta_{14|23|56}} + \\
& \frac{\langle 26\rangle(s_{124}-s_{134})(-5/6\langle 36\rangle[12][13]\langle 14\rangle+3/4\langle 12\rangle[12]^2\langle 46\rangle+3/4\langle 34\rangle\langle 46\rangle[24][13]+1/4\langle 34\rangle[12][34]\langle 46\rangle)}{\langle 56\rangle\langle 2|1+4|3\rangle^2\Delta_{14|23|56}} + \\
& \frac{\langle 46\rangle\langle 34\rangle\langle 26\rangle(s_{23}-s_{56})(1/3[23]\langle 13\rangle\langle 23\rangle[13]\dots\langle 3\text{ terms}\rangle\dots+1/12[24][23]\langle 23\rangle\langle 24\rangle)}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 2|1+4|3\rangle^2\Delta_{14|23|56}} + \\
& \frac{2/3\langle 13\rangle^2\langle 26\rangle[35][12]^2[34]^2\langle 24\rangle^2\dots\langle 45\text{ terms}\rangle\dots-1/3\langle 12\rangle[45][24][13]^3\langle 36\rangle\langle 14\rangle\langle 13\rangle\langle 24\rangle}{\langle 12\rangle\langle 14\rangle[14][23][23][34]\langle 56\rangle[56]\langle 2|1+4|3\rangle^2} + \\
& \frac{-1/12[23]\langle 34\rangle^2(s_{124}-s_{134})(6|1+4|5)(s_{123}-s_{234})}{(14)\Delta_{14|23|56}^2\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle^2[23]\langle s_{23}-s_{56}\rangle(6|1+4|5)(1/48\langle 13\rangle[13]-3/16[24]\langle 24\rangle-1/12\langle 34\rangle[34])}{(14)\Delta_{14|23|56}^2\langle 2|1+4|3\rangle} + \\
& \frac{5/24\langle 12\rangle\langle 23\rangle\langle 34\rangle^2[25][14]\langle 46\rangle(s_{23}-s_{56})}{(14)\Delta_{14|23|56}^2\langle 2|1+4|3\rangle} + \\
& \frac{1/32\langle 36\rangle\langle 3|1+4|2||15|(s_{14}-s_{56})(s_{123}-s_{234})\langle 24\rangle}{(23)\Delta_{14|23|56}^2\langle 2|1+4|3\rangle} + \\
& \frac{1/32(s_{25}+s_{35}+s_{26}+s_{36})\langle 36\rangle\langle 3|1+4|2||14\rangle\langle 46\rangle(s_{123}-s_{234})\langle 24\rangle}{\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}^2\langle 2|1+4|3\rangle} + \\
& \frac{-1/32[13]\langle 36\rangle\langle 3|1+4|2|(s_{23}-s_{14})\langle 46\rangle(s_{123}-s_{234})}{\langle 56\rangle\Delta_{14|23|56}^2\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle(s_{134}-s_{124})(s_{123}-s_{234})(7/12\langle 36\rangle[13][25]+29/96[14]\langle 46\rangle[25]-1/2[35]\langle 36\rangle[12])}{\langle 2|1+4|3\rangle\Delta_{14|23|56}^2} + \\
& \frac{(s_{123}-s_{234})\langle 3|1+4|2|(-53/32[35]\langle 23\rangle[12]\langle 46\rangle-17/24\langle 13\rangle\langle 46\rangle[13][15]-17/96[35]\langle 34\rangle\langle 36\rangle[13]+7/96[35]\langle 34\rangle\langle 46\rangle[14])}{\langle 2|1+4|3\rangle\Delta_{14|23|56}^2} + \\
& \frac{\langle 3|1+4|2|\langle 4|2+3|1|\langle 5|4|12\rangle[12]\langle 16\rangle[15]\dots\langle 5\text{ terms}\rangle\dots+101/48[35]\langle 23\rangle\langle 46\rangle[24])}{\langle 2|1+4|3\rangle\Delta_{14|23|56}^2} + \\
& \frac{7/12\langle 34\rangle^3[24][13]\langle 36\rangle[35][34]\dots\langle 33\text{ terms}\rangle\dots+1/6\langle 34\rangle\langle 23\rangle\langle 13\rangle\langle 46\rangle[35][12]^2[34]}{\langle 2|1+4|3\rangle\Delta_{14|23|56}^2} + \\
& \frac{1/12\langle 34\rangle\langle 3|1+4|2|\langle 13\rangle\langle 46\rangle[35]\langle 24\rangle}{(14)^2\langle 23\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{1/12\langle 34\rangle^2\langle 13\rangle(s_{23}-s_{56})\langle 46\rangle[35]}{(14)^2\langle 23\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{1/24\langle 12\rangle\langle 34\rangle\langle 3|1+4|2|(s_{23}-s_{56})\langle 46\rangle^2}{(14)^2\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle\langle 46\rangle(-1/2[35]\langle 34\rangle[24]-17/24[24][25]\langle 24\rangle-11/8\langle 13\rangle[25][13]-13/12\langle 12\rangle[12][25])}{(14)\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{1/12[23]\langle 34\rangle\langle 36\rangle\langle 4|2+3|1|\langle 13\rangle\langle 26\rangle}{(14)\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{1/4\langle 34\rangle^2[23][14]\langle 13\rangle\langle 46\rangle\langle 26\rangle}{(14)\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{[23]\langle 36\rangle\langle 34\rangle\langle 46\rangle\langle 3|8[24]\langle 24\rangle+5/12\langle 34\rangle[34]-1/24\langle 13\rangle[13]}{(14)\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{-1/12[23]\langle 34\rangle^2[45][25]\langle 24\rangle}{(14)[56]\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{1\langle 34\rangle(s_{23}-s_{56})\langle 46\rangle[25]}{(14)\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle(s_{23}-s_{56})(1/8[25][13]\langle 36\rangle\langle 13\rangle\langle 24\rangle\dots\langle 5\text{ terms}\rangle\dots-1/24\langle 34\rangle[45][24]\langle 46\rangle\langle 24\rangle)}{(14)\langle 23\rangle\langle 56\rangle[56]\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle(s_{23}-s_{56})(-3/8[35]\langle 34\rangle\langle 46\rangle[24]\dots\langle 4\text{ terms}\rangle\dots-5/24\langle 12\rangle[12]\langle 46\rangle[25])}{(14)\langle 56\rangle[56]\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{7/24\langle 34\rangle\langle 36\rangle(s_{14}-s_{56})[15]}{\langle 23\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{-7/24\langle 34\rangle\langle 36\rangle(s_{14}-s_{56})[12]\langle 26\rangle}{\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle[14](s_{14}-s_{56})(-1/8\langle 34\rangle[45]\langle 46\rangle+1/6[35]\langle 34\rangle\langle 36\rangle+11/24\langle 36\rangle[25]\langle 24\rangle)}{\langle 23\rangle\langle 56\rangle[56]\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle\langle 36\rangle(1/24\langle 34\rangle[45][13]-1/3\langle 12\rangle[12][15]-5/24\langle 13\rangle[13][15])}{\langle 23\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{\langle 34\rangle\langle 36\rangle\langle 46\rangle[14](1/12\langle 13\rangle[13]+5/24[24]\langle 24\rangle+1/8\langle 34\rangle[34])}{\langle 23\rangle\langle 56\rangle\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{-1/24[35]\langle 34\rangle^3[45][14]}{\langle 23\rangle[56]\Delta_{14|23|56}\langle 2|1+4|3\rangle} + \\
& \frac{-35/24\langle 34\rangle\langle 23\rangle[24]\langle 46\rangle[35][12]\dots\langle 18\text{ terms}\rangle\dots-1/24[23]\langle 34\rangle\langle 23\rangle[25][13]\langle 36\rangle}{\langle 56\rangle[56]\langle 2|1+4|3\rangle\Delta_{14|23|56}} + \\
& \frac{1/6\langle 13\rangle^2\langle 46\rangle^2\langle 24\rangle}{\langle 12\rangle\langle 14\rangle^2\langle 23\rangle\langle 56\rangle\langle 2|1+4|3\rangle} + \\
& \frac{15/2\langle 12\rangle[24][25]\langle 23\rangle[13]^2\langle 13\rangle\langle 46\rangle\langle 24\rangle\dots\langle 120\text{ terms}\rangle\dots+2/3[23][45]\langle 23\rangle\langle 13\rangle\langle 46\rangle[12][34]\langle 24\rangle^2}{\langle 12\rangle\langle 14\rangle[14]\langle 23\rangle[23]\langle 24\rangle[34]\langle 56\rangle[56]\langle 2|1+4|3\rangle} + \\
& \frac{-1/12\langle 34\rangle^2\langle 13\rangle\langle 46\rangle[25]}{(14)^2\langle 23\rangle\Delta_{14|23|56}} + \\
& \frac{1/6\langle 34\rangle\langle 13\rangle^2\langle 46\rangle^2}{\langle 12\rangle\langle 14\rangle^2\langle 23\rangle\langle 56\rangle\langle 4|2+3|4\rangle} + \\
& \frac{-1/3[13][15]\langle 13\rangle^2\langle 46\rangle[12][34]}{(12)[13]\langle 14\rangle[14][34]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& \frac{\langle 14\rangle[12][15]\langle 2|3\langle 36\rangle[34]\langle 14\rangle-1/12\langle 13\rangle[34]\langle 46\rangle-1/4[23]\langle 13\rangle\langle 26\rangle)}{(12)[13]\langle 14\rangle[34]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& \frac{\langle 34\rangle[34][12][15](-1/3\langle 13\rangle\langle 46\rangle+2/3\langle 36\rangle\langle 14\rangle)}{[13]\langle 14\rangle\langle 23\rangle[34]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& \frac{-1/6\langle 13\rangle^2[12][15]^2}{(12)[14][56]\langle 1|2+3|1\rangle\langle 1|5+6|1\rangle} + \\
& \frac{\langle 13\rangle[12][15](-1/3[14]\langle 34\rangle[25][13]+1/3[35]\langle 34\rangle[12][14]-1/3[45][12]^2\langle 24\rangle-1/3\langle 34\rangle[12][45][13])}{[13][14]\langle 23\rangle[23][56]\langle 1|2+3|1\rangle\langle 1|5+6|1\rangle} + \\
& \frac{[12][15](7/4\langle 12\rangle[24]\langle 23\rangle[35][12]\dots\langle 4\text{ terms}\rangle\dots-29/3[14]\langle 13\rangle^2[35][13])}{(12)[13][14]\langle 23\rangle[23][34][56]\langle 1|2+3|1\rangle} + \\
& \frac{\langle 13\rangle[13][12][15](11/12\langle 36\rangle[34]+1/4\langle 26\rangle[24])}{(12)[13][14][34]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& \frac{\langle 24\rangle[12][15](1/3\langle 36\rangle[24]\langle 14\rangle-1/3\langle 13\rangle[12]\langle 16\rangle)}{(12)[13]\langle 23\rangle[23]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& \frac{-49/6[24][15]\langle 16\rangle\langle 1|3+4|1\rangle[12]}{(12)[14]\langle 23\rangle[34]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& \frac{[12][15](1/3\langle 36\rangle[24]\langle 14\rangle-1/3\langle 13\rangle[12]\langle 16\rangle)}{(12)[14][23]\langle 56\rangle[56]\langle 1|5+6|1\rangle} + \\
& (123456 \rightarrow \bar{4}32165) + \\
& \frac{-1/2(s_{13}-s_{24})(s_{124}-s_{134})\langle 4|2+3|1||35\rangle\langle 26\rangle}{\Delta_{14|23|56}\langle 2|1+4|3\rangle^3} + \\
& \frac{-5/12\langle 3|1+4|2|(s_{13}-s_{24})(s_{124}-s_{134})\langle 4|2+3|1||35\rangle\langle 26\rangle}{\Delta_{14|23|56}^2\langle 2|1+4|3\rangle^2} + \\
& \frac{-35/384(s_{123}+s_{234})\langle 3|1+4|2|(s_{124}-s_{134})\langle 4|2+3|1||6|1+4|5|(s_{123}-s_{234})}{\Delta_{14|23|56}^3\langle 2|1+4|3\rangle}
\end{aligned}$$