

$$\begin{aligned}
& \frac{6\langle 34\rangle[34]\langle 36\rangle\langle 46\rangle}{\langle 23\rangle\langle 56\rangle\langle 1|2+4|3\rangle\langle 3|5+6|3\rangle} + \\
& \frac{-6\langle 34\rangle^2[35][45]}{\langle 23\rangle\langle 56\rangle\langle 1|2+4|3\rangle\langle 3|5+6|3\rangle} + \\
& \frac{\langle 4|2+3|1\rangle(s_{124}-s_{134})(3\langle 13\rangle\langle 26\rangle\langle 46\rangle-3/2\langle 14\rangle\langle 26\rangle\langle 36\rangle-9/4\langle 12\rangle\langle 36\rangle\langle 46\rangle)}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 2|1+4|3\rangle\Delta_{23|14|56}} + \\
& \frac{\langle 24\rangle\langle 4|2+3|1\rangle(s_{124}-s_{134})(3/2\langle 14\rangle\langle 36\rangle[45]+3/4\langle 13\rangle\langle 6|1+4|5])}{\langle 14\rangle\langle 23\rangle\langle 56\rangle[56]\langle 2|1+4|3\rangle\Delta_{23|14|56}} + \\
& \frac{\langle 46\rangle(s_{124}-s_{134})(s_{123}-s_{234})(-9/8\langle 23\rangle\langle 46\rangle-3/8\langle 24\rangle\langle 36\rangle)}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 2|1+4|3\rangle\Delta_{23|14|56}} + \\
& \frac{(s_{124}-s_{134})(s_{123}-s_{234})(3/8\langle 23\rangle\langle 34\rangle[35]\langle 46\rangle-3/8\langle 24\rangle\langle 36\rangle\langle 4|1+6|5])}{\langle 14\rangle\langle 23\rangle\langle 56\rangle[56]\langle 2|1+4|3\rangle\Delta_{23|14|56}} + \\
& \frac{\langle 24\rangle(-3/2[25]\langle 26\rangle\langle 34\rangle+3/2\langle 36\rangle\langle 4|1+2|5])}{\langle 14\rangle\langle 23\rangle\langle 56\rangle[56]\langle 2|1+4|3\rangle} + \\
& \frac{-13/2[24]\langle 34\rangle\langle 46\rangle^2}{\langle 14\rangle\langle 56\rangle\langle 4|2+3|4\rangle^2} + \\
& \frac{-7/12[14][24]\langle 34\rangle\langle 46\rangle^2[56]}{\langle 4|2+3|4\rangle^2\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{29/4[24]\langle 34\rangle\langle 46\rangle^2}{\langle 14\rangle\langle 56\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle} + \\
& \frac{-1\langle 34\rangle\langle 46\rangle^2\langle 3|1+2|4\rangle}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle} + \\
& \frac{-51/4[24]\langle 46\rangle^2\langle 4|1+3|2\rangle}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle} + \\
& \frac{-1/2\langle 34\rangle\langle 46\rangle^2[56]}{\langle 14\rangle\langle 24\rangle\langle 4|2+3|4\rangle s_{123}} + \\
& \frac{-51/4\langle 34\rangle^2[34]\langle 46\rangle^2[56]}{\langle 14\rangle\langle 24\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{49/4\langle 24\rangle\langle 34\rangle\langle 46\rangle^2[56]\langle 3|1+2|4\rangle}{\langle 14\rangle\langle 23\rangle\langle 24\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{8\langle 24\rangle\langle 34\rangle^2[45]\langle 46\rangle s_{123}}{\langle 14\rangle\langle 23\rangle\langle 24\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{-49/4\langle 24\rangle[24]\langle 46\rangle^2[56]\langle 4|1+3|2\rangle}{\langle 14\rangle\langle 23\rangle\langle 24\rangle\langle 4|2+3|4\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{-9/4\langle 13\rangle\langle 34\rangle[45]\langle 46\rangle s_{123}}{\langle 14\rangle\langle 23\rangle\langle 1|2+3|4\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{-3\langle 34\rangle\langle 46\rangle\langle 1|2+3|5\rangle\langle 3|1+2|4\rangle}{\langle 14\rangle\langle 23\rangle\langle 1|2+3|4\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{-1\langle 34\rangle^2[45]\langle 46\rangle}{\langle 14\rangle\langle 23\rangle\langle 4|5+6|4\rangle s_{123}} + \\
& \frac{51/4[23]\langle 34\rangle[45]\langle 46\rangle}{[23]\langle 24\rangle\langle 1|2+3|4\rangle\langle 4|5+6|4\rangle} + \\
& \frac{-1/2[12]\langle 24\rangle[24][45]\langle 46\rangle}{[14][23]\langle 24\rangle\langle 1|2+3|4\rangle\langle 4|5+6|4\rangle} + \\
& \frac{-5/4\langle 13\rangle^2\langle 46\rangle^2[56]}{\langle 14\rangle^2\langle 23\rangle\langle 1|2+3|4\rangle s_{123}} + \\
& \frac{1/3\langle 13\rangle^2\langle 46\rangle^2\langle 4|5+6|4\rangle}{\langle 14\rangle^2\langle 23\rangle\langle 56\rangle\langle 1|2+3|4\rangle s_{123}} + \\
& \frac{\langle 46\rangle(-403/36\langle 13\rangle\langle 24\rangle[25]+53/4\langle 13\rangle\langle 34\rangle[35]+51/4\langle 12\rangle[25]\langle 34\rangle+1/2\langle 13\rangle\langle 14\rangle[15])}{\langle 14\rangle\langle 24\rangle\langle 1|2+3|4\rangle s_{123}} + \\
& \frac{419/18\langle 24\rangle\langle 34\rangle[45]\langle 46\rangle}{\langle 14\rangle\langle 24\rangle\langle 2|1+3|4\rangle s_{123}} + \\
& \frac{401/18\langle 34\rangle\langle 36\rangle\langle 1|2+3|5\rangle-421/36\langle 13\rangle^2[15]\langle 46\rangle}{\langle 14\rangle\langle 23\rangle\langle 1|2+3|4\rangle s_{123}} + \\
& \frac{-419/18\langle 24\rangle\langle 34\rangle\langle 36\rangle[45]}{\langle 14\rangle\langle 23\rangle\langle 2|1+3|4\rangle s_{123}} + \\
& \frac{419/18\langle 13\rangle\langle 24\rangle\langle 34\rangle[45]^2\langle 56\rangle}{\langle 14\rangle\langle 23\rangle\langle 1|2+3|4\rangle\langle 2|1+3|4\rangle s_{123}} + \\
& \frac{419/18\langle 14\rangle\langle 24\rangle^2\langle 34\rangle[45]^2\langle 3|1+2|4\rangle}{\langle 14\rangle\langle 23\rangle\langle 24\rangle[56]\langle 1|2+3|4\rangle\langle 2|1+3|4\rangle s_{123}} + \\
& \frac{419/18\langle 12\rangle[12]\langle 16\rangle\langle 23\rangle[35]}{\langle 23\rangle\langle 1|2+4|3\rangle\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{[34]\langle 34\rangle(12\langle 12\rangle[45]\langle 46\rangle-6\langle 14\rangle\langle 26\rangle[45]+6\langle 12\rangle[35]\langle 36\rangle-6\langle 13\rangle\langle 26\rangle[35])}{\langle 23\rangle\langle 1|2+4|3\rangle\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{6\langle 16\rangle\langle 34\rangle[34]\langle 46\rangle\langle 2|1+3|4\rangle}{\langle 23\rangle\langle 56\rangle\langle 1|2+4|3\rangle\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{-6\langle 16\rangle\langle 24\rangle\langle 34\rangle[45]}{\langle 14\rangle\langle 23\rangle\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{419/18\langle 14\rangle\langle 24\rangle[34]\langle 36\rangle^2 \dots \langle 4 \text{ terms} \rangle \dots -311/9\langle 13\rangle\langle 24\rangle[34]\langle 36\rangle\langle 46\rangle}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{6\langle 13\rangle\langle 24\rangle^2[25][45]}{\langle 14\rangle\langle 23\rangle[56]\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{455/18\langle 13\rangle\langle 36\rangle\langle 4|1+6|5\rangle}{\langle 14\rangle\langle 23\rangle\langle 56\rangle[56]\langle 1|2+3|4\rangle} + \\
& \frac{401/18\langle 14\rangle\langle 34\rangle\langle 36\rangle[45]+521/18\langle 13\rangle\langle 36\rangle\langle 46\rangle[56]+3\langle 13\rangle\langle 34\rangle[45]\langle 46\rangle}{\langle 14\rangle\langle 23\rangle\langle 56\rangle[56]\langle 1|2+3|4\rangle} + \\
& \frac{-527/18\langle 14\rangle\langle 26\rangle\langle 36\rangle(s_{13}-s_{24})}{\langle 14\rangle\langle 23\rangle\langle 56\rangle\langle 1|2+3|4\rangle\langle 2|1+4|3\rangle} + \\
& \frac{365/18\langle 24\rangle\langle 36\rangle\langle 46\rangle[56]-473/18\langle 23\rangle\langle 46\rangle^2[56]+3\langle 26\rangle\langle 34\rangle^2[35]}{\langle 14\rangle\langle 23\rangle\langle 56\rangle[56]\langle 2|1+4|3\rangle} + \\
\end{aligned}$$

$$(123456 \rightarrow -432165)$$