List of abbreviations used for the tetrahedron

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\begin{aligned}
Y &= J + U - 2W \\
A_1 &= 16t^2 + Y^2 \\
A_2 &= 48t^2 + Y^2 \\
A_3 &= 64t^2 + Y^2 \\
A_4 &= 16t^2 - 4Yt + Y^2 \\
A_5 &= 48t^2 - 3Yt + Y^2 \\
A_6 &= 48t^2 + 3Yt + Y^2 \\
A_7 &= 16t^2 + 4Yt + Y^2 \\
A_8 &= 64t^2 + 8Yt + Y^2 \\
A_9 &= 64t^2 - 8Yt + Y^2 \\
A_{10} &= 3J - 2(9W + Y) + \cos(\theta_2)\sqrt{A_2} \\
A_{11} &= -3J + 72W + 4Y - 4\cos(\theta_3)\sqrt{A_2} \\
A_{12} &= 3J - 2(18W + Y) + 2\cos(\theta_3)\sqrt{A_2} \\
A_{13} &= -6J + 4(9W + Y) + \left(\cos(\theta_2) - \sqrt{3}\sin(\theta_2)\right)\sqrt{A_2} \\
A_{14} &= -6J + 4(9W + Y) + \left(\cos(\theta_2) + \sqrt{3}\sin(\theta_2)\right)\sqrt{A_2} \\
A_{15} &= -3J + 36W + 2Y + \left(\cos(\theta_3) - \sqrt{3}\sin(\theta_3)\right)\sqrt{A_2} \\
A_{16} &= -\frac{3J}{2} + 36W + 2Y + \left(\cos(\theta_3) - \sqrt{3}\sin(\theta_3)\right)\sqrt{A_2} \\
A_{17} &= -3J + 36W + 2Y + \left(\cos(\theta_3) + \sqrt{3}\sin(\theta_3)\right)\sqrt{A_2} \\
A_{18} &= -\frac{3J}{2} + 36W + 2Y + \left(\cos(\theta_3) + \sqrt{3}\sin(\theta_3)\right)\sqrt{A_2} \\
A_{19} &= 3J - 3t - 18W - 2Y + 2\cos(\theta_4)\sqrt{A_5} \\
A_{20} &= -3J + 3t + 18W + 2Y + \left(\cos(\theta_4) - \sqrt{3}\sin(\theta_4)\right)\sqrt{A_5} \\
A_{21} &= -3J + 3t + 18W + 2Y + \left(\cos(\theta_4) + \sqrt{3}\sin(\theta_4)\right)\sqrt{A_5} \\
A_{22} &= 6J + 3t - 60W - 5Y + 2\cos(\theta_5)\sqrt{A_6} \\
A_{23} &= 6J + 3t - 60W - 5Y + \left(\sqrt{3}\sin(\theta_5) - \cos(\theta_5)\right)\sqrt{A_6} \\
A_{24} &= 6J + 3t - 60W - 5Y - \left(\cos(\theta_5) + \sqrt{3}\sin(\theta_5)\right)\sqrt{A_6} \\
\theta_1 &= \frac{1}{3}\cos^{-1}\left(\frac{12\sqrt{3}t^2Y}{A_1^{3/2}}\right) \\
\theta_2 &= \frac{1}{3}\cos^{-1}\left(-\frac{Y\left(Y^2 - 36t^2\right)}{A_2^{3/2}}\right) \\
\theta_3 &= \frac{1}{3}\cos^{-1}\left(\frac{Y\left(Y^2 - 36t^2\right)}{A_2^{3/2}}\right) \\
\theta_4 &= \frac{1}{3}\cos^{-1}\left(\frac{Y\left(36t^2 - 9Yt + 2Y^2\right)}{2A_5^{3/2}}\right) \\
\theta_5 &= \frac{1}{3}\cos^{-1}\left(\frac{Y\left(36t^2 + 9Yt + 2Y^2\right)}{2A_6^{3/2}}\right)
\end{aligned}
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