

$$\begin{aligned}
& [\\
& dq6*((32755927981*\cos(q3)^2*\sin(q6))/250000000000 - (2740951021*\cos(q4)*\sin(q6))/15625000000 - (7618384 \\
& 777*\cos(q6)*\sin(q6))/62500000000 - (32755927981*\sin(q6))/250000000000 - (614890153*\sin(q3)*\sin(q4)*\sin(q6) \\
&)/125000000000 + (2740951021*\cos(q2)^2*\cos(q4)*\sin(q6))/15625000000 + (10421867*\cos(q2)^2*\cos(q6)*\sin(q \\
& 5))/1953125000 + (7618384777*\cos(q2)^2*\cos(q6)*\sin(q6))/62500000000 + (10421867*\cos(q3)^2*\cos(q6)*\sin(q5) \\
&)/1953125000 + (7618384777*\cos(q3)^2*\cos(q6)*\sin(q6))/31250000000 + (7618384777*\cos(q5)^2*\cos(q6)*\sin(q \\
& 6))/62500000000 - (32755927981*\cos(q2)^2*\cos(q3)^2*\sin(q6))/250000000000 + (32755927981*\cos(q2)^2*\cos(q \\
& 4)^2*\sin(q6))/250000000000 - (32755927981*\cos(q3)^2*\cos(q4)^2*\sin(q6))/250000000000 + (614890153*\cos(q3) \\
& *cos(q6)*sin(q5))/125000000000 - (2740951021*\cos(q5)*cos(q6)*sin(q4))/15625000000 + (2740951021*\cos(q2)^ \\
& 2*\cos(q5)*cos(q6)*sin(q4))/15625000000 - (10421867*\cos(q2)^2*\cos(q3)^2*\cos(q6)*sin(q5))/1953125000 - (7618 \\
& 384777*\cos(q2)^2*\cos(q3)^2*\cos(q6)*sin(q6))/31250000000 + (7618384777*\cos(q2)^2*\cos(q4)^2*\cos(q6)*sin(q6) \\
&)/62500000000 - (7618384777*\cos(q2)^2*\cos(q5)^2*\cos(q6)*sin(q6))/31250000000 - (7618384777*\cos(q3)^2*\cos \\
& (q4)^2*\cos(q6)*sin(q6))/62500000000 - (7618384777*\cos(q3)^2*\cos(q5)^2*\cos(q6)*sin(q6))/62500000000 + (61 \\
& 4890153*\cos(q4)*cos(q5)*cos(q6)*sin(q3))/125000000000 + (32755927981*\cos(q2)^2*\cos(q3)^2*\cos(q4)^2*\sin(q \\
& 6))/250000000000 - (10421867*\cos(q3)*sin(q3)*sin(q4)*sin(q6))/1953125000 + (7618384777*\cos(q2)*cos(q3)*cos \\
& (q5)*sin(q2)*sin(q6)^2)/62500000000 + (10421867*\cos(q2)^2*\cos(q3)*sin(q3)*sin(q4)*sin(q6))/1953125000 + (7 \\
& 618384777*\cos(q3)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 - (7618384777*\cos(q3)*sin(q3)*sin(q4)*sin \\
& (q5)*sin(q6)^2)/62500000000 + (7618384777*\cos(q2)^2*\cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (761 \\
& 8384777*\cos(q3)^2*\cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (7618384777*\cos(q2)^2*\cos(q4)*cos(q5) \\
& *sin(q4)*sin(q6)^2)/62500000000 + (7618384777*\cos(q3)^2*\cos(q4)*cos(q5)*sin(q4)*sin(q6)^2)/62500000000 - (\\
& 32755927981*\cos(q2)*cos(q3)*cos(q5)*cos(q6)*sin(q2))/250000000000 + (10421867*\cos(q3)*cos(q4)*cos(q5)*cos \\
& (q6)*sin(q3))/1953125000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)^2*\cos(q6)*sin(q6))/62500000000 + (76 \\
& 18384777*\cos(q2)^2*\cos(q3)^2*\cos(q5)^2*\cos(q6)*sin(q6))/62500000000 + (7618384777*\cos(q2)^2*\cos(q4)^2*cos \\
& (q5)^2*\cos(q6)*sin(q6))/62500000000 - (7618384777*\cos(q3)^2*\cos(q4)^2*\cos(q5)^2*\cos(q6)*sin(q6))/625000 \\
& 00000 - (2740951021*\cos(q2)*cos(q3)*sin(q2)*sin(q4)*sin(q6))/15625000000 + (10421867*\cos(q2)*cos(q4)*sin(q \\
& 2)*sin(q3)*sin(q6))/1953125000 - (2740951021*\cos(q2)*cos(q6)*sin(q2)*sin(q3)*sin(q5))/15625000000 + (32755 \\
& 927981*\cos(q3)*cos(q6)*sin(q3)*sin(q4)*sin(q5))/250000000000 - (7618384777*\cos(q2)*cos(q3)*cos(q5)*cos(q6) \\
&)^2*\sin(q2))/62500000000 + (32755927981*\cos(q2)^2*\cos(q4)*cos(q5)*cos(q6)*sin(q4))/250000000000 - (327559 \\
& 27981*\cos(q3)^2*\cos(q4)*cos(q5)*cos(q6)*sin(q4))/250000000000 + (7618384777*\cos(q2)*cos(q3)*cos(q4)^2*cos \\
& (q5)*cos(q6)^2*sin(q2))/31250000000 + (32755927981*\cos(q2)^2*\cos(q3)^2*\cos(q4)*cos(q5)*cos(q6)*sin(q4))/2 \\
& 50000000000 - (7618384777*\cos(q2)*cos(q3)*cos(q4)^2*\cos(q5)*sin(q2)*sin(q6)^2)/31250000000 - (7618384777 \\
& *cos(q2)^2*\cos(q3)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 + (7618384777*\cos(q2)^2*\cos(q3)*sin(q3)* \\
& sin(q4)*sin(q5)*sin(q6)^2)/62500000000 + (2740951021*\cos(q2)*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2))/1562 \\
& 5000000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (32755927981 \\
& *cos(q2)*cos(q3)*cos(q4)*sin(q2)*sin(q4)*sin(q6))/125000000000 - (32755927981*\cos(q2)*cos(q4)*cos(q6)*sin \\
& (q2)*sin(q3)*sin(q5))/250000000000 + (10421867*\cos(q2)*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/1953125000 - \\
& (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)*cos(q5)*sin(q4)*sin(q6)^2)/62500000000 + (32755927981*\cos(q2)*cos \\
& (q3)*cos(q4)^2*\cos(q5)*cos(q6)*sin(q2))/125000000000 - (10421867*\cos(q2)^2*\cos(q3)*cos(q4)*cos(q5)*cos(q \\
& 6)*sin(q3))/1953125000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)^2*\cos(q5)^2*\cos(q6)*sin(q6))/6250000000 \\
& 0 - (7618384777*\cos(q2)*cos(q4)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/62500000000 - (32755927981*\cos(q2)^2*cos \\
& (q3)*cos(q6)*sin(q3)*sin(q4)*sin(q5))/250000000000 + (7618384777*\cos(q2)*cos(q4)*sin(q2)*sin(q3)*sin(q5)* \\
& sin(q6)^2)/62500000000 - (7618384777*\cos(q2)*cos(q3)*cos(q4)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/31250000000 \\
& + (7618384777*\cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q3)*sin(q5)*sin(q6))/31250000000 + (7618384777*\cos(q2)* \\
& cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/31250000000 - (7618384777*\cos(q2)*cos(q3)*cos(q4)* \\
& cos(q5)^2*\cos(q6)*sin(q2)*sin(q4)*sin(q6))/31250000000 - (7618384777*\cos(q2)^2*\cos(q3)*cos(q4)*cos(q5)*cos \\
& (q6)*sin(q3)*sin(q5)*sin(q6))/31250000000 - dq5*((7618384777*\cos(q5)*sin(q5))/62500000000 - (2740951021*s \\
& in(q4)*sin(q5)*sin(q6))/15625000000 - (7618384777*\cos(q2)^2*\cos(q5)*sin(q5))/31250000000 - (10421867*\cos(q \\
& 2)^2*\cos(q5)*sin(q6))/1953125000 - (7618384777*\cos(q3)^2*\cos(q5)*sin(q5))/62500000000 - (10421867*\cos(q3) \\
& ^2*\cos(q5)*sin(q6))/1953125000 - (7618384777*\cos(q5)*cos(q6)^2*sin(q5))/62500000000 - (614890153*\cos(q3)* \\
& cos(q5)*sin(q6))/125000000000 - (7618384777*\cos(q3)*cos(q4)*cos(q5)^2*sin(q3))/62500000000 + (7618384777 \\
& *cos(q3)*cos(q4)*sin(q3)*sin(q5)^2)/62500000000 + (2740951021*\cos(q2)^2*sin(q4)*sin(q5)*sin(q6))/156250000 \\
& 00 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q5)*sin(q5))/62500000000 + (10421867*\cos(q2)^2*\cos(q3)^2*\cos(q \\
& 5)*sin(q6))/1953125000 + (7618384777*\cos(q2)^2*\cos(q4)^2*\cos(q5)*sin(q5))/62500000000 - (7618384777*\cos \\
& (q3)^2*\cos(q4)^2*\cos(q5)*sin(q5))/62500000000 + (7618384777*\cos(q2)^2*\cos(q5)*cos(q6)^2*sin(q5))/31250000
\end{aligned}$$

$$000 + (7618384777 * \cos(q_3)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 + (614890153 * \cos(q_4) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (32755927981 * \cos(q_2)^2 * \cos(q_4) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000 - (32755927981 * \cos(q_3)^2 * \cos(q_4) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_2) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5)^2) / 62500000000 + (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \sin(q_3)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 62500000000 - (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \sin(q_3) * \sin(q_5)^2) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 * \sin(q_3) * \sin(q_5)^2) / 62500000000 + (7618384777 * \cos(q_2)^2 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_5) * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_2)^2 * \cos(q_3)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_2)^2 * \cos(q_4)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 + (7618384777 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 - (32755927981 * \cos(q_2) * \cos(q_3) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 250000000000 + (2740951021 * \cos(q_2) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 15625000000 + (10421867 * \cos(q_3) * \cos(q_4) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 1953125000 - (32755927981 * \cos(q_3) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (32755927981 * \cos(q_2)^2 * \cos(q_3)^2 * \cos(q_4) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5)^2) / 62500000000 - (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 62500000000 + (2740951021 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 15625000000 + (32755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_6) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 * \sin(q_3) * \sin(q_5)^2) / 62500000000 + (10421867 * \cos(q_2) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_2)^2 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 + (32755927981 * \cos(q_2) * \cos(q_3) * \cos(q_4)^2 * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 125000000000 - (10421867 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 1953125000 + (32755927981 * \cos(q_2)^2 * \cos(q_3) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_2)^2 * \cos(q_4) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3)^2 * \cos(q_4) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_2)^2 * \cos(q_3)^2 * \cos(q_4) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 31250000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4)^2 * \cos(q_6) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 31250000000 + (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 31250000000 + dq2 * ((36647684119 * \cos(q_2) * \sin(q_2)) / 6250000000 - (8538821 * \cos(q_2)^2 * \sin(q_3)) / 488281250 + (8538821 * \sin(q_2)^2 * \sin(q_3)) / 488281250 - (114870848333 * \cos(q_2) * \cos(q_3)^2 * \sin(q_2)) / 1000000000000 + (237258851293 * \cos(q_2) * \cos(q_4)^2 * \sin(q_2)) / 1000000000000 + (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_2)) / 31250000000 + (21105437293 * \cos(q_2)^2 * \cos(q_3) * \sin(q_4)) / 62500000000 - (80248811 * \cos(q_2)^2 * \cos(q_4) * \sin(q_3)) / 7812500000 + (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_2)) / 62500000000 - (21105437293 * \cos(q_3) * \sin(q_2)^2 * \sin(q_4)) / 62500000000 + (80248811 * \cos(q_4) * \sin(q_2)^2 * \sin(q_3)) / 7812500000 + (21105437293 * \cos(q_2) * \cos(q_4) * \sin(q_2)) / 31250000000 - (32755927981 * \cos(q_2) * \cos(q_3)^2 * \cos(q_6) * \sin(q_2)) / 125000000000 + (237258851293 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \sin(q_4)) / 1000000000000 + (32755927981 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6) * \sin(q_2)) / 125000000000 + (2740951021 * \cos(q_2)^2 * \cos(q_3) * \cos(q_6) * \sin(q_4)) / 15625000000 - (10421867 * \cos(q_2)^2 * \cos(q_4) * \cos(q_6) * \sin(q_3)) / 1953125000 - (32755927981 * \cos(q_2)^2 * \cos(q_3) * \cos(q_5) * \sin(q_6)) / 250000000000 - (237258851293 * \cos(q_3) * \cos(q_4) * \sin(q_2)^2 * \sin(q_4)) / 1000000000000 - (2740951021 * \cos(q_3) * \cos(q_6) * \sin(q_2)^2 * \sin(q_4)) / 156250000000 + (10421867 * \cos(q_4) * \cos(q_6) * \sin(q_2)^2 * \sin(q_3)) / 1953125000 + (32755927981 * \cos(q_3) * \cos(q_5) * \sin(q_2)^2 * \sin(q_6)) / 250000000000 - (2740951021 * \cos(q_2)^2 * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 15625000000 + (2740951021 * \sin(q_2)^2 * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 15625000000 + (237258851293 * \cos(q_2) * \cos(q_3)^2 * \cos(q_4)^2 * \sin(q_2)) / 1000000000000 - (7618384777 * \cos(q_2) * \cos(q_3)^2 * \cos(q_5)^2 * \sin(q_2)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_3)^2 * \cos(q_6)^2 * \sin(q_2)) / 31250000000 - (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \sin(q_2)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6)^2 * \sin(q_2)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_$$

$$\begin{aligned} & 000000000 + (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 + (32755927981 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \sin(q_6)) / 125000000000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \sin(q_2)^2 \cdot \sin(q_4)) / 62500000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_6)^2 \cdot \sin(q_2)^2 \cdot \sin(q_4)) / 62500000000 - (32755927981 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \sin(q_2)^2 \cdot \sin(q_6)) / 125000000000 - (7618384777 \cdot \cos(q_2) \cdot \cos(q_3)^2 \cdot \cos(q_4)^2 \cdot \cos(q_5)^2 \cdot \sin(q_2)) / 62500000000 + (7618384777 \cdot \cos(q_2) \cdot \cos(q_3)^2 \cdot \cos(q_4)^2 \cdot \cos(q_6)^2 \cdot \sin(q_2)) / 62500000000 + (7618384777 \cdot \cos(q_2) \cdot \cos(q_3)^2 \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_2)) / 62500000000 + (7618384777 \cdot \cos(q_2) \cdot \cos(q_4)^2 \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_2)) / 62500000000 + (80248811 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_4)) / 3906250000 - (2740951021 \cdot \cos(q_2) \cdot \cos(q_5) \cdot \sin(q_2) \cdot \sin(q_4) \cdot \sin(q_6)) / 7812500000 + (32755927981 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_4)) / 125000000000 + (2740951021 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_6)) / 15625000000 - (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 + (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_6)) / 312500000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_2)^2 \cdot \sin(q_6)) / 312500000000 - (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5)) / 62500000000 + (7618384777 \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_2)^2 \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5)) / 62500000000 + (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 + (10421867 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_6) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_4)) / 976562500 - (32755927981 \cdot \cos(q_2) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_2) \cdot \sin(q_4) \cdot \sin(q_6)) / 125000000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_2)^2 \cdot \sin(q_4)) / 62500000000 + (7618384777 \cdot \cos(q_2) \cdot \cos(q_3)^2 \cdot \cos(q_4)^2 \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_2)) / 62500000000 - (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 + (7618384777 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_2)^2 \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 + (7618384777 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_5)) / 31250000000 + (10421867 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_6)) / 976562500 - (7618384777 \cdot \cos(q_2) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_2) \cdot \sin(q_4) \cdot \sin(q_6)) / 31250000000 + (32755927981 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)) / 125000000000 - (32755927981 \cdot \cos(q_2) \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_2) \cdot \sin(q_4) \cdot \sin(q_6)) / 125000000000 + (7618384777 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_6) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)) / 312500000000 - (7618384777 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_5)) / 312500000000 - (7618384777 \cdot \cos(q_2) \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_2) \cdot \sin(q_4) \cdot \sin(q_6)) / 312500000000) + dq_4 \cdot ((4734679849 \cdot \cos(q_4) \cdot \sin(q_3)) / 500000000000 - (21105437293 \cdot \sin(q_4)) / 62500000000 - (2740951021 \cdot \cos(q_6) \cdot \sin(q_4)) / 15625000000 + (21105437293 \cdot \cos(q_2)^2 \cdot \sin(q_4)) / 62500000000 + (237258851293 \cdot \cos(q_2)^2 \cdot \cos(q_4) \cdot \sin(q_4)) / 1000000000000 - (237258851293 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \sin(q_4)) / 1000000000000 + (2740951021 \cdot \cos(q_2)^2 \cdot \cos(q_6) \cdot \sin(q_4)) / 15625000000 + (80248811 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \sin(q_3)) / 7812500000 + (614890153 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_3)) / 125000000000 - (2740951021 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_6)) / 15625000000 + (237258851293 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \sin(q_2)) / 1000000000000 - (80248811 \cdot \cos(q_2)^2 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \sin(q_3)) / 7812500000 + (32755927981 \cdot \cos(q_2)^2 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_4)) / 125000000000 + (2740951021 \cdot \cos(q_2)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_6)) / 15625000000 - (32755927981 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_4)) / 125000000000 - (237258851293 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \sin(q_2) \cdot \sin(q_4)^2) / 1000000000000 + (237258851293 \cdot \cos(q_2)^2 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \sin(q_4)) / 1000000000000 - (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \sin(q_4)) / 62500000000 + (7618384777 \cdot \cos(q_2)^2 \cdot \cos(q_4) \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 + (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \sin(q_4)) / 62500000000 + (32755927981 \cdot \cos(q_2)^2 \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \sin(q_6)) / 250000000000 - (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 - (32755927981 \cdot \cos(q_3)^2 \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \sin(q_6)) / 250000000000 - (32755927981 \cdot \cos(q_2)^2 \cdot \cos(q_5) \cdot \sin(q_4)^2 \cdot \sin(q_6)) / 250000000000 + (32755927981 \cdot \cos(q_3)^2 \cdot \cos(q_5) \cdot \sin(q_4)^2 \cdot \sin(q_6)) / 250000000000 + (21105437293 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_4) \cdot \sin(q_2)) / 62500000000 + (10421867 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_3)) / 1953125000 + (80248811 \cdot \cos(q_2) \cdot \sin(q_2) \cdot \sin(q_3) \cdot \sin(q_4)) / 7812500000 - (614890153 \cdot \cos(q_5) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 125000000000 - (32755927981 \cdot \cos(q_2) \cdot \cos(q_3) \cdot \cos(q_6) \cdot \sin(q_2$$

$$\begin{aligned} & \cos(q_2)^2 \cos(q_3)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6) / 250000000000 + (32755927981 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 125000000000 - (10421867 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 - (2740951021 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 15625000000 + (10421867 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (32755927981 \cos(q_2) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 - (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 + (10421867 \cos(q_2)^2 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 - (32755927981 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 15625000000 - dq_3 * ((1915553 \sin(q_3)) / 3906250000 - (114870848333 \cos(q_3) \sin(q_3)) / 1000000000000 - (4734679849 \cos(q_3) \sin(q_4)) / 500000000000 - (80248811 \cos(q_3)^2 \sin(q_4)) / 7812500000 + (80248811 \sin(q_3)^2 \sin(q_4)) / 7812500000 + (614890153 \sin(q_3) \sin(q_5) \sin(q_6)) / 125000000000 + (114870848333 \cos(q_2)^2 \cos(q_3) \sin(q_3)) / 100000000000 + (237258851293 \cos(q_3) \cos(q_4)^2 \sin(q_3)) / 1000000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_3)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_3)) / 31250000000 - (10421867 \cos(q_3)^2 \cos(q_6) \sin(q_4)) / 1953125000 + (10421867 \cos(q_6) \sin(q_3)^2 \sin(q_4)) / 1953125000 + (80248811 \cos(q_2)^2 \cos(q_3)^2 \sin(q_4)) / 7812500000 - (80248811 \cos(q_2)^2 \sin(q_3)^2 \sin(q_4)) / 7812500000 + (8538821 \cos(q_2) \cos(q_3) \sin(q_2)) / 488281250 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_3)) / 125000000000 - (614890153 \cos(q_3) \cos(q_6) \sin(q_4)) / 125000000000 + (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_6) \sin(q_3)) / 125000000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_3)) / 125000000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 - (10421867 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_5)) / 62500000000 + (10421867 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_6)) / 1953125000 - (32755927981 \cos(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (32755927981 \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (237258851293 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \sin(q_3)) / 1000000000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_6)^2 \sin(q_3)) / 31250000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_3)) / 62500000000 + (10421867 \cos(q_2)^2 \cos(q_3)^2 \cos(q_6) \sin(q_4)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 - (10421867 \cos(q_2)^2 \cos(q_6) \sin(q_3)^2 \sin(q_4)) / 1953125000 + (80248811 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_2)) / 7812500000 - (614890153 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 125000000000 + (21105437293 \cos(q_2) \sin(q_2) \sin(q_3) \sin(q_4)) / 62500000000 + (10421867 \cos(q_3) \sin(q_3) \sin(q_5) \sin(q_6)) / 976562500 - (10421867 \cos(q_2)^2 \cos(q_3) \sin(q_3) \sin(q_5) \sin(q_6)) / 976562500 - (7618384777 \cos(q_3)^2 \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_6) \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_3)) / 125000000000 + (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 + (10421867 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_5)) / 62500000000 - (10421867 \cos(q_2)^2 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_6)) / 1953125000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_3)^2 \sin(q_5)) / 62500000000 + (32755927981 \cos(q_2)^2 \cos(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_2)^2 \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (10421867 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2)) / 1953125000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_3)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \$$

$$\begin{aligned} & 4) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 125000000000 + (32755927981 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 250000000000 - (10421867 * \cos(q_2) * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 1953125000 + (2740951021 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 15625000000 - (7618384777 * \cos(q_2) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 62500000000 - (32755927981 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 125000000000 \\ & + (7618384777 * \cos(q_2)^2 * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_3)^2 * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 \\ & 00 + (32755927981 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 31250000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 62500000000 + (32755927981 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 31250000000 + (7618384777 * \cos(q_2)^2 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 31250000000, dq_4 * ((237258851293 * \cos(q_2) * \sin(q_3)) / 2000000000000 + (4734679849 * \cos(q_2) * \sin(q_4)) / 500000000000 - (237258851293 * \cos(q_2) * \cos(q_4)^2 * \sin(q_3)) / 2000000000000 + (80248811 * \cos(q_3)^2 * \cos(q_4) * \sin(q_2)) / 7812500000 + (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_3)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_3)) / 125000000000 + (237258851293 * \cos(q_2) * \sin(q_3) * \sin(q_4)^2) / 200000000000 \\ & 00 + (80248811 * \cos(q_2) * \cos(q_3) * \sin(q_4)) / 7812500000 + (4734679849 * \cos(q_3) * \cos(q_4) * \sin(q_2)) / 500000000000 + (32755927981 * \cos(q_2) * \cos(q_6) * \sin(q_3)) / 250000000000 + (614890153 * \cos(q_2) * \cos(q_6) * \sin(q_4)) / 125000000000 - (32755927981 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6) * \sin(q_3)) / 250000000000 + (10421867 * \cos(q_3)^2 * \cos(q_4) * \cos(q_6) * \sin(q_2)) / 1953125000 + (32755927981 * \cos(q_2) * \cos(q_6) * \sin(q_3) * \sin(q_4)^2) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_3) * \sin(q_4)^2) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_3) * \sin(q_4)^2) / 125000000000 + (10421867 * \cos(q_2) * \cos(q_3) * \cos(q_6) * \sin(q_4)) / 1953125000 + (614890153 * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2)) / 125000000000 + (614890153 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_6)) / 125000000000 - (7618384777 * \cos(q_3)^2 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 625000000000 + (32755927981 * \cos(q_3)^2 * \cos(q_4) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 250000000000 - (10421867 * \cos(q_3)^2 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 1953125000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_5)) / 62500000000 + (10421867 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 125000000000 + (237258851293 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 100000000000 + (32755927981 * \cos(q_2) * \cos(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000 - (614890153 * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3) * \sin(q_4)^2) / 125000000000 + (7618384777 * \cos(q_3)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 62500000000 + (32755927981 * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 125000000000 + (32755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (32755927981 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_3)^2 * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 62500000000 - (32755927981 * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_4)^2 * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 31250000000 + (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 *$$

$$\begin{aligned}
&)*\sin(q_4))/15625000000 - (614890153*\cos(q_2)*\sin(q_3)*\sin(q_5)*\sin(q_6))/125000000000 + (2740951021*\cos(q_3)*\sin(q_2)*\sin(q_5)*\sin(q_6))/15625000000 - (32755927981*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/250000000000 - (32755927981*\cos(q_2)*\sin(q_4)*\sin(q_5)*\sin(q_6))/250000000000 - (614890153*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/125000000000 - (7618384777*\cos(q_4)*\cos(q_5)^2*\sin(q_2)*\sin(q_3)*\sin(q_4))/62500000000 + (7618384777*\cos(q_4)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_4))/62500000000 + (32755927981*\cos(q_2)*\cos(q_3)^2*\sin(q_4)*\sin(q_5)*\sin(q_6))/125000000000 + (32755927981*\cos(q_4)^2*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_5)^2*\sin(q_3))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_6)^2*\sin(q_3))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_3))/62500000000 + (614890153*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_6))/125000000000 - (10421867*\cos(q_2)*\cos(q_3)*\sin(q_3)*\sin(q_5)*\sin(q_6))/976562500 - (7618384777*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_5))/62500000000 + (32755927981*\cos(q_4)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4))/125000000000 + (32755927981*\cos(q_3)*\cos(q_4)*\sin(q_2)*\sin(q_5)*\sin(q_6))/250000000000 - (10421867*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/1953125000 + (2740951021*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/15625000000 - (7618384777*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 - (7618384777*\cos(q_2)*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 - (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_6)*\sin(q_3))/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\sin(q_5))/31250000000 + (10421867*\cos(q_2)*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\sin(q_6))/976562500 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_5))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_5))/31250000000 + (7618384777*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_4))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_3))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_2)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_4)*\sin(q_5))/62500000000 + (7618384777*\cos(q_2)*\cos(q_3)^2*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/31250000000 + (7618384777*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/31250000000 + (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6))/31250000000 - dq5*((7618384777*\cos(q_4)*\sin(q_2))/125000000000 + (7618384777*\cos(q_4)*\cos(q_5)^2*\sin(q_2))/125000000000 - (7618384777*\cos(q_4)*\cos(q_6)^2*\sin(q_2))/125000000000 - (7618384777*\cos(q_4)*\sin(q_2)*\sin(q_5)^2)/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\sin(q_4))/125000000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_5)^2*\sin(q_4))/125000000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_6)^2*\sin(q_4))/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\sin(q_4)*\sin(q_5)^2)/125000000000 - (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)^2*\sin(q_2))/62500000000 - (7618384777*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/125000000000 + (7618384777*\cos(q_3)^2*\cos(q_4)*\sin(q_2)*\sin(q_5)^2)/62500000000 + (7618384777*\cos(q_4)*\cos(q_6)^2*\sin(q_2)*\sin(q_5)^2)/125000000000 + (32755927981*\cos(q_2)*\sin(q_3)*\sin(q_5)*\sin(q_6))/250000000000 + (614890153*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/125000000000 + (614890153*\cos(q_2)*\sin(q_4)*\sin(q_5)*\sin(q_6))/125000000000 + (32755927981*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/250000000000 - (32755927981*\cos(q_2)*\cos(q_4)^2*\sin(q_3)*\sin(q_5)*\sin(q_6))/250000000000 + (10421867*\cos(q_3)^2*\cos(q_4)*\sin(q_2)*\sin(q_5)*\sin(q_6))/1953125000 - (32755927981*\cos(q_3)^2*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/250000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_4))/125000000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_6)^2*\sin(q_4)*\sin(q_5)^2)/125000000000 + (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/62500000000 + (7618384777*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 + (10421867*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/1953125000 + (10421867*\cos(q_2)*\cos(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/1953125000 + (614890153*\cos(q_3)*\cos(q_4)*\sin(q_2)*\sin(q_5)*\sin(q_6))/125000000000 + (7618384777*\cos(q_2)*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_6)^2*\sin(q_2)*\sin(q_5)^2)/62500000000 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)^2*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 - (7618384777*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 - (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)^2*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)*\cos(q_4)^2*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 + (32755927981*\cos(q_3)*\cos(q_4)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/250000000000 - (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 + dq1*((36647684119*\cos(q_2)*\sin(q_2))/62500000000 - (8538821*\cos(q_2)^2*\sin(q_3))/488281250 + (8538821*\sin(q_2)^2*\sin(q_3))/488281250 - (114870848333*\cos(q_2)*\cos(q_3)^2*\sin(q_2))/100000000000 + (237258851293*\cos(q_2)*\cos(q_4)^2*\sin(q_2))/100000000000 + (7618384777*\cos(q_2)*\cos(q_5)^2*\sin(q_2))/31250000000 + (21105437293*\cos(q_2)^2*\cos(q_3)*\sin(q_4))/62500000000 - (80248811*\cos(q_2)^2*\cos(q_4)*\sin(q_3))/7812500000 + (7618384777*\cos(q_2)*\cos(q_6)^2*\sin(q_2))/62500000000 - (21105437293*\cos(q_3)*\sin(q_2)^2*\sin(q_4))/62500000000 + (80248811*\cos(q_4)*\sin(q_2)^2*\sin(q_3))/7812500000 + (21105437293*\cos(q_2)*\cos(q_4)*\sin(q_2))/31250000000 - (32755927981*\cos(q_2)*\cos(q_3)^2*\cos(q_6)*\sin(q_2))/125000000000 + (237258851293*\cos(q_2)^2*\cos(q_6)*\sin(q_2))/125000000000
\end{aligned}$$

$$\begin{aligned}
& s(q_3) \cos(q_4) \sin(q_4) / 1000000000000 + (32755927981 \cos(q_2) \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 125000000000 + (2740951021 \cos(q_2)^2 \cos(q_3) \cos(q_6) \sin(q_4)) / 15625000000 - (10421867 \cos(q_2)^2 \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 - (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_5) \sin(q_6)) / 250000000000 - (237258851293 \cos(q_3) \cos(q_4) \sin(q_2)^2 \sin(q_4)) / 1000000000000 - (2740951021 \cos(q_3) \cos(q_6) \sin(q_2)^2 \sin(q_4)) / 15625000000 + (10421867 \cos(q_4) \cos(q_6) \sin(q_2)^2 \sin(q_3)) / 1953125000 + (32755927981 \cos(q_3) \cos(q_5) \sin(q_2)^2 \sin(q_6)) / 250000000000 - (2740951021 \cos(q_2)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 15625000000 + (2740951021 \sin(q_2)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 15625000000 + (237258851293 \cos(q_2) \cos(q_3)^2 \cos(q_4)^2 \sin(q_2)) / 1000000000000 - (7618384777 \cos(q_2) \cos(q_3)^2 \cos(q_5)^2 \sin(q_2)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_3)^2 \cos(q_6)^2 \sin(q_2)) / 31250000000 - (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 31250000000 + (2740951021 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_2)) / 7812500000 - (10421867 \cos(q_2) \sin(q_2) \sin(q_5) \sin(q_6)) / 976562500 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2)^2 \sin(q_4)) / 125000000000 - (2740951021 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2)^2 \sin(q_6)) / 15625000000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_2)^2 \sin(q_6)) / 62500000000 + (10421867 \cos(q_2) \cos(q_3)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 976562500 + (7618384777 \cos(q_2)^2 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 - (32755927981 \cos(q_2)^2 \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 + (10421867 \cos(q_2)^2 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_5) \sin(q_2)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (32755927981 \cos(q_4) \sin(q_2)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (10421867 \cos(q_5) \sin(q_2)^2 \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 + (32755927981 \cos(q_2) \cos(q_3)^2 \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 125000000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \sin(q_2)^2 \sin(q_4)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_2)^2 \sin(q_4)) / 62500000000 - (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_5) \sin(q_2)^2 \sin(q_6)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3)^2 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_3)^2 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (80248811 \cos(q_2) \cos(q_3) \sin(q_2) \sin(q_3) \sin(q_4)) / 3906250000 - (2740951021 \cos(q_2) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 7812500000 + (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (2740951021 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 15625000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 31250000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_2)^2 \sin(q_6)) / 31250000000 - (7618384777 \cos(q_2)^2 \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_2)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + (10421867 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 976562500 - (32755927981 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_3)^2 \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_6) \sin(q_2)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)) / 31250000000 + (10421867 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 976562500 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 31250000000 + (32755927981 \cos(q_2) \cos(q_3) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 125000000000 - (32755927981 \cos(q_2) \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 31250000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 31250000000 - (7618384777 \cos(q_2) \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 31250000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 - (237258851293 \cos(q_4)^2 \sin(q_2) \sin(q_3)^2) / 200000000000 + (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 + (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 62500000000 + (10421867 \cos(q_3)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 1953
\end{aligned}$$

[illegible]

$$\begin{aligned} & 5) \sin(q_4)^2 \sin(q_6) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 + (614890153 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_3)) / 125000000000 + (2740951021 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2)) / 15625000000 + (32755927981 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (614890153 \cos(q_2) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 125000000000 - (2740951021 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 15625000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 31250000000 - dq5 * ((7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_5)) / 62500000000 - (10421867 \cos(q_2) \cos(q_5) \sin(q_6)) / 1953125000 - (7618384777 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 - (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (614890153 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_6)) / 125000000000 + (2740951021 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 15625000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 + (614890153 \cos(q_2) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 125000000000 + (2740951021 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 15625000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 250000000000 + (32755927981 \cos(q_2) \cos(q_4) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 - dq2 * ((359646854253 \sin(q_2)) / 2000000000000 + (1915553 \cos(q_3) \sin(q_2)) / 3906250000 + (32755927981 \cos(q_6) \sin(q_2)) / 250000000000 - (114870848333 \cos(q_3)^2 \sin(q_2)) / 2000000000000 - (237258851293 \cos(q_4)^2 \sin(q_2)) / 2000000000000 - (7618384777 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (114870848333 \sin(q_2) \sin(q_3)^2) / 2000000000000 + (4734679849 \sin(q_2) \sin(q_3) \sin(q_4)) / 500000000000 + (10421867 \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_3)^2 \cos(q_6) \sin(q_2)) / 250000000000 - (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 250000000000 + (32755927981 \cos(q_6) \sin(q_2) \sin(q_3)^2) / 250000000000 + (237258851293 \cos(q_3)^2 \cos(q_4)^2 \sin(q_2)) / 2000000000000 - (7618384777 \cos(q_3)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 - (237258851293 \cos(q_4)^2 \sin(q_2) \sin(q_3)^2) / 2000000000000 + (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 + (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 62500000000 + (10421867 \cos(q_3)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (10421867 \sin(q_2) \sin(q_3)^2 \sin(q_5) \sin(q_6)) / 1953125000 + (32755927981 \cos(q_3)^2 \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 250000000000 - (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_2) \sin(q_3)^2) / 250000000000 - (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 + (10421867 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 976562500 + (614890153 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 125000000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 31250000000 + (10421867 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 976562500 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 + (32755927981 \cos(q_3) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 125000000000 - (32755927981 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6))$$

618384777*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/62500000000 + (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q3)^2*sin(q4)*sin(q6))/62500000000 - dq3*((1915553*cos(q2)*sin(q3))/3906250000 + (8538821*cos(q3)*sin(q2))/488281250 + (21105437293*sin(q2)*sin(q3)*sin(q4))/62500000000 - (4734679849*cos(q2)*cos(q3)*sin(q4))/500000000000 + (80248811*cos(q3)*cos(q4)*sin(q2))/7812500000 - (614890153*cos(q2)*cos(q3)*cos(q6)*sin(q4))/125000000000 + (10421867*cos(q3)*cos(q4)*cos(q6)*sin(q2))/1953125000 + (237258851293*cos(q4)*sin(q2)*sin(q3)*sin(q4))/1000000000000 + (2740951021*cos(q6)*sin(q2)*sin(q3)*sin(q4))/15625000000 + (614890153*cos(q2)*sin(q3)*sin(q5)*sin(q6))/125000000000 + (2740951021*cos(q3)*sin(q2)*sin(q5)*sin(q6))/15625000000 - (32755927981*cos(q5)*sin(q2)*sin(q3)*sin(q6))/250000000000 - (7618384777*cos(q4)*cos(q5)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (32755927981*cos(q4)^2*cos(q5)*sin(q2)*sin(q3)*sin(q6))/125000000000 - (614890153*cos(q2)*cos(q3)*cos(q4)*cos(q5)*sin(q6))/125000000000 - (7618384777*cos(q3)*cos(q5)*sin(q2)*sin(q4)*sin(q5))/62500000000 + (32755927981*cos(q4)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/125000000000 + (32755927981*cos(q3)*cos(q4)*sin(q2)*sin(q5)*sin(q6))/250000000000 - (10421867*cos(q3)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/1953125000 + (2740951021*cos(q4)*cos(q5)*sin(q2)*sin(q3)*sin(q6))/15625000000 - (7618384777*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q6))/62500000000 + (7618384777*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (7618384777*cos(q3)*cos(q4)*cos(q6)*sin(q2)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q5)*cos(q6)^2*sin(q2)*sin(q4)*sin(q5))/62500000000 + (7618384777*cos(q4)^2*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q6))/31250000000 + dq6*((32755927981*cos(q2)*cos(q4)^2*sin(q6))/250000000000 - (32755927981*cos(q2)*sin(q6))/250000000000 + (7618384777*cos(q3)*cos(q5)*sin(q2))/125000000000 + (10421867*cos(q2)*cos(q6)*sin(q5))/1953125000 - (7618384777*cos(q3)*cos(q5)*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q2)*cos(q4)^2*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q5)*sin(q2)*sin(q6)^2)/125000000000 + (614890153*cos(q2)*cos(q3)*cos(q6)*sin(q5))/125000000000 - (7618384777*cos(q4)*sin(q2)*sin(q3)*sin(q5))/125000000000 - (614890153*cos(q2)*sin(q3)*sin(q4)*sin(q6))/125000000000 - (2740951021*cos(q3)*sin(q2)*sin(q4)*sin(q6))/15625000000 - (2740951021*cos(q6)*sin(q2)*sin(q3)*sin(q5))/15625000000 - (7618384777*cos(q2)*cos(q4)*cos(q5)*sin(q4)*sin(q6)^2)/62500000000 - (7618384777*cos(q4)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/125000000000 + (7618384777*cos(q4)*sin(q2)*sin(q3)*sin(q5)*sin(q6)^2)/125000000000 + (7618384777*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)^2*sin(q2))/62500000000 + (7618384777*cos(q2)*cos(q4)^2*cos(q5)^2*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q5)*sin(q2)*sin(q6)^2)/62500000000 + (614890153*cos(q2)*cos(q4)*cos(q5)*cos(q6)*sin(q3))/125000000000 + (2740951021*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2))/15625000000 + (32755927981*cos(q2)*cos(q4)*cos(q5)*cos(q6)*sin(q4))/250000000000 - (32755927981*cos(q3)*cos(q4)*sin(q2)*sin(q4)*sin(q6))/250000000000 - (32755927981*cos(q4)*cos(q6)*sin(q2)*sin(q3)*sin(q5))/250000000000 + (32755927981*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)*sin(q2))/250000000000 + (7618384777*cos(q2)*cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (7618384777*cos(q3)*cos(q4)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/62500000000 + (7618384777*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/62500000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)*sin(q2)*sin(q4)*sin(q6))/62500000000 - dq1*((1915553*sin(q3))/3906250000 - (114870848333*cos(q3)*sin(q3))/1000000000000 - (4734679849*cos(q3)*sin(q4))/500000000000 - (80248811*cos(q3)^2*sin(q4))/7812500000 + (80248811*sin(q3)^2*sin(q4))/7812500000 + (614890153*sin(q3)*sin(q5)*sin(q6))/125000000000 + (114870848333*cos(q2)^2*cos(q3)*sin(q3))/1000000000000 + (237258851293*cos(q3)*cos(q4)^2*sin(q3))/1000000000000 - (7618384777*cos(q3)*cos(q5)^2*sin(q3))/62500000000 - (7618384777*cos(q3)*cos(q6)^2*sin(q3))/31250000000 - (10421867*cos(q3)^2*cos(q6)*sin(q4))/1953125000 + (10421867*cos(q6)*sin(q3)^2*sin(q4))/1953125000 + (80248811*cos(q2)^2*cos(q3)^2*sin(q4))/7812500000 - (80248811*cos(q2)^2*sin(q3)^2*sin(q4))/7812500000 + (8538821*cos(q2)*cos(q3)*sin(q2))/488281250 - (32755927981*cos(q3)*cos(q6)*sin(q3))/125000000000 - (614890153*cos(q3)*cos(q6)*sin(q4))/125000000000 + (32755927981*cos(q2)^2*cos(q3)*cos(q6)*sin(q3))/125000000000 + (32755927981*cos(q3)*cos(q4)^2*cos(q6)*sin(q3))/125000000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q5)*sin(q5))/62500000000 - (10421867*cos(q3)^2*cos(q4)*cos(q5)*sin(q6))/1953125000 + (7618384777*cos(q4)*cos(q5)*sin(q3)^2*sin(q5))/6250000000 + (10421867*cos(q4)*cos(q5)*sin(q3)^2*sin(q6))/1953125000 - (32755927981*cos(q3)^2*sin(q4)*sin(q5)*sin(q6))/250000000000 + (32755927981*sin(q3)^2*sin(q4)*sin(q5)*sin(q6))/250000000000 - (237258851293*cos(q2)^2*cos(q3)*cos(q4)^2*sin(q3))/1000000000000 + (7618384777*cos(q2)^2*cos(q3)*cos(q5)^2*sin(q3))/6250000000 + (7618384777*cos(q2)^2*cos(q3)*cos(q6)^2*sin(q3))/31250000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q5)^2*sin(q3))/62500000000 + (10421867*cos(q2)^2*cos(q3)^2*cos(q6)*sin(q4))/1953125000 + (7618384777*cos(q3)*cos(q4)^2*cos(q6)^2*sin(q3))/62500000000 + (7618384777*cos(q3)*cos(q5)^2*cos(q6)^2*sin(q3))/62500000000 - (10421867*cos(q2)^2*cos(q6)*sin(q3)^2*sin(q4))/1953125000 + (80248811*cos(q2)*cos(q3)*cos(q4)*sin(q2))/7812500000 - (614890153*cos(q3)*cos(q4)*cos(q5)*sin(q6))/125000000000 + (21105437293*cos(q2)*sin(q2)

$$\begin{aligned}
&)*\sin(q3)*\sin(q4))/62500000000 + (10421867*\cos(q3)*\sin(q3)*\sin(q5)*\sin(q6))/976562500 - (10421867*\cos(q2)^2 \\
& *\cos(q3)*\sin(q3)*\sin(q5)*\sin(q6))/976562500 - (7618384777*\cos(q3)^2*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/625000 \\
& 00000 + (7618384777*\cos(q6)*\sin(q3)^2*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (32755927981*\cos(q2)^2*\cos(q \\
& 3)*\cos(q4)^2*\cos(q6)*\sin(q3))/125000000000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)*\cos(q5)*\sin(q5))/625 \\
& 00000000 + (10421867*\cos(q2)^2*\cos(q3)^2*\cos(q4)*\cos(q5)*\sin(q6))/1953125000 + (7618384777*\cos(q3)^2*\cos \\
& (q4)*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 - (7618384777*\cos(q2)^2*\cos(q4)*\cos(q5)*\sin(q3)^2*\sin(q5))/62 \\
& 500000000 - (10421867*\cos(q2)^2*\cos(q4)*\cos(q5)*\sin(q3)^2*\sin(q6))/1953125000 - (7618384777*\cos(q4)*\cos(q \\
& 5)*\cos(q6)^2*\sin(q3)^2*\sin(q5))/62500000000 + (32755927981*\cos(q2)^2*\cos(q3)^2*\sin(q4)*\sin(q5)*\sin(q6))/25 \\
& 0000000000 - (32755927981*\cos(q2)^2*\sin(q3)^2*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 + (10421867*\cos(q2)* \\
& \cos(q3)*\cos(q4)*\cos(q6)*\sin(q2))/1953125000 + (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)^2*\cos(q5)^2*\sin(q3))/6 \\
& 2500000000 - (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)^2*\cos(q6)^2*\sin(q3))/62500000000 - (7618384777*\cos(q \\
& 2)^2*\cos(q3)*\cos(q5)^2*\cos(q6)^2*\sin(q3))/62500000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)^2*\cos(q6)^ \\
& 2*\sin(q3))/62500000000 + (237258851293*\cos(q2)*\cos(q4)*\sin(q2)*\sin(q3)*\sin(q4))/1000000000000 + (2740951 \\
& 021*\cos(q2)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4))/15625000000 + (2740951021*\cos(q2)*\cos(q3)*\sin(q2)*\sin(q5)*\sin(\\
& q6))/15625000000 - (32755927981*\cos(q2)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/250000000000 + (7618384777*\cos(\\
& q2)^2*\cos(q3)^2*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q2)^2*\cos(q6)*\sin(q3)^2*\sin \\
& (q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q5))/625 \\
& 00000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 + (32755927981*\cos(q \\
& 2)*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4))/125000000000 + (32755927981*\cos(q2)*\cos(q3)*\cos(q4)*\sin(q2)*\sin \\
& (q5)*\sin(q6))/250000000000 - (10421867*\cos(q2)*\cos(q3)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/1953125000 + (274 \\
& 0951021*\cos(q2)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/15625000000 - (7618384777*\cos(q2)*\cos(q5)*\cos(q6 \\
&)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 - (32755927981*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/12500 \\
& 0000000 + (7618384777*\cos(q2)^2*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q3)^2*\sin(q5))/62500000000 - (7618384777*\cos \\
& (q2)^2*\cos(q3)*\cos(q4)^2*\cos(q5)^2*\cos(q6)^2*\sin(q3))/62500000000 - (7618384777*\cos(q2)*\cos(q4)*\cos(q5) \\
& ^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62 \\
& 500000000 + (32755927981*\cos(q2)*\cos(q4)^2*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/125000000000 + (7618384777* \\
& \cos(q2)*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q2)*\cos(q3)*\cos \\
& (q4)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q3)*\sin \\
& (q4)*\sin(q6))/31250000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/625000 \\
& 00000 + (32755927981*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/125000000000 + (76183847 \\
& 77*\cos(q2)*\cos(q4)^2*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/31250000000 + (7618384777*\cos(q2)^2*\cos(q3) \\
& *\cos(q4)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/31250000000, dq6*((7618384777*\cos(q2)*\cos(q4)*\sin(q5))/1 \\
& 25000000000 - (614890153*\sin(q2)*\sin(q4)*\sin(q6))/125000000000 - (32755927981*\sin(q2)*\sin(q3)*\sin(q6))/250 \\
& 000000000 + (10421867*\cos(q2)*\cos(q4)*\sin(q6))/1953125000 - (7618384777*\cos(q2)*\cos(q4)*\cos(q6)^2*\sin(q5 \\
&))/125000000000 + (7618384777*\cos(q2)*\cos(q4)*\sin(q5)*\sin(q6)^2)/125000000000 + (614890153*\cos(q2)*\cos(q \\
& 3)*\cos(q4)*\sin(q6))/125000000000 + (10421867*\cos(q2)*\cos(q5)*\cos(q6)*\sin(q4))/1953125000 + (614890153*\cos \\
& (q4)*\cos(q5)*\cos(q6)*\sin(q2))/125000000000 - (7618384777*\cos(q3)*\sin(q2)*\sin(q4)*\sin(q5))/125000000000 - (\\
& 10421867*\cos(q3)*\sin(q2)*\sin(q4)*\sin(q6))/1953125000 - (2740951021*\cos(q4)*\sin(q2)*\sin(q3)*\sin(q6))/156250 \\
& 00000 - (7618384777*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q6)^2*\sin(q2)* \\
& \sin(q4)*\sin(q5))/125000000000 + (7618384777*\cos(q5)^2*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 - (7618 \\
& 384777*\cos(q3)*\sin(q2)*\sin(q4)*\sin(q5)*\sin(q6)^2)/125000000000 + (614890153*\cos(q2)*\cos(q3)*\cos(q5)*\cos(q \\
& 6)*\sin(q4))/125000000000 + (10421867*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2))/1953125000 - (2740951021*\cos \\
& (q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4))/15625000000 + (7618384777*\cos(q2)*\cos(q5)*\cos(q6)*\sin(q4)*\sin(q5)*\sin \\
& (q6))/62500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 + d \\
& q3*((237258851293*\cos(q3)*\sin(q2))/2000000000000 + (237258851293*\cos(q3)*\cos(q4)^2*\sin(q2))/2000000000 \\
& 000 + (7618384777*\cos(q3)*\cos(q5)^2*\sin(q2))/125000000000 + (7618384777*\cos(q3)*\cos(q6)^2*\sin(q2))/12500 \\
& 000000 - (237258851293*\cos(q3)*\sin(q2)*\sin(q4)^2)/200000000000 + (4734679849*\cos(q2)*\cos(q4)*\sin(q3))/5 \\
& 00000000000 + (21105437293*\cos(q3)*\cos(q4)*\sin(q2))/62500000000 + (237258851293*\cos(q2)*\cos(q4)*\sin(q4) \\
&)/1000000000000 + (32755927981*\cos(q3)*\cos(q6)*\sin(q2))/250000000000 - (7618384777*\cos(q2)*\cos(q4)*\cos(\\
& q5)^2*\sin(q4))/62500000000 + (32755927981*\cos(q3)*\cos(q4)^2*\cos(q6)*\sin(q2))/250000000000 + (7618384777 \\
& *\cos(q2)*\cos(q4)*\cos(q6)^2*\sin(q4))/62500000000 + (32755927981*\cos(q2)*\cos(q4)^2*\cos(q5)*\sin(q6))/2500000 \\
& 00000 - (32755927981*\cos(q3)*\cos(q6)*\sin(q2)*\sin(q4)^2)/250000000000 - (32755927981*\cos(q2)*\cos(q5)*\sin(q \\
& 4)^2*\sin(q6))/250000000000 - (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)^2*\sin(q2))/125000000000 + (7618384777 \\
& *\cos(q3)*\cos(q4)^2*\cos(q6)^2*\sin(q2))/125000000000 - (7618384777*\cos(q3)*\cos(q5)^2*\cos(q6)^2*\sin(q2))/125
\end{aligned}$$

$$\begin{aligned}
& 000000000 + (7618384777 * \cos(q3) * \cos(q5)^2 * \sin(q2) * \sin(q4)^2) / 125000000000 - (7618384777 * \cos(q3) * \cos(q6)^2 * \sin(q2) * \sin(q4)^2) / 125000000000 + (614890153 * \cos(q2) * \cos(q4) * \cos(q6) * \sin(q3)) / 125000000000 + (2740951021 * \cos(q3) * \cos(q4) * \cos(q6) * \sin(q2)) / 15625000000 + (32755927981 * \cos(q2) * \cos(q4) * \cos(q6) * \sin(q4)) / 12500000000 - (7618384777 * \cos(q2) * \cos(q5) * \cos(q6) * \sin(q4)^2 * \sin(q6)) / 62500000000 + (7618384777 * \cos(q2) * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q4)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4)^2 * \cos(q5)^2 * \cos(q6)^2 * \sin(q2)) / 125000000000 - (614890153 * \cos(q2) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q6)) / 125000000000 - (2740951021 * \cos(q3) * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q6)) / 15625000000 - (7618384777 * \cos(q3) * \cos(q5)^2 * \cos(q6)^2 * \sin(q2) * \sin(q4)^2) / 12500000000 + (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q5) * \cos(q6) * \sin(q6)) / 62500000000 - (32755927981 * \cos(q3) * \cos(q4) * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q6)) / 31250000000 - dq5 * ((7618384777 * \cos(q2) * \sin(q4)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q5)^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q6)^2 * \sin(q4)) / 125000000000 + (7618384777 * \cos(q2) * \sin(q4) * \sin(q5)^2) / 125000000000 + (7618384777 * \cos(q3) * \cos(q4) * \sin(q2)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \sin(q2)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q6)^2 * \sin(q2)) / 125000000000 + (7618384777 * \cos(q3) * \cos(q4) * \sin(q2) * \sin(q5)^2) / 125000000000 + (7618384777 * \cos(q2) * \cos(q5)^2 * \cos(q6)^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q6)^2 * \sin(q4) * \sin(q5)^2) / 125000000000 + (7618384777 * \cos(q5) * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 + (10421867 * \cos(q2) * \sin(q4) * \sin(q5) * \sin(q6)) / 1953125000 + (614890153 * \cos(q4) * \sin(q2) * \sin(q5) * \sin(q6)) / 125000000000 - (7618384777 * \cos(q5) * \cos(q6)^2 * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q2)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q6)^2 * \sin(q2) * \sin(q5)^2) / 125000000000 + (614890153 * \cos(q2) * \cos(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 12500000000 + (10421867 * \cos(q3) * \cos(q4) * \sin(q2) * \sin(q5) * \sin(q6)) / 1953125000 - (2740951021 * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 15625000000 + dq2 * ((237258851293 * \cos(q2) * \sin(q3)) / 2000000000000 + (4734679849 * \cos(q2) * \sin(q4)) / 500000000000 - (237258851293 * \cos(q2) * \cos(q4)^2 * \sin(q3)) / 2000000000000 + (80248811 * \cos(q3)^2 * \cos(q4) * \sin(q2)) / 781250000 + (7618384777 * \cos(q2) * \cos(q5)^2 * \sin(q3)) / 125000000000 + (7618384777 * \cos(q2) * \cos(q6)^2 * \sin(q3)) / 125000000000 + (237258851293 * \cos(q2) * \sin(q3) * \sin(q4)^2) / 2000000000000 + (80248811 * \cos(q2) * \cos(q3) * \sin(q4)) / 781250000 + (4734679849 * \cos(q3) * \cos(q4) * \sin(q2)) / 500000000000 + (32755927981 * \cos(q2) * \cos(q6) * \sin(q3)) / 250000000000 + (614890153 * \cos(q2) * \cos(q6) * \sin(q4)) / 125000000000 - (32755927981 * \cos(q2) * \cos(q4)^2 * \cos(q6) * \sin(q3)) / 250000000000 + (10421867 * \cos(q3)^2 * \cos(q4) * \cos(q6) * \sin(q2)) / 1953125000 + (32755927981 * \cos(q2) * \cos(q6) * \sin(q3) * \sin(q4)^2) / 250000000000 + (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q5)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q6)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q5)^2 * \cos(q6)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q5)^2 * \sin(q3) * \sin(q4)^2) / 125000000000 + (7618384777 * \cos(q2) * \cos(q6)^2 * \sin(q3) * \sin(q4)^2) / 125000000000 + (10421867 * \cos(q2) * \cos(q3) * \cos(q6) * \sin(q4)) / 1953125000 + (614890153 * \cos(q3) * \cos(q4) * \cos(q6) * \sin(q2)) / 125000000000 + (614890153 * \cos(q2) * \cos(q4) * \cos(q5) * \sin(q6)) / 125000000000 - (7618384777 * \cos(q3)^2 * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q5)) / 62500000000 + (32755927981 * \cos(q3)^2 * \cos(q4) * \sin(q2) * \sin(q5) * \sin(q6)) / 250000000000 - (10421867 * \cos(q3)^2 * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q5) * \sin(q5)) / 62500000000 + (10421867 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q5) * \sin(q6)) / 1953125000 - (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q5)^2 * \cos(q6)^2 * \sin(q3)) / 125000000000 + (237258851293 * \cos(q3) * \cos(q4) * \sin(q2) * \sin(q3) * \sin(q4)) / 1000000000000 + (32755927981 * \cos(q2) * \cos(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 - (614890153 * \cos(q3) * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q6)) / 125000000000 + (7618384777 * \cos(q2) * \cos(q5)^2 * \cos(q6)^2 * \sin(q3) * \sin(q4)^2) / 125000000000 + (7618384777 * \cos(q3)^2 * \cos(q5) * \cos(q6)^2 * \sin(q2) * \sin(q4) * \sin(q5)) / 62500000000 + (32755927981 * \cos(q3) * \cos(q4) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q4)) / 125000000000 + (32755927981 * \cos(q2) * \cos(q4) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q6)) / 125000000000 + (7618384777 * \cos(q2) * \cos(q3) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \sin(q2) * \sin(q3) * \sin(q4)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q6)^2 * \sin(q2) * \sin(q3) * \sin(q4)) / 62500000000 + (32755927981 * \cos(q3) * \cos(q4)^2 * \cos(q5) * \sin(q2) * \sin(q3) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q3)^2 * \cos(q4) * \cos(q6) * \sin(q2) * \sin(q5) * \sin(q6)) / 62500000000 - (32755927981 * \cos(q3) * \cos(q5) * \sin(q2) * \sin(q3) * \sin(q4)^2 * \sin(q6)) / 250000000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q2) * \sin(q3) * \sin(q4)) / 62500000000 + (7618384777 * \cos(q2) * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 31250000000 + (7618384777 * \cos(q3) * \cos(q4)^2 * \cos(q5) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q5) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q4)^2 * \sin(q6)) / 62500000000 + dq4 * ((80248811 * \cos(q2) * \sin(q4)) / 781250000 + (4734679849 * \cos(q4) * \sin(q2)) / 500000000000 - (21105437293 * \sin(q2) * \sin(q3) * \sin(q4)) / 62500000000 + (4734679849 * \cos(q2) * \cos(q3) * \sin(q4)) / 500000000000 + (80248811 * \cos(q3) * \cos(q4) * \sin(q2)) / 781250000 + (10421867 * \cos(q2) * \cos(q6) * \sin(q4)) / 1953125000 + (614890153 * \cos(q4) * \cos(q6) * \sin(q2)) / 125000000000 + (614890153 * \cos(q2) * \cos(q3) * \cos(q6) * \sin(q4)) / 125000000000 + (10421867 * \cos(q3) * \cos(q4) * \cos(q6) * \sin(q2)) / 1953125000 + (7618384777 * c
\end{aligned}$$

$$\begin{aligned} & \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 + (10421867 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 - (274 \\ & 0951021 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 15625000000 + (32755927981 \cos(q_2) \sin(q_4) \sin(q_5) \sin(q_6)) / 25000 \\ & 0000000 - (614890153 \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 125000000000 + (614890153 \cos(q_2) \cos(q_3) \cos(q_4) \cos \\ & \cos(q_5) \sin(q_6)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 + (3275592 \\ & 7981 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 - (10421867 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin \\ & (q_6)) / 1953125000 - (2740951021 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 15625000000 + (7618384777 \cos(q_2) \cos \\ & \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500 \\ & 000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos \\ & \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 + dq1 * ((4734679849 \cos(q_4) \sin(q_3)) / 500000000000 - \\ & (21105437293 \sin(q_4)) / 62500000000 - (2740951021 \cos(q_6) \sin(q_4)) / 15625000000 + (21105437293 \cos(q_2)^2 \sin \\ & \sin(q_4)) / 62500000000 + (237258851293 \cos(q_2)^2 \cos(q_4) \sin(q_4)) / 1000000000000 - (237258851293 \cos(q_3)^2 \\ & \cos(q_4) \sin(q_4)) / 1000000000000 + (2740951021 \cos(q_2)^2 \cos(q_6) \sin(q_4)) / 15625000000 + (80248811 \cos(q_3) \\ & \cos(q_4) \sin(q_3)) / 7812500000 + (614890153 \cos(q_4) \cos(q_6) \sin(q_3)) / 125000000000 - (2740951021 \cos(q_4) \cos \\ & \cos(q_5) \sin(q_6)) / 15625000000 + (237258851293 \cos(q_2) \cos(q_3) \cos(q_4)^2 \sin(q_2)) / 1000000000000 - (80248811 \cos \\ & \cos(q_2)^2 \cos(q_3) \cos(q_4) \sin(q_3)) / 7812500000 + (32755927981 \cos(q_2)^2 \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000 \\ & 000 + (2740951021 \cos(q_2)^2 \cos(q_4) \cos(q_5) \sin(q_6)) / 15625000000 - (32755927981 \cos(q_3)^2 \cos(q_4) \cos(q_6) \\ &) \sin(q_4)) / 125000000000 - (237258851293 \cos(q_2) \cos(q_3) \sin(q_2) \sin(q_4)^2) / 1000000000000 + (237258851293 \\ & \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \sin(q_4)) / 1000000000000 - (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62 \\ & 5000000000 + (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_3)^2 \cos(q_4) \\ & \cos(q_5)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_2)^2 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (761 \\ & 8384777 \cos(q_3)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 - (32755927981 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \sin \\ & (q_6)) / 250000000000 - (32755927981 \cos(q_2)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (32755927981 \cos(q_3) \\ &)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (21105437293 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_2)) / 62500000000 \\ & + (10421867 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 + (80248811 \cos(q_2) \sin(q_2) \sin(q_3) \sin(q_4)) / 78125 \\ & 00000 - (614890153 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 125000000000 - (32755927981 \cos(q_2) \cos(q_3) \cos(q_6) \sin \\ & \sin(q_2) \sin(q_4)^2) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 62500000000 + (7 \\ & 618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (32755927981 \cos(q_2)^2 \cos(q_3)^2 \cos \\ & \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000 \\ & 000 - (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_3) \\ & \cos(q_5)^2 \sin(q_2) \sin(q_4)^2) / 62500000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 62500 \\ & 000000 - (7618384777 \cos(q_2)^2 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3)^2 \cos \\ & \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (2740951021 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2)) / 156250 \\ & 00000 - (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos \\ & \cos(q_3)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \sin \\ & \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 - (76183847 \\ & 77 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + (10421867 \cos(q_2) \cos(q_6) \sin(q_2) \sin(q_3) \\ & \sin(q_4)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (32755927981 \cos \\ & \cos(q_3) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (10421867 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 195 \\ & 3125000 - (32755927981 \cos(q_2)^2 \cos(q_3)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (32755927981 \cos(q_2) \\ & \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 125000000000 - (10421867 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3)) / \\ & 1953125000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (76183847 \\ & 77 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos \\ & (q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 - (2740951021 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 1562 \\ & 5000000 + (10421867 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_3) \cos \\ & (q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \\ & \sin(q_4$$

$$\begin{aligned}
& \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 15625000000), \\
& dq_6 * ((7618384777 \cos(q_2) \cos(q_5) \sin(q_4)) / 125000000000 - (7618384777 \sin(q_2) \sin(q_3) \sin(q_5)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_4) \sin(q_6)^2) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 125000000000 + (7618384777 \sin(q_2) \sin(q_3) \sin(q_5) \sin(q_6)^2) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2)) / 125000000000 + (614890153 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_3)) / 125000000000 + (2740951021 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_2)) / 15625000000 + (10421867 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_5)) / 1953125000 + (32755927981 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_4)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_6)) / 62500000000 - (32755927981 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_5)) / 250000000000 - (614890153 \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_5)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_6)^2) / 125000000000 + (614890153 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_5)) / 125000000000 + (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2)) / 250000000000 - (10421867 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_5)) / 1953125000 - (2740951021 \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_5)) / 15625000000 - (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2)) / 125000000000 - (10421867 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_5)) / 1953125000 - (2740951021 \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_5)) / 15625000000 - (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2)) / 125000000000 - dq_4 * ((7618384777 \cos(q_2) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \sin(q_4) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_2) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 + (10421867 \cos(q_2) \sin(q_4) \sin(q_5) \sin(q_6)) / 1953125000 + (614890153 \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 125000000000 - (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_2) \sin(q_5)^2) / 125000000000 + (614890153 \cos(q_2) \cos(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 125000000000 + (10421867 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (2740951021 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 15625000000 - dq_3 * ((7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_5)) / 62500000000 - (10421867 \cos(q_2) \cos(q_5) \sin(q_6)) / 1953125000 - (7618384777 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 - (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (614890153 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_6)) / 125000000000 + (2740951021 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 15625000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 + (614890153 \cos(q_2) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 125000000000 + (2740951021 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 15625000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 250000000000 + (32755927981 \cos(q_2) \cos(q_4) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 - dq_2 * ((7618384777 \cos(q_4) \sin(q_2)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4) \sin(q_2) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \sin(q_2)) / 62500000000 - (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_2) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 + (614890153 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 125000000000 + (614890153 \cos(q_2) \sin(q_4) \sin(q_5) \sin(q_6)) / 125000000000 + (32755927981 \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_2) \cos(q_4)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 + (10421867 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 + (10421867 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 + (10421867 \cos(q_2) \cos(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 1953125000 +
\end{aligned}$$

$$\begin{aligned}
& q6))/1953125000 + (614890153*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/125000000000 + (7618384777*\cos(q2) \\
& *\cos(q6)*\sin(q3)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q4)*\sin(q6))/625000 \\
& 00000 - (7618384777*\cos(q3)^2*\cos(q4)*\cos(q6)^2*\sin(q2)*\sin(q5)^2)/62500000000 + (7618384777*\cos(q2)*\cos \\
& (q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q5))/62500000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)*\sin(q2)*\sin(q3)*s \\
& \sin(q5))/62500000000 - (7618384777*\cos(q3)*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q5))/62500000000 - (761838 \\
& 4777*\cos(q2)*\cos(q4)^2*\cos(q6)*\sin(q3)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)^2*\cos(q5)*\cos(q \\
& 6)*\sin(q2)*\sin(q4)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q3)*s \\
& \sin(q5))/62500000000 + (3275927981*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 - \\
& (7618384777*\cos(q2)*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q3)*\sin(q4)*\sin(q5))/62500000000 + (7618384777*\cos(q3) \\
& *\cos(q4)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - dq5*((614890153*\cos(q2)*\sin(q3)*\sin \\
& (q5)*\sin(q6))/125000000000 - (10421867*\cos(q2)*\cos(q4)*\cos(q5)*\sin(q6))/1953125000 + (2740951021*\cos(q3)* \\
& \sin(q2)*\sin(q5)*\sin(q6))/15625000000 + (3275927981*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/250000000000 + (32755 \\
& 927981*\cos(q2)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 + (614890153*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/1250000 \\
& 00000 - (614890153*\cos(q2)*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q6))/125000000000 + (3275927981*\cos(q3)*\cos(q4)* \\
& \sin(q2)*\sin(q5)*\sin(q6))/250000000000 + (10421867*\cos(q3)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/1953125000 + (27 \\
& 40951021*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/15625000000 + (7618384777*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q \\
& 3)*\sin(q6))/62500000000 + (7618384777*\cos(q2)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 + (7618384777* \\
& \cos(q3)*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 - dq1*((7618384777*\cos(q5)*\sin(q5))/62500000 \\
& 000 - (2740951021*\sin(q4)*\sin(q5)*\sin(q6))/15625000000 - (7618384777*\cos(q2)^2*\cos(q5)*\sin(q5))/312500000 \\
& 00 - (10421867*\cos(q2)^2*\cos(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q3)^2*\cos(q5)*\sin(q5))/62500000000 \\
& - (10421867*\cos(q3)^2*\cos(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 - \\
& (614890153*\cos(q3)*\cos(q5)*\sin(q6))/125000000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\sin(q3))/625000 \\
& 00000 + (7618384777*\cos(q3)*\cos(q4)*\sin(q3)*\sin(q5)^2)/62500000000 + (2740951021*\cos(q2)^2*\sin(q4)*\sin(q \\
& 5)*\sin(q6))/15625000000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q5)*\sin(q5))/62500000000 + (10421867*\cos(q \\
& 2)^2*\cos(q3)^2*\cos(q5)*\sin(q6))/1953125000 + (7618384777*\cos(q2)^2*\cos(q4)^2*\cos(q5)*\sin(q5))/6250000000 \\
& 0 - (7618384777*\cos(q3)^2*\cos(q4)^2*\cos(q5)*\sin(q5))/62500000000 + (7618384777*\cos(q2)^2*\cos(q5)*\cos(q6) \\
& ^2*\sin(q5))/31250000000 + (7618384777*\cos(q3)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 + (614890153*\cos(\\
& q4)*\sin(q3)*\sin(q5)*\sin(q6))/125000000000 - (7618384777*\cos(q2)*\cos(q5)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000 \\
& 000 + (3275927981*\cos(q2)^2*\cos(q4)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 - (3275927981*\cos(q3)^2*\cos(\\
& q4)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 + (7618384777*\cos(q2)*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)^2)/62500000 \\
& 000 + (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q5)^2*\sin(q3))/62500000000 + (7618384777*\cos(q3)*\cos(q4) \\
& *\cos(q5)^2*\cos(q6)^2*\sin(q3))/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\sin(q3)*\sin(q5)^2)/62500 \\
& 00000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q3)*\sin(q5)^2)/62500000000 + (7618384777*\cos(q2)^2*\co \\
& s(q3)^2*\cos(q4)^2*\cos(q5)*\sin(q5))/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q5)*\cos(q6)^2*\sin(q5) \\
&))/62500000000 - (7618384777*\cos(q2)^2*\cos(q4)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 + (7618384777*c \\
& os(q3)^2*\cos(q4)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 - (3275927981*\cos(q2)*\cos(q3)*\sin(q2)*\sin(q5)*s \\
& \sin(q6))/250000000000 + (2740951021*\cos(q2)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/15625000000 + (10421867*\cos(q \\
& 3)*\cos(q4)*\sin(q3)*\sin(q5)*\sin(q6))/1953125000 - (3275927981*\cos(q3)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/25000 \\
& 000000 + (7618384777*\cos(q2)*\cos(q5)^2*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (3275927981*c \\
& os(q2)^2*\cos(q3)^2*\cos(q4)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 - (7618384777*\cos(q2)*\cos(q6)^2*\sin(q2)*s \\
& \sin(q3)*\sin(q4)*\sin(q5)^2)/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q3))/ \\
& 62500000000 + (2740951021*\cos(q2)*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/15625000000 + (3275927981*c \\
& os(q2)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/250000000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q6)*\sin(q2)* \\
& \sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/62500000000 + (\\
& 7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q3)*\sin(q5)^2)/62500000000 + (10421867*\cos(q2)*\sin(q2) \\
&)*\sin(q3)*\sin(q4)*\sin(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)^2*\cos(q5)*\cos(q6)^ \\
& 2*\sin(q5))/62500000000 + (3275927981*\cos(q2)*\cos(q3)*\cos(q4)^2*\sin(q2)*\sin(q5)*\sin(q6))/125000000000 - (1 \\
& 0421867*\cos(q2)^2*\cos(q3)*\cos(q4)*\sin(q3)*\sin(q5)*\sin(q6))/1953125000 + (3275927981*\cos(q2)^2*\cos(q3)*c \\
& os(q5)*\sin(q3)*\sin(q4)*\sin(q6))/250000000000 + (7618384777*\cos(q2)^2*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6) \\
&))/62500000000 - (7618384777*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 + (7618384777 \\
& *\cos(q2)^2*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q2)*\cos(q3)*co \\
& s(q4)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q5))/31250000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2)*si \\
& \sin(q3)*\sin(q6))/62500000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q4)^2*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/312500 \\
& 00000 + (7618384777*\cos(q2)^2*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/62500000000 + (7618384777
\end{aligned}$$

*cos(q2)*cos(q3)*cos(q4)*cos(q5)*cos(q6)^2*sin(q2)*sin(q4)*sin(q5))/31250000000),dq4*((7618384777*cos(q2)*cos(q4)*sin(q5))/125000000000 - (614890153*sin(q2)*sin(q4)*sin(q6))/125000000000 - (32755927981*sin(q2)*sin(q3)*sin(q6))/250000000000 + (10421867*cos(q2)*cos(q4)*sin(q6))/1953125000 - (7618384777*cos(q2)*cos(q4)*cos(q6)^2*sin(q5))/125000000000 + (7618384777*cos(q2)*cos(q4)*sin(q5)*sin(q6)^2)/125000000000 + (614890153*cos(q2)*cos(q3)*cos(q4)*sin(q6))/125000000000 + (10421867*cos(q2)*cos(q5)*cos(q6)*sin(q4))/1953125000 + (614890153*cos(q4)*cos(q5)*cos(q6)*sin(q2))/125000000000 - (7618384777*cos(q3)*sin(q2)*sin(q4)*sin(q5))/125000000000 - (10421867*cos(q3)*sin(q2)*sin(q4)*sin(q6))/1953125000 - (2740951021*cos(q4)*sin(q2)*sin(q3)*sin(q6))/15625000000 - (7618384777*cos(q6)*sin(q2)*sin(q3)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q6)^2*sin(q2)*sin(q4)*sin(q5))/125000000000 + (7618384777*cos(q5)^2*cos(q6)*sin(q2)*sin(q3)*sin(q6))/62500000000 - (7618384777*cos(q3)*sin(q2)*sin(q4)*sin(q5)*sin(q6)^2)/125000000000 + (614890153*cos(q2)*cos(q3)*cos(q5)*cos(q6)*sin(q4))/125000000000 + (10421867*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2))/1953125000 - (2740951021*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/15625000000 + (7618384777*cos(q2)*cos(q5)*cos(q6)*sin(q4)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q5)*sin(q6))/62500000000 + dq1*((32755927981*cos(q3)^2*sin(q6))/250000000000 - (2740951021*cos(q4)*sin(q6))/15625000000 - (7618384777*cos(q6)*sin(q6))/62500000000 - (32755927981*sin(q6))/250000000000 - (614890153*sin(q3)*sin(q4)*sin(q6))/125000000000 + (2740951021*cos(q2)^2*cos(q4)*sin(q6))/15625000000 + (10421867*cos(q2)^2*cos(q6)*sin(q5))/1953125000 + (7618384777*cos(q2)^2*cos(q6)*sin(q6))/62500000000 + (10421867*cos(q3)^2*cos(q6)*sin(q5))/1953125000 + (7618384777*cos(q3)^2*cos(q6)*sin(q6))/31250000000 + (7618384777*cos(q5)^2*cos(q6)*sin(q6))/62500000000 - (32755927981*cos(q2)^2*cos(q3)^2*sin(q6))/250000000000 + (32755927981*cos(q2)^2*cos(q4)^2*sin(q6))/250000000000 - (32755927981*cos(q3)^2*cos(q4)^2*sin(q6))/250000000000 + (614890153*cos(q3)*cos(q6)*sin(q5))/125000000000 - (2740951021*cos(q5)*cos(q6)*sin(q4))/15625000000 + (2740951021*cos(q2)^2*cos(q5)*cos(q6)*sin(q4))/15625000000 - (10421867*cos(q2)^2*cos(q3)^2*cos(q6)*sin(q5))/1953125000 - (7618384777*cos(q2)^2*cos(q3)^2*cos(q6)*sin(q6))/31250000000 + (7618384777*cos(q2)^2*cos(q4)^2*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q2)^2*cos(q5)^2*cos(q6)*sin(q6))/31250000000 - (7618384777*cos(q3)^2*cos(q4)^2*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q3)^2*cos(q5)^2*cos(q6)*sin(q6))/62500000000 + (614890153*cos(q4)*cos(q5)*cos(q6)*sin(q3))/125000000000 + (32755927981*cos(q2)^2*cos(q3)^2*cos(q4)^2*sin(q6))/250000000000 - (10421867*cos(q3)*sin(q3)*sin(q4)*sin(q6))/1953125000 + (7618384777*cos(q2)*cos(q3)*cos(q5)*sin(q2)*sin(q6)^2)/62500000000 + (10421867*cos(q2)^2*cos(q3)*sin(q3)*sin(q4)*sin(q6))/1953125000 + (7618384777*cos(q3)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 - (7618384777*cos(q3)*sin(q3)*sin(q4)*sin(q5)*sin(q6)^2)/62500000000 + (7618384777*cos(q2)^2*cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (7618384777*cos(q2)^2*cos(q4)*cos(q5)*sin(q4)*sin(q6)^2)/62500000000 + (7618384777*cos(q3)^2*cos(q4)*cos(q5)*sin(q4)*sin(q6)^2)/62500000000 - (32755927981*cos(q2)*cos(q3)*cos(q5)*cos(q6)*sin(q2))/250000000000 + (10421867*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q3))/1953125000 + (7618384777*cos(q2)^2*cos(q3)^2*cos(q4)^2*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q2)^2*cos(q3)^2*cos(q5)^2*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q2)^2*cos(q4)^2*cos(q5)^2*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q3)^2*cos(q4)^2*cos(q5)^2*cos(q6)*sin(q6))/62500000000 - (2740951021*cos(q2)*cos(q3)*sin(q2)*sin(q4)*sin(q6))/15625000000 + (10421867*cos(q2)*cos(q4)*sin(q2)*sin(q3)*sin(q6))/1953125000 - (2740951021*cos(q2)*cos(q6)*sin(q2)*sin(q3)*sin(q5))/15625000000 + (32755927981*cos(q3)*cos(q6)*sin(q3)*sin(q4)*sin(q5))/250000000000 - (7618384777*cos(q2)*cos(q3)*cos(q5)*cos(q6)^2*sin(q2))/62500000000 + (32755927981*cos(q2)^2*cos(q4)*cos(q5)*cos(q6)*sin(q4))/250000000000 - (32755927981*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)*sin(q4))/250000000000 + (7618384777*cos(q2)*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)^2*sin(q2))/31250000000 + (32755927981*cos(q2)^2*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)*sin(q4))/250000000000 - (7618384777*cos(q2)*cos(q3)*cos(q4)^2*cos(q5)*sin(q2)*sin(q6)^2)/31250000000 - (7618384777*cos(q2)^2*cos(q3)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 + (7618384777*cos(q2)^2*cos(q3)*sin(q3)*sin(q4)*sin(q5)*sin(q6)^2)/62500000000 + (2740951021*cos(q2)*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2))/15625000000 + (7618384777*cos(q2)^2*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)^2*sin(q4))/62500000000 - (32755927981*cos(q2)*cos(q3)*cos(q4)*sin(q2)*sin(q4)*sin(q6))/125000000000 - (32755927981*cos(q2)*cos(q4)*cos(q6)*sin(q2)*sin(q3)*sin(q5))/250000000000 + (10421867*cos(q2)*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/1953125000 - (7618384777*cos(q2)^2*cos(q3)^2*cos(q4)*cos(q5)*sin(q4)*sin(q6)^2)/62500000000 + (32755927981*cos(q2)*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)*sin(q2))/125000000000 - (10421867*cos(q2)^2*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q3))/1953125000 + (7618384777*cos(q2)^2*cos(q3)^2*cos(q4)^2*cos(q5)^2*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q2)*cos(q4)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/62500000000 - (32755927981*cos(q2)^2*cos(q3)*cos(q6)*sin(q3)*sin(q4)*sin(q5))/250000000000 + (7618384777*cos(q2)*cos(q4)*sin(q2)*sin(q3)*sin(q5)*sin(q6)^2)/62500000000 - (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q6)*sin(q2)*sin(q4)*sin(q

$$\begin{aligned} &6)) / 31250000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 31250000000 + (761 \\ &8384777 * \cos(q_2) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 31250000000 - (7618384777 * \cos(q_2) \\ &* \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 31250000000 - (7618384777 * \cos(q_2)^2 * \cos(q_3) * \co \\ &s(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 31250000000) - dq6 * ((2740951021 * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q \\ &4)) / 15625000000 - (614890153 * \cos(q_4) * \cos(q_6) * \sin(q_2)) / 12500000000 - (614890153 * \cos(q_2) * \cos(q_3) * \cos(q_6) * s \\ &\sin(q_4)) / 125000000000 - (10421867 * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2)) / 1953125000 - (10421867 * \cos(q_2) * \cos(q_4) * \\ &\cos(q_5) * \sin(q_6)) / 1953125000 - (10421867 * \cos(q_2) * \cos(q_6) * \sin(q_4)) / 1953125000 + (614890153 * \cos(q_2) * \sin(q_3) * s \\ &\sin(q_5) * \sin(q_6)) / 125000000000 + (2740951021 * \cos(q_3) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 15625000000 + (32755927981 * co \\ &s(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 250000000000 + (32755927981 * \cos(q_2) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000 + \\ &(614890153 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 125000000000 - (614890153 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin \\ &(q_6)) / 125000000000 + (32755927981 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 250000000000 + (10421867 * \cos(q \\ &3) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 1953125000 + (2740951021 * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 15625 \\ &000000 + dq5 * ((7618384777 * \cos(q_2) * \cos(q_5) * \sin(q_4)) / 125000000000 - (7618384777 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 1 \\ &250000000000 + (7618384777 * \cos(q_2) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5) \\ &* \sin(q_4) * \sin(q_6)^2) / 125000000000 - (7618384777 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 + (7618384 \\ &777 * \sin(q_2) * \sin(q_3) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2)) / 1250000 \\ &00000 + (614890153 * \cos(q_2) * \cos(q_5) * \cos(q_6) * \sin(q_3)) / 125000000000 + (2740951021 * \cos(q_3) * \cos(q_5) * \cos(q_6) * s \\ &\sin(q_2)) / 15625000000 + (10421867 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q_5)) / 1953125000 + (32755927981 * \cos(q_2) * \cos(q \\ &5) * \cos(q_6) * \sin(q_4)) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q_6)) / 62500000000 - (327559279 \\ &81 * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 250000000000 - (614890153 * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 12500000000 \\ &0 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 125000000000 + (614890153 * \cos(q_2) * \cos(q_3) * \cos(\\ &q_4) * \cos(q_6) * \sin(q_5)) / 125000000000 + (32755927981 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 250000000000 - \\ &(10421867 * \cos(q_3) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 1953125000 - (2740951021 * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_3) \\ &) * \sin(q_5)) / 15625000000 - (7618384777 * \cos(q_3) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * c \\ &\cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 125000000000) + dq3 * ((32755927981 * \cos(q_2) * \cos(q_4)^2 * \sin(q_6)) / 25 \\ &0000000000 - (32755927981 * \cos(q_2) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_5) * \sin(q_2)) / 125000000 \\ &0000 + (10421867 * \cos(q_2) * \cos(q_6) * \sin(q_5)) / 1953125000 - (7618384777 * \cos(q_3) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 125 \\ &000000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \\ &\cos(q_6) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 125000000000 + (614890153 * \\ &\cos(q_2) * \cos(q_3) * \cos(q_6) * \sin(q_5)) / 125000000000 - (7618384777 * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 \\ &- (614890153 * \cos(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 125000000000 - (2740951021 * \cos(q_3) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 1 \\ &5625000000 - (2740951021 * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 15625000000 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q \\ &5) * \sin(q_4) * \sin(q_6)^2) / 62500000000 - (7618384777 * \cos(q_4) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 + (\\ &7618384777 * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q \\ &5) * \cos(q_6)^2 * \sin(q_2)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 \\ &- (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 62500000000 + (614890153 * \cos(q_2) * \cos(q_4) * \cos(\\ &q_5) * \cos(q_6) * \sin(q_3)) / 125000000000 + (2740951021 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 15625000000 + (3 \\ &2755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 250000000000 - (32755927981 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \\ &\sin(q_4) * \sin(q_6)) / 250000000000 - (32755927981 * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 250000000000 + (3275 \\ &5927981 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * co \\ &s(q_6)^2 * \sin(q_4)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (\\ &7618384777 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 - (761838477$$

$$\begin{aligned}
& 2*\sin(q3))/62500000000 + (7618384777*\cos(q2)*\cos(q4)^2*\cos(q5)*\sin(q3)*\sin(q6)^2)/62500000000 + (7618384777*\cos(q3)^2*\cos(q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 - (7618384777*\cos(q3)^2*\sin(q2)*\sin(q4)*\sin(q5)*\sin(q6)^2)/62500000000 + (10421867*\cos(q2)*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q4))/1953125000 + (614890153*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2))/125000000000 + (32755927981*\cos(q2)*\cos(q4)*\sin(q3)*\sin(q4)*\sin(q6))/250000000000 - (10421867*\cos(q3)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q5))/1953125000 - (7618384777*\cos(q3)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/31250000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q5))/12500000000 - (32755927981*\cos(q2)*\cos(q4)^2*\cos(q5)*\cos(q6)*\sin(q3))/250000000000 + (10421867*\cos(q3)^2*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2))/1953125000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/62500000000 - (7618384777*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q5)^2*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)^2*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 + (32755927981*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4))/250000000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q5)^2*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/62500000000 + (7618384777*\cos(q3)^2*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/31250000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q6)^2)/62500000000,0; \\
& dq4*((80248811*\cos(q3)^2*\cos(q4)*\sin(q2))/7812500000 - (80248811*\cos(q4)*\sin(q2))/7812500000 - (237258851293*\cos(q2)*\cos(q4)^2*\sin(q3))/200000000000 - (237258851293*\cos(q2)*\sin(q3))/200000000000 - (7618384777*\cos(q2)*\cos(q5)^2*\sin(q3))/125000000000 - (7618384777*\cos(q2)*\cos(q6)^2*\sin(q3))/125000000000 + (237258851293*\cos(q2)*\sin(q3)*\sin(q4)^2)/200000000000 - (21105437293*\cos(q2)*\cos(q4)*\sin(q3))/62500000000 - (32755927981*\cos(q2)*\cos(q6)*\sin(q3))/250000000000 - (10421867*\cos(q4)*\cos(q6)*\sin(q2))/1953125000 - (32755927981*\cos(q2)*\cos(q4)^2*\cos(q6)*\sin(q3))/250000000000 + (10421867*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q2))/1953125000 + (32755927981*\cos(q2)*\cos(q6)*\sin(q3)*\sin(q4)^2)/250000000000 + (7618384777*\cos(q2)*\cos(q4)^2*\cos(q5)^2*\sin(q3))/125000000000 - (7618384777*\cos(q2)*\cos(q4)^2*\cos(q6)^2*\sin(q3))/125000000000 + (7618384777*\cos(q2)*\cos(q5)^2*\cos(q6)^2*\sin(q3))/125000000000 - (7618384777*\cos(q2)*\cos(q5)^2*\sin(q3)*\sin(q4)^2)/125000000000 + (7618384777*\cos(q2)*\cos(q6)^2*\sin(q3)*\sin(q4)^2)/125000000000 - (2740951021*\cos(q2)*\cos(q4)*\cos(q6)*\sin(q3))/15625000000 + (7618384777*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 - (32755927981*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/250000000000 + (10421867*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/1953125000 - (7618384777*\cos(q3)^2*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 + (32755927981*\cos(q3)^2*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/250000000000 - (10421867*\cos(q3)^2*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/1953125000 - (7618384777*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 - (7618384777*\cos(q2)*\cos(q4)^2*\cos(q5)^2*\cos(q6)^2*\sin(q3))/125000000000 + (237258851293*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q3)*\sin(q4))/100000000000 + (2740951021*\cos(q2)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/15625000000 - (7618384777*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(q2)*\cos(q5)^2*\cos(q6)^2*\sin(q3)*\sin(q4)^2)/125000000000 + (7618384777*\cos(q3)^2*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 + (32755927981*\cos(q3)*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4))/125000000000 + (32755927981*\cos(q2)*\cos(q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/125000000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (32755927981*\cos(q3)*\cos(q4)^2*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/250000000000 + (7618384777*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 - (32755927981*\cos(q3)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q4)^2*\sin(q6))/250000000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/31250000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4)^2*\sin(q6))/62500000000 - dq5*((7618384777*\cos(q4)*\cos(q5)^2*\sin(q2))/125000000000 - (7618384777*\cos(q4)*\sin(q2))/12500000000 + (7618384777*\cos(q4)*\cos(q6)^2*\sin(q2))/125000000000 - (7618384777*\cos(q4)*\sin(q2)*\sin(q5)^2)/125000000000 - (7618384777*\cos(q2)*\cos(q3)*\sin(q4))/125000000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q5)^2*\sin(q4))/125000000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q6)^2*\sin(q4))/125000000000 + (7618384777*\cos(q2)*\cos(q3)*\sin(q4)*\sin(q5)^2)/125000000000 - (7618384777*\cos(q3)^2*\cos(q4)*\cos(q5)^2*\sin(q2))/62500000000 - (7618384777*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q2))/125000000000 + (7618384777*\cos(q3)^2*\cos(q4)*\sin(q2)*\sin(q5)^2)/62500000000 + (7618384777*\cos(q4)*\cos(q6)^2*\sin(q2)*\sin(q5)^2)/125000000000 + (2740951021*\cos(q2)*\cos(q3)*\cos(q5)*\sin(q6))/15625000000 - (10421867*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/1953125000 - (32755927981*\cos(q2)*\cos(q4)^2*\sin(q3)*\sin(q5)*\sin(q6))/250000000000 + (10421867*\cos(q3)^2*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/1953125000 - (32755927981*\cos(q3)^2*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/250000000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q5)^2*\cos(q6)^2*\sin(q4))/125000000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q6)^2*\sin(q4))*
\end{aligned}$$

$$\begin{aligned}
& \sin(q_5)^2/12500000000 + (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_6))/25000000000 + (761838477*\cos(q_3)^2*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/62500000000 + (7618384777*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 + (10421867*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/1953125000 - (2740951021*\cos(q_2)*\cos(q_4)*\sin(q_3)*\sin(q_5)*\sin(q_6))/15625000000 - (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_6)^2*\sin(q_2)*\sin(q_5)^2)/62500000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_6))/62500000000 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)^2*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 - (7618384777*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 - (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)^2*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)*\cos(q_4)^2*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 + (32755927981*\cos(q_3)*\cos(q_4)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/25000000000 - (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 + dq6*((7618384777*\sin(q_2)*\sin(q_4)*\sin(q_5))/125000000000 + (10421867*\sin(q_2)*\sin(q_4)*\sin(q_6))/1953125000 - (7618384777*\cos(q_2)*\cos(q_5)*\sin(q_3))/125000000000 + (7618384777*\cos(q_2)*\cos(q_5)*\cos(q_6)^2*\sin(q_3))/125000000000 - (7618384777*\cos(q_2)*\cos(q_5)*\sin(q_3)*\sin(q_6)^2)/125000000000 - (10421867*\cos(q_3)^2*\sin(q_2)*\sin(q_4)*\sin(q_6))/1953125000 - (7618384777*\cos(q_6)^2*\sin(q_2)*\sin(q_4)*\sin(q_5))/125000000000 + (7618384777*\sin(q_2)*\sin(q_4)*\sin(q_5)*\sin(q_6)^2)/125000000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\sin(q_5))/125000000000 - (2740951021*\cos(q_2)*\cos(q_3)*\cos(q_6)*\sin(q_5))/15625000000 - (10421867*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2))/1953125000 - (32755927981*\cos(q_3)*\sin(q_2)*\sin(q_3)*\sin(q_6))/250000000000 + (2740951021*\cos(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_6))/15625000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\sin(q_5)*\sin(q_6)^2)/125000000000 + (32755927981*\cos(q_3)*\cos(q_4)^2*\sin(q_2)*\sin(q_3)*\sin(q_6))/250000000000 + (32755927981*\cos(q_3)^2*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_5))/250000000000 - (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_5)*\cos(q_6)^2*\sin(q_3))/62500000000 + (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_5)*\sin(q_3)*\sin(q_6)^2)/62500000000 + (7618384777*\cos(q_3)^2*\cos(q_6)^2*\sin(q_2)*\sin(q_4)*\sin(q_5))/62500000000 - (7618384777*\cos(q_3)^2*\sin(q_2)*\sin(q_4)*\sin(q_5)*\sin(q_6)^2)/62500000000 - (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_5))/250000000000 - (2740951021*\cos(q_2)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3))/15625000000 + (32755927981*\cos(q_2)*\cos(q_4)*\sin(q_3)*\sin(q_4)*\sin(q_6))/250000000000 - (10421867*\cos(q_3)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/31250000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_6)^2*\sin(q_5))/125000000000 - (32755927981*\cos(q_2)*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_3))/250000000000 + (10421867*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2))/1953125000 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6))/62500000000 - (7618384777*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)^2*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_5)^2*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 + (32755927981*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4))/250000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_5)*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_4))/62500000000 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)^2*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_5)*\sin(q_6))/31250000000 - (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_6)^2)/62500000000 - dq1*((36647684119*\cos(q_2)*\sin(q_2))/62500000000 - (8538821*\cos(q_2)^2*\sin(q_3))/488281250 + (8538821*\sin(q_2)^2*\sin(q_3))/488281250 - (114870848333*\cos(q_2)*\cos(q_3)^2*\sin(q_2))/100000000000 + (237258851293*\cos(q_2)*\cos(q_4)^2*\sin(q_2))/100000000000 + (7618384777*\cos(q_2)*\cos(q_5)^2*\sin(q_2))/31250000000 + (21105437293*\cos(q_2)^2*\cos(q_3)*\sin(q_4))/62500000000 - (80248811*\cos(q_2)^2*\cos(q_4)*\sin(q_3))/7812500000 + (7618384777*\cos(q_2)*\cos(q_6)^2*\sin(q_2))/62500000000 - (21105437293*\cos(q_3)*\sin(q_2)^2*\sin(q_4))/62500000000 + (80248811*\cos(q_4)*\sin(q_2)^2*\sin(q_3))/7812500000 + (21105437293*\cos(q_2)*\cos(q_4)*\sin(q_2))/31250000000 - (32755927981*\cos(q_2)*\cos(q_3)^2*\cos(q_6)*\sin(q_2))/125000000000 + (237258851293*\cos(q_2)^2*\cos(q_3)*\cos(q_4)*\sin(q_4))/1000000000000 + (32755927981*\cos(q_2)*\cos(q_4)^2*\cos(q_6)*\sin(q_2))/125000000000 + (2740951021*\cos(q_2)^2*\cos(q_3)*\cos(q_6)*\sin(q_4))/15625000000 - (10421867*\cos(q_2)^2*\cos(q_4)*\cos(q_6)*\sin(q_3))/1953125000 - (32755927981*\cos(q_2)^2*\cos(q_3)*\cos(q_5)*\sin(q_6))/250000000000 - (237258851293*\cos(q_3)*\cos(q_4)*\sin(q_2)^2*\sin(q_4))/1000000000000 - (2740951021*\cos(q_3)*\cos(q_6)*\sin(q_2)^2*\sin(q_4))/15625000000 + (10421867*\cos(q_4)*\cos(q_6)*\sin(q_2)^2*\sin(q_3))/1953125000 + (32755927981*\cos(q_3)*\cos(q_5)*\sin(q_2)^2*\sin(q_6))/250000000000 - (2740951021*\cos(q_2)^2*\sin(q_3)*\sin(q_5)*\sin(q_6))/15625000000 + (2740951021*\sin(q_2)^2*\sin(q_3)*\sin(q_5)*\sin(q_6))/15625000000 + (237258851293*\cos(q_2)*\cos(q_3)^2*\cos(q_4)^2*\sin(q_2))/1000000000000 - (7618384777*\cos(q_2)*\cos(q_3)^2*\cos(q_5)^2*\sin(q_2))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)^2*\cos(q_6)^2*\sin(q_2))/31250000000 - (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_5)^2*\sin(q_2))/62500000000 + (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_6)^2*\sin(q_2))/62500000000 - (7618384777*\cos(q_2)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/31250000000 + (274
\end{aligned}$$

0951021*cos(q2)*cos(q4)*cos(q6)*sin(q2))/7812500000 - (10421867*cos(q2)*sin(q2)*sin(q5)*sin(q6))/976562500
- (32755927981*cos(q3)*cos(q4)*cos(q6)*sin(q2)^2*sin(q4))/125000000000 - (2740951021*cos(q3)*cos(q4)*cos(
q5)*sin(q2)^2*sin(q6))/15625000000 + (7618384777*cos(q3)*cos(q5)*cos(q6)*sin(q2)^2*sin(q6))/62500000000 +
(10421867*cos(q2)*cos(q3)^2*sin(q2)*sin(q5)*sin(q6))/976562500 + (7618384777*cos(q2)^2*cos(q5)*sin(q3)*si
n(q4)*sin(q5))/62500000000 - (32755927981*cos(q2)^2*cos(q4)*sin(q3)*sin(q5)*sin(q6))/250000000000 + (10421
867*cos(q2)^2*cos(q5)*sin(q3)*sin(q4)*sin(q6))/1953125000 - (7618384777*cos(q5)*sin(q2)^2*sin(q3)*sin(q4)*s
in(q5))/62500000000 + (32755927981*cos(q4)*sin(q2)^2*sin(q3)*sin(q5)*sin(q6))/250000000000 - (10421867*co
s(q5)*sin(q2)^2*sin(q3)*sin(q4)*sin(q6))/1953125000 + (32755927981*cos(q2)*cos(q3)^2*cos(q4)^2*cos(q6)*sin
(q2))/125000000000 - (7618384777*cos(q2)^2*cos(q3)*cos(q4)*cos(q5)^2*sin(q4))/62500000000 + (7618384777*
cos(q2)^2*cos(q3)*cos(q4)*cos(q6)^2*sin(q4))/62500000000 + (32755927981*cos(q2)^2*cos(q3)*cos(q4)^2*cos(
q5)*sin(q6))/125000000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)^2*sin(q2)^2*sin(q4))/62500000000 - (76183
84777*cos(q3)*cos(q4)*cos(q6)^2*sin(q2)^2*sin(q4))/62500000000 - (32755927981*cos(q3)*cos(q4)^2*cos(q5)*s
in(q2)^2*sin(q6))/125000000000 - (7618384777*cos(q2)*cos(q3)^2*cos(q4)^2*cos(q5)^2*sin(q2))/62500000000 +
(7618384777*cos(q2)*cos(q3)^2*cos(q4)^2*cos(q6)^2*sin(q2))/62500000000 + (7618384777*cos(q2)*cos(q3)^2
*cos(q5)^2*cos(q6)^2*sin(q2))/62500000000 + (7618384777*cos(q2)*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q2))/62
5000000000 + (80248811*cos(q2)*cos(q3)*sin(q2)*sin(q3)*sin(q4))/3906250000 - (2740951021*cos(q2)*cos(q5)*s
in(q2)*sin(q4)*sin(q6))/7812500000 + (32755927981*cos(q2)^2*cos(q3)*cos(q4)*cos(q6)*sin(q4))/125000000000
+ (2740951021*cos(q2)^2*cos(q3)*cos(q4)*cos(q5)*sin(q6))/15625000000 - (7618384777*cos(q2)^2*cos(q3)*co
s(q5)*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q2)^2*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)*sin(q6))/312
50000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)*sin(q2)^2*sin(q6))/31250000000 - (7618384777*co
s(q2)^2*cos(q5)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 + (7618384777*cos(q5)*cos(q6)^2*sin(q2)^2*s
in(q3)*sin(q4)*sin(q5))/62500000000 + (7618384777*cos(q2)^2*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q4))/6
2500000000 + (10421867*cos(q2)*cos(q3)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/976562500 - (32755927981*cos(q2)*
cos(q4)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/125000000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)^2*si
n(q2)^2*sin(q4))/62500000000 + (7618384777*cos(q2)*cos(q3)^2*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q2))/6250
0000000 - (7618384777*cos(q2)^2*cos(q4)*cos(q6)*sin(q3)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q
4)*cos(q6)*sin(q2)^2*sin(q3)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q5)*si
n(q2)*sin(q3)*sin(q5))/31250000000 + (10421867*cos(q2)*cos(q3)*cos(q4)*cos(q5)*sin(q2)*sin(q3)*sin(q6))/976
562500 - (7618384777*cos(q2)*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/31250000000 + (32755927981*
cos(q2)*cos(q3)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/125000000000 - (32755927981*cos(q2)*cos(q3)^2*cos(
q4)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/125000000000 + (7618384777*cos(q2)*cos(q3)*cos(q6)*sin(q2)*sin(q3)*sin
(q4)*sin(q5)*sin(q6))/31250000000 - (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q5)*cos(q6)^2*sin(q2)*sin(q3)*s
in(q5))/31250000000 - (7618384777*cos(q2)*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/31250
000000 - dq3*((237258851293*cos(q4)^2*sin(q2))/2000000000000 - (8538821*cos(q2)*sin(q3))/488281250 - (32
755927981*cos(q6)*sin(q2))/250000000000 - (114870848333*cos(q3)^2*sin(q2))/2000000000000 - (35964685425
3*sin(q2))/2000000000000 + (7618384777*cos(q5)^2*sin(q2))/125000000000 + (114870848333*sin(q2)*sin(q3)^
2)/2000000000000 - (10421867*sin(q2)*sin(q5)*sin(q6))/1953125000 - (32755927981*cos(q3)^2*cos(q6)*sin(q2))
/250000000000 + (32755927981*cos(q4)^2*cos(q6)*sin(q2))/250000000000 + (32755927981*cos(q6)*sin(q2)*sin
(q3)^2)/250000000000 + (237258851293*cos(q3)^2*cos(q4)^2*sin(q2))/2000000000000 - (7618384777*cos(q3)^2
*cos(q5)^2*sin(q2))/125000000000 - (7618384777*cos(q3)^2*cos(q6)^2*sin(q2))/62500000000 - (7618384777*co
s(q4)^2*cos(q5)^2*sin(q2))/125000000000 + (7618384777*cos(q4)^2*cos(q6)^2*sin(q2))/125000000000 - (76183
84777*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 - (237258851293*cos(q4)^2*sin(q2)*sin(q3)^2)/200000000000
00 + (7618384777*cos(q5)^2*sin(q2)*sin(q3)^2)/125000000000 + (7618384777*cos(q6)^2*sin(q2)*sin(q3)^2)/625
00000000 + (21105437293*cos(q2)*cos(q3)*sin(q4))/62500000000 - (80248811*cos(q2)*cos(q4)*sin(q3))/781250
0000 + (10421867*cos(q3)^2*sin(q2)*sin(q5)*sin(q6))/1953125000 - (10421867*sin(q2)*sin(q3)^2*sin(q5)*sin(q6
))/1953125000 + (32755927981*cos(q3)^2*cos(q4)^2*cos(q6)*sin(q2))/250000000000 - (32755927981*cos(q4)^2
*cos(q6)*sin(q2)*sin(q3)^2)/250000000000 + (237258851293*cos(q2)*cos(q3)*cos(q4)*sin(q4))/1000000000000
+ (2740951021*cos(q2)*cos(q3)*cos(q6)*sin(q4))/15625000000 - (10421867*cos(q2)*cos(q4)*cos(q6)*sin(q3))/19
53125000 - (32755927981*cos(q2)*cos(q3)*cos(q5)*sin(q6))/250000000000 - (7618384777*cos(q3)^2*cos(q4)^2*
cos(q5)^2*sin(q2))/125000000000 + (7618384777*cos(q3)^2*cos(q4)^2*cos(q6)^2*sin(q2))/125000000000 + (761
8384777*cos(q3)^2*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q4)^2*cos(q5)^2*cos(q6)^2
*sin(q2))/125000000000 + (80248811*cos(q3)*sin(q2)*sin(q3)*sin(q4))/3906250000 - (2740951021*cos(q2)*sin(q
3)*sin(q5)*sin(q6))/15625000000 + (7618384777*cos(q4)^2*cos(q5)^2*sin(q2)*sin(q3)^2)/125000000000 - (7618
384777*cos(q4)^2*cos(q6)^2*sin(q2)*sin(q3)^2)/125000000000 - (7618384777*cos(q5)^2*cos(q6)^2*sin(q2)*sin(

q3)^2)/125000000000 + (7618384777*cos(q3)^2*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 - (7618384777*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q2)*sin(q3)^2)/125000000000 + (32755927981*cos(q2)*cos(q3)*cos(q4)*cos(q6)*sin(q4))/125000000000 + (2740951021*cos(q2)*cos(q3)*cos(q4)*cos(q5)*sin(q6))/15625000000 - (7618384777*cos(q2)*cos(q3)*cos(q5)*cos(q6)*sin(q6))/62500000000 + (10421867*cos(q3)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/976562500 + (7618384777*cos(q2)*cos(q5)*sin(q3)*sin(q4)*sin(q5))/62500000000 - (32755927981*cos(q2)*cos(q4)*sin(q3)*sin(q5)*sin(q6))/250000000000 + (10421867*cos(q2)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/1953125000 - (32755927981*cos(q4)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/250000000000 - (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q5)^2*sin(q4))/62500000000 + (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q6)^2*sin(q4))/62500000000 + (32755927981*cos(q2)*cos(q3)*cos(q4)^2*cos(q5)*sin(q6))/125000000000 + (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q4))/62500000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)*sin(q2)*sin(q3)*sin(q5))/31250000000 + (10421867*cos(q3)*cos(q4)*cos(q5)*sin(q2)*sin(q3)*sin(q6))/976562500 - (7618384777*cos(q2)*cos(q4)*cos(q6)*sin(q3)*sin(q5)*sin(q6))/62500000000 - (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/62500000000 + (32755927981*cos(q3)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/125000000000 + (7618384777*cos(q2)*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)*sin(q6))/31250000000 - (32755927981*cos(q3)^2*cos(q4)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/250000000000 - (7618384777*cos(q2)*cos(q5)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 + (32755927981*cos(q4)*cos(q5)*sin(q2)*sin(q3)^2*sin(q4)*sin(q6))/250000000000 + (7618384777*cos(q3)*cos(q6)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/31250000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/31250000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/62500000000 + (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q3)^2*sin(q4)*sin(q6))/62500000000, dq5*((10421867*cos(q5)*sin(q6))/1953125000 + (2740951021*sin(q4)*sin(q5)*sin(q6))/15625000000 - (7618384777*cos(q3)^2*cos(q5)*sin(q5))/62500000000 - (10421867*cos(q3)^2*cos(q5)*sin(q6))/1953125000 + (7618384777*cos(q4)^2*cos(q5)*sin(q5))/62500000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)^2*sin(q3))/62500000000 + (7618384777*cos(q3)*cos(q4)*sin(q3)*sin(q5)^2)/62500000000 - (7618384777*cos(q3)^2*cos(q4)^2*cos(q5)*sin(q5))/62500000000 + (7618384777*cos(q3)^2*cos(q5)*cos(q6)^2*sin(q5))/62500000000 - (7618384777*cos(q4)^2*cos(q5)*cos(q6)^2*sin(q5))/62500000000 + (32755927981*cos(q4)*sin(q4)*sin(q5)*sin(q6))/250000000000 - (32755927981*cos(q3)^2*cos(q4)*sin(q4)*sin(q5)*sin(q6))/250000000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q3))/62500000000 - (7618384777*cos(q3)*cos(q4)*cos(q6)^2*sin(q3)*sin(q5)^2)/62500000000 + (7618384777*cos(q3)^2*cos(q4)^2*cos(q5)*cos(q6)^2*sin(q5))/62500000000 + (10421867*cos(q3)*cos(q4)*sin(q3)*sin(q5)*sin(q6))/1953125000 - (32755927981*cos(q3)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/250000000000 + (7618384777*cos(q4)*cos(q6)*sin(q4)*sin(q5)*sin(q6))/62500000000 - (7618384777*cos(q3)*cos(q5)*cos(q6)*sin(q3)*sin(q4)*sin(q6))/62500000000 - dq4*((21105437293*sin(q4))/62500000000 + (237258851293*cos(q4)*sin(q4))/1000000000000 + (2740951021*cos(q6)*sin(q4))/15625000000 - (237258851293*cos(q3)^2*cos(q4)*sin(q4))/1000000000000 - (7618384777*cos(q4)*cos(q5)^2*sin(q4))/62500000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q4))/62500000000 + (32755927981*cos(q4)^2*cos(q5)*sin(q6))/250000000000 - (32755927981*cos(q5)*sin(q4)^2*sin(q6))/250000000000 + (80248811*cos(q3)*cos(q4)*sin(q3))/7812500000 + (32755927981*cos(q4)*cos(q6)*sin(q4))/125000000000 + (2740951021*cos(q4)*cos(q5)*sin(q6))/15625000000 - (32755927981*cos(q3)^2*cos(q4)*cos(q6)*sin(q4))/125000000000 + (7618384777*cos(q4)^2*cos(q5)*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q5)*cos(q6)*sin(q4)^2*sin(q6))/62500000000 + (7618384777*cos(q3)^2*cos(q4)*cos(q5)^2*sin(q4))/62500000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q6)^2*sin(q4))/62500000000 - (32755927981*cos(q3)^2*cos(q4)^2*cos(q5)*sin(q6))/25000000000 + (7618384777*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q4))/62500000000 + (32755927981*cos(q3)^2*cos(q5)*sin(q4)^2*sin(q6))/250000000000 + (10421867*cos(q3)*cos(q4)*cos(q6)*sin(q3))/1953125000 - (7618384777*cos(q3)^2*cos(q4)^2*cos(q5)*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q3)^2*cos(q5)*cos(q6)*sin(q4)^2*sin(q6))/62500000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q4))/62500000000 - (7618384777*cos(q3)*cos(q5)*sin(q3)*sin(q4)*sin(q5))/62500000000 + (32755927981*cos(q3)*cos(q4)*sin(q3)*sin(q5)*sin(q6))/250000000000 - (10421867*cos(q3)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/1953125000 + (7618384777*cos(q3)*cos(q4)*cos(q6)*sin(q3)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q5)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 - dq3*((114870848333*cos(q3)*sin(q3))/1000000000000 + (80248811*cos(q3)^2*sin(q4))/7812500000 - (80248811*sin(q3)^2*sin(q4))/7812500000 - (237258851293*cos(q3)*cos(q4)^2*sin(q3))/100000000000 + (7618384777*cos(q3)*cos(q5)^2*sin(q3))/62500000000 + (7618384777*cos(q3)*cos(q6)^2*sin(q3))/31250000000 + (10421867*cos(q3)^2*cos(q6)*sin(q4))/1953125000 - (10421867*cos(q6)*sin(q3)^2*sin(q4))/1953125000 + (32755927981*cos(q3)*cos(q6)*sin(q3))/125000000000 - (32755927981*cos(q3)*cos(q4)^2*cos(q6)*sin(q3))/125000000000 + (7618384777*cos(q3)^2*cos(q4)*cos(q5)*sin(q5))/62500000000 + (10421867*cos(q3)^2*cos(q4)*cos(q5)*sin(q6))/1953125000 - (7618384777*cos(q4)*cos(q5)*sin(q3)^2*sin(q5))/62500000000 - (10421

$$\begin{aligned}
& 867 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_3)^2 \cdot \sin(q_6)) / 1953125000 + (32755927981 \cdot \cos(q_3)^2 \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)) / 250000 \\
& 000000 - (32755927981 \cdot \sin(q_3)^2 \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)) / 250000000000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos \\
& s(q_5)^2 \cdot \sin(q_3)) / 62500000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_6)^2 \cdot \sin(q_3)) / 62500000000 - (7618384777 \\
& \cdot \cos(q_3) \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_3)) / 62500000000 - (10421867 \cdot \cos(q_3) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 976562500 + \\
& (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_6) \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 - (7618384777 \cdot \cos(q_6) \cdot \sin(q_3)^2 \cdot \sin(q_4) \\
& \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 - (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_5)) / 62500000000 + (76 \\
& 18384777 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_3)^2 \cdot \sin(q_5)) / 62500000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \\
&)^2 \cdot \cos(q_6)^2 \cdot \sin(q_3)) / 62500000000 + (32755927981 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 1250000 \\
& 00000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 31250000000 - dq_6 \cdot ((2740951 \\
& 021 \cdot \cos(q_4) \cdot \sin(q_6)) / 15625000000 - (10421867 \cdot \cos(q_6) \cdot \sin(q_5)) / 1953125000 - (7618384777 \cdot \cos(q_6) \cdot \sin(q_6)) / 62 \\
& 500000000 + (32755927981 \cdot \cos(q_3)^2 \cdot \sin(q_6)) / 250000000000 + (32755927981 \cdot \cos(q_4)^2 \cdot \sin(q_6)) / 250000000000 \\
& 0 + (10421867 \cdot \cos(q_3)^2 \cdot \cos(q_6) \cdot \sin(q_5)) / 1953125000 + (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_6) \cdot \sin(q_6)) / 31250000000 \\
& + (7618384777 \cdot \cos(q_4)^2 \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 - (32755927981 \cdot \cos(q_3)^2 \cdot \cos(q_4)^2 \cdot \sin(q_6)) / 250000 \\
& 00000 + (2740951021 \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_4)) / 15625000000 + (7618384777 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_4) \\
&) / 62500000000 - (7618384777 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_4) \cdot \sin(q_6)^2) / 62500000000 - (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_4) \\
&)^2 \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 - (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_5)^2 \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 + (76183 \\
& 84777 \cdot \cos(q_4)^2 \cdot \cos(q_5)^2 \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 + (32755927981 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_4)) / 25 \\
& 0000000000 - (10421867 \cdot \cos(q_3) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 1953125000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_6)^2 \cdot \sin(q_3) \\
&) \cdot \sin(q_4) \cdot \sin(q_5)) / 62500000000 - (7618384777 \cdot \cos(q_3) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)^2) / 62500000000 - (7618 \\
& 384777 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 + (7618384777 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \\
& \sin(q_4) \cdot \sin(q_6)^2) / 62500000000 + (10421867 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_3)) / 1953125000 - (76183847 \\
& 77 \cdot \cos(q_3)^2 \cdot \cos(q_4)^2 \cdot \cos(q_5)^2 \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 + (32755927981 \cdot \cos(q_3) \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(\\
& q_4) \cdot \sin(q_5)) / 250000000000 - (32755927981 \cdot \cos(q_3)^2 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_4)) / 250000000000 + (76183 \\
& 84777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 31250000000, dq_5 \cdot ((7618384777 \cdot \cos(q_3) \cdot \sin(\\
& q_4)) / 125000000000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_5)^2 \cdot \sin(q_4)) / 125000000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_6)^2 \\
& \cdot \sin(q_4)) / 125000000000 - (7618384777 \cdot \cos(q_3) \cdot \sin(q_4) \cdot \sin(q_5)^2) / 125000000000 - (2740951021 \cdot \cos(q_3) \cdot \cos(q_5) \\
&) \cdot \sin(q_6)) / 15625000000 + (32755927981 \cdot \cos(q_4)^2 \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 250000000000 - (7618384777 \cdot \cos(q_3) \\
&) \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 125000000000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_6)^2 \cdot \sin(q_4) \cdot \sin(q_5)^2) / 12500000 \\
& 0000 - (32755927981 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_6)) / 250000000000 + (2740951021 \cdot \cos(q_4) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(\\
& q_6)) / 15625000000 + (7618384777 \cdot \cos(q_4)^2 \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 - (7618384777 \cdot \cos \\
& s(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 - (7618384777 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5)) / 6 \\
& 25000000000 + (7618384777 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5)) / 62500000000 - dq_6 \cdot ((7618384 \\
& 777 \cdot \cos(q_5) \cdot \sin(q_3)) / 125000000000 - (2740951021 \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 15625000000 - (7618384777 \cdot \cos(q_5) \\
&) \cdot \cos(q_6)^2 \cdot \sin(q_3)) / 125000000000 + (7618384777 \cdot \cos(q_5) \cdot \sin(q_3) \cdot \sin(q_6)^2) / 125000000000 + (7618384777 \cdot \cos \\
& s(q_3) \cdot \cos(q_4) \cdot \sin(q_5)) / 125000000000 + (2740951021 \cdot \cos(q_3) \cdot \cos(q_6) \cdot \sin(q_5)) / 15625000000 + (7618384777 \cdot \cos \\
& (q_3) \cdot \cos(q_4) \cdot \cos(q_6)^2 \cdot \sin(q_5)) / 125000000000 + (32755927981 \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_3)) / 250000000 \\
& 000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \sin(q_5) \cdot \sin(q_6)^2) / 125000000000 + (7618384777 \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \cos(q_6) \\
&)^2 \cdot \sin(q_3)) / 62500000000 - (7618384777 \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \sin(q_3) \cdot \sin(q_6)^2) / 62500000000 + (32755927981 \cdot \cos \\
& (q_3) \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_5)) / 250000000000 + (2740951021 \cdot \cos(q_4) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_3)) / 15625000000 - \\
& (32755927981 \cdot \cos(q_4) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 250000000000 - (7618384777 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(\\
& q_6)) / 62500000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_4) \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 - (76183847 \\
& 77 \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \cos(q_6) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 62500000000 - dq_3 \cdot ((21105437293 \cdot \cos(q_3) \cdot \sin(q_4)) / 62 \\
& 500000000 - (8538821 \cdot \sin(q_3)) / 488281250 - (80248811 \cdot \cos(q_4) \cdot \sin(q_3)) / 781250000 - (2740951021 \cdot \sin(q_3) \cdot \sin(\\
& q_5) \cdot \sin(q_6)) / 15625000000 + (237258851293 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \sin(q_4)) / 1000000000000 + (2740951021 \cdot \cos(q_3) \cdot \cos \\
& (q_6) \cdot \sin(q_4)) / 15625000000 - (10421867 \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_3)) / 1953125000 - (32755927981 \cdot \cos(q_3) \cdot \cos(q_5) \\
&) \cdot \sin(q_6)) / 250000000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \sin(q_4)) / 62500000000 + (7618384777 \cdot \cos(q_3) \\
&) \cdot \cos(q_4) \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 + (32755927981 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \sin(q_6)) / 125000000000 \\
& + (32755927981 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_6) \cdot \sin(q_4)) / 125000000000 + (2740951021 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5) \cdot \sin(q_6)) \\
&) / 15625000000 - (7618384777 \cdot \cos(q_3) \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_6)) / 62500000000 + (7618384777 \cdot \cos(q_5) \cdot \sin(q_3) \\
&) \cdot \sin(q_4) \cdot \sin(q_5)) / 62500000000 - (32755927981 \cdot \cos(q_4) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 250000000000 + (10421867 \cdot \cos \\
& s(q_5) \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_6)) / 1953125000 - (7618384777 \cdot \cos(q_5) \cdot \cos(q_6)^2 \cdot \sin(q_3) \cdot \sin(q_4) \cdot \sin(q_5)) / 62500000 \\
& 000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_4) \cdot \cos(q_5)^2 \cdot \cos(q_6)^2 \cdot \sin(q_4)) / 62500000000 - (7618384777 \cdot \cos(q_4) \cdot \cos(q_6) \\
&) \cdot \sin(q_3) \cdot \sin(q_5) \cdot \sin(q_6)) / 62500000000 + (7618384777 \cdot \cos(q_3) \cdot \cos(q_4)^2 \cdot \cos(q_5) \cdot \cos(q_6) \cdot \sin(q_6)) / 3125000000 \\
& 0) - dq_4 \cdot ((237258851293 \cdot \sin(q_3)) / 2000000000000 + (21105437293 \cdot \cos(q_4) \cdot \sin(q_3)) / 62500000000 + (327559279
\end{aligned}$$

$$\begin{aligned}
& 81*\cos(q_6)*\sin(q_3))/250000000000 + (237258851293*\cos(q_4)^2*\sin(q_3))/2000000000000 + (7618384777*\cos(q_5) \\
& ^2*\sin(q_3))/125000000000 + (7618384777*\cos(q_6)^2*\sin(q_3))/125000000000 - (237258851293*\sin(q_3)*\sin(q_4)^2 \\
&)/2000000000000 + (32755927981*\cos(q_4)^2*\cos(q_6)*\sin(q_3))/250000000000 - (32755927981*\cos(q_6)*\sin(q_3)*\sin \\
& (q_4)^2)/250000000000 - (7618384777*\cos(q_4)^2*\cos(q_5)^2*\sin(q_3))/125000000000 + (7618384777*\cos(q_4)^2*\cos \\
& (q_6)^2*\sin(q_3))/125000000000 - (7618384777*\cos(q_5)^2*\cos(q_6)^2*\sin(q_3))/125000000000 + (7618384777*\cos \\
& (q_5)^2*\sin(q_3)*\sin(q_4)^2)/125000000000 - (7618384777*\cos(q_6)^2*\sin(q_3)*\sin(q_4)^2)/125000000000 + (2740951 \\
& 021*\cos(q_4)*\cos(q_6)*\sin(q_3))/15625000000 + (7618384777*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_3))/12500000000 \\
& 00 - (2740951021*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/15625000000 - (7618384777*\cos(q_5)^2*\cos(q_6)^2*\sin(q_3)*\sin \\
& (q_4)^2)/125000000000 - (32755927981*\cos(q_4)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/125000000000 - (7618384777* \\
& \cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6))/31250000000 - dq1*((237258851293*\cos(q_4)^2*\sin(q_2))/2000 \\
& 0000000000 - (8538821*\cos(q_2)*\sin(q_3))/488281250 - (32755927981*\cos(q_6)*\sin(q_2))/250000000000 - (11487084 \\
& 8333*\cos(q_3)^2*\sin(q_2))/200000000000 - (359646854253*\sin(q_2))/2000000000000 + (7618384777*\cos(q_5)^2*\sin \\
& (q_2))/125000000000 + (114870848333*\sin(q_2)*\sin(q_3)^2)/2000000000000 - (10421867*\sin(q_2)*\sin(q_5)*\sin(q_6))/ \\
& 1953125000 - (32755927981*\cos(q_3)^2*\cos(q_6)*\sin(q_2))/250000000000 + (32755927981*\cos(q_4)^2*\cos(q_6)*\sin \\
& (q_2))/250000000000 + (32755927981*\cos(q_6)*\sin(q_2)*\sin(q_3)^2)/250000000000 + (237258851293*\cos(q_3)^2*\cos \\
& (q_4)^2*\sin(q_2))/2000000000000 - (7618384777*\cos(q_3)^2*\cos(q_5)^2*\sin(q_2))/125000000000 - (7618384777*\cos(q_3) \\
& ^2*\cos(q_6)^2*\sin(q_2))/62500000000 - (7618384777*\cos(q_4)^2*\cos(q_5)^2*\sin(q_2))/125000000000 + (7618384777 \\
& *cos(q_4)^2*\cos(q_6)^2*\sin(q_2))/125000000000 - (7618384777*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/125000000000 - (23 \\
& 7258851293*\cos(q_4)^2*\sin(q_2)*\sin(q_3)^2)/2000000000000 + (7618384777*\cos(q_5)^2*\sin(q_2)*\sin(q_3)^2)/125000 \\
& 000000 + (7618384777*\cos(q_6)^2*\sin(q_2)*\sin(q_3)^2)/62500000000 + (21105437293*\cos(q_2)*\cos(q_3)*\sin(q_4))/62 \\
& 500000000 - (80248811*\cos(q_2)*\cos(q_4)*\sin(q_3))/7812500000 + (10421867*\cos(q_3)^2*\sin(q_2)*\sin(q_5)*\sin(q_6))/1 \\
& 953125000 - (10421867*\sin(q_2)*\sin(q_3)^2*\sin(q_5)*\sin(q_6))/1953125000 + (32755927981*\cos(q_3)^2*\cos(q_4)^2*\cos \\
& (q_6)*\sin(q_2))/250000000000 - (32755927981*\cos(q_4)^2*\cos(q_6)*\sin(q_2)*\sin(q_3)^2)/250000000000 + (2372588 \\
& 51293*\cos(q_2)*\cos(q_3)*\cos(q_4)*\sin(q_4))/1000000000000 + (2740951021*\cos(q_2)*\cos(q_3)*\cos(q_6)*\sin(q_4))/1562 \\
& 5000000 - (10421867*\cos(q_2)*\cos(q_4)*\cos(q_6)*\sin(q_3))/1953125000 - (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_5)*\sin \\
& (q_6))/250000000000 - (7618384777*\cos(q_3)^2*\cos(q_4)^2*\cos(q_5)^2*\sin(q_2))/125000000000 + (7618384777*\cos \\
& (q_3)^2*\cos(q_4)^2*\cos(q_6)^2*\sin(q_2))/125000000000 + (7618384777*\cos(q_3)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/125 \\
& 000000000 + (7618384777*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/125000000000 + (80248811*\cos(q_3)*\sin(q_2) \\
& *\sin(q_3)*\sin(q_4))/3906250000 - (2740951021*\cos(q_2)*\sin(q_3)*\sin(q_5)*\sin(q_6))/15625000000 + (7618384777*\cos \\
& (q_4)^2*\cos(q_5)^2*\sin(q_2)*\sin(q_3)^2)/125000000000 - (7618384777*\cos(q_4)^2*\cos(q_6)^2*\sin(q_2)*\sin(q_3)^2)/1250 \\
& 00000000 - (7618384777*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2)*\sin(q_3)^2)/125000000000 + (7618384777*\cos(q_3)^2*\cos \\
& (q_4)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/125000000000 - (7618384777*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2)*\sin(q_3) \\
& ^2)/125000000000 + (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_4))/125000000000 + (2740951021*\cos \\
& (q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_6))/15625000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_5)*\cos(q_6)*\sin(q_6))/ \\
& 62500000000 + (10421867*\cos(q_3)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4))/976562500 + (7618384777*\cos(q_2)*\cos(q_5) \\
& *\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 - (32755927981*\cos(q_2)*\cos(q_4)*\sin(q_3)*\sin(q_5)*\sin(q_6))/250000000000 \\
& + (10421867*\cos(q_2)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/1953125000 - (32755927981*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin \\
& (q_4)*\sin(q_6))/250000000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)^2*\sin(q_4))/62500000000 + (7618384 \\
& 777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_6)^2*\sin(q_4))/62500000000 + (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos \\
& (q_5)*\sin(q_6))/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_4))/62500000000 \\
& + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_5))/31250000000 + (10421867*\cos(q_3)*\cos(q_4)*\cos \\
& (q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/976562500 - (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/625 \\
& 00000000 - (7618384777*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 + (32755927981*\cos(q_3) \\
& *\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/125000000000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_5)*\cos \\
& (q_6)*\sin(q_6))/31250000000 - (32755927981*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/250000000000 \\
& - (7618384777*\cos(q_2)*\cos(q_5)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 + (32755927981*\cos(q_4)*\cos \\
& (q_5)*\sin(q_2)*\sin(q_3)^2*\sin(q_4)*\sin(q_6))/250000000000 + (7618384777*\cos(q_3)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin \\
& (q_5)*\sin(q_6))/31250000000 - (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/312500 \\
& 00000 - (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 + (7618384777* \\
& \cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_3)^2*\sin(q_4)*\sin(q_6))/62500000000 - dq2*((114870848333*\cos(q_3)*\sin(q_3) \\
&)/1000000000000 + (80248811*\cos(q_3)^2*\sin(q_4))/7812500000 - (80248811*\sin(q_3)^2*\sin(q_4))/7812500000 - (2 \\
& 37258851293*\cos(q_3)*\cos(q_4)^2*\sin(q_3))/1000000000000 + (7618384777*\cos(q_3)*\cos(q_5)^2*\sin(q_3))/6250000000 \\
& 00 + (7618384777*\cos(q_3)*\cos(q_6)^2*\sin(q_3))/31250000000 + (10421867*\cos(q_3)^2*\cos(q_6)*\sin(q_4))/195312500 \\
& 0 - (10421867*\cos(q_6)*\sin(q_3)^2*\sin(q_4))/1953125000 + (32755927981*\cos(q_3)*\cos(q_6)*\sin(q_3))/125000000000
\end{aligned}$$

- (32755927981*cos(q3)*cos(q4)^2*cos(q6)*sin(q3))/125000000000 + (7618384777*cos(q3)^2*cos(q4)*cos(q5)*sin(q5))/62500000000 + (10421867*cos(q3)^2*cos(q4)*cos(q5)*sin(q6))/1953125000 - (7618384777*cos(q4)*cos(q5)*sin(q3)^2*sin(q5))/62500000000 - (10421867*cos(q4)*cos(q5)*sin(q3)^2*sin(q6))/1953125000 + (32755927981*cos(q3)^2*sin(q4)*sin(q5)*sin(q6))/250000000000 - (32755927981*sin(q3)^2*sin(q4)*sin(q5)*sin(q6))/250000000000 + (7618384777*cos(q3)*cos(q4)^2*cos(q5)^2*sin(q3))/62500000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q6)^2*sin(q3))/62500000000 - (7618384777*cos(q3)*cos(q5)^2*cos(q6)^2*sin(q3))/62500000000 - (10421867*cos(q3)*sin(q3)*sin(q5)*sin(q6))/976562500 + (7618384777*cos(q3)^2*cos(q6)*sin(q4)*sin(q5)*sin(q6))/6250000000 - (7618384777*cos(q6)*sin(q3)^2*sin(q4)*sin(q5)*sin(q6))/62500000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q5)*cos(q6)^2*sin(q5))/62500000000 + (7618384777*cos(q4)*cos(q5)*cos(q6)^2*sin(q3)^2*sin(q5))/62500000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q3))/62500000000 + (32755927981*cos(q3)*cos(q4)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/125000000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q3)*sin(q4)*sin(q6))/31250000000, dq1*((80248811*cos(q3)^2*cos(q4)*sin(q2))/7812500000 - (80248811*cos(q4)*sin(q2))/7812500000 - (237258851293*cos(q2)*cos(q4)^2*sin(q3))/200000000000 - (237258851293*cos(q2)*sin(q3))/200000000000 - (7618384777*cos(q2)*cos(q5)^2*sin(q3))/125000000000 - (7618384777*cos(q2)*cos(q6)^2*sin(q3))/125000000000 + (237258851293*cos(q2)*sin(q3)*sin(q4)^2)/200000000000 - (21105437293*cos(q2)*cos(q4)*sin(q3))/62500000000 - (32755927981*cos(q2)*cos(q6)*sin(q3))/250000000000 - (10421867*cos(q4)*cos(q6)*sin(q2))/1953125000 - (32755927981*cos(q2)*cos(q4)^2*cos(q6)*sin(q3))/250000000000 + (10421867*cos(q3)^2*cos(q4)*cos(q6)*sin(q2))/1953125000 + (32755927981*cos(q2)*cos(q6)*sin(q3)*sin(q4)^2)/250000000000 + (7618384777*cos(q2)*cos(q4)^2*cos(q5)^2*sin(q3))/125000000000 - (7618384777*cos(q2)*cos(q4)^2*cos(q6)^2*sin(q3))/125000000000 + (7618384777*cos(q2)*cos(q5)^2*cos(q6)^2*sin(q3))/125000000000 - (7618384777*cos(q2)*cos(q5)^2*sin(q3)*sin(q4)^2)/125000000000 + (7618384777*cos(q2)*cos(q6)^2*sin(q3)*sin(q4)^2)/125000000000 - (2740951021*cos(q2)*cos(q4)*cos(q6)*sin(q3))/15625000000 + (7618384777*cos(q5)*sin(q2)*sin(q4)*sin(q5))/62500000000 - (32755927981*cos(q4)*sin(q2)*sin(q5)*sin(q6))/250000000000 + (10421867*cos(q5)*sin(q2)*sin(q4)*sin(q6))/1953125000 - (7618384777*cos(q3)^2*cos(q5)*sin(q2)*sin(q4)*sin(q5))/62500000000 + (32755927981*cos(q3)^2*cos(q4)*sin(q2)*sin(q5)*sin(q6))/250000000000 - (10421867*cos(q3)^2*cos(q5)*sin(q2)*sin(q4)*sin(q6))/1953125000 - (7618384777*cos(q5)*cos(q6)^2*sin(q2)*sin(q4)*sin(q5))/62500000000 - (7618384777*cos(q2)*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q3))/125000000000 + (237258851293*cos(q3)*cos(q4)*sin(q2)*sin(q3)*sin(q4))/1000000000000 + (2740951021*cos(q2)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/15625000000 - (7618384777*cos(q4)*cos(q6)*sin(q2)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q2)*cos(q5)^2*cos(q6)^2*sin(q3)*sin(q4)^2)/125000000000 + (7618384777*cos(q3)^2*cos(q5)*cos(q6)^2*sin(q2)*sin(q4)*sin(q5))/62500000000 + (32755927981*cos(q3)*cos(q4)*cos(q6)*sin(q2)*sin(q3)*sin(q4))/125000000000 + (32755927981*cos(q2)*cos(q4)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/125000000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (7618384777*cos(q3)*cos(q4)*cos(q6)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (32755927981*cos(q3)*cos(q4)^2*cos(q5)*sin(q2)*sin(q3)*sin(q6))/250000000000 + (7618384777*cos(q3)^2*cos(q4)*cos(q6)*sin(q2)*sin(q5)*sin(q6))/62500000000 - (32755927981*cos(q3)*cos(q5)*sin(q2)*sin(q3)*sin(q4)^2*sin(q6))/250000000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (7618384777*cos(q2)*cos(q4)*cos(q5)*cos(q6)*sin(q3)*sin(q4)*sin(q6))/31250000000 + (7618384777*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q6))/62500000000 - (7618384777*cos(q3)*cos(q5)*cos(q6)*sin(q2)*sin(q3)*sin(q4)^2*sin(q6))/62500000000 - dq3*((237258851293*sin(q3))/200000000000 + (21105437293*cos(q4)*sin(q3))/62500000000 + (32755927981*cos(q6)*sin(q3))/250000000000 + (237258851293*cos(q4)^2*sin(q3))/200000000000 + (7618384777*cos(q5)^2*sin(q3))/125000000000 + (7618384777*cos(q6)^2*sin(q3))/125000000000 - ((237258851293*sin(q3)*sin(q4)^2)/200000000000 + (32755927981*cos(q4)^2*cos(q6)*sin(q3))/250000000000 - (32755927981*cos(q6)*sin(q3)*sin(q4)^2)/250000000000 - (7618384777*cos(q4)^2*cos(q5)^2*sin(q3))/125000000000 + (7618384777*cos(q4)^2*cos(q6)^2*sin(q3))/125000000000 - (7618384777*cos(q5)^2*cos(q6)^2*sin(q3))/125000000000 + (7618384777*cos(q5)^2*sin(q3)*sin(q4)^2)/125000000000 - (7618384777*cos(q6)^2*sin(q3)*sin(q4)^2)/125000000000 + (2740951021*cos(q4)*cos(q6)*sin(q3))/15625000000 + (7618384777*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q3))/125000000000 - (2740951021*cos(q5)*sin(q3)*sin(q4)*sin(q6))/15625000000 - (7618384777*cos(q5)^2*cos(q6)^2*sin(q3)*sin(q4)^2)/125000000000 - (32755927981*cos(q4)*cos(q5)*sin(q3)*sin(q4)*sin(q6))/125000000000 - (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q3)*sin(q4)*sin(q6))/31250000000 - dq2*((21105437293*sin(q4))/62500000000 + (237258851293*cos(q4)*sin(q4))/100000000000 + (2740951021*cos(q6)*sin(q4))/15625000000 - (237258851293*cos(q3)^2*cos(q4)*sin(q4))/100000000000 - (7618384777*cos(q4)*cos(q5)^2*sin(q4))/62500000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q4))/62500000000 + (32755927981*cos(q4)^2*cos(q5)*sin(q6))/250000000000 - (32755927981*cos(q5)*sin(q4)^2*sin(q6))/250000000000 + (80248811*cos(q3)*cos(q4)*sin(q3))/7812500000 + (32755927981*cos(q4)*cos(q6)*sin(q4))/125000000000 + (2740951021*cos(q4)*cos(

$$\begin{aligned}
& q_5 \sin(q_6) / 15625000000 - (32755927981 \cos(q_3)^2 \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 \\
& + (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 - (32755927981 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_3)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 \\
& + (10421867 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 - (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3)^2 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (32755927981 \cos(q_3) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (10421867 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + dq_5 * ((7618384777 \cos(q_4) \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_5)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_3)) / 125000000000 + (7618384777 \cos(q_4) \sin(q_3) \sin(q_5)^2) / 125000000000 - (7618384777 \cos(q_3) \cos(q_5) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_3) \sin(q_5)^2) / 125000000000 + (2740951021 \cos(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 15625000000 + (10421867 \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 1953125000 - dq_6 * ((32755927981 \cos(q_3) \sin(q_6)) / 250000000000 - (7618384777 \sin(q_3) \sin(q_4) \sin(q_5)) / 125000000000 - (10421867 \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 + (2740951021 \cos(q_3) \cos(q_4) \sin(q_6)) / 15625000000 + (7618384777 \cos(q_3) \cos(q_6) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 125000000000 - (7618384777 \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 + (2740951021 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_4)) / 15625000000 + (10421867 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3)) / 1953125000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 - dq_4 * ((21105437293 \cos(q_3) \sin(q_4)) / 62500000000 + (80248811 \cos(q_4) \sin(q_3)) / 781250000 + (2740951021 \cos(q_3) \cos(q_6) \sin(q_4)) / 15625000000 + (10421867 \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 + (2740951021 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 15625000000 - (7618384777 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (32755927981 \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (10421867 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000, dq_3 * ((7618384777 \cos(q_3) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (2740951021 \cos(q_3) \cos(q_5) \sin(q_6)) / 15625000000 + (32755927981 \cos(q_4)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 250000000000 + (2740951021 \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 15625000000 + (7618384777 \cos(q_4)^2 \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 - dq_1 * ((7618384777 \cos(q_4) \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4) \sin(q_2)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4) \sin(q_2) \sin(q_5)^2) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \sin(q_2)) / 62500000000 - (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_4) \sin(q_2) \sin(q_5)^2) / 62500000000 + (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_2) \sin(q_5)^2) / 125000000000 + (2740951021 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_6)) / 15625000000 - (10421867 \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_2) \cos(q_4)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 + (10421867 \cos(q_3)^2 \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_3)^2 \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 + (10421867 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 - (2740951021 \cos(q_2) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 15625000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_6)^2 \sin(q_2) \sin(q_5)^2) / 62500000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 - (7618384777 \cos(
\end{aligned}$$

$$\begin{aligned}
& q2) * \cos(q4)^2 * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3)^2 * \cos(q5) * \cos(q6) * \sin(q2) \\
& * \sin(q4) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q4)^2 * \cos(q5) * \cos(q6)^2 * \sin(q2) * \sin(q3) * \sin(q5)) / 62 \\
& 5000000000 + (32755927981 * \cos(q3) * \cos(q4) * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 2500000000000 - (7618384 \\
& 777 * \cos(q2) * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q3) * \sin(q4) * \sin(q5)) / 625000000000 + (7618384777 * \cos(q3) * \cos(q4) * \\
& \cos(q6) * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 625000000000) + dq2 * ((10421867 * \cos(q5) * \sin(q6)) / 1953125000 \\
& + (2740951021 * \sin(q4) * \sin(q5) * \sin(q6)) / 15625000000 - (7618384777 * \cos(q3)^2 * \cos(q5) * \sin(q5)) / 625000000000 - \\
& (10421867 * \cos(q3)^2 * \cos(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q4)^2 * \cos(q5) * \sin(q5)) / 625000000000 - (7 \\
& 618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \sin(q3)) / 625000000000 + (7618384777 * \cos(q3) * \cos(q4) * \sin(q3) * \sin(q5)^2 \\
&) / 625000000000 - (7618384777 * \cos(q3)^2 * \cos(q4)^2 * \cos(q5) * \sin(q5)) / 625000000000 + (7618384777 * \cos(q3)^2 * \cos \\
& (q5) * \cos(q6)^2 * \sin(q5)) / 625000000000 - (7618384777 * \cos(q4)^2 * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 625000000000 + (32 \\
& 755927981 * \cos(q4) * \sin(q4) * \sin(q5) * \sin(q6)) / 2500000000000 - (32755927981 * \cos(q3)^2 * \cos(q4) * \sin(q4) * \sin(q5) * \\
& \sin(q6)) / 2500000000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q3)) / 625000000000 - (76183847 \\
& 77 * \cos(q3) * \cos(q4) * \cos(q6)^2 * \sin(q3) * \sin(q5)^2) / 625000000000 + (7618384777 * \cos(q3)^2 * \cos(q4)^2 * \cos(q5) * \cos \\
& (q6)^2 * \sin(q5)) / 625000000000 + (10421867 * \cos(q3) * \cos(q4) * \sin(q3) * \sin(q5) * \sin(q6)) / 1953125000 - (3275592798 \\
& 1 * \cos(q3) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q6)) / 2500000000000 + (7618384777 * \cos(q4) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q \\
& 6)) / 625000000000 - (7618384777 * \cos(q3) * \cos(q5) * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 625000000000 - (7618384777 * \\
& \cos(q3)^2 * \cos(q4) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 625000000000) + dq5 * ((2740951021 * \sin(q3) * \sin(q5) * \sin(q6)) / \\
& 15625000000 - (32755927981 * \cos(q3) * \cos(q5) * \sin(q6)) / 2500000000000 - (2740951021 * \cos(q3) * \cos(q4) * \cos(q5) * \sin \\
& (q6)) / 15625000000 - (7618384777 * \cos(q3) * \cos(q5) * \cos(q6) * \sin(q6)) / 625000000000 + (32755927981 * \cos(q4) * \sin \\
& (q3) * \sin(q5) * \sin(q6)) / 250000000000 + (10421867 * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q6)) / 1953125000 + (7618384777 * \\
& \cos(q4) * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 625000000000) - dq6 * ((7618384777 * \cos(q3) * \sin(q5)) / 125000000000 + (\\
& 7618384777 * \cos(q3) * \cos(q6)^2 * \sin(q5)) / 125000000000 - (7618384777 * \cos(q3) * \sin(q5) * \sin(q6)^2) / 125000000000 \\
& 0 + (7618384777 * \cos(q4) * \cos(q5) * \sin(q3)) / 125000000000 + (32755927981 * \cos(q3) * \cos(q6) * \sin(q5)) / 250000000000 \\
& 00 + (2740951021 * \cos(q5) * \cos(q6) * \sin(q3)) / 15625000000 + (7618384777 * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q3)) / 12 \\
& 50000000000 - (7618384777 * \cos(q4) * \cos(q5) * \sin(q3) * \sin(q6)^2) / 125000000000 + (2740951021 * \cos(q3) * \cos(q4) * \cos \\
& (q6) * \sin(q5)) / 15625000000 + (32755927981 * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q3)) / 2500000000000 - (10421867 * \cos \\
& (q6) * \sin(q3) * \sin(q4) * \sin(q5)) / 1953125000 - (7618384777 * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 625000000000) + dq4 * (\\
& (7618384777 * \cos(q4) * \sin(q3)) / 125000000000 - (7618384777 * \cos(q4) * \cos(q5)^2 * \sin(q3)) / 125000000000 - (76183 \\
& 84777 * \cos(q4) * \cos(q6)^2 * \sin(q3)) / 125000000000 + (7618384777 * \cos(q4) * \sin(q3) * \sin(q5)^2) / 125000000000 - (76 \\
& 18384777 * \cos(q3) * \cos(q5) * \sin(q5)) / 625000000000 + (7618384777 * \cos(q3) * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 6250000000 \\
& 00 + (7618384777 * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q4) * \cos(q6)^2 * \sin(q \\
& 3) * \sin(q5)^2) / 125000000000 + (2740951021 * \cos(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 15625000000 + (10421867 * \cos(q4) \\
& * \sin(q3) * \sin(q5) * \sin(q6)) / 1953125000, dq1 * ((7618384777 * \sin(q2) * \sin(q4) * \sin(q5)) / 125000000000 + (10421867 * \sin \\
& (q2) * \sin(q4) * \sin(q6)) / 1953125000 - (7618384777 * \cos(q2) * \cos(q5) * \sin(q3)) / 125000000000 + (7618384777 * \cos \\
& (q2) * \cos(q5) * \cos(q6)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q5) * \sin(q3) * \sin(q6)^2) / 1250000000000 \\
& - (10421867 * \cos(q3)^2 * \sin(q2) * \sin(q4) * \sin(q6)) / 1953125000 - (7618384777 * \cos(q6)^2 * \sin(q2) * \sin(q4) * \sin(q5)) / \\
& 125000000000 + (7618384777 * \sin(q2) * \sin(q4) * \sin(q5) * \sin(q6)^2) / 125000000000 - (7618384777 * \cos(q2) * \cos(q3) \\
& * \cos(q4) * \sin(q5)) / 125000000000 - (2740951021 * \cos(q2) * \cos(q3) * \cos(q6) * \sin(q5)) / 15625000000 - (10421867 * \cos \\
& (q4) * \cos(q5) * \cos(q6) * \sin(q2)) / 1953125000 - (32755927981 * \cos(q3) * \sin(q2) * \sin(q3) * \sin(q6)) / 250000000000 + (2 \\
& 740951021 * \cos(q2) * \sin(q3) * \sin(q4) * \sin(q6)) / 15625000000 + (7618384777 * \cos(q2) * \cos(q3) * \cos(q4) * \sin(q5) * \sin \\
& (q6)^2) / 125000000000 + (32755927981 * \cos(q3) * \cos(q4)^2 * \sin(q2) * \sin(q3) * \sin(q6)) / 250000000000 + (327559279 \\
& 81 * \cos(q3)^2 * \cos(q6) * \sin(q2) * \sin(q4) * \sin(q5)) / 250000000000 - (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q5) * \cos(q6) \\
& ^2 * \sin(q3)) / 625000000000 + (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q5) * \sin(q3) * \sin(q6)^2) / 625000000000 + (761838 \\
& 4777 * \cos(q3)^2 * \cos(q6)^2 * \sin(q2) * \sin(q4) * \sin(q5)) / 625000000000 - (7618384777 * \cos(q3)^2 * \sin(q2) * \sin(q4) * \sin \\
& (q5) * \sin(q6)^2) / 625000000000 - (32755927981 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q6) * \sin(q5)) / 250000000000 - (274095 \\
& 1021 * \cos(q2) * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q3)) / 15625000000 + (32755927981 * \cos(q2) * \cos(q4) * \sin(q3) * \sin(q4) * \\
& \sin(q6)) / 250000000000 - (10421867 * \cos(q3) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q5)) / 1953125000 - (7618384777 * \cos(q3) \\
&) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q6)) / 31250000000 - (7618384777 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q6)^2 * \sin(q5)) / 125 \\
& 0000000000 - (32755927981 * \cos(q2) * \cos(q4)^2 * \cos(q5) * \cos(q6) * \sin(q3)) / 250000000000 + (10421867 * \cos(q3)^2 * \\
& \cos(q4) * \cos(q5) * \cos(q6) * \sin(q2)) / 1953125000 + (7618384777 * \cos(q2) * \cos(q4) * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / \\
& 625000000000 - (7618384777 * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q2) * \sin(q5) * \sin(q6)) / 625000000000 + (7618384777 * \cos \\
& (q3) * \cos(q4)^2 * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q6)) / 625000000000 + (7618384777 * \cos(q3) * \cos(q5)^2 * \cos(q6) * \sin(q2) \\
&) * \sin(q3) * \sin(q6)) / 625000000000 + (7618384777 * \cos(q3) * \cos(q4)^2 * \cos(q5)^2 * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q6)) / 6 \\
& 25000000000 + (32755927981 * \cos(q3) * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q4)) / 250000000000 + (76183
\end{aligned}$$

$$\begin{aligned} &84777*\cos(q_2)*\cos(q_3)*\cos(q_5)*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/6250000000 + (7618384777*\cos(q_3)*\cos(q_4)* \\ &\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_4))/6250000000 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)^2*\cos(q_6)*\sin \\ &(q_3)*\sin(q_4)*\sin(q_6))/6250000000 + (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_5)*\sin(q_6))/ \\ &3125000000 - (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_6)^2)/6250000000) - dq_3*((\\ &7618384777*\cos(q_5)*\sin(q_3))/12500000000 - (2740951021*\sin(q_3)*\sin(q_4)*\sin(q_6))/1562500000 - (761838477 \\ &7*\cos(q_5)*\cos(q_6)^2*\sin(q_3))/12500000000 + (7618384777*\cos(q_5)*\sin(q_3)*\sin(q_6)^2)/12500000000 + (76183 \\ &84777*\cos(q_3)*\cos(q_4)*\sin(q_5))/12500000000 + (2740951021*\cos(q_3)*\cos(q_6)*\sin(q_5))/1562500000 + (761838 \\ &4777*\cos(q_3)*\cos(q_4)*\cos(q_6)^2*\sin(q_5))/12500000000 + (32755927981*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_3))/25 \\ &0000000000 - (7618384777*\cos(q_3)*\cos(q_4)*\sin(q_5)*\sin(q_6)^2)/12500000000 + (7618384777*\cos(q_4)^2*\cos(q_5) \\ &)*\cos(q_6)^2*\sin(q_3))/6250000000 - (7618384777*\cos(q_4)^2*\cos(q_5)*\sin(q_3)*\sin(q_6)^2)/6250000000 + (327559 \\ &27981*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_5))/25000000000 + (2740951021*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3))/15625 \\ &000000 - (32755927981*\cos(q_4)*\sin(q_3)*\sin(q_4)*\sin(q_6))/25000000000 - (7618384777*\cos(q_4)*\cos(q_6)*\sin(q_3) \\ &*\sin(q_4)*\sin(q_6))/6250000000 - (7618384777*\cos(q_3)*\cos(q_5)*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/6250000000 - (\\ &7618384777*\cos(q_4)*\cos(q_5)^2*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6))/6250000000) - dq_5*((7618384777*\cos(q_3)*\sin \\ &(q_5))/12500000000 + (7618384777*\cos(q_3)*\cos(q_6)^2*\sin(q_5))/12500000000 - (7618384777*\cos(q_3)*\sin(q_5)*\sin \\ &(q_6)^2)/12500000000 + (7618384777*\cos(q_4)*\cos(q_5)*\sin(q_3))/12500000000 + (32755927981*\cos(q_3)*\cos(q_6) \\ &)*\sin(q_5))/25000000000 + (2740951021*\cos(q_5)*\cos(q_6)*\sin(q_3))/1562500000 + (7618384777*\cos(q_4)*\cos(q_5) \\ &*\cos(q_6)^2*\sin(q_3))/12500000000 - (7618384777*\cos(q_4)*\cos(q_5)*\sin(q_3)*\sin(q_6)^2)/12500000000 + (2740951 \\ &021*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_5))/1562500000 + (32755927981*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3))/2500000 \\ &00000 - (10421867*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_5))/1953125000 - (7618384777*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6) \\ &)/6250000000) - dq_4*((32755927981*\cos(q_3)*\sin(q_6))/25000000000 - (7618384777*\sin(q_3)*\sin(q_4)*\sin(q_5))/12 \\ &5000000000 - (10421867*\sin(q_3)*\sin(q_4)*\sin(q_6))/1953125000 + (2740951021*\cos(q_3)*\cos(q_4)*\sin(q_6))/1562500 \\ &0000 + (7618384777*\cos(q_3)*\cos(q_6)*\sin(q_6))/6250000000 - (7618384777*\cos(q_3)*\cos(q_5)^2*\cos(q_6)*\sin(q_6))/ \\ &6250000000 + (7618384777*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/12500000000 - (7618384777*\sin(q_3)*\sin(q_4)*\sin \\ &(q_5)*\sin(q_6)^2)/12500000000 + (2740951021*\cos(q_3)*\cos(q_5)*\cos(q_6)*\sin(q_4))/1562500000 + (10421867*\cos \\ &(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3))/1953125000 + (7618384777*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/62 \\ &500000000) - dq_6*((2740951021*\cos(q_3)*\cos(q_6)*\sin(q_4))/1562500000 - (2740951021*\sin(q_3)*\sin(q_5)*\sin(q_6))/ \\ &1562500000 + (10421867*\cos(q_4)*\cos(q_6)*\sin(q_3))/1953125000 + (32755927981*\cos(q_3)*\cos(q_5)*\sin(q_6))/2500 \\ &0000000 + (2740951021*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_6))/1562500000 - (32755927981*\cos(q_4)*\sin(q_3)*\sin(q \\ &5)*\sin(q_6))/25000000000 - (10421867*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/1953125000) - dq_2*((2740951021*\cos(q \\ &4)*\sin(q_6))/1562500000 - (10421867*\cos(q_6)*\sin(q_5))/1953125000 - (7618384777*\cos(q_6)*\sin(q_6))/6250000000 \\ &0 + (32755927981*\cos(q_3)^2*\sin(q_6))/25000000000 + (32755927981*\cos(q_4)^2*\sin(q_6))/25000000000 + (1042 \\ &1867*\cos(q_3)^2*\cos(q_6)*\sin(q_5))/1953125000 + (7618384777*\cos(q_3)^2*\cos(q_6)*\sin(q_6))/3125000000 + (76183 \\ &84777*\cos(q_4)^2*\cos(q_6)*\sin(q_6))/6250000000 - (32755927981*\cos(q_3)^2*\cos(q_4)^2*\sin(q_6))/25000000000 + \\ &(2740951021*\cos(q_5)*\cos(q_6)*\sin(q_4))/1562500000 + (7618384777*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_4))/625000 \\ &0000 - (7618384777*\cos(q_4)*\cos(q_5)*\sin(q_4)*\sin(q_6)^2)/6250000000 - (7618384777*\cos(q_3)^2*\cos(q_4)^2*\cos(\\ &q_6)*\sin(q_6))/6250000000 - (7618384777*\cos(q_3)^2*\cos(q_5)^2*\cos(q_6)*\sin(q_6))/6250000000 + (7618384777*\cos \\ &(q_4)^2*\cos(q_5)^2*\cos(q_6)*\sin(q_6))/6250000000 + (32755927981*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_4))/250000000 \\ &000 - (10421867*\cos(q_3)*\sin(q_3)*\sin(q_4)*\sin(q_6))/1953125000 + (7618384777*\cos(q_3)*\cos(q_6)^2*\sin(q_3)*\sin(q_4) \\ &)*\sin(q_5))/6250000000 - (7618384777*\cos(q_3)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6)^2)/6250000000 - (7618384777* \\ &\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_4))/6250000000 + (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\sin(q_4)* \\ &\sin(q_6)^2)/6250000000 + (10421867*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3))/1953125000 - (7618384777*\cos(\\ &q_3)^2*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)*\sin(q_6))/6250000000 + (32755927981*\cos(q_3)*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(\\ &q_5))/25000000000 - (32755927981*\cos(q_3)^2*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_4))/25000000000 + (7618384777* \\ &\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/3125000000),0; \\ &dq_6*((32755927981*\cos(q_2)*\cos(q_4)^2*\sin(q_6))/25000000000 - (32755927981*\cos(q_2)*\sin(q_6))/25000000000 \\ &- (7618384777*\cos(q_3)*\cos(q_5)*\sin(q_2))/12500000000 + (10421867*\cos(q_2)*\cos(q_6)*\sin(q_5))/1953125000 - (76 \\ &18384777*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_2))/12500000000 + (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_6)*$$

$$\begin{aligned}
& q_5^2 \cos(q_6) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5) \sin(q_2) \sin(q_6)^2) / 62500000000 \\
& + (32755927981 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_4)) / 250000000000 - (32755927981 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 \\
& + (10421867 \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 1953125000 + (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_2)) / 250000000000 \\
& + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_4)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 \\
& + (7618384777 \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 \\
& + dq_2 * ((237258851293 \cos(q_4)^2 \sin(q_2)) / 200000000000 - (8538821 \cos(q_2) \sin(q_3)) / 488281250 - (32755927981 \cos(q_6) \sin(q_2)) / 250000000000 - (11487084833 \cos(q_3)^2 \sin(q_2)) / 200000000000 \\
& - (359646854253 \sin(q_2)) / 200000000000 + (7618384777 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (114870848333 \sin(q_2) \sin(q_3)^2) / 200000000000 - (10421867 \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 \\
& - (32755927981 \cos(q_3)^2 \cos(q_6) \sin(q_2)) / 250000000000 + (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 250000000000 + (32755927981 \cos(q_6) \sin(q_2) \sin(q_3)^2) / 250000000000 \\
& + (237258851293 \cos(q_3)^2 \cos(q_4)^2 \sin(q_2)) / 200000000000 - (7618384777 \cos(q_3)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3)^2 \cos(q_6)^2 \sin(q_2)) / 62500000000 \\
& - (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 \\
& - (237258851293 \cos(q_4)^2 \sin(q_2) \sin(q_3)^2) / 200000000000 + (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 + (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 62500000000 \\
& + (21105437293 \cos(q_2) \cos(q_3) \sin(q_4)) / 62500000000 - (80248811 \cos(q_2) \cos(q_4) \sin(q_3)) / 781250000 + (10421867 \cos(q_3)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 \\
& - (10421867 \sin(q_2) \sin(q_3)^2 \sin(q_5) \sin(q_6)) / 1953125000 + (32755927981 \cos(q_3)^2 \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 250000000000 - (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_2) \sin(q_3)^2) / 250000000000 \\
& + (237258851293 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_4)) / 100000000000 + (2740951021 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_4)) / 15625000000 - (10421867 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 \\
& - (32755927981 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 \\
& + (7618384777 \cos(q_3)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (80248811 \cos(q_3) \sin(q_2) \sin(q_3) \sin(q_4)) / 3906250000 \\
& - (2740951021 \cos(q_2) \sin(q_3) \sin(q_5) \sin(q_6)) / 15625000000 + (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 - (7618384777 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 \\
& - (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 + (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 125000000000 \\
& + (32755927981 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (2740951021 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 15625000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 \\
& + (10421867 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 976562500 + (7618384777 \cos(q_2) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 - (32755927981 \cos(q_2) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 \\
& + (10421867 \cos(q_2) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 \\
& + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 \\
& + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 31250000000 + (10421867 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 976562500 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000 \\
& - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 + (32755927981 \cos(q_3) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 31250000000 \\
& - (32755927981 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 62500000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3)^2 \sin(q_4) \sin(q_6)) / 250000000000 \\
& + (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 31250000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 31250000000 \\
& - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3)^2 \sin(q_4) \sin(q_6)) / 62500000000 \\
& + dq_4 * ((80248811 \sin(q_2) \sin(q_3) \sin(q_4)) / 781250000 - (237258851293 \cos(q_3) \sin(q_2)) / 200000000000 + (237258851293 \cos(q_3) \cos(q_4)^2 \sin(q_2)) / 200000000000 \\
& - (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2)) / 125000000000 - (237258851293 \cos(q_3) \sin(q_2) \sin(q_4)^2) / 200000000000 \\
& + (237258851293 \cos(q_2) \cos(q_4) \sin(q_4)) / 100000000000 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_2)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 \\
& + (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 \\
& - (32755927981 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4)^2) / 250000000000 - (32755927981 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4)^2) / 250000000000 - (32755927981 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4)^2) / 250000000000
\end{aligned}$$

$$\begin{aligned}
& (q_5)^2 \sin(q_4) \sin(q_6) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 + (32755927981 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (10421867 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 1953125000 - (7618384777 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 + (10421867 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 + (32755927981 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 125000000000 + (7618384777 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 31250000000 - dq_5 * ((7618384777 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_5)) / 62500000000 - (10421867 \cos(q_2) \cos(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 - (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (32755927981 \cos(q_3) \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_2) \cos(q_4) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000 + (10421867 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 + dq_1 * ((1915553 \sin(q_3)) / 3906250000 - (114870848333 \cos(q_3) \sin(q_3)) / 100000000000 - (4734679849 \cos(q_3) \sin(q_4)) / 500000000000 - (80248811 \cos(q_3)^2 \sin(q_4)) / 7812500000 + (80248811 \sin(q_3)^2 \sin(q_4)) / 7812500000 + (614890153 \sin(q_3) \sin(q_5) \sin(q_6)) / 125000000000 + (114870848333 \cos(q_2)^2 \cos(q_3) \sin(q_3)) / 1000000000000 + (237258851293 \cos(q_3) \cos(q_4)^2 \sin(q_3)) / 1000000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_3)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_3)) / 31250000000 - (10421867 \cos(q_3)^2 \cos(q_6) \sin(q_4)) / 1953125000 + (10421867 \cos(q_6) \sin(q_3)^2 \sin(q_4)) / 1953125000 + (80248811 \cos(q_2)^2 \cos(q_3)^2 \sin(q_4)) / 7812500000 - (80248811 \cos(q_2)^2 \sin(q_3)^2 \sin(q_4)) / 7812500000 + (8538821 \cos(q_2) \cos(q_3) \sin(q_2)) / 488281250 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_3)) / 125000000000 - (614890153 \cos(q_3) \cos(q_6) \sin(q_4)) / 125000000000 + (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_6) \sin(q_3)) / 125000000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_3)) / 125000000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 - (10421867 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_5)) / 62500000000 + (10421867 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_6)) / 1953125000 - (32755927981 \cos(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (32755927981 \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (237258851293 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \sin(q_3)) / 1000000000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_6)^2 \sin(q_3)) / 31250000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_3)) / 62500000000 + (10421867 \cos(q_2)^2 \cos(q_3)^2 \cos(q_6) \sin(q_4)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 - (10421867 \cos(q_2)^2 \cos(q_6) \sin(q_3)^2 \sin(q_4)) / 1953125000 + (80248811 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_2)) / 7812500000 - (614890153 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 125000000000 + (21105437293 \cos(q_2) \sin(q_2) \sin(q_3) \sin(q_4)) / 62500000000 + (10421867 \cos(q_3) \sin(q_3) \sin(q_5) \sin(q_6)) / 976562500 - (10421867 \cos(q_2)^2 \cos(q_3) \sin(q_3) \sin(q_5) \sin(q_6)) / 976562500 - (7618384777 \cos(q_3)^2 \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_6) \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_3)) / 125000000000 + (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 + (10421867 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_5)) / 62500000000 - (10421867 \cos(q_2)^2 \cos(q_4) \cos(q_5) \sin(q_3)^2 \sin(q_6)) / 1953125000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_3)^2 \sin(q_5)) / 62500000000 + (32755927981 \cos(q_2)^2 \cos(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_2)^2 \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (10421867 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2)) / 1953125000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos
\end{aligned}$$

$$\begin{aligned}
& s(q_5)^2 \sin(q_3) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 62500000000 + (237258851293 \cos(q_2) \cos(q_4) \sin(q_2) \sin(q_3) \sin(q_4)) / 1000000000000 + (2740951021 \cos(q_2) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 15625000000 + (2740951021 \cos(q_2) \cos(q_3) \sin(q_2) \sin(q_5) \sin(q_6)) / 15625000000 - (32755927981 \cos(q_2) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 2500000000000 + (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_2)^2 \cos(q_6) \sin(q_3)^2 \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_5)) / 625000000000 + (32755927981 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 1250000000000 + (32755927981 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5) \sin(q_6)) / 2500000000000 - (10421867 \cos(q_2) \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 1953125000 + (2740951021 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 15625000000 - (7618384777 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 625000000000 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1250000000000 + (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_3)^2 \sin(q_5)) / 625000000000 - (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 625000000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 625000000000 + (32755927981 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1250000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 31250000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 625000000000 + (32755927981 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1250000000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 31250000000 + (7618384777 \cos(q_2)^2 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 31250000000, dq_4 * ((237258851293 \sin(q_3)) / 2000000000000 + (80248811 \cos(q_3) \sin(q_4)) / 7812500000 + (32755927981 \cos(q_6) \sin(q_3)) / 2500000000000 - (237258851293 \cos(q_4)^2 \sin(q_3)) / 2000000000000 + (7618384777 \cos(q_5)^2 \sin(q_3)) / 1250000000000 + (7618384777 \cos(q_6)^2 \sin(q_3)) / 1250000000000 + (237258851293 \sin(q_3) \sin(q_4)^2) / 2000000000000 - (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_3)) / 2500000000000 + (32755927981 \cos(q_6) \sin(q_3) \sin(q_4)^2) / 2500000000000 + (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_3)) / 1250000000000 - (7618384777 \cos(q_4)^2 \cos(q_6)^2 \sin(q_3)) / 1250000000000 - (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 1250000000000 - (7618384777 \cos(q_5)^2 \sin(q_3) \sin(q_4)^2) / 1250000000000 + (7618384777 \cos(q_6)^2 \sin(q_3) \sin(q_4)^2) / 1250000000000 + (10421867 \cos(q_3) \cos(q_6) \sin(q_4)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 + (10421867 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 125000000000 + (32755927981 \cos(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 2500000000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3) \sin(q_4)^2) / 1250000000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1250000000000 + (7618384777 \cos(q_3) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 31250000000 + dq_6 * ((7618384777 \cos(q_5) \sin(q_3)) / 1250000000000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 1250000000000 - (7618384777 \cos(q_5) \sin(q_3) \sin(q_6)^2) / 1250000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_5)) / 1250000000000 + (10421867 \cos(q_3) \cos(q_4) \sin(q_6)) / 1953125000 + (32755927981 \cos(q_5) \cos(q_6) \sin(q_3)) / 2500000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_5)) / 1250000000000 - (32755927981 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_3)) / 2500000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_5) \sin(q_6)^2) / 1250000000000 - (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 625000000000 + (7618384777 \cos(q_4)^2 \cos(q_5) \sin(q_3) \sin(q_6)^2) / 625000000000 + (10421867 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_4)) / 1953125000 + (32755927981 \cos(q_4) \sin(q_3) \sin(q_4) \sin(q_6)) / 2500000000000 + (7618384777 \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 625000000000 + dq_1 * ((237258851293 \cos(q_4)^2 \sin(q_2)) / 2000000000000 - (8538821 \cos(q_2) \sin(q_3)) / 488281250 - (32755927981 \cos(q_6) \sin(q_2)) / 2500000000000 - (114870848333 \cos(q_3)^2 \sin(q_2)) / 2000000000000 - (359646854253 \sin(q_2)) / 2000000000000 + (7618384777 \cos(q_5)^2 \sin(q_2)) / 1250000000000 + (114870848333 \sin(q_2) \sin(q_3)^2) / 2000000000000 - (10421867 \sin(q_2) \sin(q_5) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_3)^2 \cos(q_6) \sin(q_2)) / 2500000000000 + (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 2500000000000 + (32755927981 \cos(q_6) \sin(q_2) \sin(q_3)^2) / 2500000000000 + (237258851293 \cos(q_3)^2 \cos(q_4)^2 \sin(q_2)) / 2000000000000 - (7618384777 \cos(q_3)^2 \cos(q_5)^2 \sin(q_2)) / 1250000000000 - (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 1250000000000 + (7618384777 \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 1250000000000 - (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 1250000000000 - (237258851293 \cos(q_4)^2 \sin(q_2) \sin(q_3)^2) / 2000000000000 + (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3)^2) / 1250000000000 + (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3)^2) / 625000000000 + (21105437293 \cos(
\end{aligned}$$

$$\begin{aligned} & q_2) * \cos(q_3) * \sin(q_4)) / 62500000000 - (80248811 * \cos(q_2) * \cos(q_4) * \sin(q_3)) / 7812500000 + (10421867 * \cos(q_3)^2 * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 1953125000 - (10421867 * \sin(q_2) * \sin(q_3)^2 * \sin(q_5) * \sin(q_6)) / 1953125000 + (32755927981 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_6) * \sin(q_2)) / 250000000000 - (32755927981 * \cos(q_4)^2 * \cos(q_6) * \sin(q_2) * \sin(q_3)^2) / 250000000000 + (237258851293 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \sin(q_4)) / 1000000000000 + (2740951021 * \cos(q_2) * \cos(q_3) * \cos(q_6) * \sin(q_4)) / 15625000000 - (10421867 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q_3)) / 1953125000 - (32755927981 * \cos(q_2) * \cos(q_3) * \cos(q_5) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_5)^2 * \sin(q_2)) / 125000000000 + (7618384777 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_6)^2 * \sin(q_2)) / 125000000000 + (7618384777 * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2)) / 125000000000 + (80248811 * \cos(q_3) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 3906250000 - (2740951021 * \cos(q_2) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 1562500000 + (7618384777 * \cos(q_4)^2 * \cos(q_5)^2 * \sin(q_2) * \sin(q_3)^2) / 125000000000 - (7618384777 * \cos(q_4)^2 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3)^2) / 125000000000 + (7618384777 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2)) / 125000000000 - (7618384777 * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3)^2) / 125000000000 + (32755927981 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_4)) / 125000000000 + (2740951021 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_6)) / 15625000000 - (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_5) * \cos(q_6) * \sin(q_6)) / 62500000000 + (10421867 * \cos(q_3) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 976562500 + (7618384777 * \cos(q_2) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_5)) / 62500000000 - (32755927981 * \cos(q_2) * \cos(q_4) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 250000000000 + (10421867 * \cos(q_2) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 1953125000 - (32755927981 * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 * \sin(q_4)) / 62500000000 + (32755927981 * \cos(q_2) * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 31250000000 + (10421867 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 976562500 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (32755927981 * \cos(q_3) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_6)) / 31250000000 - (32755927981 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_2) * \cos(q_5) * \cos(q_6)^2 * \sin(q_3) * \sin(q_4) * \sin(q_5)) / 62500000000 + (32755927981 * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_3)^2 * \sin(q_4) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 31250000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 31250000000 - (7618384777 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3)^2 * \sin(q_4) * \sin(q_6)) / 62500000000 - dq_5 * ((7618384777 * \cos(q_3) * \sin(q_4)) / 125000000000 + (32755927981 * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_3) * \cos(q_5)^2 * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_3) * \cos(q_6)^2 * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_3) * \sin(q_4) * \sin(q_5)^2) / 125000000000 - (32755927981 * \cos(q_4)^2 * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_3) * \cos(q_6)^2 * \sin(q_4) * \sin(q_5)^2) / 125000000000 + (10421867 * \cos(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 1953125000 + (7618384777 * \cos(q_6) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_4)^2 * \cos(q_6) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_4) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_3) * \sin(q_4) * \sin(q_5)) / 62500000000 + dq_2 * ((114870848333 * \cos(q_3) * \sin(q_3)) / 1000000000000 + (80248811 * \cos(q_3)^2 * \sin(q_4)) / 7812500000 - (80248811 * \sin(q_3)^2 * \sin(q_4)) / 7812500000 - (237258851293 * \cos(q_3) * \cos(q_4)^2 * \sin(q_3)) / 1000000000000 + (7618384777 * \cos(q_3) * \cos(q_5)^2 * \sin(q_3)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_6)^2 * \sin(q_3)) / 31250000000 + (10421867 * \cos(q_3)^2 * \cos(q_6) * \sin(q_4)) / 1953125000 - (10421867 * \cos(q_6) * \sin(q_3)^2 * \sin(q_4)) / 1953125000 + (32755927981 * \cos(q_3) * \cos(q_6) * \sin(q_3)) / 125000000000 - (32755927981 * \cos(q_3) * \cos(q_4)^2 * \cos(q_6) * \sin(q_3)) / 125000000000 + (7618384777 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \sin(q_5)) / 62500000000 + (10421867 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_4) * \cos(q_5) * \sin(q_3)^2 * \sin(q_5)) / 62500000000 - (10421867 * \cos(q_4) * \cos(q_5) * \sin(q_3)^2 * \sin(q_6)) / 1953125000 + (32755927981 * \cos(q_3)^2 * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000 - (32755927981 * \sin(q_3)^2 * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 250000000000$$

$$\begin{aligned}
& 384777 \cos(q_4) \cos(q_6)^2 \sin(q_4) / 62500000000 + (32755927981 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (32755927981 \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 \\
& 0 + (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + dq_6 * ((10421867 \cos(q_6) \sin(q_5)) / 1953125000 - (32755927981 \sin(q_6)) / 250000000000 + (32755927981 \cos(q_4)^2 \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4)^2 \cos(q_6) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_5)^2 \cos(q_6) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_4)) / 625000000000 - (7618384777 \cos(q_4) \cos(q_5) \sin(q_4) \sin(q_6)^2) / 625000000000 + (7618384777 \cos(q_4)^2 \cos(q_5)^2 \cos(q_6) \sin(q_6)) / 625000000000 + (32755927981 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_4)) / 250000000000 - dq_5 * ((7618384777 \cos(q_4)^2 \cos(q_5) \sin(q_5)) / 625000000000 - (10421867 \cos(q_5) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_5) \sin(q_5)) / 625000000000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 - (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 + (32755927981 \cos(q_4) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000), dq_2 * ((237258851293 \sin(q_3)) / 2000000000000 + (80248811 \cos(q_3) \sin(q_4)) / 781250000 + (32755927981 \cos(q_6) \sin(q_3)) / 250000000000 - (237258851293 \cos(q_4)^2 \sin(q_3)) / 200000000000 + (7618384777 \cos(q_5)^2 \sin(q_3)) / 125000000000 + (7618384777 \cos(q_6)^2 \sin(q_3)) / 125000000000 + (237258851293 \sin(q_3) \sin(q_4)^2) / 2000000000000 - (32755927981 \cos(q_4)^2 \cos(q_6) \sin(q_3)) / 250000000000 + (32755927981 \cos(q_6) \sin(q_3) \sin(q_4)^2) / 250000000000 + (7618384777 \cos(q_4)^2 \cos(q_5)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4)^2 \cos(q_6)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_5)^2 \sin(q_3) \sin(q_4)^2) / 125000000000 + (7618384777 \cos(q_6)^2 \sin(q_3) \sin(q_4)^2) / 125000000000 + (10421867 \cos(q_3) \cos(q_6) \sin(q_4)) / 1953125000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_5)) / 62500000000 + (10421867 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 125000000000 + (32755927981 \cos(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_3) \sin(q_4)^2) / 125000000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 3125000000 - dq_5 * ((7618384777 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \sin(q_4) \sin(q_5)^2) / 125000000000 + (10421867 \sin(q_4) \sin(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000) + dq_3 * ((237258851293 \cos(q_4) \sin(q_4)) / 1000000000000 - (7618384777 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (32755927981 \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 625000000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 625000000000 + dq_6 * ((7618384777 \cos(q_4) \sin(q_5)) / 125000000000 + (10421867 \cos(q_4) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_5)) / 125000000000 + (7618384777 \cos(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 + (10421867 \cos(q_5) \cos(q_6) \sin(q_4)) / 1953125000 + (7618384777 \cos(q_5) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000) + dq_1 * ((80248811 \sin(q_2) \sin(q_3) \sin(q_4)) / 781250000 - (237258851293 \cos(q_3) \sin(q_2)) / 200000000000 + (237258851293 \cos(q_3) \cos(q_4)^2 \sin(q_2)) / 200000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2)) / 125000000000 - (237258851293 \cos(q_3) \sin(q_2) \sin(q_4)^2) / 200000000000 + (237258851293 \cos(q_2) \cos(q_4) \sin(q_4)) / 1000000000000 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_2)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 62500000000 + (32755927981 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4)^2) / 250000000000 - (32755927981 \cos(q_2) \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 + (32755927981 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (10421867 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 1953125000 - (7618384777 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 62500000000 + (10421867 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 125000000000 + (32755927981 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 62500000000 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 1250
\end{aligned}$$

$$\begin{aligned} & 000000000 + (7618384777 * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q4) \\ & * \cos(q5) * \cos(q6) ^2 * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q2) \\ & * \sin(q4) * \sin(q6)) / 31250000000 + dq4 * ((80248811 * \sin(q4)) / 781250000 + (10421867 * \cos(q6) * \sin(q4)) / 195312 \\ & 5000 + (32755927981 * \sin(q4) * \sin(q5) * \sin(q6)) / 25000000000 + (7618384777 * \cos(q4) * \cos(q5) * \sin(q5)) / 6250000 \\ & 0000 + (10421867 * \cos(q4) * \cos(q5) * \sin(q6)) / 1953125000 - (7618384777 * \cos(q4) * \cos(q5) * \cos(q6) ^2 * \sin(q5)) / 625 \\ & 000000000 + (7618384777 * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000, dq6 * ((7618384777 * \cos(q5) * \sin(q4)) / 12 \\ & 50000000000 + (7618384777 * \cos(q5) * \cos(q6) ^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q5) * \sin(q4) * \sin(q6) ^2 \\ &) / 125000000000 + (10421867 * \cos(q4) * \cos(q6) * \sin(q5)) / 1953125000 + (32755927981 * \cos(q5) * \cos(q6) * \sin(q4)) / 2 \\ & 50000000000 + (7618384777 * \cos(q4) * \cos(q6) * \sin(q6)) / 62500000000 - dq5 * ((32755927981 * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 - (10421867 * \cos(q4) * \cos(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 - dq2 * ((7618384777 * \cos(q3) * \sin(q4)) / 125000000000 + (32755927981 * \sin(q3) * \sin(q5) * \sin(q6)) / 250000000000 - (7618384777 * \cos(q3) * \cos(q5) ^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q6) ^2 * \sin(q4)) / 125000000000 + (7618384777 * \cos(q3) * \sin(q4) * \sin(q5) ^2) / 125000000000 - (32755927981 * \cos(q4) ^2 * \sin(q3) * \sin(q5) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q3) * \cos(q5) ^2 * \cos(q6) ^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q6) ^2 * \sin(q4) * \sin(q5) ^2) / 125000000000 + (10421867 * \cos(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q4) ^2 * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q4) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q4) * \cos(q5) * \cos(q6) ^2 * \sin(q3) * \sin(q4) * \sin(q5)) / 62500000000 - dq4 * ((7618384777 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q5) ^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q6) ^2 * \sin(q4)) / 125000000000 + (7618384777 * \sin(q4) * \sin(q5) ^2) / 125000000000 + (10421867 * \sin(q4) * \sin(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q5) ^2 * \cos(q6) ^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q6) ^2 * \sin(q4) * \sin(q5) ^2) / 125000000000 - dq3 * ((7618384777 * \cos(q4) ^2 * \cos(q5) * \sin(q5)) / 62500000000 - (10421867 * \cos(q5) * \sin(q6)) / 1953125000 - (7618384777 * \cos(q5) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q5) * \cos(q6) ^2 * \sin(q5)) / 62500000000 - (7618384777 * \cos(q4) ^2 * \cos(q5) * \cos(q6) ^2 * \sin(q5)) / 62500000000 + (32755927981 * \cos(q4) * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q4) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 - dq1 * ((7618384777 * \sin(q2) * \sin(q3) * \sin(q4)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q5) * \sin(q5)) / 62500000000 - (10421867 * \cos(q2) * \cos(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q2) * \cos(q4) ^2 * \cos(q5) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q2) * \cos(q5) * \cos(q6) ^2 * \sin(q5)) / 62500000000 - (7618384777 * \cos(q5) ^2 * \sin(q2) * \sin(q3) * \sin(q4)) / 125000000000 - (7618384777 * \cos(q6) ^2 * \sin(q2) * \sin(q3) * \sin(q4)) / 125000000000 + (7618384777 * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) ^2) / 125000000000 - (32755927981 * \cos(q3) * \sin(q2) * \sin(q5) * \sin(q6)) / 250000000000 + (32755927981 * \cos(q3) * \cos(q4) ^2 * \sin(q2) * \sin(q5) * \sin(q6)) / 250000000000 - (7618384777 * \cos(q2) * \cos(q4) ^2 * \cos(q5) * \cos(q6) ^2 * \sin(q5)) / 625000000000 + (7618384777 * \cos(q5) ^2 * \cos(q6) ^2 * \sin(q2) * \sin(q3) * \sin(q4)) / 125000000000 - (7618384777 * \cos(q6) ^2 * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) ^2) / 125000000000 + (32755927981 * \cos(q2) * \cos(q4) * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 - (7618384777 * \cos(q3) * \cos(q6) * \sin(q2) * \sin(q5) * \sin(q6)) / 62500000000 + (10421867 * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 1953125000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q2) * \cos(q4) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4) ^2 * \cos(q6) * \sin(q2) * \sin(q5) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q5) * \cos(q6) ^2 * \sin(q2) * \sin(q4) * \sin(q5)) / 62500000000, dq2 * ((7618384777 * \cos(q5) * \sin(q3)) / 125000000000 + (7618384777 * \cos(q5) * \cos(q6) ^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q5) * \sin(q3) * \sin(q6) ^2) / 125000000000 + (7618384777 * \cos(q3) * \cos(q4) * \sin(q5)) / 125000000000 + (10421867 * \cos(q3) * \cos(q4) * \sin(q6)) / 1953125000 + (32755927981 * \cos(q5) * \cos(q6) * \sin(q3)) / 25000000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q6) ^2 * \sin(q5)) / 125000000000 - (32755927981 * \cos(q4) ^2 * \cos(q5) * \cos(q6) * \sin(q3)) / 250000000000 + (7618384777 * \cos(q3) * \cos(q4) * \sin(q5) * \sin(q6) ^2) / 125000000000 - (7618384777 * \cos(q4) ^2 * \cos(q5) * \cos(q6) ^2 * \sin(q3)) / 62500000000 + (7618384777 * \cos(q4) ^2 * \cos(q5) * \sin(q3) * \sin(q6) ^2) / 62500000000 + (10421867 * \cos(q3) * \cos(q5) * \cos(q6) * \sin(q4)) / 1953125000 + (32755927981 * \cos(q4) * \sin(q3) * \sin(q4) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q4) * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q5) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q4) * \cos(q5) ^2 * \cos(q6) * \sin(q3) * \sin(q$$

$$\begin{aligned} & 5) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 62500000000 + (761 \\ & 8384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) \\ & * \sin(q_2) * \sin(q_6)^2) / 62500000000 + (32755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 250000000000 - (32 \\ & 755927981 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 250000000000 + (10421867 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 1953125000 + (32755927981 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + dq4 * ((7618384777 * \cos(q_4) * \sin(q_5)) / 125000000000 + (10421867 * \cos(q_4) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_4) * \cos(q_6)^2 * \sin(q_5)) / 125000000000 + (7618384777 * \cos(q_4) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (10421867 * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 1953125000 + (7618384777 * \cos(q_5) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 + dq3 * ((10421867 * \cos(q_6) * \sin(q_5)) / 1953125000 - (32755927981 * \sin(q_6)) / 250000000000 + (32755927981 * \cos(q_4)^2 * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_4)^2 * \cos(q_6) * \sin(q_6)) / 625000000000 - (7618384777 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 625000000000 + (7618384777 * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 62500000000 - (7618384777 * \cos(q_4) * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) / 62500000000 + (7618384777 * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 + (32755927981 * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 250000000000 + dq5 * ((7618384777 * \cos(q_5) * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_2) * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_2) * \sin(q_4) * \sin(q_5)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \sin(q_2)) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \sin(q_2)) / 125000000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 * \sin(q_2)) / 125000000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_5)^2) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_4) * \sin(q_5)^2) / 125000000000 - (32755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_5) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 62500000000 + (7618384777 * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_2)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_6)^2 * \sin(q_2) * \sin(q_5)^2) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_6)) / 62500000000 + (32755927981 * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 - dq2 * ((80248811 * \cos(q_3)^2 * \cos(q_4) * \sin(q_2)) / 781250000 - (80248811 * \cos(q_4) * \sin(q_2)) / 781250000 - (237258851293 * \cos(q_2) * \cos(q_4)^2 * \sin(q_3)) / 200000000000 - (237258851293 * \cos(q_2) * \sin(q_3)) / 200000000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_3)) / 125000000000 + (237258851293 * \cos(q_2) * \sin(q_3) * \sin(q_4)^2) / 200000000000 - (21105437293 * \cos(q_2) * \cos(q_4) * \sin(q_3)) / 62500000000 - (32755927981 * \cos(q_2) * \cos(q_6) * \sin(q_3)) / 250000000000 - (10421867 * \cos(q_4) * \cos(q_6) * \sin(q_2)) / 1953125000 - (32755927981 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6) * \sin(q_3)) / 250000000000 + (10421867 * \cos(q_3)^2 * \cos(q_4) * \cos(q_6) * \sin(q_2)) / 1953125000 + (32755927981 * \cos(q_2) * \cos(q_6) * \sin(q_3) * \sin(q_4)^2) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6)^2 * \sin(q_3)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \sin(q_3) * \sin(q_4)^2) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_6)^2 * \sin(q_3) * \sin(q_4)^2) / 125000000000 - (2740951021 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q_3)) / 15625000000 + (7618384777 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 62500000000 - (32755927981 * \cos(q_4) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 250000000000 + (10421867 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_3)^2 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 62500000000 + (32755927981 * \cos(q_3)^2 * \cos(q_4) * \sin(q_2) * \sin(q_5) * \sin(q_6)) / 250000000000 - (10421867 * \cos(q_3)^2 * \cos(q_5) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) * \sin(q_4) * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6)^2 * \sin(q_3)) / 125000000000 + (237258851293 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 100000000000 + (2740951021 * \cos(q_2) * \cos(q_5) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 15625$$

$$\begin{aligned}
& s(q_3) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 31250000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)^2 \sin(q_6)) / 62500000000) - dq_3 * ((80248811 \sin(q_2) \sin(q_3) \sin(q_4)) / 7812500000 - (237258851293 \cos(q_3) \sin(q_2)) / 2000000000000 + (237258851293 \cos(q_3) \cos(q_4)^2 \sin(q_2)) / 2000000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_2)) / 1250000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2)) / 1250000000000 - (237258851293 \cos(q_3) \sin(q_2) \sin(q_4)^2) / 2000000000000 + (237258851293 \cos(q_2) \cos(q_4) \sin(q_4)) / 1000000000000 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_2)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 625000000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 625000000000 + (32755927981 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4)^2) / 250000000000 - (32755927981 \cos(q_2) \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 1250000000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 1250000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 1250000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 1250000000000 + (32755927981 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4)) / 1250000000000 + (10421867 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 1953125000 - (7618384777 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 625000000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 1250000000000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 625000000000 + (10421867 \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4)^2) / 1250000000000 + (32755927981 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000 - (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 1250000000000 + (7618384777 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 625000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 312500000000) - dq_1 * ((4734679849 \cos(q_4) \sin(q_3)) / 500000000000 - (21105437293 \sin(q_4)) / 625000000000 - (2740951021 \cos(q_6) \sin(q_4)) / 15625000000 + (21105437293 \cos(q_2)^2 \sin(q_4)) / 625000000000 + (237258851293 \cos(q_2)^2 \cos(q_4) \sin(q_4)) / 1000000000000 - (237258851293 \cos(q_3)^2 \cos(q_4) \sin(q_4)) / 1000000000000 + (2740951021 \cos(q_2)^2 \cos(q_6) \sin(q_4)) / 15625000000 + (80248811 \cos(q_3) \cos(q_4) \sin(q_3)) / 7812500000 + (614890153 \cos(q_4) \cos(q_6) \sin(q_3)) / 125000000000 - (2740951021 \cos(q_4) \cos(q_5) \sin(q_6)) / 15625000000 + (237258851293 \cos(q_2) \cos(q_3) \cos(q_4)^2 \sin(q_2)) / 1000000000000 - (80248811 \cos(q_2)^2 \cos(q_3) \cos(q_4) \sin(q_3)) / 7812500000 + (32755927981 \cos(q_2)^2 \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 + (2740951021 \cos(q_2)^2 \cos(q_4) \cos(q_5) \sin(q_6)) / 156250000000 - (32755927981 \cos(q_3)^2 \cos(q_4) \cos(q_6) \sin(q_4)) / 125000000000 - (237258851293 \cos(q_2) \cos(q_3) \sin(q_2) \sin(q_4)^2) / 1000000000000 + (237258851293 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \sin(q_4)) / 1000000000000 - (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 625000000000 + (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 625000000000 + (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 625000000000 + (32755927981 \cos(q_2)^2 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 625000000000 - (32755927981 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 - (32755927981 \cos(q_2)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (32755927981 \cos(q_3)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 250000000000 + (21105437293 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_2)) / 625000000000 + (10421867 \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_3)) / 1953125000 + (80248811 \cos(q_2) \sin(q_2) \sin(q_3) \sin(q_4)) / 7812500000 - (614890153 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 125000000000 - (32755927981 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4)^2) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_5)^2 \sin(q_2)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4)^2 \cos(q_6)^2 \sin(q_2)) / 625000000000 + (32755927981 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_6) \sin(q_4)) / 1250000000000 + (7618384777 \cos(q_2)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_5)^2 \sin(q_2) \sin(q_4)^2) / 625000000000 - (7618384777 \cos(q_2)^2 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 625000000000 + (7618384777 \cos(q_3)^2 \cos(q_5) \cos(q_6) \sin(q_4)^2 \sin(q_6)) / 625000000000 + (2740951021 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_2)) / 156250000000 - (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \sin(q_4)) / 625000000000 + (7618384777 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4) \cos(q_6)^2 \sin(q_4)) / 625000000000 + (32755927981 \cos(q_2)^2 \cos(q_3)^2 \cos(q_4)^2 \cos(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_2)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 625000000000 - (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 625000000000 + (10421867 \cos(q_2) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 625000000000 + (32755927981 \cos(q_3) \cos(q_4) \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (10421867 \cos(q_3) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 1953125000 - (32755927981 \cos(q_2)^2 \cos(q_3)^2 \cos(q_5) \sin(q_4)^2 \sin(q_6)) / 625000000000
\end{aligned}$$

$$\begin{aligned}
& (q_6))/250000000000 + (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_6)*\sin(q_2))/125000000000 - (10421867*\cos(q_2)^2*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_3))/1953125000 + (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)^2*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2))/62500000000 + (7618384777*\cos(q_2)^2*\cos(q_3)^2*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_6))/62500000000 + (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 - (2740951021*\cos(q_2)*\cos(q_3)*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/15625000000 + (10421867*\cos(q_2)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_3)*\sin(q_6))/1953125000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_2)*\sin(q_4)^2)/62500000000 - (7618384777*\cos(q_2)^2*\cos(q_3)^2*\cos(q_5)*\cos(q_6)*\sin(q_4)^2*\sin(q_6))/62500000000 + (32755927981*\cos(q_2)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/250000000000 + (7618384777*\cos(q_2)^2*\cos(q_3)^2*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_4))/62500000000 + (7618384777*\cos(q_2)^2*\cos(q_3)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 - (32755927981*\cos(q_2)^2*\cos(q_3)*\cos(q_4)*\sin(q_3)*\sin(q_5)*\sin(q_6))/250000000000 + (10421867*\cos(q_2)^2*\cos(q_3)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/1953125000 + (7618384777*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 - (7618384777*\cos(q_2)^2*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 - (32755927981*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 + (7618384777*\cos(q_2)*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 - (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/62500000000 - (7618384777*\cos(q_2)*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/15625000000 + dq_6*((7618384777*\cos(q_2)*\cos(q_4)*\sin(q_5)*\sin(q_6)^2)/125000000000 - (7618384777*\cos(q_2)*\cos(q_4)*\sin(q_5))/125000000000 - (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_6)^2*\sin(q_5))/125000000000 - (32755927981*\sin(q_2)*\sin(q_3)*\sin(q_6))/250000000000 - (32755927981*\cos(q_2)*\cos(q_4)*\cos(q_6)*\sin(q_5))/250000000000 + (7618384777*\cos(q_3)*\sin(q_2)*\sin(q_4)*\sin(q_5))/125000000000 - (7618384777*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_6)^2*\sin(q_2)*\sin(q_4)*\sin(q_5))/125000000000 + (7618384777*\cos(q_5)^2*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)*\sin(q_2)*\sin(q_4)*\sin(q_5)*\sin(q_6)^2)/125000000000 + (32755927981*\cos(q_3)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_5))/250000000000 + (7618384777*\cos(q_2)*\cos(q_5)*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_5)*\sin(q_6))/62500000000),dq_2*((21105437293*\sin(q_4))/62500000000 + (237258851293*\cos(q_4)*\sin(q_4))/100000000000 + (2740951021*\cos(q_6)*\sin(q_4))/15625000000 - (237258851293*\cos(q_3)^2*\cos(q_4)*\sin(q_4))/100000000000 - (7618384777*\cos(q_4)*\cos(q_5)^2*\sin(q_4))/62500000000 + (7618384777*\cos(q_4)*\cos(q_6)^2*\sin(q_4))/62500000000 + (32755927981*\cos(q_4)^2*\cos(q_5)*\sin(q_6))/25000000000 - (32755927981*\cos(q_5)*\sin(q_4)^2*\sin(q_6))/250000000000 + (80248811*\cos(q_3)*\cos(q_4)*\sin(q_3))/7812500000 + (32755927981*\cos(q_4)*\cos(q_6)*\sin(q_4))/125000000000 + (2740951021*\cos(q_4)*\cos(q_5)*\sin(q_6))/15625000000 - (32755927981*\cos(q_3)^2*\cos(q_4)*\cos(q_6)*\sin(q_4))/125000000000 + (7618384777*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_6))/62500000000 - (7618384777*\cos(q_5)*\cos(q_6)*\sin(q_4)^2*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)^2*\sin(q_4))/62500000000 - (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_6)^2*\sin(q_4))/62500000000 - (32755927981*\cos(q_3)^2*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)^2*\cos(q_4)^2*\cos(q_5)*\sin(q_6))/250000000000 + (7618384777*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_4))/62500000000 + (32755927981*\cos(q_3)^2*\cos(q_5)*\sin(q_4)^2*\sin(q_6))/250000000000 + (10421867*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_3))/1953125000 - (7618384777*\cos(q_3)^2*\cos(q_4)^2*\cos(q_5)*\cos(q_6)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)^2*\cos(q_5)*\cos(q_6)*\sin(q_4)^2*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)^2*\cos(q_4)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_4))/62500000000 - (7618384777*\cos(q_3)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 + (32755927981*\cos(q_3)*\cos(q_4)*\sin(q_3)*\sin(q_5)*\sin(q_6))/250000000000 - (10421867*\cos(q_3)*\cos(q_5)*\sin(q_3)*\sin(q_4)*\sin(q_6))/1953125000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_6)*\sin(q_3)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_5)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)*\sin(q_5))/62500000000 - dq_1*((80248811*\cos(q_3)^2*\cos(q_4)*\sin(q_2))/7812500000 - (80248811*\cos(q_4)*\sin(q_2))/7812500000 - (237258851293*\cos(q_2)*\cos(q_4)^2*\sin(q_3))/200000000000 - (237258851293*\cos(q_2)*\sin(q_3))/200000000000 - (7618384777*\cos(q_2)*\cos(q_5)^2*\sin(q_3))/125000000000 - (7618384777*\cos(q_2)*\cos(q_6)^2*\sin(q_3))/125000000000 + (237258851293*\cos(q_2)*\sin(q_3)*\sin(q_4)^2)/200000000000 - (21105437293*\cos(q_2)*\cos(q_4)*\sin(q_3))/62500000000 - (32755927981*\cos(q_2)*\cos(q_6)*\sin(q_3))/250000000000 - (10421867*\cos(q_4)*\cos(q_6)*\sin(q_2))/1953125000 - (32755927981*\cos(q_2)*\cos(q_4)^2*\cos(q_6)*\sin(q_3))/250000000000 + (10421867*\cos(q_3)^2*\cos(q_4)*\cos(q_6)*\sin(q_2))/1953125000 + (32755927981*\cos(q_2)*\cos(q_6)*\sin(q_3)*\sin(q_4)^2)/250000000000 + (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_5)^2*\sin(q_3))/125000000000 - (7618384777*\cos(q_2)*\cos(q_4)^2*\cos(q_6)^2*\sin(q_3))/125000000000 + (7618384777*\cos(q_2)*\cos(q_5)^2*\cos(q_6)^2*\sin(q_3))/125000000000 - (7618384777*\cos(q_2)*\cos(q_5)^2*\sin(q_3)*\sin(q_4)^2)/125000000000 + (7618384777*\cos(q_2)*\cos(q_6)^2*\sin(q_3)*\sin(q_4)^2)/125000000000 - (2740951021*\cos(q_2)*\cos(q_4)*\cos(q_6)*\sin(q_3))/15625000000 + (7618384777*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_5))/62500000000 - (32755927981*\cos(q_4)*\sin(q_2)*\sin(q_5)*\sin(q_6))/250000000000 + (10421867*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_6))/1953125000 - (7618384777*\cos(q_3)^2*\cos(q_5)*\sin(q_2)*\sin(q_4)*\sin(q_5))/62500000000 + (32755927981*\cos(q_3)^2*\cos(q_4)*\sin(q_2)*\sin(q_5)*\sin(q_6))
\end{aligned}$$

$$\begin{aligned}
& /250000000000 - (10421867*\cos(q3)^2*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/1953125000 - (7618384777*\cos(q5)*\cos \\
& (q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 - (7618384777*\cos(q2)*\cos(q4)^2*\cos(q5)^2*\cos(q6)^2*\sin(q3))/12 \\
& 50000000000 + (237258851293*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q3)*\sin(q4))/1000000000000 + (2740951021*\cos(q2) \\
& *\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/15625000000 - (7618384777*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/625000 \\
& 00000 + (7618384777*\cos(q2)*\cos(q5)^2*\cos(q6)^2*\sin(q3)*\sin(q4)^2)/125000000000 + (7618384777*\cos(q3)^2 \\
& *\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 + (32755927981*\cos(q3)*\cos(q4)*\cos(q6)*\sin(q2)*\sin \\
& (q3)*\sin(q4))/125000000000 + (32755927981*\cos(q2)*\cos(q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/125000000000 - \\
& (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q3)*\cos(q4) \\
& *\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (32755927981*\cos(q3)*\cos(q4)^2*\cos(q5)*\sin(q2)*\sin(q3)*s \\
& \sin(q6))/250000000000 + (7618384777*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 - (32755 \\
& 927981*\cos(q3)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q4)^2*\sin(q6))/250000000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(\\
& q5)^2*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q3) \\
& *\sin(q4)*\sin(q6))/31250000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/6250 \\
& 000000 - (7618384777*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q4)^2*\sin(q6))/62500000000 - dq3*((2372 \\
& 58851293*\sin(q3))/200000000000 + (80248811*\cos(q3)*\sin(q4))/781250000 + (32755927981*\cos(q6)*\sin(q3))/ \\
& 250000000000 - (237258851293*\cos(q4)^2*\sin(q3))/200000000000 + (7618384777*\cos(q5)^2*\sin(q3))/1250000 \\
& 00000 + (7618384777*\cos(q6)^2*\sin(q3))/125000000000 + (237258851293*\sin(q3)*\sin(q4)^2)/200000000000 - (\\
& 32755927981*\cos(q4)^2*\cos(q6)*\sin(q3))/250000000000 + (32755927981*\cos(q6)*\sin(q3)*\sin(q4)^2)/250000000 \\
& 000 + (7618384777*\cos(q4)^2*\cos(q5)^2*\sin(q3))/125000000000 - (7618384777*\cos(q4)^2*\cos(q6)^2*\sin(q3))/1 \\
& 25000000000 - (7618384777*\cos(q5)^2*\cos(q6)^2*\sin(q3))/125000000000 - (7618384777*\cos(q5)^2*\sin(q3)*\sin(\\
& q4)^2)/125000000000 + (7618384777*\cos(q6)^2*\sin(q3)*\sin(q4)^2)/125000000000 + (10421867*\cos(q3)*\cos(q6) \\
& *\sin(q4))/1953125000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q5))/62500000000 + (10421867*\cos(q3)*\cos(\\
& q4)*\cos(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q4)^2*\cos(q5)^2*\cos(q6)^2*\sin(q3))/125000000000 + (3275 \\
& 5927981*\cos(q3)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 + (7618384777*\cos(q5)^2*\cos(q6)^2*\sin(q3)*\sin(q4)^2 \\
&)/125000000000 + (32755927981*\cos(q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/125000000000 + (7618384777*\cos(q3) \\
& *\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q5))/625 \\
& 0000000 + (7618384777*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/31250000000 - dq6*((32755927981 \\
& *\cos(q3)*\sin(q6))/250000000000 + (7618384777*\sin(q3)*\sin(q4)*\sin(q5))/125000000000 + (7618384777*\cos(q3) \\
& *\cos(q6)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q5)^2*\cos(q6)*\sin(q6))/62500000000 + (7618384777 \\
& *\cos(q6)^2*\sin(q3)*\sin(q4)*\sin(q5))/125000000000 - (7618384777*\sin(q3)*\sin(q4)*\sin(q5)*\sin(q6)^2)/125000000 \\
& 000 + (32755927981*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q5))/250000000000 + (7618384777*\cos(q4)*\cos(q5)*\cos(q6)*si \\
& n(q3)*\sin(q5)*\sin(q6))/62500000000 - dq5*((7618384777*\cos(q4)*\sin(q3))/125000000000 + (7618384777*\cos(q \\
& 4)*\cos(q5)^2*\sin(q3))/125000000000 - (7618384777*\cos(q4)*\cos(q6)^2*\sin(q3))/125000000000 - (7618384777*c \\
& os(q4)*\sin(q3)*\sin(q5)^2)/125000000000 + (7618384777*\cos(q3)*\cos(q5)*\sin(q5))/62500000000 - (7618384777*c \\
& os(q3)*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 - (7618384777*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q3))/12500000 \\
& 0000 + (7618384777*\cos(q4)*\cos(q6)^2*\sin(q3)*\sin(q5)^2)/125000000000 + (32755927981*\cos(q5)*\sin(q3)*\sin(\\
& q4)*\sin(q6))/250000000000 + (7618384777*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/625000000000,- dq2*((2372 \\
& 58851293*\sin(q3))/200000000000 + (80248811*\cos(q3)*\sin(q4))/781250000 + (32755927981*\cos(q6)*\sin(q3))/ \\
& 250000000000 - (237258851293*\cos(q4)^2*\sin(q3))/200000000000 + (7618384777*\cos(q5)^2*\sin(q3))/1250000 \\
& 00000 + (7618384777*\cos(q6)^2*\sin(q3))/125000000000 + (237258851293*\sin(q3)*\sin(q4)^2)/200000000000 - (\\
& 32755927981*\cos(q4)^2*\cos(q6)*\sin(q3))/250000000000 + (32755927981*\cos(q6)*\sin(q3)*\sin(q4)^2)/250000000 \\
& 000 + (7618384777*\cos(q4)^2*\cos(q5)^2*\sin(q3))/125000000000 - (7618384777*\cos(q4)^2*\cos(q6)^2*\sin(q3))/1 \\
& 25000000000 - (7618384777*\cos(q5)^2*\cos(q6)^2*\sin(q3))/125000000000 - (7618384777*\cos(q5)^2*\sin(q3)*\sin(\\
& q4)^2)/125000000000 + (7618384777*\cos(q6)^2*\sin(q3)*\sin(q4)^2)/125000000000 + (10421867*\cos(q3)*\cos(q6) \\
& *\sin(q4))/1953125000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q5))/62500000000 + (10421867*\cos(q3)*\cos(\\
& q4)*\cos(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q4)^2*\cos(q5)^2*\cos(q6)^2*\sin(q3))/125000000000 + (3275 \\
& 5927981*\cos(q3)*\sin(q4)*\sin(q5)*\sin(q6))/250000000000 + (7618384777*\cos(q5)^2*\cos(q6)^2*\sin(q3)*\sin(q4)^2 \\
&)/125000000000 + (32755927981*\cos(q4)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/125000000000 + (7618384777*\cos(q3) \\
& *\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q5))/625 \\
& 0000000 + (7618384777*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/31250000000 - dq6*((7618384777* \\
& \cos(q4)*\sin(q5))/125000000000 + (7618384777*\cos(q4)*\cos(q6)^2*\sin(q5))/125000000000 - (7618384777*\cos(q4) \\
&)*\sin(q5)*\sin(q6)^2)/125000000000 + (32755927981*\cos(q4)*\cos(q6)*\sin(q5))/250000000000 - (7618384777*\cos(\\
& q5)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - dq3*((237258851293*\cos(q4)*\sin(q4))/1000000000000 - (7 \\
& 618384777*\cos(q4)*\cos(q5)^2*\sin(q4))/62500000000 + (7618384777*\cos(q4)*\cos(q6)^2*\sin(q4))/62500000000 +
\end{aligned}$$

(32755927981*cos(q4)^2*cos(q5)*sin(q6))/250000000000 - (32755927981*cos(q5)*sin(q4)^2*sin(q6))/250000000000 + (32755927981*cos(q4)*cos(q6)*sin(q4))/125000000000 + (7618384777*cos(q4)^2*cos(q5)*cos(q6)*sin(q6))/625000000000 - (7618384777*cos(q5)*cos(q6)*sin(q4)^2*sin(q6))/625000000000 + (7618384777*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q4))/625000000000 - dq5*((7618384777*cos(q6)^2*sin(q4))/125000000000 - (7618384777*cos(q5)^2*sin(q4))/125000000000 - (7618384777*sin(q4))/125000000000 + (7618384777*sin(q4)*sin(q5)^2)/125000000000 + (7618384777*cos(q5)^2*cos(q6)^2*sin(q4))/125000000000 - (7618384777*cos(q6)^2*sin(q4)*sin(q5)^2)/125000000000 + (32755927981*cos(q4)*cos(q5)*sin(q6))/250000000000 + (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q6))/625000000000 - dq1*((80248811*sin(q2)*sin(q3)*sin(q4))/7812500000 - (237258851293*cos(q3)*sin(q2))/200000000000 + (237258851293*cos(q3)*cos(q4)^2*sin(q2))/200000000000 - (7618384777*cos(q3)*cos(q5)^2*sin(q2))/125000000000 - (7618384777*cos(q3)*cos(q6)^2*sin(q2))/125000000000 - (237258851293*cos(q3)*sin(q2)*sin(q4)^2)/200000000000 + (237258851293*cos(q2)*cos(q4)*sin(q4))/100000000000 - (32755927981*cos(q3)*cos(q6)*sin(q2))/250000000000 - (7618384777*cos(q2)*cos(q4)*cos(q5)^2*sin(q4))/625000000000 + (32755927981*cos(q3)*cos(q4)^2*cos(q6)*sin(q2))/250000000000 + (7618384777*cos(q2)*cos(q4)*cos(q6)^2*sin(q4))/625000000000 + (32755927981*cos(q2)*cos(q4)^2*cos(q5)*sin(q6))/250000000000 - (32755927981*cos(q3)*cos(q6)*sin(q2)*sin(q4)^2)/250000000000 - (32755927981*cos(q2)*cos(q5)*sin(q4)^2*sin(q6))/250000000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q5)^2*sin(q2))/125000000000 + (7618384777*cos(q3)*cos(q4)^2*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q3)*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q3)*cos(q5)^2*sin(q2)*sin(q4)^2)/125000000000 - (7618384777*cos(q3)*cos(q6)^2*sin(q2)*sin(q4)^2)/125000000000 + (32755927981*cos(q2)*cos(q4)*cos(q6)*sin(q4))/125000000000 + (10421867*cos(q6)*sin(q2)*sin(q3)*sin(q4))/1953125000 - (7618384777*cos(q2)*cos(q5)*cos(q6)*sin(q4)^2*sin(q6))/62500000000 + (7618384777*cos(q2)*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q4))/62500000000 + (7618384777*cos(q3)*cos(q4)^2*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q4)*cos(q5)*sin(q2)*sin(q3)*sin(q5))/62500000000 + (10421867*cos(q4)*cos(q5)*sin(q2)*sin(q3)*sin(q6))/1953125000 - (7618384777*cos(q3)*cos(q5)^2*cos(q6)^2*sin(q2)*sin(q4)^2)/125000000000 + (32755927981*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/250000000000 + (7618384777*cos(q2)*cos(q4)^2*cos(q5)*cos(q6)*sin(q6))/625000000000 - (32755927981*cos(q3)*cos(q4)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/125000000000 + (7618384777*cos(q6)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/625000000000 - (7618384777*cos(q4)*cos(q5)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/625000000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/312500000000,- dq5*((7618384777*cos(q5)*sin(q5))/625000000000 - (7618384777*cos(q5)*cos(q6)^2*sin(q5))/625000000000) - dq6*((32755927981*sin(q6))/250000000000 + (7618384777*cos(q6)*sin(q6))/625000000000 - (7618384777*cos(q5)^2*cos(q6)*sin(q6))/625000000000),dq1*((7618384777*cos(q2)*sin(q4))/125000000000 + (7618384777*cos(q2)*cos(q5)^2*sin(q4))/125000000000 - (7618384777*cos(q2)*cos(q6)^2*sin(q4))/125000000000 - (7618384777*cos(q2)*sin(q4)*sin(q5)^2)/125000000000 + (7618384777*cos(q3)*cos(q4)*sin(q2))/125000000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)^2*sin(q2))/125000000000 - (7618384777*cos(q3)*cos(q4)*cos(q6)^2*sin(q2))/125000000000 - (7618384777*cos(q3)*cos(q4)*sin(q2)*sin(q5)^2)/125000000000 - (7618384777*cos(q2)*cos(q5)^2*cos(q6)^2*sin(q4))/125000000000 + (7618384777*cos(q2)*cos(q6)^2*sin(q4)*sin(q5)^2)/125000000000 - (32755927981*cos(q2)*cos(q4)*cos(q5)*sin(q6))/250000000000 - (7618384777*cos(q5)*sin(q2)*sin(q3)*sin(q5))/625000000000 + (7618384777*cos(q5)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/625000000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q3)*cos(q4)*cos(q6)^2*sin(q2)*sin(q5)^2)/125000000000 - (7618384777*cos(q2)*cos(q4)*cos(q5)*cos(q6)*sin(q6))/625000000000 + (32755927981*cos(q3)*cos(q5)*sin(q2)*sin(q4)*sin(q6))/250000000000 + (7618384777*cos(q3)*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/625000000000 - dq5*((32755927981*cos(q5)*sin(q6))/250000000000 + (7618384777*cos(q5)*cos(q6)*sin(q6))/625000000000) - dq3*((7618384777*cos(q6)^2*sin(q4))/125000000000 - (7618384777*cos(q5)^2*sin(q4))/125000000000 - (7618384777*sin(q4))/125000000000 + (7618384777*sin(q4)*sin(q5)^2)/125000000000 + (7618384777*cos(q5)^2*cos(q6)^2*sin(q4))/125000000000 - (7618384777*cos(q6)^2*sin(q4)*sin(q5)^2)/125000000000 + (32755927981*cos(q4)*cos(q5)*sin(q6))/250000000000 + (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q6))/625000000000 - dq4*((7618384777*cos(q5)*sin(q5))/625000000000 - (7618384777*cos(q5)*cos(q6)^2*sin(q5))/625000000000) - dq6*((7618384777*sin(q5))/125000000000 + (32755927981*cos(q6)*sin(q5))/250000000000 + (7618384777*cos(q6)^2*sin(q5))/125000000000 - (7618384777*sin(q5)*sin(q6)^2)/125000000000) - dq2*((7618384777*cos(q4)*sin(q3))/125000000000 + (7618384777*cos(q4)*cos(q5)^2*sin(q3))/125000000000 - (7618384777*cos(q4)*cos(q6)^2*sin(q3))/125000000000 - (7618384777*cos(q4)*sin(q3)*sin(q5)^2)/125000000000 + (7618384777*cos(q3)*cos(q5)*sin(q5))/625000000000 - (7618384777*cos(q3)*cos(q5)*cos(q6)^2*sin(q5))/625000000000 - (7618384777*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q3))/125000000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q3)*sin(q5)^2)/125000000000 + (32755927981*cos(q5)*sin(q3)*sin(q4)*sin(q6))/250000000000 + (7618384777*cos(q5)*cos(q6)*sin(q3)*sin(q4)*sin(q6))/625000000000),dq1*((7618384777*cos(q2)*cos(q4)*sin(q5)*sin(q6)^2)/12500

00000000 - (7618384777*cos(q2)*cos(q4)*sin(q5))/125000000000 - (7618384777*cos(q2)*cos(q4)*cos(q6)^2*sin(q5))/125000000000 - (32755927981*sin(q2)*sin(q3)*sin(q6))/250000000000 - (32755927981*cos(q2)*cos(q4)*cos(q6)*sin(q5))/250000000000 + (7618384777*cos(q3)*sin(q2)*sin(q4)*sin(q5))/125000000000 - (7618384777*cos(q6)*sin(q2)*sin(q3)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q6)^2*sin(q2)*sin(q4)*sin(q5))/125000000000 + (7618384777*cos(q5)^2*cos(q6)*sin(q2)*sin(q3)*sin(q6))/62500000000 - (7618384777*cos(q3)*sin(q2)*sin(q4)*sin(q5)*sin(q6)^2)/125000000000 + (32755927981*cos(q3)*cos(q6)*sin(q2)*sin(q4)*sin(q5))/250000000000 + (7618384777*cos(q2)*cos(q5)*cos(q6)*sin(q4)*sin(q5)*sin(q6))/62500000000 + (7618384777*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q2)*sin(q5)*sin(q6))/62500000000 - dq3*((7618384777*cos(q4)*sin(q5))/125000000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q5))/125000000000 - (7618384777*cos(q4)*sin(q5)*sin(q6)^2)/125000000000 + (32755927981*cos(q4)*cos(q6)*sin(q5))/250000000000 - (7618384777*cos(q5)*cos(q6)*sin(q4)*sin(q5)*sin(q6))/62500000000 - dq2*((32755927981*cos(q3)*sin(q6))/250000000000 + (7618384777*sin(q3)*sin(q4)*sin(q5))/125000000000 + (7618384777*cos(q3)*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q3)*cos(q5)^2*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/125000000000 - (7618384777*sin(q3)*sin(q4)*sin(q5)*sin(q6)^2)/125000000000 + (32755927981*cos(q6)*sin(q3)*sin(q4)*sin(q5))/250000000000 + (7618384777*cos(q4)*cos(q5)*cos(q6)*sin(q3)*sin(q5)*sin(q6))/62500000000 - dq4*((32755927981*sin(q6))/250000000000 + (7618384777*cos(q6)*sin(q6))/62500000000 - (7618384777*cos(q5)^2*cos(q6)*sin(q6))/62500000000 - dq5*((7618384777*sin(q5))/125000000000 + (32755927981*cos(q6)*sin(q5))/250000000000 + (7618384777*cos(q6)^2*sin(q5))/125000000000 - (7618384777*sin(q5)*sin(q6)^2)/125000000000 - (32755927981*dq6*cos(q5)*sin(q6))/250000000000,0;
dq2*((7618384777*cos(q4)*cos(q5)^2*sin(q2))/125000000000 - (7618384777*cos(q4)*sin(q2))/125000000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q2))/125000000000 - (7618384777*cos(q4)*sin(q2)*sin(q5)^2)/125000000000 - (7618384777*cos(q2)*cos(q3)*sin(q4))/125000000000 - (7618384777*cos(q2)*cos(q3)*cos(q5)^2*sin(q4))/125000000000 + (7618384777*cos(q2)*cos(q3)*cos(q6)^2*sin(q4))/125000000000 + (7618384777*cos(q2)*cos(q3)*sin(q4)*sin(q5)^2)/125000000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q5)^2*sin(q2))/62500000000 - (7618384777*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q2))/125000000000 + (7618384777*cos(q3)^2*cos(q4)*sin(q2)*sin(q5)^2)/62500000000 + (7618384777*cos(q4)*cos(q6)^2*sin(q2)*sin(q5)^2)/125000000000 + (2740951021*cos(q2)*cos(q3)*cos(q5)*sin(q6))/15625000000 - (10421867*cos(q4)*sin(q2)*sin(q5)*sin(q6))/1953125000 - (32755927981*cos(q2)*cos(q4)^2*sin(q3)*sin(q5)*sin(q6))/250000000000 + (10421867*cos(q3)^2*cos(q4)*sin(q2)*sin(q5)*sin(q6))/1953125000 - (32755927981*cos(q3)^2*cos(q5)*sin(q2)*sin(q4)*sin(q6))/250000000000 + (7618384777*cos(q2)*cos(q3)*cos(q5)^2*cos(q6)^2*sin(q4)*sin(q5)^2)/125000000000 - (7618384777*cos(q2)*cos(q3)*cos(q6)^2*sin(q4)*sin(q5)^2)/125000000000 + (32755927981*cos(q2)*cos(q3)*cos(q4)*cos(q5)*sin(q6))/250000000000 + (7618384777*cos(q3)^2*cos(q4)*cos(q5)^2*cos(q6)^2*sin(q2))/62500000000 + (7618384777*cos(q3)*cos(q5)*sin(q2)*sin(q3)*sin(q5))/62500000000 + (10421867*cos(q3)*cos(q5)*sin(q2)*sin(q3)*sin(q6))/1953125000 - (2740951021*cos(q2)*cos(q4)*sin(q3)*sin(q5)*sin(q6))/15625000000 - (7618384777*cos(q3)^2*cos(q4)*cos(q6)^2*sin(q2)*sin(q5)^2)/62500000000 + (7618384777*cos(q2)*cos(q3)*cos(q4)*cos(q5)*cos(q6)*sin(q6))/62500000000 + (7618384777*cos(q2)*cos(q4)*cos(q5)*sin(q3)*sin(q4)*sin(q5))/62500000000 + (7618384777*cos(q3)*cos(q4)^2*cos(q5)*sin(q2)*sin(q3)*sin(q5))/62500000000 - (7618384777*cos(q3)*cos(q5)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/62500000000 - (7618384777*cos(q2)*cos(q4)^2*cos(q6)*sin(q3)*sin(q5)*sin(q6))/62500000000 - (7618384777*cos(q3)^2*cos(q5)*cos(q6)*sin(q2)*sin(q4)*sin(q6))/62500000000 - (7618384777*cos(q3)*cos(q4)^2*cos(q5)*cos(q6)^2*sin(q2)*sin(q3)*sin(q5))/62500000000 + (32755927981*cos(q3)*cos(q4)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/250000000000 - (7618384777*cos(q2)*cos(q4)*cos(q5)*cos(q6)^2*sin(q3)*sin(q4)*sin(q5))/62500000000 + (7618384777*cos(q3)*cos(q4)*cos(q6)*sin(q2)*sin(q3)*sin(q4)*sin(q5)*sin(q6))/62500000000 + dq1*((7618384777*cos(q5)*sin(q5))/62500000000 - (2740951021*sin(q4)*sin(q5)*sin(q6))/15625000000 - (7618384777*cos(q2)^2*cos(q5)*sin(q5))/31250000000 - (10421867*cos(q2)^2*cos(q5)*sin(q6))/1953125000 - (7618384777*cos(q3)^2*cos(q5)*sin(q5))/62500000000 - (10421867*cos(q3)^2*cos(q5)*sin(q6))/1953125000 - (7618384777*cos(q5)*cos(q6)^2*sin(q5))/62500000000 - (614890153*cos(q3)*cos(q5)*sin(q6))/125000000000 - (7618384777*cos(q3)*cos(q4)*cos(q5)^2*sin(q3))/62500000000 + (7618384777*cos(q3)*cos(q4)*sin(q3)*sin(q5)^2)/62500000000 + (2740951021*cos(q2)^2*sin(q4)*sin(q5)*sin(q6))/15625000000 + (7618384777*cos(q2)^2*cos(q3)^2*cos(q5)*sin(q5))/62500000000 + (10421867*cos(q2)^2*cos(q3)^2*cos(q5)*sin(q6))/1953125000 + (7618384777*cos(q2)^2*cos(q4)^2*cos(q5)*sin(q5))/62500000000 - (7618384777*cos(q3)^2*cos(q4)^2*cos(q5)*sin(q5))/62500000000 + (7618384777*cos(q2)^2*cos(q5)*cos(q6)^2*sin(q5))/62500000000 + (614890153*cos(q4)*sin(q3)*sin(q5)*sin(q6))/125000000000 - (7618384777*cos(q2)*cos(q5)^2*sin(q2)*sin(q3)*sin(q4))/62500000000 + (32755927981*cos(q2)^2*cos(q4)*sin(q4)*sin(q5)*sin(q6))/250000000000 - (32755927981*cos(q3)^2*cos(q4)*sin(q4)*sin(q5)*sin(q6))/250000000000 + (7618384777*cos(q2)*sin(q2)*sin(q3)*sin(q4)*sin(q5)^2

$$\begin{aligned}
&)/62500000000 + (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q5)^2*\sin(q3))/62500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q3))/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\sin(q3)*\sin(q5)^2)/62500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q3)*\sin(q5)^2)/62500000000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)^2*\cos(q5)*\sin(q5))/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 + (7618384777*\cos(q3)^2*\cos(q4)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 - (32755927981*\cos(q2)*\cos(q3)*\sin(q2)*\sin(q5)*\sin(q6))/25000000000 + (2740951021*\cos(q2)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/15625000000 + (10421867*\cos(q3)*\cos(q4)*\sin(q3)*\sin(q5)*\sin(q6))/1953125000 - (32755927981*\cos(q3)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/25000000000 + (7618384777*\cos(q2)*\cos(q5)^2*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/62500000000 + (32755927981*\cos(q2)^2*\cos(q3)^2*\cos(q4)*\sin(q4)*\sin(q5)*\sin(q6))/25000000000 - (7618384777*\cos(q2)*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)^2)/62500000000 - (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q3))/62500000000 + (2740951021*\cos(q2)*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q5)*\sin(q6))/15625000000 + (32755927981*\cos(q2)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q6))/25000000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/62500000000 + (7618384777*\cos(q2)^2*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q3)*\sin(q5)^2)/62500000000 + (10421867*\cos(q2)*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 + (32755927981*\cos(q2)*\cos(q3)*\cos(q4)^2*\sin(q2)*\sin(q5)*\sin(q6))/12500000000 - (10421867*\cos(q2)^2*\cos(q3)*\cos(q4)*\sin(q3)*\sin(q5)*\sin(q6))/1953125000 + (32755927981*\cos(q2)^2*\cos(q3)*\cos(q5)*\sin(q3)*\sin(q4)*\sin(q6))/25000000000 + (7618384777*\cos(q2)^2*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(q2)^2*\cos(q3)^2*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q2)*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q5))/31250000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q3)*\sin(q6))/62500000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q4)^2*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/31250000000 + (7618384777*\cos(q2)^2*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q3)*\sin(q4)*\sin(q6))/62500000000 + (7618384777*\cos(q2)*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q4)*\sin(q5))/31250000000 - dq4*((7618384777*\cos(q2)*\sin(q4))/12500000000 + (7618384777*\cos(q2)*\cos(q5)^2*\sin(q4))/12500000000 - (7618384777*\cos(q2)*\cos(q6)^2*\sin(q4))/12500000000 - (7618384777*\cos(q2)*\sin(q4)*\sin(q5)^2)/12500000000 + (7618384777*\cos(q3)*\cos(q4)*\sin(q2))/12500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\sin(q2))/12500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q2))/12500000000 - (7618384777*\cos(q3)*\cos(q4)*\sin(q2)*\sin(q5)^2)/12500000000 - (7618384777*\cos(q2)*\cos(q5)^2*\cos(q6)^2*\sin(q4))/12500000000 + (7618384777*\cos(q2)*\cos(q6)^2*\sin(q4)*\sin(q5)^2)/12500000000 - (32755927981*\cos(q2)*\cos(q4)*\cos(q5)*\sin(q6))/25000000000 - (7618384777*\cos(q5)*\sin(q2)*\sin(q3)*\sin(q5))/62500000000 + (7618384777*\cos(q5)*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q5))/62500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)^2*\cos(q6)^2*\sin(q2))/12500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q6)^2*\sin(q2)*\sin(q5)^2)/12500000000 - (7618384777*\cos(q2)*\cos(q4)*\cos(q5)*\cos(q6)*\sin(q6))/62500000000 + (32755927981*\cos(q3)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q6))/25000000000 + (7618384777*\cos(q3)*\cos(q5)*\cos(q6)*\sin(q2)*\sin(q4)*\sin(q6))/62500000000 - dq6*((7618384777*\cos(q2)*\cos(q5)*\sin(q4))/12500000000 - (7618384777*\sin(q2)*\sin(q3)*\sin(q5))/12500000000 - (7618384777*\cos(q2)*\cos(q5)*\cos(q6)^2*\sin(q4))/12500000000 + (7618384777*\cos(q2)*\cos(q5)*\sin(q4)*\sin(q6)^2)/12500000000 + (7618384777*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q5))/12500000000 - (7618384777*\sin(q2)*\sin(q3)*\sin(q5)*\sin(q6)^2)/12500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q2))/12500000000 - (7618384777*\cos(q2)*\cos(q4)*\cos(q6)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q6)^2)/12500000000 + (7618384777*\cos(q3)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\cos(q6)^2*\sin(q2))/12500000000 + dq3*((7618384777*\sin(q2)*\sin(q3)*\sin(q4))/12500000000 - (7618384777*\cos(q2)*\cos(q5)*\sin(q5))/62500000000 - (10421867*\cos(q2)*\cos(q5)*\sin(q6))/1953125000 + (7618384777*\cos(q2)*\cos(q4)^2*\cos(q5)*\sin(q5))/62500000000 + (7618384777*\cos(q2)*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 - (7618384777*\cos(q5)^2*\sin(q2)*\sin(q3)*\sin(q4))/12500000000 - (7618384777*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/12500000000 + (7618384777*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)^2)/12500000000 - (32755927981*\cos(q3)*\sin(q2)*\sin(q5)*\sin(q6))/25000000000 + (32755927981*\cos(q3)*\cos(q4)^2*\sin(q2)*\sin(q5)*\sin(q6))/25000000000 - (7618384777*\cos(q2)*\cos(q4)^2*\cos(q5)*\cos(q6)^2*\sin(q5))/62500000000 + (7618384777*\cos(q5)^2*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4))/12500000000 - (7618384777*\cos(q6)^2*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)^2)/12500000000 + (32755927981*\cos(q2)*\cos(q4)*\sin(q4)*\sin(q5)*\sin(q6))/25000000000 - (7618384777*\cos(q3)*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 + (10421867*\sin(q2)*\sin(q3)*\sin(q4)*\sin(q5)*\sin(q6))/1953125000 - (7618384777*\cos(q3)*\cos(q4)*\cos(q5)*\sin(q2)*\sin(q4)*\sin(q5))/62500000000 + (7618384777*\cos(q2)*\cos(q4)*\cos(q6)*\sin(q4)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(q3)*\cos(q4)^2*\cos(q6)*\sin(q2)*\sin(q5)*\sin(q6))/62500000000 + (7618384777*\cos(
\end{aligned}$$

$$\begin{aligned}
& q3) * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q2) * \sin(q4) * \sin(q5)) / 62500000000, dq1 * ((7618384777 * \cos(q4) * \cos(q5)^2 * \sin(q2)) / 125000000000 - (7618384777 * \cos(q4) * \sin(q2)) / 125000000000 + (7618384777 * \cos(q4) * \cos(q6)^2 * \sin(q2)) / 125000000000 - (7618384777 * \cos(q4) * \sin(q2) * \sin(q5)^2) / 125000000000 - (7618384777 * \cos(q2) * \cos(q3) * \sin(q4)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q3) * \cos(q5)^2 * \sin(q4)) / 125000000000 + (7618384777 * \cos(q2) * \cos(q3) * \cos(q6)^2 * \sin(q4)) / 125000000000 + (7618384777 * \cos(q2) * \cos(q3) * \sin(q4) * \sin(q5)^2) / 125000000000 - (7618384777 * \cos(q3)^2 * \cos(q4) * \cos(q5)^2 * \sin(q2)) / 62500000000 - (7618384777 * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q2)) / 125000000000 + (7618384777 * \cos(q3)^2 * \cos(q4) * \sin(q2) * \sin(q5)^2) / 62500000000 + (7618384777 * \cos(q4) * \cos(q6)^2 * \sin(q2) * \sin(q5)^2) / 125000000000 + (2740951021 * \cos(q2) * \cos(q3) * \cos(q5) * \sin(q6)) / 15625000000 - (10421867 * \cos(q4) * \sin(q2) * \sin(q5) * \sin(q6)) / 1953125000 - (32755927981 * \cos(q2) * \cos(q4)^2 * \sin(q3) * \sin(q5) * \sin(q6)) / 250000000000 + (10421867 * \cos(q3)^2 * \cos(q4) * \sin(q2) * \sin(q5) * \sin(q6)) / 1953125000 - (32755927981 * \cos(q3)^2 * \cos(q5) * \sin(q2) * \sin(q4) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q2) * \cos(q3) * \cos(q5)^2 * \cos(q6)^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q2) * \cos(q3) * \cos(q6)^2 * \sin(q4) * \sin(q5)^2) / 125000000000 + (32755927981 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q5) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q3)^2 * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q2)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q5) * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 + (10421867 * \cos(q3) * \cos(q5) * \sin(q2) * \sin(q3) * \sin(q6)) / 1953125000 - (2740951021 * \cos(q2) * \cos(q4) * \sin(q3) * \sin(q5) * \sin(q6)) / 15625000000 - (7618384777 * \cos(q3)^2 * \cos(q4) * \cos(q6)^2 * \sin(q2) * \sin(q5)^2) / 62500000000 + (7618384777 * \cos(q2) * \cos(q3) * \cos(q4) * \cos(q5) * \cos(q6) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q2) * \cos(q4) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4)^2 * \cos(q5) * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q5) * \cos(q6)^2 * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q2) * \cos(q4)^2 * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3)^2 * \cos(q5) * \cos(q6) * \sin(q2) * \sin(q4) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q4)^2 * \cos(q5) * \cos(q6)^2 * \sin(q2) * \sin(q3) * \sin(q5)) / 62500000000 + (32755927981 * \cos(q3) * \cos(q4) * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 - (7618384777 * \cos(q2) * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q3) * \sin(q4) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q6) * \sin(q2) * \sin(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 - dq2 * ((10421867 * \cos(q5) * \sin(q6)) / 1953125000 + (2740951021 * \sin(q4) * \sin(q5) * \sin(q6)) / 15625000000 - (7618384777 * \cos(q3)^2 * \cos(q5) * \sin(q5)) / 62500000000 - (10421867 * \cos(q3)^2 * \cos(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q4)^2 * \cos(q5) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \sin(q3)) / 62500000000 + (7618384777 * \cos(q3) * \cos(q4) * \sin(q3) * \sin(q5)^2) / 62500000000 - (7618384777 * \cos(q3)^2 * \cos(q4)^2 * \cos(q5) * \sin(q5)) / 62500000000 + (7618384777 * \cos(q3)^2 * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 62500000000 - (7618384777 * \cos(q4)^2 * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 62500000000 + (32755927981 * \cos(q4) * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 - (32755927981 * \cos(q3)^2 * \cos(q4) * \sin(q4) * \sin(q5) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q3) * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q3)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q4) * \cos(q6)^2 * \sin(q3)) / 62500000000 + (7618384777 * \cos(q3)^2 * \cos(q4)^2 * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 62500000000 + (10421867 * \cos(q3) * \cos(q4) * \sin(q3) * \sin(q5) * \sin(q6)) / 1953125000 - (32755927981 * \cos(q3) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q4) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q5) * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q3)^2 * \cos(q4) * \cos(q6) * \sin(q4) * \sin(q5) * \sin(q6)) / 62500000000 + dq6 * ((7618384777 * \cos(q3) * \sin(q5)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q6)^2 * \sin(q5)) / 125000000000 + (7618384777 * \cos(q3) * \sin(q5) * \sin(q6)^2) / 125000000000 + (7618384777 * \cos(q4) * \cos(q5) * \sin(q3)) / 125000000000 - (7618384777 * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q3)) / 125000000000 + (7618384777 * \cos(q4) * \cos(q5) * \sin(q3) * \sin(q6)^2) / 125000000000 + (7618384777 * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 62500000000 + dq3 * ((7618384777 * \cos(q3) * \sin(q4)) / 125000000000 + (32755927981 * \sin(q3) * \sin(q5) * \sin(q6)) / 250000000000 - (7618384777 * \cos(q3) * \cos(q5)^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q6)^2 * \sin(q4)) / 125000000000 + (7618384777 * \cos(q3) * \sin(q4) * \sin(q5)^2) / 125000000000 - (32755927981 * \cos(q4)^2 * \sin(q3) * \sin(q5) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q3) * \cos(q5)^2 * \cos(q6)^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q3) * \cos(q6)^2 * \sin(q4) * \sin(q5)^2) / 125000000000 + (10421867 * \cos(q3) * \sin(q4) * \sin(q5) * \sin(q6)) / 1953125000 + (7618384777 * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 62500000000 - (7618384777 * \cos(q4)^2 * \cos(q6) * \sin(q3) * \sin(q5) * \sin(q6)) / 62500000000 + (7618384777 * \cos(q4) * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q4) * \cos(q5) * \cos(q6)^2 * \sin(q3) * \sin(q4) * \sin(q5)) / 62500000000 + dq4 * ((7618384777 * \cos(q4) * \sin(q3)) / 125000000000 + (7618384777 * \cos(q4) * \cos(q5)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q4) * \cos(q6)^2 * \sin(q3)) / 125000000000 - (7618384777 * \cos(q4) * \sin(q3) * \sin(q5)^2) / 125000000000 + (7618384777 * \cos(q3) * \cos(q5) * \sin(q5)) / 62500000000 - (7618384777 * \cos(q3) * \cos(q5) * \cos(q6)^2 * \sin(q5)) / 62500000000 - (7618384777 * \cos(q4) * \cos(q5)^2 * \cos(q6)^2 * \sin(q3)) / 125000000000 + (7618384777 * \cos(q4) * \cos(q6)^2 * \sin(q3) * \sin(q5)^2) / 125000000000 + (32755927981 * \cos(q5) * \sin(q3) * \sin(q4) * \sin(q6)) / 250000000000 + (7618384777 * \cos(q5) * \cos(q6) * \sin(q3) * \sin(q4) * \sin(q6)) / 62500000000, dq4 * ((7618384777 * \cos(q6)^2 * \sin(q4)) / 125000000000 - (7618384777 * \cos(q5)^2 * \sin(q4)) / 125000000000 - (7618384777 * \sin(q4)) / 125000000000 + (7618384777 * \sin(q4) * \sin(q5)^2) / 125000000000 + (7618384777 * \cos
\end{aligned}$$

$$\begin{aligned}
& (q_5)^2 \cos(q_6)^2 \sin(q_4) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000 \\
& + dq_2 * ((7618384777 \cos(q_3) \sin(q_4)) / 125000000000 + (32755927981 \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_4)) / 125000000000 \\
& 0 + (7618384777 \cos(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (32755927981 \cos(q_4)^2 \sin(q_3) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 + (10421867 \cos(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 625000000000 - (7618384777 \cos(q_4)^2 \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_5)) / 625000000000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 625000000000 - dq_6 * ((7618384777 \cos(q_5) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_5) \sin(q_4) \sin(q_6)^2) / 125000000000 - (7618384777 \cos(q_4) \cos(q_6) \sin(q_6)) / 625000000000) + dq_3 * ((7618384777 \cos(q_4)^2 \cos(q_5) \sin(q_5)) / 625000000000 - (10421867 \cos(q_5) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_5) \sin(q_5)) / 625000000000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 - (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 + (32755927981 \cos(q_4) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000) + dq_1 * ((7618384777 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_5)) / 625000000000 - (10421867 \cos(q_2) \cos(q_5) \sin(q_6)) / 1953125000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_5)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 - (7618384777 \cos(q_5)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 + (7618384777 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 - (32755927981 \cos(q_3) \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \sin(q_2) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_2) \cos(q_4) \sin(q_4) \sin(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 625000000000 + (10421867 \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_5)) / 625000000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 625000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 625000000000, dq_6 * ((7618384777 \sin(q_5)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_5)) / 125000000000 + (7618384777 \sin(q_5) \sin(q_6)^2) / 125000000000) + dq_4 * ((7618384777 \cos(q_5) \sin(q_5)) / 625000000000 - (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000) + dq_3 * ((7618384777 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \sin(q_4)) / 125000000000 + (7618384777 \sin(q_4) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_4) \cos(q_5) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000) - dq_1 * ((7618384777 \cos(q_2) \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_5)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_6)^2 \sin(q_4)) / 125000000000 - (7618384777 \cos(q_2) \sin(q_4) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_2)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_4) \sin(q_2) \sin(q_5)^2) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5)^2 \cos(q_6)^2 \sin(q_4)) / 125000000000 + (7618384777 \cos(q_2) \cos(q_6)^2 \sin(q_4) \sin(q_5)^2) / 125000000000 - (32755927981 \cos(q_2) \cos(q_4) \cos(q_5) \sin(q_6)) / 250000000000 - (7618384777 \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_5)) / 625000000000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_5)) / 625000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_2)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_2) \sin(q_5)^2) / 125000000000 - (7618384777 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_6)) / 625000000000 + (32755927981 \cos(q_3) \cos(q_5) \sin(q_2) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_6)) / 625000000000) + dq_2 * ((7618384777 \cos(q_4) \sin(q_3)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4) \sin(q_3) \sin(q_5)^2) / 125000000000 + (7618384777 \cos(q_3) \cos(q_5) \sin(q_5)) / 625000000000 - (7618384777 \cos(q_3) \cos(q_5) \cos(q_6)^2 \sin(q_5)) / 625000000000 - (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6)^2 \sin(q_3)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_6)^2 \sin(q_3) \sin(q_5)^2) / 125000000000 + (32755927981 \cos(q_5) \sin(q_3) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 625000000000), (7618384777 dq_6 \cos(q_6) \sin(q_6)) / 625000000000, dq_4 * ((7618384777 \sin(q_5)) / 125000000000 - (7618384777 \cos(q_6)^2 \sin(q_5)) / 125000000000 + (7618384777 \sin(q_5) \sin(q_6)^2) / 125000000000) + dq_2 * ((7618384777 \cos(q_3) \sin(q_5)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_5)) / 125000000000 + (7618384777 \cos(q_3) \sin(q_5) \sin(q_6)^2) / 125000000000 - (7618384777
\end{aligned}$$

$$\begin{aligned} & * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_3)) / 125000000000 + (7618384777 * \cos(q_4) * \cos(q_5) * \sin(q_3) * \sin(q_6)^2) / 1250000 \\ & 00000 + (7618384777 * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 62500000000 - dq1 * ((7618384777 * \cos(q_2) * \cos(q_5) * \sin(\\ & q_4)) / 125000000000 - (7618384777 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_5) * \cos(q \\ & 6)^2 * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) / 125000000000 + (7618384777 * c \\ & \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 - (7618384777 * \sin(q_2) * \sin(q_3) * \sin(q_5) * \sin(q_6)^2) / 125000000000 \\ & 0 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2)) / 125000000000 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q \\ & 6)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(\\ & q_3) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 1 \\ & 25000000000 - dq3 * ((7618384777 * \cos(q_5) * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 1 \\ & 25000000000 + (7618384777 * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) / 125000000000 - (7618384777 * \cos(q_4) * \cos(q_6) * \sin(q_6)) / \\ & 62500000000) + (7618384777 * dq5 * \cos(q_6) * \sin(q_6)) / 62500000000, 0; \\ & dq5 * ((7618384777 * \cos(q_2) * \cos(q_5) * \sin(q_4)) / 125000000000 - (7618384777 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 12500000000 \\ & 00 - (7618384777 * \cos(q_2) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_5) * \sin(q_4) * \sin(\\ & q_6)^2) / 125000000000 + (7618384777 * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 - (7618384777 * \sin(q_2) \\ & * \sin(q_3) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2)) / 125000000000 - (76 \\ & 18384777 * \cos(q_2) * \cos(q_4) * \cos(q_6) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \sin(q_2) * \sin(q \\ & 6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q \\ & 3) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 125000000000 - dq3 * ((32755927981 * \cos(q_2) * \cos(q_4)^2 * \sin(q_6)) / 250000 \\ & 000000 - (32755927981 * \cos(q_2) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_3) * \cos(q_5) * \sin(q_2)) / 125000000000 \\ & + (10421867 * \cos(q_2) * \cos(q_6) * \sin(q_5)) / 1953125000 - (7618384777 * \cos(q_3) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 12500000 \\ & 0000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6 \\ &) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 125000000000 - (32755927981 * \cos(q \\ & 3) * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 250000000000 + (7618384777 * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 + (10 \\ & 421867 * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) \\ & / 62500000000 - (7618384777 * \cos(q_4) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 + (7618384777 * \cos(q_4) \\ & * \sin(q_2) * \sin(q_3) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_2) \\ &) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q \\ & 3) * \cos(q_4)^2 * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 62500000000 + (32755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4 \\ &)) / 250000000000 - (32755927981 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 250000000000 + (10421867 * \cos(q_5) * \\ & \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 1953125000 + (32755927981 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 2500 \\ & 00000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(\\ & q_4) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(\\ & q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000 \\ & 000 - dq1 * ((32755927981 * \cos(q_3)^2 * \sin(q_6)) / 250000000000 - (2740951021 * \cos(q_4) * \sin(q_6)) / 15625000000 - (76 \\ & 18384777 * \cos(q_6) * \sin(q_6)) / 62500000000 - (32755927981 * \sin(q_6)) / 250000000000 - (614890153 * \sin(q_3) * \sin(q_4) * \\ & \sin(q_6)) / 125000000000 + (2740951021 * \cos(q_2)^2 * \cos(q_4) * \sin(q_6)) / 15625000000 + (10421867 * \cos(q_2)^2 * \cos(q_6) \\ & * \sin(q_5)) / 1953125000 + (7618384777 * \cos(q_2)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 + (10421867 * \cos(q_3)^2 * \cos(q_6) * \\ & \sin(q_5)) / 1953125000 + (7618384777 * \cos(q_3)^2 * \cos(q_6) * \sin(q_6)) / 31250000000 + (7618384777 * \cos(q_5)^2 * \cos(q_6) \\ & * \sin(q_6)) / 62500000000 - (32755927981 * \cos(q_2)^2 * \cos(q_3)^2 * \sin(q_6)) / 250000000000 + (32755927981 * \cos(q_2)^2 \\ & * \cos(q_4)^2 * \sin(q_6)) / 250000000000 - (32755927981 * \cos(q_3)^2 * \cos(q_4)^2 * \sin(q_6)) / 250000000000 + (614890153 * \\ & \cos(q_3) * \cos(q_6) * \sin(q_5)) / 125000000000 - (2740951021 * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 15625000000 + (2740951021 * c \\ & \cos(q_2)^2 * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 15625000000 - (10421867 * \cos(q_2)^2 * \cos(q_3)^2 * \cos(q_6) * \sin(q_5)) / 1953125000 \\ & - (76$$

[illegible]

$$\begin{aligned} & 2) \sin(q_3) \sin(q_6) / 62500000000 - (7618384777 \cos(q_3) \sin(q_2) \sin(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 + (32755927981 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_5)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000, dq_4 * ((32755927981 \cos(q_3) \sin(q_6)) / 250000000000 + (7618384777 \sin(q_3) \sin(q_4) \sin(q_5)) / 125000000000 + (7618384777 \cos(q_3) \cos(q_6) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_6)^2 \sin(q_3) \sin(q_4) \sin(q_5)) / 125000000000 - (7618384777 \sin(q_3) \sin(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 + (32755927981 \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_5)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3) \sin(q_5) \sin(q_6)) / 62500000000) - dq_1 * ((7618384777 \sin(q_2) \sin(q_4) \sin(q_5)) / 125000000000 + (10421867 \sin(q_2) \sin(q_4) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_3)) / 12500000000 + (7618384777 \cos(q_2) \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_2) \cos(q_5) \sin(q_3) \sin(q_6)^2) / 125000000000 - (10421867 \cos(q_3)^2 \sin(q_2) \sin(q_4) \sin(q_6)) / 1953125000 - (7618384777 \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 125000000000 + (7618384777 \sin(q_2) \sin(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_5)) / 125000000000 - (2740951021 \cos(q_2) \cos(q_3) \cos(q_6) \sin(q_5)) / 15625000000 - (10421867 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2)) / 1953125000 - (32755927981 \cos(q_3) \sin(q_2) \sin(q_3) \sin(q_6)) / 250000000000 + (2740951021 \cos(q_2) \sin(q_3) \sin(q_4) \sin(q_6)) / 15625000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 + (32755927981 \cos(q_3) \cos(q_4)^2 \sin(q_2) \sin(q_3) \sin(q_6)) / 250000000000 + (32755927981 \cos(q_3)^2 \cos(q_6) \sin(q_2) \sin(q_4) \sin(q_5)) / 250000000000 - (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4)^2 \cos(q_5) \sin(q_3) \sin(q_6)^2) / 62500000000 + (7618384777 \cos(q_3)^2 \cos(q_6)^2 \sin(q_2) \sin(q_4) \sin(q_5)) / 62500000000 - (7618384777 \cos(q_3)^2 \sin(q_2) \sin(q_4) \sin(q_5) \sin(q_6)^2) / 62500000000 - (32755927981 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6) \sin(q_5)) / 250000000000 - (2740951021 \cos(q_2) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_3)) / 15625000000 + (32755927981 \cos(q_2) \cos(q_4) \sin(q_3) \sin(q_4) \sin(q_6)) / 250000000000 - (10421867 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_5)) / 1953125000 - (7618384777 \cos(q_3) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 31250000000 - (7618384777 \cos(q_2) \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_5)) / 125000000000 - (32755927981 \cos(q_2) \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_3)) / 250000000000 + (10421867 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2)) / 1953125000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 62500000000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4)^2 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5)^2 \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_6)) / 62500000000 + (32755927981 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_3) \sin(q_4)) / 250000000000 + (7618384777 \cos(q_2) \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_2) \sin(q_3) \sin(q_4)) / 62500000000 + (7618384777 \cos(q_2) \cos(q_4) \cos(q_5)^2 \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3)^2 \cos(q_4) \cos(q_5) \cos(q_6) \sin(q_2) \sin(q_5) \sin(q_6)) / 31250000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_5) \sin(q_2) \sin(q_3) \sin(q_4) \sin(q_6)^2) / 62500000000) - dq_3 * ((7618384777 \cos(q_5) \sin(q_3)) / 125000000000 + (7618384777 \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 125000000000 - (7618384777 \cos(q_5) \sin(q_3) \sin(q_6)^2) / 125000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_5)) / 125000000000 + (10421867 \cos(q_3) \cos(q_4) \sin(q_6)) / 1953125000 + (32755927981 \cos(q_5) \cos(q_6) \sin(q_3)) / 250000000000 - (7618384777 \cos(q_3) \cos(q_4) \cos(q_6)^2 \sin(q_5)) / 125000000000 - (32755927981 \cos(q_4)^2 \cos(q_5) \cos(q_6) \sin(q_3)) / 250000000000 + (7618384777 \cos(q_3) \cos(q_4) \sin(q_5) \sin(q_6)^2) / 125000000000 - (7618384777 \cos(q_4)^2 \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 62500000000 + (7618384777 \cos(q_4)^2 \cos(q_5) \sin(q_3) \sin(q_6)^2) / 62500000000 + (10421867 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_4)) / 1953125000 + (32755927981 \cos(q_4) \sin(q_3) \sin(q_4) \sin(q_6)) / 250000000000 + (7618384777 \cos(q_4) \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_3) \cos(q_5) \cos(q_6) \sin(q_4) \sin(q_5) \sin(q_6)) / 62500000000 + (7618384777 \cos(q_4) \cos(q_5)^2 \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 62500000000 - dq_5 * ((7618384777 \cos(q_3) \sin(q_5)) / 125000000000 - (7618384777 \cos(q_3) \cos(q_6)^2 \sin(q_5)) / 125000000000 + (7618384777 \cos(q_3) \sin(q_5) \sin(q_6)^2) / 125000000000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_3)) / 125000000000 - (7618384777 \cos(q_4) \cos(q_5) \cos(q_6)^2 \sin(q_3)) / 125000000000 + (7618384777 \cos(q_4) \cos(q_5) \sin(q_3) \sin(q_6)^2) / 125000000000 + (7618384777 \cos(q_6) \sin(q_3) \sin(q_4) \sin(q_6)) / 62500000000) + dq_2 * ((2740951021 \cos(q_4) \sin(q_6)) / 15625000000 - (10421867 \cos(q_6) \sin(q_5)) / 1953125000 - (7618384777 \cos(q_6) \sin(q_6)) / 62500000000 + (32755927981 \cos(q_3)^2 \sin(q_6)) / 250000000000 + (3275$$

$$\begin{aligned} & 4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 25000000000 - (10421867 * \cos(q_3) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 1953125000 + (7618384777 * \cos(q_3) * \cos(q_6)^2 * \sin(q_3) * \sin(q_4) * \sin(q_5)) / 62500000000 - (7618384777 * \cos(q_3) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)^2) / 62500000000 - (7618384777 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 62500000000 + (7618384777 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) / 62500000000 + (10421867 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3)) / 1953125000 - (7618384777 * \cos(q_3)^2 * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 + (32755927981 * \cos(q_3) * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_5)) / 250000000000 - (32755927981 * \cos(q_3)^2 * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_3) * \sin(q_5) * \sin(q_6)) / 31250000000), \\ & dq4 * ((7618384777 * \cos(q_4) * \sin(q_5)) / 125000000000 + (7618384777 * \cos(q_4) * \cos(q_6)^2 * \sin(q_5)) / 125000000000 - (7618384777 * \cos(q_4) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (32755927981 * \cos(q_4) * \cos(q_6) * \sin(q_5)) / 250000000000 - (7618384777 * \cos(q_5) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000) - dq2 * ((7618384777 * \cos(q_5) * \sin(q_3)) / 125000000000 + (7618384777 * \cos(q_5) * \cos(q_6)^2 * \sin(q_3)) / 125000000000 - (7618384777 * \cos(q_5) * \sin(q_3) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \sin(q_5)) / 125000000000 + (10421867 * \cos(q_3) * \cos(q_4) * \sin(q_6)) / 1953125000 + (32755927981 * \cos(q_5) * \cos(q_6) * \sin(q_3)) / 250000000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6)^2 * \sin(q_5)) / 125000000000 - (32755927981 * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_3)) / 250000000000 + (7618384777 * \cos(q_3) * \cos(q_4) * \sin(q_5) * \sin(q_6)^2) / 125000000000 - (7618384777 * \cos(q_4)^2 * \cos(q_5) * \cos(q_6)^2 * \sin(q_3)) / 62500000000 + (7618384777 * \cos(q_4)^2 * \cos(q_5) * \sin(q_3) * \sin(q_6)^2) / 62500000000 + (10421867 * \cos(q_3) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 1953125000 + (32755927981 * \cos(q_4) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_4) * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_5) * \cos(q_6) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_4) * \cos(q_5)^2 * \cos(q_6) * \sin(q_3) * \sin(q_4) * \sin(q_6)) / 62500000000) - dq1 * ((32755927981 * \cos(q_2) * \cos(q_4)^2 * \sin(q_6)) / 250000000000 - (32755927981 * \cos(q_2) * \sin(q_6)) / 250000000000 - (7618384777 * \cos(q_3) * \cos(q_5) * \sin(q_2)) / 125000000000 + (10421867 * \cos(q_2) * \cos(q_6) * \sin(q_5)) / 1953125000 - (7618384777 * \cos(q_3) * \cos(q_5) * \cos(q_6)^2 * \sin(q_2)) / 125000000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_2) * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_3) * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 125000000000 - (32755927981 * \cos(q_3) * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 250000000000 + (7618384777 * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_6)) / 1953125000 - (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) / 62500000000 - (7618384777 * \cos(q_4) * \cos(q_6)^2 * \sin(q_2) * \sin(q_3) * \sin(q_5)) / 125000000000 + (7618384777 * \cos(q_4) * \sin(q_2) * \sin(q_3) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 62500000000 + (7618384777 * \cos(q_2) * \cos(q_4)^2 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \sin(q_2) * \sin(q_6)^2) / 62500000000 + (32755927981 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 250000000000 - (32755927981 * \cos(q_3) * \cos(q_4) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 250000000000 + (10421867 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4)) / 1953125000 + (32755927981 * \cos(q_3) * \cos(q_4)^2 * \cos(q_5) * \cos(q_6) * \sin(q_2)) / 250000000000 + (7618384777 * \cos(q_2) * \cos(q_4) * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_5) * \cos(q_6) * \sin(q_2) * \sin(q_3) * \sin(q_4) * \sin(q_5) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_3) * \cos(q_4) * \cos(q_5)^2 * \cos(q_6) * \sin(q_2) * \sin(q_4) * \sin(q_6)) / 62500000000) - dq3 * ((10421867 * \cos(q_6) * \sin(q_5)) / 1953125000 - (32755927981 * \sin(q_6)) / 250000000000 + (32755927981 * \cos(q_4)^2 * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_4)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000 + (7618384777 * \cos(q_4) * \cos(q_5) * \cos(q_6) * \sin(q_4)) / 250000000000) + dq5 * ((7618384777 * \cos(q_5) * \sin(q_4)) / 125000000000 - (7618384777 * \cos(q_5) * \cos(q_6)^2 * \sin(q_4)) / 125000000000 + (7618384777 * \cos(q_5) * \sin(q_4) * \sin(q_6)^2) / 125000000000 - (7618384777 * \cos(q_4) * \cos(q_6) * \sin(q_6)) / 62500000000), \\ & dq4 * ((32755927981 * \sin(q_6)) / 250000000000 + (7618384777 * \cos(q_6) * \sin(q_6)) / 62500000000 - (7618384777 * \cos(q_5)^2 * \cos(q_6) * \sin(q_6)) / 62500000000) - dq5 * ((7618384777 * \sin(q_5)) / 125000000000 - (7618384777 * \cos(q_6)^2 * \sin(q_5)) / 125000000000 + (7618384777 * \sin(q_5) * \sin(q_6)^2) / 125000000000) + dq3 * ((7618384777 * \cos(q_4) * \sin(q_5)) / 125000000000 + (7618384777 * \cos(q_4) * \cos(q_6)^2 * \sin(q_5)) / 125000000000 - (7618384777 * \cos(q_4) * \sin(q_5) * \sin(q_6)^2) / 125000000000 + (32755927981 * \cos(q_4) * \cos(q_6) * \sin(q_5)) / 250000000000 - (7618384777 * \cos(q_5) * \cos(q_6) * \sin$$

$$\begin{aligned}
& n(q_5))/125000000000 - (7618384777*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_6)^2*\sin(q_2)*\sin(q_4)*\sin(q_5))/125000000000 + (7618384777*\cos(q_5)^2*\cos(q_6)*\sin(q_2)*\sin(q_3)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)*\sin(q_2)*\sin(q_4)*\sin(q_5)*\sin(q_6)^2)/125000000000 + (32755927981*\cos(q_3)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_5))/250000000000 + (7618384777*\cos(q_2)*\cos(q_5)*\cos(q_6)*\sin(q_4)*\sin(q_5)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)*\sin(q_2)*\sin(q_5)*\sin(q_6))/62500000000, dq1*((7618384777*\cos(q_2)*\cos(q_5)*\sin(q_4))/125000000000 - (7618384777*\sin(q_2)*\sin(q_3)*\sin(q_5))/125000000000 - (7618384777*\cos(q_2)*\cos(q_5)*\cos(q_6)^2*\sin(q_4))/125000000000 + (7618384777*\cos(q_2)*\cos(q_5)*\sin(q_4)*\sin(q_6)^2)/125000000000 + (7618384777*\cos(q_6)^2*\sin(q_2)*\sin(q_3)*\sin(q_5))/125000000000 - (7618384777*\sin(q_2)*\sin(q_3)*\sin(q_5)*\sin(q_6)^2)/125000000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_2))/125000000000 - (7618384777*\cos(q_2)*\cos(q_4)*\cos(q_6)*\sin(q_6))/62500000000 + (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\sin(q_2)*\sin(q_6)^2)/125000000000 + (7618384777*\cos(q_3)*\cos(q_6)*\sin(q_2)*\sin(q_4)*\sin(q_6))/62500000000 - (7618384777*\cos(q_3)*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_2))/125000000000) - dq2*((7618384777*\cos(q_3)*\sin(q_5))/125000000000 - (7618384777*\cos(q_3)*\cos(q_6)^2*\sin(q_5))/125000000000 + (7618384777*\cos(q_3)*\sin(q_5)*\sin(q_6)^2)/125000000000 + (7618384777*\cos(q_4)*\cos(q_5)*\sin(q_3))/125000000000 - (7618384777*\cos(q_4)*\cos(q_5)*\cos(q_6)^2*\sin(q_3))/125000000000 + (7618384777*\cos(q_4)*\cos(q_5)*\sin(q_3)*\sin(q_6)^2)/125000000000 + (7618384777*\cos(q_6)*\sin(q_3)*\sin(q_4)*\sin(q_6))/62500000000) - dq4*((7618384777*\sin(q_5))/125000000000 - (7618384777*\cos(q_6)^2*\sin(q_5))/125000000000 + (7618384777*\sin(q_5)*\sin(q_6)^2)/125000000000) + dq3*((7618384777*\cos(q_5)*\sin(q_4))/125000000000 - (7618384777*\cos(q_5)*\cos(q_6)^2*\sin(q_4))/125000000000 + (7618384777*\cos(q_5)*\sin(q_4)*\sin(q_6)^2)/125000000000 - (7618384777*\cos(q_4)*\cos(q_6)*\sin(q_6))/62500000000) - (7618384777*dq5*\cos(q_6)*\sin(q_6))/62500000000,0,0; \\
& 0,0,0,0,0,0,0; \\
&]
\end{aligned}$$