System Dynaics for 25-Body System in 3 Dimensions with New
Polaris via Python Code
March 23, 2024

					March	23, 2024 to Space Model						
$n=1, n\neq 1$ 25			$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$0 0 0 0 0 \frac{Gm_{11}}{r_{1,11}^3} 0 0 0 0 0 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$0 0 0 0 \frac{Gm_{14}}{r_{1,14}^3} 0 0 0 0 0 \frac{Gm_{15}}{r_{1,15}^3}$		$0 0 0 0 0 \frac{Gm_{18}}{r_{1,18}^3} 0 0 0 0 0 0 \frac{Gm_{19}}{r_{1,19}^3} 0$	$0 \qquad 0 0 0 \frac{Gm_{20}}{r_{1,20}^3} \qquad 0 \qquad 0 0 0 0 \frac{Gm_{21}}{r_{1,21}^3}$	$0 0 0 0 0 \frac{Gm_{22}}{r_{1,22}^3} 0 0$	$0 0 0 \frac{Gm_{23}}{r_{1,23}^3} \qquad 0 \qquad 0 0 0 0 \frac{Gm_{24}}{r_{1,24}^3} $	$0 0 0 0 0 \frac{Gm_{25}}{r_{1,25}^3} 0 0 0 0 0 0$
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$0 \frac{Gm_1}{r_{4,1}^3} 0 0 0 0$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$0 \ 0 \ 0 \ \frac{Gm_5}{r_{4,5}^3} \qquad 0 \qquad 0 \ 0 \ 0 \ \frac{Gm_6}{r_{4,6}^3} \qquad 0 \qquad 0 \ 0 \ 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{4,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{4,11}^3}$ 0 0 0 0	$0 \frac{Gm_{12}}{r_{4,12}^3} 0 0 0 0 0 \frac{Gm_{13}}{r_{4,13}^3}$	0 0 0 0 0 $\frac{Gm_{14}}{r_{4,14}^3}$ 0 0 0 0 0	$\frac{Gm_{15}}{r_{4,15}^3}$ 0 0 0 0 0 $\frac{Gm_{16}}{r_{4,16}^3}$ 0 0 0 0 0	$\frac{Gm_{17}}{r_{4,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{4,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{4,1}^3}$	$\frac{Gm_{20}}{r_{4,20}^3}$ 0 0 0 0 0 0	$\frac{Gm_{21}}{r_{4,21}^3}$ 0 0 0 0 0 $\frac{Gm_{22}}{r_{4,22}^3}$ 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{4,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{4,25}^3}$ 0 0 0 0 0
$0 \frac{Gm_1}{r_{5,1}^3} 0 0 0 0$	$0 \qquad \frac{Gm_2}{r_{5,2}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad \qquad 0 \qquad \qquad \frac{Gm_3}{r_{5,3}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \qquad \frac{Gm_4}{r_{5,4}^3} \qquad \qquad 0$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{5,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{5,11}^3}$ 0 0 0 0	$0 \frac{Gm_{12}}{r_{5,12}^3} 0 0 0 0 0 \frac{Gm_{13}}{r_{5,13}^3}$	$0 \qquad 0 0 0 \qquad \qquad \frac{Gm_{14}}{r_{5,14}^3} \qquad \qquad 0 \qquad \qquad 0 0 0$	$\frac{Gm_{15}}{r_{5,15}^3}$ 0 0 0 0 0 $\frac{Gm_{16}}{r_{5,16}^3}$ 0 0 0 0 0	$\frac{Gm_{17}}{r_{5,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{5,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{5,1}^3}$	$\frac{Gm_{20}}{r_{5,20}^3}$ 0 0 0 0 0	$\frac{Gm_{21}}{r_{5,21}^3}$ 0 0 0 0 0 $\frac{Gm_{22}}{r_{5,22}^3}$ 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{5,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{5,25}^3}$ 0 0 0 0
$\begin{bmatrix} x_1 \\ y_1 \\ z_1 \end{bmatrix} \qquad 0 \qquad 0 \qquad 0 \qquad 0$ $\begin{bmatrix} 0 & 0 & \frac{Gm_1}{r_{6,1}^3} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{6,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{6,11}^3}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$0 \qquad \frac{Gm_{12}}{r_{6,12}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_{13}}{r_{6,13}^3}$ $0 \qquad 0 \qquad \frac{Gm_{12}}{r_{6,12}^3} \qquad 0 0 0 \qquad 0$	$egin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{15}}{r_{6,15}^3}$ 0 0 0 0 0 $\frac{Gm_{16}}{r_{6,16}^3}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$rac{Gm_{19}}{r_{6,19}^3} = 0 0 0 0 rac{Gm_{20}}{r_{6,20}^3} = 0 0 0 0 0$	$ \frac{Gm_{21}}{r_{6,21}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_{22}}{r_{6,22}^3} \qquad 0 $ $ 0 \qquad \frac{Gm_{21}}{r_{6,21}^3} \qquad 0 0 0 \qquad 0 \qquad \frac{Gm_{22}}{r_{6,22}^3} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{6,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{6,25}^3}$ 0 0 0 0 0 0 $\frac{Gm_{25}}{r_{6,25}^3}$ 0 0 0 0 $\frac{Gm_{25}}{r_{6,25}^3}$ 0 0 0 0 $\frac{Gm_{25}}{r_{1}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{1}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{1}^3}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
$ \begin{vmatrix} \dot{y_1} \\ \dot{z_1} \\ \dot{z_2} \\ y_2 \\ z_2 \\ \dot{x_2} \\ \dot{y_2} \\ \dot{z_2} \end{vmatrix} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} g_3 \\ z_3 \\ \dot{x}_3 \\ \dot{y}_3 \\ \dot{z}_3 \\ x_4 \\ y_4 \end{vmatrix} = \begin{vmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 &$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} x_5 \\ y_5 \\ z_5 \\ x_5 \\ y_5 \\ \vdots \\ x_6 \end{vmatrix} = \begin{vmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 &$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} \dot{x_6} \\ \dot{y_6} \\ \dot{z_6} \\ \dot{z_6} \\ x_7 \\ y_7 \\ z_7 \end{vmatrix} = \begin{vmatrix} 0 & 0 & \frac{Gm_1}{r_{9,1}^3} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 &$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} z_8 \\ \dot{x_8} \\ \dot{y_8} \\ \dot{y_8} \\ \dot{z_8} \\ z_9 \\ y_9 \\ z_9 \end{vmatrix} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} y_{10} \\ z_{10} \\ x_{10} \\ y_{10} \\ z_{10} \\ z_{10} \\ z_{11} \\ y_{11} \end{vmatrix} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \frac{Gm_7}{r_{12,7}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad \frac{Gm_8}{r_{12,8}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad \frac{Gm_9}{r_{12,9}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 $	$\frac{Gm_{10}}{r_{12,10}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad \frac{Gm_{11}}{r_{12,11}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0$ $0 \qquad \frac{Gm_{10}}{r_{12,10}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad \frac{Gm_{11}}{r_{12,11}^3} \qquad 0 \qquad 0 \qquad 0$ $0 \qquad 0 \qquad 0$ $0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0$ $0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0$ $0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0$ $0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$rac{Gm_{24}}{r_{12,24}^3}$ 0 0 0 0 0 $rac{Gm_{25}}{r_{12,25}^3}$ 0 0 0 0 0 $rac{Sn_{11}}{S_{11}}$ 0 0 0 0 0 $rac{Gm_{25}}{z_{12}^3}$ 0 0 0 0 0 $rac{Sn_{25}}{z_{12,25}^3}$ 0 0 0 0 $rac{Sn_{25}}{z_{12}}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
$ \frac{dt}{dt} \begin{vmatrix} x_{13} \\ x_{13} \\ y_{13} \\ z_{13} \end{vmatrix} = \begin{vmatrix} 0 & \frac{Gm_1}{r_{13,1}^3} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 &$	$0 \qquad \frac{Gm_2}{r_{13,2}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_3}{r_{13,3}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_4}{r_{13,4}^3} \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{13,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{13,11}^3}$ 0 0 0 0	$0 \qquad \frac{Gm_{12}}{r_{13,12}^3} \qquad 0 \qquad 0 0 0 \qquad \sum_{n=1,n\neq 13}^{25} \frac{-Gm_n}{r_{13,n}^3}$	$0 \qquad 0 0 0 \qquad \qquad \frac{Gm_{14}}{r_{13,14}^3} \qquad \qquad 0 \qquad \qquad 0 0 0$	$\frac{Gm_{15}}{r_{13,15}^3}$ 0 0 0 0 0 $\frac{Gm_{16}}{r_{13,16}^3}$ 0 0 0 0 0	$\frac{Gm_{17}}{r_{13,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{13,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{13,3}^3}$	$\frac{Gm_{20}}{r_{13,20}^3}$ 0 0 0 0 0 0	$\frac{Gm_{21}}{r_{13,21}^3}$ 0 0 0 0 0 $\frac{Gm_{22}}{r_{13,22}^3}$ 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{13,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{13,25}^3}$ 0 0 0 0 0 $\frac{\dot{x}_{13}}{\dot{x}_{13}}$
$\begin{bmatrix} z_{15} \\ x_{15} \\ y_{15} \\ z_{15} \end{bmatrix} \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0$	$0 \qquad \frac{Gm_2}{r_{14,2}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_3}{r_{14,3}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_4}{r_{14,4}^3} \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{14,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{14,11}^3}$ 0 0 0 0	$0 \qquad \frac{Gm_{12}}{r_{14,12}^3} \qquad \qquad 0 \qquad \qquad 0 0 \qquad 0 \qquad \qquad \frac{Gm_{13}}{r_{14,13}^3}$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{15}}{r_{14,15}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad \qquad 0 \qquad \qquad \frac{Gm_{16}}{r_{14,16}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0$	$\frac{Gm_{17}}{r_{14,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{14,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{14,18}^3}$	$\frac{Gm_{20}}{r_{14,20}^3}$ 0 0 0 0 0 0 0	$\frac{Gm_{21}}{r_{14,21}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad \qquad 0 \qquad \qquad \frac{Gm_{22}}{r_{14,22}^3} \qquad \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{14,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{14,25}^3}$ 0 0 0 0 0 $\frac{z_{15}}{z_{15}}$
$\begin{bmatrix} y_{17} \\ z_{17} \\ x_{17} \\ y_{17} \end{bmatrix} = \begin{bmatrix} 0 & \frac{Gm_1}{r_{15,1}^3} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix}$	$0 \qquad \frac{Gm_2}{r_{15,2}^3} \qquad \qquad 0 \qquad 0 0 0 \qquad \qquad \frac{Gm_3}{r_{15,3}^3} \qquad \qquad 0 \qquad \qquad 0 0 0 \qquad \qquad \frac{Gm_4}{r_{15,4}^3} \qquad \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{15,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{15,11}^3}$ 0 0 0 0	$0 \qquad \frac{Gm_{12}}{r_{15,12}^3} \qquad \qquad 0 \qquad \qquad 0 0 \qquad 0 \qquad \qquad \frac{Gm_{13}}{r_{15,13}^3}$	$0 \qquad 0 0 0 \qquad 0 \qquad \frac{Gm_{14}}{r_{15,14}^3} \qquad 0 \qquad 0 0 0 \qquad 0$	$\sum_{n=1,n\neq 15}^{25} \frac{-Gm_n}{r_{15,n}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \qquad \frac{Gm_{16}}{r_{15,16}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0$	$\frac{Gm_{17}}{r_{15,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{15,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{15,18}^3}$	$\frac{Gm_{20}}{r_{15,20}^3}$ 0 0 0 0 0 0 0	$\frac{Gm_{21}}{r_{15,21}^3}$ 0 0 0 0 0 $\frac{Gm_{22}}{r_{15,22}^3}$ 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{15,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{15,25}^3}$ 0 0 0 0 $\frac{y_{17}}{z_{17}}$ $\frac{z_{17}}{x_{17}}$
$\begin{bmatrix} x_{19} \\ y_{19} \\ z_{19} \\ x_{19} \end{bmatrix}$ 0 $\frac{Gm_1}{r_{16,1}^3}$ 0 0 0 0	$0 \qquad \frac{Gm_2}{r_{16,2}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_3}{r_{16,3}^3} \qquad 0 \qquad 0 0 0 \qquad \frac{Gm_4}{r_{16,4}^3} \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{16,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{16,11}^3}$ 0 0 0 0	$0 \qquad \frac{Gm_{12}}{r_{16,12}^3} \qquad \qquad 0 \qquad \qquad 0 0 \qquad 0 \qquad \qquad \frac{Gm_{13}}{r_{16,13}^3}$	0 0 0 0 0 $\frac{Gm_{14}}{r_{16,14}^3}$ 0 0 0 0 0	$\frac{Gm_{15}}{r_{16,15}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \qquad \sum_{n=1,n\neq 16}^{25} \frac{-Gm_n}{r_{16,n}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0$	$\frac{Gm_{17}}{r_{16,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{16,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{16,18}^3}$	$\frac{Gm_{20}}{r_{16,20}^3}$ 0 0 0 0 0 0	$\frac{Gm_{21}}{r_{16,21}^3}$ 0 0 0 0 0 $\frac{Gm_{22}}{r_{16,22}^3}$ 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{16,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{16,25}^3}$ 0 0 0 0 $\frac{y_{19}}{y_{19}}$
$ \begin{vmatrix} z_{19} \\ x_{20} \\ y_{20} \\ z_{20} \\ y_{20} \\ z_{20} \\ y_{20} \\ y_{20} \\ z_{20} \\ y_{20} \\ z_{20} \\ z_{20} \\ y_{21} \\ z_{21} \\ y_{21} \end{vmatrix} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} y_{21} \\ z_{21} \\ x_{22} \\ y_{22} \\ z_{22} \\ y_{22} \end{vmatrix} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \begin{vmatrix} y_{23} \\ z_{23} \\ x_{23} \\ y_{23} \\ z_{23} \\ z_{23} \\ z_{24} \\ z_{24} \\ x_{24} \end{vmatrix} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{bmatrix} x_{25} \\ y_{25} \\ z_{25} \\ x_{25} \\ y_{25} \\ z_{25} \end{bmatrix} = \begin{bmatrix} 0 & 0 & \frac{Gm_1}{r_{19,1}^3} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 &$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\sum_{n=1,n\neq 19}^{25} \frac{-Gm_n}{r_{19,n}^3} 0 0 0 0 \frac{Gm_{20}}{r_{19,20}^3} 0 0 0 0 0 0 0 0 0 $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{19}}{r_{20,19}^3} \qquad 0 0 0 \qquad 0 \qquad 0 \qquad \sum_{n=1,n\neq 20}^{25} \frac{-Gm_n}{r_{20,n}^3} 0 0 0 0 0 0 0 0 0 $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\sum_{n=1, n \neq 21}^{25} \frac{-Gm_n}{r_{21,n}^3} \qquad 0 \qquad 0 0 0 \qquad 0 \qquad \frac{Gm_{22}}{r_{21,22}^3} \qquad 0$ $0 \qquad \sum_{n=1, n \neq 21}^{25} \frac{-Gm_n}{r_{21,n}^3} 0 0 0 \qquad 0 \qquad 0 \qquad \frac{Gm_{22}}{r_{21,22}^3}$ $0 \qquad 0 \qquad 0 0 0 \qquad 0 \qquad 0$ $0 \qquad 0 \qquad 0 0 0 \qquad 0$ $0 \qquad 0 \qquad 0 0 0$ $0 \qquad 0 \qquad 0 0 0$ $0 \qquad 0 \qquad 0 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$0 \frac{Gm_1}{r_{22,1}^3} 0 0 0 0$	$0 \qquad \frac{Gm_2}{r_{22,2}^3} \qquad \qquad 0 \qquad 0 0 0 \qquad \qquad \frac{Gm_3}{r_{22,3}^3} \qquad \qquad 0 \qquad \qquad 0 0 0 \qquad \qquad \frac{Gm_4}{r_{22,4}^3} \qquad \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{22,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{22,11}^3}$ 0 0 0 0	$0 \qquad \frac{Gm_{12}}{r_{22,12}^3} \qquad \qquad 0 \qquad \qquad 0 0 0 \qquad \qquad \frac{Gm_{13}}{r_{22,13}^3}$	0 0 0 0 0 $\frac{Gm_{14}}{r_{22,14}^3}$ 0 0 0 0 0	$\frac{Gm_{15}}{r_{22,15}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad \qquad 0 \qquad \qquad \frac{Gm_{16}}{r_{22,16}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0$	$\frac{Gm_{17}}{r_{22,17}^3}$ 0 0 0 0 0 $\frac{Gm_{18}}{r_{22,18}^3}$ 0 0 0 0 0 $\frac{Gm}{r_{22,18}^3}$	$\frac{Gm_{20}}{r_{22,20}^3}$ 0 0 0 0 0 0 0 0	$\frac{Gm_{21}}{r_{22,21}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \sum_{n=1,n\neq 22}^{25} \frac{-Gm_n}{r_{22,n}^3} \qquad \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{22,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{22,25}^3}$ 0 0 0 0 0
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{10}}{r_{23,10}^3}$ 0 0 0 0 0 $\frac{Gm_{11}}{r_{23,11}^3}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$egin{array}{cccccccccccccccccccccccccccccccccccc$	$rac{Gm_{15}}{r_{23,15}^3}$ 0 0 0 0 0 $rac{Gm_{16}}{r_{23,16}^3}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$rac{Gm_{19}}{r_{23,19}^3} = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = $	$egin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\frac{Gm_{24}}{r_{23,24}^3}$ 0 0 0 0 0 $\frac{Gm_{25}}{r_{23,25}^3}$ 0 0 0 0 0 0 0 $\frac{Gm_{25}}{r_{23,25}^3}$ 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
$ \frac{Gm_1}{r_{24,1}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 \qquad 0 $ $ 0 \qquad \frac{Gm_1}{r_{24,1}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 $ $ 0 \qquad 0 \qquad \frac{Gm_1}{r_{24,1}^3} \qquad 0 \qquad 0 \qquad 0 $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$rac{Gm_{19}}{r_{24,19}^3} = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = 0 = $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
$ \frac{Gm_1}{r_{25,1}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 $ $ 0 \qquad \frac{Gm_1}{r_{25,1}^3} \qquad 0 \qquad 0 \qquad 0 \qquad 0 $	$\frac{Gm_2}{r_{25,2}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \frac{Gm_3}{r_{25,3}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \frac{Gm_4}{r_{25,4}^3} \qquad \qquad 0 \qquad \qquad 0$ $0 \qquad \qquad \frac{Gm_2}{r_{25,2}^3} \qquad \qquad 0 \qquad \qquad 0 \qquad 0 \qquad 0 \qquad \qquad 0 \qquad \qquad 0 \qquad \frac{Gm_4}{r_{25,4}^3} \qquad \qquad 0$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \frac{Gm_{12}}{r_{25,12}^3} \qquad 0 \qquad 0 \qquad 0 0 \frac{Gm_{13}}{r_{25,13}^3} \qquad 0 \\ 0 \qquad \frac{Gm_{12}}{r_{25,12}^3} \qquad 0 \qquad 0 0 0 \frac{Gm_{13}}{r_{25,13}^3} $	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$

${ m d}$	First Order ODEs
$\frac{\mathrm{d}}{\mathrm{d}t}x_1 = \dot{x_1}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{x_1} = -\frac{Gm_2}{r_{1,2}^3}(x_1 - x_2) - \frac{Gm_3}{r_{1,3}^3}(x_1 - x_3) - \frac{Gm_4}{r_{1,4}^3}(x_1 - x_4) - \frac{Gn}{r_1^3}$	$x_5) - \frac{Gm_6}{r_{1,6}^3}(x_1 - x_6) - \frac{Gm_7}{r_{1,7}^3}(x_1 - x_7) - \frac{Gm_8}{r_{1,8}^3}(x_1 - x_8) - \frac{Gm_9}{r_{1,9}^3}(x_1 - x_9) - \frac{Gm_{10}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{11}}{r_{1,12}^3}(x_1 - x_{10}) - \frac{Gm_{12}}{r_{1,13}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{10}) - \frac{Gm_{20}}{r_{1,20}^3}(x_1 - x_{10}) $
$\frac{\mathrm{d}}{\mathrm{d}t}y_1 = \dot{y_1}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{y_1} = -\frac{Gm_2}{r_{1,2}^3}(x_1 - x_2) - \frac{Gm_3}{r_{1,3}^3}(x_1 - x_3) - \frac{Gm_4}{r_{1,4}^3}(x_1 - x_4) - \frac{Gr}{r_{1,4}^5}$	$-x_5) - \frac{Gm_6}{r_{1,6}^3}(x_1 - x_6) - \frac{Gm_7}{r_{1,7}^3}(x_1 - x_7) - \frac{Gm_8}{r_{1,8}^3}(x_1 - x_8) - \frac{Gm_{10}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{11}}{r_{1,11}^3}(x_1 - x_{11}) - \frac{Gm_{12}}{r_{1,12}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{12}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{12}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{12}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{12}}{r_{1,13}^3}(x_1 - x_{12}) - \frac{Gm_{13}}{r_{1,13}^3}(x_1 - $
$\frac{\mathrm{d}}{\mathrm{d}t}z_1 = \dot{z}_1$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{z}_1 = -\frac{Gm_2}{r_{1,2}^3}(x_1 - x_2) - \frac{Gm_3}{r_{1,3}^3}(x_1 - x_3) - \frac{Gm_4}{r_{1,4}^3}(x_1 - x_4) - \frac{Gr}{r_1^3}$	$-x_5) - \frac{Gm_6}{r_{1,6}^3}(x_1 - x_6) - \frac{Gm_7}{r_{1,7}^3}(x_1 - x_7) - \frac{Gm_8}{r_{1,8}^3}(x_1 - x_8) - \frac{Gm_{10}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{11}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{12}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{12}}{r_{1,10}^3}(x_1 - x_{10}) - \frac{Gm_{13}}{r_{1,10}^3}(x_1 - $
$\frac{\mathrm{d}}{\mathrm{d}t}x_2 = \dot{x_2}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{x_2} = -\frac{Gm_1}{r_{2,1}^3}(x_2 - x_1) - \frac{Gm_3}{r_{2,3}^3}(x_2 - x_3) - \frac{Gm_4}{r_{2,4}^3}(x_2 - x_4) - \frac{Gr}{r}$	$x_{5}) - \frac{Gm_{6}}{r_{2,6}^{3}}(x_{2} - x_{6}) - \frac{Gm_{7}}{r_{2,7}^{3}}(x_{2} - x_{7}) - \frac{Gm_{8}}{r_{2,8}^{3}}(x_{2} - x_{8}) - \frac{Gm_{10}}{r_{2,10}^{3}}(x_{2} - x_{10}) - \frac{Gm_{11}}{r_{2,11}^{3}}(x_{2} - x_{11}) - \frac{Gm_{12}}{r_{2,13}^{3}}(x_{2} - x_{12}) - \frac{Gm_{13}}{r_{2,13}^{3}}(x_{2} - x_{12}) - \frac{Gm_{23}}{r_{2,23}^{3}}(x_{2} - x_{22}) - \frac{Gm_{23}}{r_{2,23}^{3}$
$d_{y_{1}} = i$	$x_5) - \frac{Gm_6}{r_{2,6}^3}(x_2 - x_6) - \frac{Gm_7}{r_{2,7}^3}(x_2 - x_7) - \frac{Gm_8}{r_{2,8}^3}(x_2 - x_8) - \frac{Gm_{10}}{r_{2,10}^3}(x_2 - x_{10}) - \frac{Gm_{11}}{r_{2,11}^3}(x_2 - x_{11}) - \frac{Gm_{12}}{r_{2,13}^3}(x_2 - x_{12}) - \frac{Gm_{13}}{r_{2,23}^3}(x_2 - x_{12}) - \frac{Gm_{13}}{r_{2,23}^3}(x_2 - x_{12}) - \frac{Gm_{13}}{r_{2,23}^3}(x_2 - x_{12}) - \frac{Gm_{13}}{r_{2,23}^3}(x_2 - x_{12}) - \frac{Gm_{23}}{r_{2,23}^3}(x_2 - x$
$\frac{\mathrm{d}}{-}z_2=\dot{z_2}$	$-x_{5}) - \frac{Gm_{6}}{r_{2,6}^{3}}(x_{2} - x_{6}) - \frac{Gm_{7}}{r_{2,7}^{3}}(x_{2} - x_{7}) - \frac{Gm_{8}}{r_{2,8}^{3}}(x_{2} - x_{8}) - \frac{Gm_{10}}{r_{2,10}^{3}}(x_{2} - x_{10}) - \frac{Gm_{10}}{r_{2,10}^{3}}(x_{2} - x_{20}) - \frac{Gm_{10}}{r_{2,10}^{3$
$\frac{\mathrm{d}}{\mathrm{d}}x_0 - \dot{x_0}$	$-x_5) - \frac{Gm_6}{r_{3.6}^3}(x_3 - x_6) - \frac{Gm_7}{r_{3.7}^3}(x_3 - x_7) - \frac{Gm_8}{r_{3.8}^3}(x_3 - x_8) - \frac{Gm_{10}}{r_{3.10}^3}(x_3 - x_{10}) - \frac{Gm_{11}}{r_{3.11}^3}(x_3 - x_{11}) - \frac{Gm_{12}}{r_{3.12}^3}(x_3 - x_{12}) - \frac{Gm_{13}}{r_{3.14}^3}(x_3 - x_{12}) - \frac{Gm_{13}}{r_{3.15}^3}(x_3 - x_{12}) - \frac{Gm_{20}}{r_{3.20}^3}(x_3 - x_{22}) - \frac{Gm_{20}}{r_{3.20}^3}(x_3 - $
d .	$r_{3,6}^{2} \leftarrow x_{5} - \frac{Gm_{6}}{r_{3,6}^{2}}(x_{3} - x_{6}) - \frac{Gm_{7}}{r_{3,7}^{2}}(x_{3} - x_{7}) - \frac{Gm_{10}}{r_{3,10}^{2}}(x_{3} - x_{1}) - \frac{Gm_{10}}{r_{3,11}^{2}}(x_{3} - x_{1}) - \frac{Gm_{10}}{r_{3,10}^{2}}(x_{3} - x_{1}) - \frac{Gm_{10}}$
$^{ m d}$ $_{\sim}$. $_{\sim}$ $_{\sim}$	$\frac{c_{3}}{c_{3}} - \frac{c_{3}}{c_{3}} - \frac{c_{3}}{c$
$^{ m d}$	
$d_{\alpha \alpha - \alpha}$	$x_{5} - \frac{Gm_{6}}{r_{4,6}^{3}}(x_{4} - x_{6}) - \frac{Gm_{7}}{r_{4,7}^{3}}(x_{4} - x_{7}) - \frac{Gm_{8}}{r_{4,8}^{3}}(x_{4} - x_{7}) - \frac{Gm_{10}}{r_{4,10}^{3}}(x_{4} - x_{10}) - \frac{Gm_{11}}{r_{4,11}^{3}}(x_{4} - x_{10}) - \frac{Gm_{12}}{r_{4,12}^{3}}(x_{4} - x_{10}) - \frac{Gm_{13}}{r_{4,13}^{3}}(x_{4} - x_{10}) - \frac{Gm_{13}}{r_{4,13}^{3}}$
$\frac{\mathrm{d}}{\mathrm{d}}z_4 = \dot{z_4}$	$-\frac{Gm_{6}}{r_{4,6}^{3}}(x_{4}-x_{6})-\frac{Gm_{7}}{r_{4,7}^{3}}(x_{4}-x_{7})-\frac{Gm_{8}}{r_{4,8}^{3}}(x_{4}-x_{9})-\frac{Gm_{10}}{r_{4,10}^{3}}(x_{4}-x_{10})-\frac{Gm_{11}}{r_{4,11}^{3}}(x_{4}-x_{11})-\frac{Gm_{12}}{r_{4,12}^{3}}(x_{4}-x_{12})-\frac{Gm_{13}}{r_{4,13}^{3}}$
$\frac{\mathrm{d}t}{\mathrm{d}t}\dot{z}_4 = -\frac{Gm_1}{r_{4,1}^3}(x_4 - x_1) - \frac{Gm_2}{r_{4,2}^3}(x_4 - x_2) - \frac{Gm_3}{r_{4,3}^3}(x_4 - x_3) - \frac{Gm_3}{r_4^3}$	$-x_5) - \frac{Gm_6}{r_{4,6}^3}(x_4 - x_6) - \frac{Gm_7}{r_{4,7}^3}(x_4 - x_7) - \frac{Gm_8}{r_{4,8}^3}(x_4 - x_8) - \frac{Gm_9}{r_{4,9}^3}(x_4 - x_9) - \frac{Gm_{10}}{r_{4,10}^3}(x_4 - x_{10}) - \frac{Gm_{11}}{r_{4,11}^3}(x_4 - x_{11}) - \frac{Gm_{12}}{r_{4,13}^3}(x_4 - x_{12}) - \frac{Gm_{13}}{r_{4,13}^3}(x_4 - x_{12}) - \frac{Gm_{13}}{r_{4,13}^3}(x_4 - x_{12}) - \frac{Gm_{20}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{21}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{21}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{21}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{22}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{23}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{21}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{22}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{22}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{23}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{22}}{r_{4,20}^3}(x_4 - x_{20}) - \frac{Gm_{23}}{r_{4,20}^3}(x_4 - x_{20})$
d .	$-\frac{Gm_6}{r_{5,6}^3}(x_5-x_6) - \frac{Gm_7}{r_{5,7}^3}(x_5-x_7) - \frac{Gm_8}{r_{5,8}^3}(x_5-x_7) - \frac{Gm_{20}}{r_{5,9}^3}(x_5-x_9) - \frac{Gm_{10}}{r_{5,10}^3}(x_5-x_{10}) - \frac{Gm_{11}}{r_{5,11}^3}(x_5-x_{10}) - \frac{Gm_{12}}{r_{5,12}^3}(x_5-x_{10}) - \frac{Gm_{13}}{r_{5,13}^3}(x_5-x_{10}) - \frac{Gm_{12}}{r_{5,13}^3}(x_5-x_{10}) - \frac{Gm_{13}}{r_{5,13}^3}(x_5-x_{10}) - \frac{Gm_{12}}{r_{5,13}^3}(x_5-x_{10}) - \frac{Gm_{20}}{r_{5,10}^3}(x_5-x_{10}) - \frac{Gm_{20}}{r_{5,10}^3}(x_5-x_{10}$
$\frac{\mathrm{d}}{\mathrm{d}t}y_5 = \dot{y}_5$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{y}_5 = -\frac{Gm_1}{r_{5,1}^3}(x_5 - x_1) - \frac{Gm_2}{r_{5,2}^3}(x_5 - x_2) - \frac{Gm_3}{r_{5,3}^3}(x_5 - x_3) - \frac{Gr_3}{r_{5,2}^5}$	$-x_4) - \frac{Gm_6}{r_{5,6}^3}(x_5 - x_6) - \frac{Gm_7}{r_{5,7}^3}(x_5 - x_7) - \frac{Gm_8}{r_{5,8}^3}(x_5 - x_7) - \frac{Gm_{20}}{r_{5,10}^3}(x_5 - x_{10}) - \frac{Gm_{10}}{r_{5,11}^3}(x_5 - x_{10}) - \frac{Gm_{10}}{r_{5,11}^3}(x_5 - x_{10}) - \frac{Gm_{10}}{r_{5,12}^3}(x_5 - x_{10}) - \frac{Gm_{10}}{r_{5,12}^3}(x_5 - x_{10}) - \frac{Gm_{10}}{r_{5,12}^3}(x_5 - x_{10}) - \frac{Gm_{10}}{r_{5,10}^3}(x_5 - $
$\frac{\mathrm{d}}{\mathrm{d}t}z_5 = \dot{z_5}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{z_5} = -\frac{Gm_1}{r_{5,1}^3}(x_5 - x_1) - \frac{Gm_2}{r_{5,2}^3}(x_5 - x_2) - \frac{Gm_3}{r_{5,3}^3}(x_5 - x_3) - \frac{Gr}{r_5^3}$	$-\frac{Gm_{6}}{r_{5,6}^{3}}(x_{5}-x_{6})-\frac{Gm_{7}}{r_{5,7}^{3}}(x_{5}-x_{7})-\frac{Gm_{8}}{r_{5,8}^{3}}(x_{5}-x_{8})-\frac{Gm_{9}}{r_{5,10}^{3}}(x_{5}-x_{10})-\frac{Gm_{11}}{r_{5,11}^{3}}(x_{5}-x_{10})-\frac{Gm_{12}}{r_{5,12}^{3}}(x_{5}-x_{10})-\frac{Gm_{13}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{13}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{14}}{r_{5,14}^{3}}(x_{5}-x_{10})-\frac{Gm_{12}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{12}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{13}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{12}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{13}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{13}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{14}}{r_{5,14}^{3}}(x_{5}-x_{10})-\frac{Gm_{14}}{r_{5,14}^{3}}(x_{5}-x_{10})-\frac{Gm_{12}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{12}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{13}}{r_{5,13}^{3}}(x_{5}-x_{10})-\frac{Gm_{14}}{r_{5,14}^{3}}($
$\frac{\mathrm{d}}{\mathrm{d}t}x_6 = \dot{x_6}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{x_6} = -\frac{Gm_1}{r_{6,1}^3}(x_6 - x_1) - \frac{Gm_2}{r_{6,2}^3}(x_6 - x_2) - \frac{Gm_3}{r_{6,3}^3}(x_6 - x_3) - \frac{Gr}{r}$	$-x_4) - \frac{Gm_5}{r_{6,5}^3}(x_6 - x_5) - \frac{Gm_7}{r_{6,7}^3}(x_6 - x_7) - \frac{Gm_8}{r_{6,8}^3}(x_6 - x_8) - \frac{Gm_9}{r_{6,9}^3}(x_6 - x_9) - \frac{Gm_{10}}{r_{6,11}^3}(x_6 - x_{10}) - \frac{Gm_{11}}{r_{6,12}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{13}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{13}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,13}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{13}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{13}}{r_{6,23}^3}(x_6 - x_{10}) - \frac{Gm_{12}}{r_{6,23}^3}(x_6 - x_{10})$
$\frac{\mathrm{d}}{\mathrm{d}t}y_6 = \dot{y_6}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{y_6} = -\frac{Gm_1}{r_{6,1}^3}(x_6 - x_1) - \frac{Gm_2}{r_{6,2}^3}(x_6 - x_2) - \frac{Gm_3}{r_{6,2}^3}(x_6 - x_3) - \frac{Gr_3}{r_6^3}$	$-\frac{Gm_5}{r_{6,5}^3}(x_6-x_5)-\frac{Gm_7}{r_{6,7}^3}(x_6-x_7)-\frac{Gm_8}{r_{6,8}^3}(x_6-x_7)-\frac{Gm_8}{r_{6,8}^3}(x_6-x_9)-\frac{Gm_{10}}{r_{6,10}^3}(x_6-x_{10})-\frac{Gm_{11}}{r_{6,11}^3}(x_6-x_{10})-\frac{Gm_{12}}{r_{6,13}^3}(x_6-x_{10})-\frac{Gm_{13}}{r_{6,13}^3}(x_6-x_{10})-\frac{Gm_{12}}{r_{6,13}^3}(x_6-x_{10})-\frac{Gm_{13}}{r_{6,13}^3}(x_6-x_{10})-\frac{Gm_{12}}{r_{6,13}^3}(x_6-x_{10})-Gm_{$
m d .	$-x_4) - \frac{Gm_5}{r_{6,5}^3}(x_6 - x_5) - \frac{Gm_7}{r_{6,7}^3}(x_6 - x_7) - \frac{Gm_8}{r_{6,8}^3}(x_6 - x_8) - \frac{Gm_{10}}{r_{6,10}^3}(x_6 - x_{10}) - \frac{Gm_{11}}{r_{6,11}^3}(x_6 - x_{11}) - \frac{Gm_{12}}{r_{6,12}^3}(x_6 - x_{12}) - \frac{Gm_{13}}{r_{6,13}^3}(x_6 - x_{12}) - \frac{Gm_{23}}{r_{6,23}^3}(x_6 - x_{12}) - \frac{Gm_{23}}{r_{6,23}^3}(x_6 - x_{22}) - \frac{Gm_{23}}{r_{6,23}^3}(x_6 - $
d ;	$\frac{G_{6,5}}{r_{6,5}} = \frac{G_{7,5}}{r_{7,5}} $
$\frac{\mathrm{d}}{-}u_7=i_7$	
d .	$x_{4}) - \frac{Gm_{5}}{r_{7,5}^{3}}(x_{7} - x_{5}) - \frac{Gm_{6}}{r_{7,6}^{3}}(x_{7} - x_{5}) - \frac{Gm_{6}}{r_{7,6}^{3}}(x_{7} - x_{5}) - \frac{Gm_{10}}{r_{7,10}^{3}}(x_{7} - x_{10}) - \frac{Gm_{11}}{r_{7,12}^{3}}(x_{7} - x_{10}) - \frac{Gm_{12}}{r_{7,13}^{3}}(x_{7} - x_{10}) - \frac{Gm_{13}}{r_{7,13}^{3}}(x_{7} - x_{10}) - \frac{Gm_{13}}{r_{7,13}^{3}$
$^{\mathrm{d}}$ $_{\mathrm{max}}$ $=$ $^{\mathrm{d}}$	$-\frac{Gm_5}{r_{7,5}^3}(x_7-x_5)-\frac{Gm_6}{r_{7,5}^3}(x_7-x_5)-\frac{Gm_6}{r_{7,6}^3}(x_7-x_6)-\frac{Gm_6}{r_{7,5}^3}(x_7-x_8)-\frac{Gm_{10}}{r_{7,10}^3}(x_7-x_{10})-\frac{Gm_{11}}{r_{7,11}^3}(x_7-x_{11})-\frac{Gm_{12}}{r_{7,12}^3}(x_7-x_{12})-\frac{Gm_{13}}{r_{7,13}^3}(x_7-x_{12})-\frac{Gm_{24}}{r_{7,13}^3}(x_7-x_{12})-\frac{Gm_{25}}{r_{7,22}^3}(x_7-x_{21})-\frac{Gm_{26}}{r_{7,22}^3}(x_7-x_{21})-Gm_{$
$\frac{\mathrm{d}}{\mathrm{d}}u_0=u_0$	$-\frac{Gm_5}{r_{8,5}^3}(x_8-x_5) - \frac{Gm_6}{r_{8,6}^3}(x_8-x_5) - \frac{Gm_6}{r_{8,6}^3}(x_8-x_6) - \frac{Gm_7}{r_{8,7}^3}(x_8-x_7) - \frac{Gm_{10}}{r_{8,10}^3}(x_8-x_{10}) - \frac{Gm_{11}}{r_{8,11}^3}(x_8-x_{10}) - \frac{Gm_{12}}{r_{8,12}^3}(x_8-x_{10}) - \frac{Gm_{13}}{r_{8,13}^3}(x_8-x_{10}) - \frac{Gm_{14}}{r_{8,13}^3}(x_8-x_{10}) - \frac{Gm_{15}}{r_{8,15}^3}(x_8-x_{10}) - \frac{Gm_{16}}{r_{8,15}^3}(x_8-x_{10}) - \frac{Gm_{16}}{r_{8,16}^3}(x_8-x_{10}) -$
${ m d}$	$-x_{4}) - \frac{Gm_{5}}{r_{8,5}^{3}}(x_{8} - x_{5}) - \frac{Gm_{6}}{r_{8,6}^{3}}(x_{8} - x_{6}) - \frac{Gm_{10}}{r_{8,7}^{3}}(x_{8} - x_{7}) - \frac{Gm_{10}}{r_{8,10}^{3}}(x_{8} - x_{10}) - \frac{Gm_{11}}{r_{8,11}^{3}}(x_{8} - x_{10}) - \frac{Gm_{12}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{13}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{13}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{12}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{12}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{13}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{13}}{r_{8,13}^{3}}(x_{8} - x_{10}) - \frac{Gm_{20}}{r_{8,20}^{3}}(x_{8} - x_{20}) - \frac{Gm_{20}}{r_{8,20}^{$
$\frac{\mathrm{d}}{\mathrm{d}t}z_8 = \dot{z}_8$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{z}_8 = -\frac{Gm_1}{r_{8,1}^3}(x_8 - x_1) - \frac{Gm_2}{r_{8,2}^3}(x_8 - x_2) - \frac{Gm_3}{r_{8,3}^3}(x_8 - x_3) - \frac{Gm_3}{r_{8,2}^3}$	$x_4) - \frac{Gm_5}{r_{8,5}^3}(x_8 - x_5) - \frac{Gm_6}{r_{8,6}^3}(x_8 - x_6) - \frac{Gm_7}{r_{8,7}^3}(x_8 - x_7) - \frac{Gm_{20}}{r_{8,10}^3}(x_8 - x_7) - \frac{Gm_{10}}{r_{8,10}^3}(x_8 - x_{10}) - \frac{Gm_{11}}{r_{8,12}^3}(x_8 - x_{10}) - \frac{Gm_{12}}{r_{8,13}^3}(x_8 - x_{10}) - \frac{Gm_{12}}{r_{8,13}^3}(x_8 - x_{10}) - \frac{Gm_{13}}{r_{8,13}^3}(x_8 - x_{10}) - \frac{Gm_{14}}{r_{8,15}^3}(x_8 - x_{10}) - \frac{Gm_{20}}{r_{8,20}^3}(x_8 - x_{1$
$\frac{\mathrm{d}}{\mathrm{d}t}x_9 = \dot{x_9}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{x_9} = -\frac{Gm_1}{r_{9,1}^3}(x_9 - x_1) - \frac{Gm_2}{r_{9,2}^3}(x_9 - x_2) - \frac{Gm_3}{r_{9,3}^3}(x_9 - x_3) - \frac{Gr}{r_{5}^5}$	$-x_4) - \frac{Gm_5}{r_{9,5}^3}(x_9 - x_5) - \frac{Gm_6}{r_{9,5}^3}(x_9 - x_5) - \frac{Gm_6}{r_{9,5}^3}(x_9 - x_5) - \frac{Gm_6}{r_{9,5}^3}(x_9 - x_7) - \frac{Gm_{20}}{r_{9,10}^3}(x_9 - x_{10}) - \frac{Gm_{11}}{r_{9,11}^3}(x_9 - x_{11}) - \frac{Gm_{12}}{r_{9,12}^3}(x_9 - x_{12}) - \frac{Gm_{13}}{r_{9,13}^3}(x_9 - x_{12}) - \frac{Gm_{14}}{r_{9,15}^3}(x_9 - x_{12}) - \frac{Gm_{20}}{r_{9,20}^3}(x_9 - x_{12})$
$\frac{\mathrm{d}}{\mathrm{d}t}y_9 = \dot{y_9}$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{y_9} = -\frac{Gm_1}{r_{9,1}^3}(x_9 - x_1) - \frac{Gm_2}{r_{9,2}^3}(x_9 - x_2) - \frac{Gm_3}{r_{9,3}^3}(x_9 - x_3) - \frac{Gr}{r_{1}^3}$	$-x_{4}) - \frac{Gm_{5}}{r_{9,5}^{3}}(x_{9} - x_{5}) - \frac{Gm_{6}}{r_{9,6}^{3}}(x_{9} - x_{6}) - \frac{Gm_{20}}{r_{9,7}^{3}}(x_{9} - x_{7}) - \frac{Gm_{20}}{r_{9,10}^{3}}(x_{9} - x_{10}) - \frac{Gm_{10}}{r_{9,10}^{3}}(x_{9} - x_{10}) - \frac{Gm_{20}}{r_{9,10}^{3}}(x_{9} - x_{10}) - \frac{Gm_{20}}{r_{9,10}^{3}}(x_{9} - x_{10}) - \frac{Gm_{10}}{r_{9,10}^{3}}(x_{9} - x_{10}) - \frac{Gm_{10}}{r_{9,10}^{$
$\frac{\mathrm{d}}{\mathrm{d}t}z_9 = \dot{z}_9$ $\frac{\mathrm{d}}{\mathrm{d}t}\dot{z}_9 = -\frac{Gm_1}{r_{9,1}^3}(x_9 - x_1) - \frac{Gm_2}{r_{9,2}^3}(x_9 - x_2) - \frac{Gm_3}{r_{9,3}^3}(x_9 - x_3) - \frac{Gr}{r}$	$-x_4) - \frac{Gm_5}{r_{9,5}^3}(x_9 - x_5) - \frac{Gm_6}{r_{9,5}^3}(x_9 - x_5) - \frac{Gm_6}{r_{9,5}^3}(x_9 - x_5) - \frac{Gm_6}{r_{9,15}^3}(x_9 - x_7) - \frac{Gm_{10}}{r_{9,12}^3}(x_9 - x_{10}) - \frac{Gm_{11}}{r_{9,12}^3}(x_9 - x_{10}) - \frac{Gm_{12}}{r_{9,13}^3}(x_9 - x_{10}) - \frac{Gm_{13}}{r_{9,13}^3}(x_9 - x_{10}) - \frac{Gm_{14}}{r_{9,13}^3}(x_9 - x_{10}) - \frac{Gm_{15}}{r_{9,15}^3}(x_9 - x_{10}) - \frac{Gm_{16}}{r_{9,15}^3}(x_9 - x_{10}$
$^{\mathrm{d}}$	$ \int_{10}^{6} -x_4 \int_{10,5}^{6} (x_{10} - x_5) - \frac{Gm_5}{r_{10,5}^3} (x_{10} - x_5) - \frac{Gm_6}{r_{10,10}^3} (x_{10} - x_7) - \frac{Gm_8}{r_{10,10}^3} (x_{10} - x_{10}) - \frac{Gm_{11}}{r_{10,12}^3} (x_{10} - x_{10}) - \frac{Gm_{12}}{r_{10,13}^3} (x_{10} - x_{10}) - \frac{Gm_{13}}{r_{10,13}^3} (x_{10} - x_{10}) - \frac{Gm_{13}}{r_{10,13}^3} (x_{10} - x_{10}) - \frac{Gm_{20}}{r_{10,10}^3} (x_{10} - x_{10}) - \frac{Gm_{20}}{r_{10,10}^3} (x_{10} - x_{10}) - \frac{Gm_{20}}{r_{10,20}^3} (x_{10} - x_{20}) - \frac{Gm_{20}}{r_{10,20}^3} (x_{10} -$
$\frac{\mathrm{d}}{-}u_{10}=u_{10}$	$r_{10,5}^{2}$ $r_{10,6}^{2}$ $r_{10,6}^{2}$ $r_{10,6}^{2}$ $r_{10,1}^{2}$ $r_{10,2}^{2}$ r_{1
${ m d}$	$\frac{G_{10}}{r_{10,5}} = \frac{G_{10}}{r_{10,5}} $
$\frac{d}{dx}x_{11} = x_{11}$	
$^{ m d}$	$G_{11} = x_4 - \frac{Gm_5}{r_{11,5}^3}(x_{11} - x_5) - \frac{Gm_6}{r_{11,5}^3}(x_{11} - x_5) - \frac{Gm_6}{r_{11,5}^3}(x_{11} - x_5) - \frac{Gm_{10}}{r_{11,10}^3}(x_{11} - x_1) - \frac{Gm_{10}}{r_{11,10}^3}(x_{11} - x_{12}) - \frac{Gm_{20}}{r_{11,10}^3}(x_{11} -$
$\frac{\mathrm{d}}{\mathrm{d}z_{11}} = z_{11}$	$\frac{Gm_5}{r_{11,5}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,5}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,5}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,5}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,1}^3}(x_{11}-x_{12}) - \frac{Gm_{10}}{r_{11,1}^3}(x_{11}-x_{12}) - \frac{Gm_{10}}{r_{11,1}^3}(x_{11}-x$
$d_{m,n-m}$	$\frac{Gm_5}{r_{11,5}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,5}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,6}^3}(x_{11}-x_5) - \frac{Gm_6}{r_{11,7}^3}(x_{11}-x_7) - \frac{Gm_8}{r_{11,7}^3}(x_{11}-x_7) - \frac{Gm_{10}}{r_{11,10}^3}(x_{11}-x_{10}) - \frac{Gm_{10}}{r_{11,10}^3}(x_{11$
$\frac{\mathrm{d}t}{\mathrm{d}t}x_{12} = x_{12}$ $\frac{\mathrm{d}}{\mathrm{d}t}x_{12} = -\frac{Gm_1}{r_{12,1}^3}(x_{12} - x_1) - \frac{Gm_2}{r_{12,2}^3}(x_{12} - x_2) - \frac{Gm_3}{r_{12,3}^3}(x_{12} - x_3) - \frac{Gm_3}{r_{12,3}^3}(x_{12} - x_3)$	$ \frac{Gm_5}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_{10}}{r_{12,10}^3}(x_{12}-x_{10}) - \frac{Gm_{10}}{r_{12,10}^$
$\frac{\mathrm{d}}{\mathrm{d}t}y_{12} = y_{12}$ $\frac{\mathrm{d}}{\mathrm{d}t}y_{12} = -\frac{Gm_1}{r_{12,1}^3}(x_{12} - x_1) - \frac{Gm_2}{r_{12,2}^3}(x_{12} - x_2) - \frac{Gm_3}{r_{12,3}^3}(x_{12} - x_3) - \frac{Gm_2}{r_{12,2}^3}(x_{12} - x_2) - \frac{Gm_3}{r_{12,3}^3}(x_{12} - x_3) - \frac{Gm_3}{r_{12,2}^3}(x_{12} - x_3) - \frac{Gm_3}{$	$ \frac{Gm_5}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,10}^3}(x_{12}-x_{10}) - \frac{Gm_{10}}{r_{12,10}^3}(x_{12}-x_{10}) - \frac{Gm_{10}}{r_{12,10}^3}($
$\frac{\mathrm{d}}{\mathrm{d}t}z_{12} = z_{12}$ $\frac{\mathrm{d}}{\mathrm{d}t}z_{12} = -\frac{Gm_1}{r_{12,1}^3}(x_{12} - x_1) - \frac{Gm_2}{r_{12,2}^3}(x_{12} - x_2) - \frac{Gm_3}{r_{12,3}^3}(x_{12} - x_3) -$	$\frac{Gm_5}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,5}^3}(x_{12}-x_5) - \frac{Gm_6}{r_{12,15}^3}(x_{12}-x_7) - \frac{Gm_8}{r_{12,15}^3}(x_{12}-x_{10}) - \frac{Gm_{10}}{r_{12,10}^3}(x_{12}-x_{10}) - \frac{Gm_{10}}{r_{12,10}^3}($
$\frac{\mathrm{d}}{\mathrm{d}t}x_{13} = x_{13}$ $\frac{\mathrm{d}}{\mathrm{d}t}x_{13} = -\frac{Gm_1}{r_{13,1}^3}(x_{13} - x_1) - \frac{Gm_2}{r_{13,2}^3}(x_{13} - x_2) - \frac{Gm_3}{r_{13,3}^3}(x_{13} - x_3) -$	$ \frac{Gm_5}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_{10}}{r_{13,10}^3}(x_{13}-x_{10}) - \frac{Gm_{11}}{r_{13,10}^3}(x_{13}-x_{10}) - \frac{Gm_{12}}{r_{13,10}^3}(x_{13}-x_{10}) - \frac{Gm_{12}}{r_{13,12}^3}(x_{13}-x_{10}) - \frac{Gm_{12}}{r_{13,13}^3}(x_{13}-x_{10}) - \frac{Gm_{12}}{r_{13,13}^$
$\frac{\mathrm{d}}{\mathrm{d}t}y_{13} = y_{13}$ $\frac{\mathrm{d}}{\mathrm{d}t}y_{13} = -\frac{Gm_1}{r_{13,1}^3}(x_{13} - x_1) - \frac{Gm_2}{r_{13,2}^3}(x_{13} - x_2) - \frac{Gm_3}{r_{13,3}^3}(x_{13} - x_3) -$	$ \frac{Gm_5}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,7}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,1}^3}(x_{13}-x_{10}) - \frac{Gm_{10}}{r_{13,10}^3}(x_{13}-x_{10}) - \frac{Gm_{10}}{r_{13,1$
$\frac{\mathrm{d}}{\mathrm{d}t}z_{13} = z_{13}$ $\frac{\mathrm{d}}{\mathrm{d}t}z_{13} = -\frac{Gm_1}{r_{13,1}^3}(x_{13} - x_1) - \frac{Gm_2}{r_{13,2}^3}(x_{13} - x_2) - \frac{Gm_3}{r_{13,3}^3}(x_{13} - x_3) -$	$ \frac{Gm_5}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,5}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,7}^3}(x_{13}-x_5) - \frac{Gm_6}{r_{13,7}^3}(x_{13}-x_7) - \frac{Gm_{10}}{r_{13,10}^3}(x_{13}-x_{10}) - \frac{Gm_{11}}{r_{13,11}^3}(x_{13}-x_{10}) - \frac{Gm_{12}}{r_{13,12}^3}(x_{13}-x_{10}) - \frac{Gm_{12}}{r_{13,12}^$
d	$\frac{Gm_5}{r_{14,5}^3}(x_{14}-x_5) - \frac{Gm_6}{r_{14,5}^3}(x_{14}-x_5) - \frac{Gm_6}{r_{14,10}^3}(x_{14}-x_{15}) - \frac{Gm_{10}}{r_{14,10}^3}(x_{14}-x_{15}) - \frac{Gm_{10}}{r_{14,10}^3}(x_{14}-x_{15}) - \frac{Gm_{10}}{r_{14,10}^3}(x_{14}-x_{15}) - \frac{Gm_{20}}{r_{14,20}^3}(x_{14}-x_{15}) - \frac{Gm_{20}}{$
${ m d}$	$r_{14,5}^{2} \qquad r_{14,6}^{2} \qquad r_{14,6}^{2} \qquad r_{14,7}^{2} \qquad r_{14,8}^{2} \qquad r_{14,9}^{2} \qquad r_{14,10}^{2} \qquad r_{14,11}^{2} \qquad r_{14,12}^{2} \qquad r_{14,13}^{2} \qquad r_{14,15}^{2} \qquad r_$
${ m d}$	$\frac{Gm_{14}}{r_{14,5}} = \frac{Gm_{5}}{r_{14,5}} = \frac{Gm_{5}}{r_{14,5}}$
d	
$^{ m d}$	$\frac{Gm_5}{r_{15,5}^3}(x_{15}-x_{4}) - \frac{Gm_6}{r_{15,5}^3}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}^3}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}^3}(x_{15}-x_{2}) - \frac{Gm_{10}}{r_{15,10}^3}(x_{15}-x_{1}) - \frac{Gm_{12}}{r_{15,12}^3}(x_{15}-x_{1}) - \frac{Gm_{12}}{r_{15,12}$
${ m d}$	$\frac{Gm_5}{r_{15,5}}(x_{15}-x_{4}) - \frac{Gm_5}{r_{15,5}}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}}(x_{15}-x_{1}) - \frac{Gm_{13}}{r_{15,13}}(x_{15}-x_{1}) - \frac{Gm_{13}}{r_{15,13}}(x_{15}-x_{1}) - \frac{Gm_{13}}{r_{15,13}}(x_{15}-x_{1}) - \frac{Gm_{13}}{r_{15,13}}(x_{15}-x_{1}) - \frac{Gm_{14}}{r_{15,14}}(x_{15}-x_{1}) - \frac{Gm_{20}}{r_{15,20}}(x_{15}-x_{2}) - \frac{Gm_{20}}{r_{15$
$\frac{\mathrm{d}}{\mathrm{d}t}z_{15} = z_{15}$ $\frac{\mathrm{d}}{\mathrm{d}t}z_{15} = -\frac{Gm_1}{r_{15,1}^3}(x_{15} - x_1) - \frac{Gm_2}{r_{15,2}^3}(x_{15} - x_2) - \frac{Gm_3}{r_{15,3}^3}(x_{15} - x_3) - \frac{Gm_3}{r_{15,3}^3}(x_{15} - x_3)$	$ \frac{Gm_5}{r_{15,5}^3}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}^3}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}^3}(x_{15}-x_{5}) - \frac{Gm_6}{r_{15,5}^3}(x_{15}-x_{7}) - \frac{Gm_{12}}{r_{15,12}^3}(x_{15}-x_{10}) - \frac{Gm_{12}}{r_{15,12}^3}(x_{15}-x_{10}) - \frac{Gm_{12}}{r_{15,13}^3}(x_{15}-x_{10}) - \frac{Gm_{12}}{r_$
$\frac{\mathrm{d}}{\mathrm{d}t}x_{16} = x_{16}$ $\frac{\mathrm{d}}{\mathrm{d}t}x_{16} = -\frac{Gm_1}{r_{16,1}^3}(x_{16} - x_1) - \frac{Gm_2}{r_{16,2}^3}(x_{16} - x_2) - \frac{Gm_3}{r_{16,3}^3}(x_{16} - x_3) - \frac{Gm_2}{r_{16,3}^3}(x_{16} - x_3)$	$ \frac{Gm_5}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,7}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,15}^3}(x_{16}-x_7) - \frac{Gm_{10}}{r_{16,15}^3}(x_{16}-x_{10}) - \frac{Gm_{11}}{r_{16,15}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{13}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{13}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{13}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{13}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{13}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{13}}{r_{16,13}$
$\frac{\mathrm{d}}{\mathrm{d}t}y_{16} = y_{16}$ $\frac{\mathrm{d}}{\mathrm{d}t}y_{16} = -\frac{Gm_1}{r_{16,1}^3}(x_{16} - x_1) - \frac{Gm_2}{r_{16,2}^3}(x_{16} - x_2) - \frac{Gm_3}{r_{16,3}^3}(x_{16} - x_3) -$	$ \frac{Gm_5}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,7}^3}(x_{16}-x_5) - \frac{Gm_{20}}{r_{16,7}^3}(x_{16}-x_7) - \frac{Gm_{20}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{10}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{10}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{10}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{10}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{20}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{20}}{r_{16,10}^3}(x_{16}-x_{10}) - \frac{Gm_{20}}{r_{16,20}^3}(x_{16}-x_{20}) - \frac{Gm_{20}}{r_{16,2$
$\frac{\mathrm{d}}{\mathrm{d}t}z_{16} = z_{16}$ $\frac{\mathrm{d}}{\mathrm{d}t}z_{16} = -\frac{Gm_1}{r_{16,1}^3}(x_{16} - x_1) - \frac{Gm_2}{r_{16,2}^3}(x_{16} - x_2) - \frac{Gm_3}{r_{16,3}^3}(x_{16} - x_3) -$	$ \frac{Gm_5}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,5}^3}(x_{16}-x_5) - \frac{Gm_6}{r_{16,15}^3}(x_{16}-x_7) - \frac{Gm_{20}}{r_{16,15}^3}(x_{16}-x_{10}) - \frac{Gm_{11}}{r_{16,12}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{12}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{21}}{r_{16,12}^3}(x_{16}-x_{10}) - \frac{Gm_{21}}{r_{16,12}^3}(x_{16}-x_{10}) - \frac{Gm_{22}}{r_{16,13}^3}(x_{16}-x_{10}) - \frac{Gm_{23}}{r_{16,22}^3}(x_{16}-x_{10}) - \frac{Gm_{21}}{r_{16,22}^3}(x_{16}-x_{10}) - \frac{Gm_{22}}{r_{16,22}^3}(x_{16}-x_{20}) - \frac{Gm_{23}}{r_{16,22}^3}(x_{16}-x_{20}) - \frac{Gm_{23}}{r_{16,22}^3}(x_{16}-x_{20}) - \frac{Gm_{24}}{r_{16,22}^3}(x_{16}-x_{20}) - \frac{Gm_{24}}{r_{16,22}$
$\frac{\mathrm{d}}{\mathrm{d}t}x_{17} = x_{17}$ $\frac{\mathrm{d}}{\mathrm{d}t}x_{17} = -\frac{Gm_1}{r_{17,1}^3}(x_{17} - x_1) - \frac{Gm_2}{r_{17,2}^3}(x_{17} - x_2) - \frac{Gm_3}{r_{17,3}^3}(x_{17} - x_3) -$	$ \frac{Gm_5}{r_{17,5}^3}(x_{17}-x_{5}) - \frac{Gm_6}{r_{17,5}^3}(x_{17}-x_{5}) - \frac{Gm_6}{r_{17,10}^3}(x_{17}-x_{10}) - \frac{Gm_{10}}{r_{17,10}^3}(x_{17}-x_{10}) - Gm_{$
$\frac{\mathrm{d}}{\mathrm{d}}u_{12}=u_{12}$	$\frac{Gm_5}{r_{17,5}^3}(x_{17}-x_5) - \frac{Gm_6}{r_{17,5}^3}(x_{17}-x_5) - \frac{Gm_6}{r_{17,10}^3}(x_{17}-x_{10}) - \frac{Gm_{10}}{r_{17,10}^3}(x_{17}-x_{10}) - \frac{Gm_{10}}{$
${ m d}$	$\frac{G_{17,5}}{G_{17,5}} = \frac{G_{17,5}}{G_{17,5}} = \frac{G_{17,5}}{G_{17,5}} = \frac{G_{17,5}}{G_{17,5}} = \frac{G_{17,10}}{G_{17,10}} $
$\frac{d}{dx}x_{18} = \dot{x_{18}}$	
${ m d}$	$\frac{Gm_5}{r_{18,5}}(x_{18}-x_{5}) - \frac{Gm_6}{r_{18,5}}(x_{18}-x_{5}) - \frac{Gm_6}{r_{18,5}}(x_{18}-x_{5}) - \frac{Gm_6}{r_{18,5}}(x_{18}-x_{5}) - \frac{Gm_6}{r_{18,1}}(x_{18}-x_{7}) - \frac{Gm_{12}}{r_{18,12}}(x_{18}-x_{10}) - $
$\frac{\mathrm{d}}{\mathrm{d}} z_{i,j} = z_{i,j}$	$ \frac{Gm_5}{r_{18,5}^3}(x_{18}-x_{2}) - \frac{Gm_6}{r_{18,6}^3}(x_{18}-x_{2}) - \frac{Gm_6}{r_{18,6}^3}(x_{18}-x_{2}) - \frac{Gm_{10}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{10}}{r_{18,10}^3}(x_{18}-x_{1}) - \frac{Gm_{10}}{r_{1$
$\frac{\mathrm{d}}{\mathrm{d}t}z_{18} = z_{18}$ $\frac{\mathrm{d}}{\mathrm{d}t}z_{18} = -\frac{Gm_1}{r_{18,1}^3}(x_{18} - x_1) - \frac{Gm_2}{r_{18,2}^3}(x_{18} - x_2) - \frac{Gm_3}{r_{18,3}^3}(x_{18} - x_3) - \frac{Gm_3}{r_{18,3}^3}(x_{18} - x_3)$	$\frac{Gm_5}{r_{18,5}^3}(x_{18}-x_{2}) - \frac{Gm_6}{r_{18,5}^3}(x_{18}-x_{2}) - \frac{Gm_6}{r_{18,5}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,10}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18,20}^3}(x_{18}-x_{2}) - \frac{Gm_{20}}{r_{18$
$\frac{\mathrm{d}}{\mathrm{d}t}x_{19} = x_{19}'$ $\frac{\mathrm{d}}{\mathrm{d}t}x_{19}' = -\frac{Gm_1}{r_{19,1}^3}(x_{19} - x_1) - \frac{Gm_2}{r_{19,2}^3}(x_{19} - x_2) - \frac{Gm_3}{r_{19,3}^3}(x_{19} - x_3) - \frac{Gm_2}{r_{19,2}^3}(x_{19} - x_2) - \frac{Gm_3}{r_{19,3}^3}(x_{19} - x_3) - \frac{Gm_2}{r_{19,2}^3}(x_{19} - x_2) - \frac{Gm_3}{r_{19,3}^3}(x_{19} - x_3) - \frac{Gm_2}{r_{19,2}^3}(x_{19} - x_3) - Gm_2$	$ \frac{Gm_5}{r_{19,5}^3}(x_{19}-x_5) - \frac{Gm_6}{r_{19,5}^3}(x_{19}-x_5) - \frac{Gm_6}{r_{19,5}^3}(x_{19}-x_5) - \frac{Gm_6}{r_{19,5}^3}(x_{19}-x_7) - \frac{Gm_8}{r_{19,1}^3}(x_{19}-x_{10}) - \frac{Gm_{10}}{r_{19,10}^3}(x_{19}-x_{10}) - \frac{Gm_{10}}{r_{19,10}^3}(x$
$\frac{\mathrm{d}}{\mathrm{d}t}y_{19} = y_{19}$ $\frac{\mathrm{d}}{\mathrm{d}t}y_{19} = -\frac{Gm_1}{r_{19,1}^3}(x_{19} - x_1) - \frac{Gm_2}{r_{19,2}^3}(x_{19} - x_2) - \frac{Gm_3}{r_{19,3}^3}(x_{19} - x_3) -$	$c_{19} = x_4$) $-\frac{Gm_5}{r_{19,5}^3}(x_{19} - x_5) - \frac{Gm_6}{r_{19,5}^3}(x_{19} - x_5) - \frac{Gm_6}{r_{19,15}^3}(x_{19} - x_5) - \frac{Gm_6}{r_{19,15}^3}(x_{19} - x_1) - \frac{Gm_{13}}{r_{19,15}^3}(x_{19} - x_{10}) - \frac{Gm_{14}}{r_{19,15}^3}(x_{19} - x_{10}) - \frac{Gm_{15}}{r_{19,15}^3}(x_{19} -$
d	$c_{19} = -x_4 - \frac{Gm_5}{r_{19,5}^3}(x_{19} - x_5) - \frac{Gm_6}{r_{19,5}^3}(x_{19} - x_5) - \frac{Gm_6}{r_{19,10}^3}(x_{19} - x_{10}) - \frac{Gm_{10}}{r_{19,10}^3}(x_{19} - x_{10}) - \frac{Gm_{11}}{r_{19,11}^3}(x_{19} - x_{10}) - \frac{Gm_{12}}{r_{19,13}^3}(x_{19} - x_{10}) - \frac{Gm_{13}}{r_{19,13}^3}(x_{19} - x_{10}) - \frac{Gm_{14}}{r_{19,13}^3}(x_{19} - x_{10}) - \frac{Gm_{14}}{r_{19,14}^3}(x_{19} - x_{10}) - \frac{Gm_{14}}{r_{19,14}^3}($
$^{\mathrm{d}}$ $_{m_{1},\ldots,m_{r}}$	$\frac{Gm_5}{r_{20,5}^3}(x_{20}-x_5) - \frac{Gm_6}{r_{20,5}^3}(x_{20}-x_5) - \frac{Gm_6}{r_{20,6}^3}(x_{20}-x_5) - \frac{Gm_{10}}{r_{20,10}^3}(x_{20}-x_{10}) - \frac{Gm_{11}}{r_{20,11}^3}(x_{20}-x_{10}) - \frac{Gm_{11}}{r_{20,11}^3}(x_{20}-x_{10}) - \frac{Gm_{12}}{r_{20,12}^3}(x_{20}-x_{10}) - \frac{Gm_{22}}{r_{20,23}^3}(x_{20}-x_{20}) - \frac{Gm_{23}}{r_{20,23}^3}(x_{20}-x_{20}) - \frac{Gm_{23}}{r_{20,23}^3}(x_{20}-x_{20}) - \frac{Gm_{24}}{r_{20,23}^3}(x_{20}-x_{20}) - \frac{Gm_{24}}{r_{2$
$\frac{1}{dt}x_{20} = -\frac{1}{r_{20,1}^3}(x_{20} - x_1) - \frac{3n_2}{r_{20,2}^3}(x_{20} - x_2) - \frac{3n_3}{r_{20,3}^3}(x_{20} - x_3) - \frac{3n_2}{r_{20,3}^3}(x_{20} - x_3) - \frac{3n_3}{r_{20,3}^3}(x_{20} - x_3) - \frac{3n_3}{r_{20$	$x_{20} = x_{20} = x$

		$ \frac{1}{12} = -\frac{Gm_1(x_1 - x_1)}{x_1 + x_2} - \frac{Gm_1(x_1 - x_1)}{x_2 + x_1} - \frac{Gm_1(x_1 - x_1)}{x_2 + x_2} - Gm_1(x_1 - x_$

Vector Form $\frac{Gm_{6}\left(\mathbf{r}_{1}-\mathbf{r}_{6}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{6}|^{3}}-\frac{Gm_{7}\left(\mathbf{r}_{1}-\mathbf{r}_{7}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{6}|^{3}}-\frac{Gm_{8}\left(\mathbf{r}_{1}-\mathbf{r}_{9}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{9}|^{3}}-\frac{Gm_{9}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{1}-\mathbf{r}_{10}\right)}{|\mathbf{r}_{1}-\mathbf{r}_$ $-\frac{Gm_{6}\left(\mathbf{r}_{2}-\mathbf{r}_{6}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{7}\left(\mathbf{r}_{2}-\mathbf{r}_{7}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{8}\left(\mathbf{r}_{2}-\mathbf{r}_{8}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{2}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{2}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left$ $-\frac{Gm_{6}\left(\mathbf{r}_{3}-\mathbf{r}_{6}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{7}\left(\mathbf{r}_{3}-\mathbf{r}_{7}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{2}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{10}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{11}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{11}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{3}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{12}\left(\mathbf{r}_{3}-\mathbf{r}_{10}\right)}{\left|\mathbf{$ $-\frac{Gm_{6}(\mathbf{r}_{4}-\mathbf{r}_{6})}{|\mathbf{r}_{4}-\mathbf{r}_{6}|^{3}}-\frac{Gm_{7}(\mathbf{r}_{4}-\mathbf{r}_{7})}{|\mathbf{r}_{4}-\mathbf{r}_{6}|^{3}}-\frac{Gm_{9}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|\mathbf{r}_{4}-\mathbf{r}_{10}|^{3}}-\frac{Gm_{1}(\mathbf{r}_{4}-\mathbf{r}_{10})}{|$ $-\frac{Gm_{6}\left(\mathbf{r}_{5}-\mathbf{r}_{6}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{7}\left(\mathbf{r}_{5}-\mathbf{r}_{7}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{8}\left(\mathbf{r}_{5}-\mathbf{r}_{8}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{6}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left(\mathbf{r}_{5}-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_{5}-\mathbf{r}_{10}\right|^{3}}-\frac{Gm_{1}\left$ $-\frac{Gm_5\left(\mathbf{r}_6-\mathbf{r}_5\right)}{\left|\mathbf{r}_6-\mathbf{r}_5\right|^3}-\frac{Gm_7\left(\mathbf{r}_6-\mathbf{r}_7\right)}{\left|\mathbf{r}_6-\mathbf{r}_7\right|^3}-\frac{Gm_8\left(\mathbf{r}_6-\mathbf{r}_8\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_2\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_6-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_6-\mathbf{r}_{10}\right)}{\left|$ $-\frac{Gm_5\left(\mathbf{r}_7-\mathbf{r}_5\right)}{\left|\mathbf{r}_7-\mathbf{r}_5\right|^3}-\frac{Gm_6\left(\mathbf{r}_7-\mathbf{r}_6\right)}{\left|\mathbf{r}_7-\mathbf{r}_6\right|^3}-\frac{Gm_6\left(\mathbf{r}_7-\mathbf{r}_9\right)}{\left|\mathbf{r}_7-\mathbf{r}_9\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_7-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_7-\mathbf{r}_{10}\right)}{\left|\mathbf{r$ $-\frac{Gm_5\left(\mathbf{r}_8-\mathbf{r}_5\right)}{\left|\mathbf{r}_8-\mathbf{r}_5\right|^3}-\frac{Gm_6\left(\mathbf{r}_8-\mathbf{r}_6\right)}{\left|\mathbf{r}_8-\mathbf{r}_6\right|^3}-\frac{Gm_5\left(\mathbf{r}_8-\mathbf{r}_7\right)}{\left|\mathbf{r}_8-\mathbf{r}_7\right|^3}-\frac{Gm_5\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r}_8-\mathbf{r}_{10}\right|^3}-\frac{Gm_1\left(\mathbf{r}_8-\mathbf{r}_{10}\right)}{\left|\mathbf{r$ $-\frac{Gm_{5}\left(\mathbf{r_{9}}-\mathbf{r_{5}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{5}}|^{3}}-\frac{Gm_{6}\left(\mathbf{r_{9}}-\mathbf{r_{6}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{6}}|^{3}}-\frac{Gm_{6}\left(\mathbf{r_{9}}-\mathbf{r_{6}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{6}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}-\mathbf{r_{10}}\right)}{|\mathbf{r_{9}}-\mathbf{r_{10}}|^{3}}-\frac{Gm_{1}\left(\mathbf{r_{9}}$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{10} - \mathbf{r}_{5})}{|\mathbf{r}_{10} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{10} - \mathbf{r}_{5})}{|\mathbf{r}_{10} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{10} - \mathbf{r}_{10})}{|\mathbf{r}_{10} - \mathbf{r}_{10}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{10} - \mathbf{r}_{10})}{$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{3}} - \frac{\mathbf{G}m_{5}\left(\mathbf{r}_{11} - \mathbf{r}_{5}\right)}{\mathbf{r}_{11}} - \mathbf{r}_{5}\mathbf{r}_{3} - \frac{\mathbf{G}m_{5}\left(\mathbf{r}_{11} - \mathbf{r}_{5}\right)}{\mathbf{r}_{11} - \mathbf{r}_{5}\mathbf{r}_{3}} - \frac{\mathbf{G}m_{5}\left(\mathbf{r}_{11} - \mathbf{r}_{6}\right)}{\mathbf{r}_{11} - \mathbf{r}_{5}\mathbf{r}_{3}} - \frac{\mathbf{G}m_{5}\left(\mathbf{r}_{11} - \mathbf{r}_{20}\right)}{\mathbf{r}_{11} - \mathbf{r}_{10}\mathbf{r}_{3}} - \frac{\mathbf{G}m_{10}\left(\mathbf{r}_{11} - \mathbf{r}_{10}\right)}{\mathbf{r}_{11} - \mathbf{r}_{10}\mathbf{r}_{3}} - \frac{\mathbf{G}m_{10}\left(\mathbf{r}_{11} - \mathbf{r}_{10}\mathbf{r}_{3}\right)}{\mathbf{r}_{11} - \mathbf{r}_{10}\mathbf{r}_{3}} \frac{\mathbf{r}_{4}}{\mathbf{r}_{4}} - \frac{Gm_{5}(\mathbf{r}_{12} - \mathbf{r}_{5})}{|\mathbf{r}_{12} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{12} - \mathbf{r}_{6})}{|\mathbf{r}_{12} - \mathbf{r}_{6}|^{3}} - \frac{Gm_{5}(\mathbf{r}_{12} - \mathbf{r}_{2})}{|\mathbf{r}_{12} - \mathbf{r}_{6}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{12} - \mathbf{r}_{13})}{|\mathbf{r}_{12} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{12} - \mathbf{r}_{13})}{|\mathbf{r}_{12$ $\frac{c_{44}}{c_{13}} - \frac{Gm_{5}(\mathbf{r}_{13} - \mathbf{r}_{5})}{|\mathbf{r}_{13} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{13} - \mathbf{r}_{6})}{|\mathbf{r}_{13} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{5}(\mathbf{r}_{13} - \mathbf{r}_{2})}{|\mathbf{r}_{13} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{13} - \mathbf{r}_{13})}{|\mathbf{r}_{13} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{13} - \mathbf{r}_{13})}{|\mathbf{r}_{13} -$ $\frac{\mathbf{r}_{4}}{\mathbf{r}_{4}} - \frac{Gm_{5}(\mathbf{r}_{14} - \mathbf{r}_{5})}{\mathbf{r}_{14} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{14} - \mathbf{r}_{6})}{\mathbf{r}_{14} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{9}(\mathbf{r}_{14} - \mathbf{r}_{13})}{\mathbf{r}_{14} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{14} - \mathbf{r}_{13})}{\mathbf{r}_{14} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{1}$ $\frac{\mathbf{r}_{4}}{\mathbf{r}_{4}} - \frac{Gm_{5}(\mathbf{r}_{15} - \mathbf{r}_{5})}{|\mathbf{r}_{15} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{15} - \mathbf{r}_{6})}{|\mathbf{r}_{15} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{9}(\mathbf{r}_{15} - \mathbf{r}_{2})}{|\mathbf{r}_{15} - \mathbf{r}_{6}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{15} - \mathbf{r}_{13})}{|\mathbf{r}_{15} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{15} - \mathbf{r}_{23})}{|\mathbf{r}_{15} - \mathbf{r}_{23}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{15} - \mathbf{r}_{23})}{|\mathbf{r}_{15$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{16} - \mathbf{r}_{5})}{\mathbf{r}_{16}} - \mathbf{r}_{5}|^{3} - \frac{Gm_{5}(\mathbf{r}_{16} - \mathbf{r}_{5})}{\mathbf{r}_{16} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{5}(\mathbf{r}_{16} - \mathbf{r}_{2})}{\mathbf{r}_{16} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{16} - \mathbf{r}_{13})}{\mathbf{r}_{16} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{16} - \mathbf{r}_{13})}{\mathbf{r}_{16} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{16} - \mathbf{r}_{13})}{\mathbf{r}_{16} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{16} - \mathbf{r}_{23})}{\mathbf{r}_{16} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{16} - \mathbf{r}_{23})}{\mathbf{r}_{16} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{16} - \mathbf{r}_{13})}{\mathbf{r}_{16} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{16} - \mathbf{r}_{23})}{\mathbf{r}_{16} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{16} - \mathbf{r}_{23})}{\mathbf{r}_{16} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{16} - \mathbf{r}_{23})}{\mathbf{r}_{16} - \mathbf{r}_{23}|^{3}} - \frac{G$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{17} - \mathbf{r}_{5})}{\mathbf{r}_{17}} - \mathbf{r}_{5}\mathbf{r}_{13} - \frac{Gm_{5}(\mathbf{r}_{17} - \mathbf{r}_{5})}{\mathbf{r}_{17} - \mathbf{r}_{5}\mathbf{r}_{13}} - \frac{Gm_{5}(\mathbf{r}_{17} - \mathbf{r}_{20})}{\mathbf{r}_{17} - \mathbf{r}_{15}\mathbf{r}_{13}} - \frac{Gm_{1}(\mathbf{r}_{17} - \mathbf{r}_{10})}{\mathbf{r}_{17} - \mathbf{r}_{10}\mathbf{r}_{13}} - \frac{Gm_{1}(\mathbf{r}_{17} - \mathbf{r}_{10}\mathbf{r}_{13})}{\mathbf{r}_{17} - \mathbf{r}_{10}\mathbf{r}_{13}} - \frac{Gm_{1}(\mathbf{r}_{17} - \mathbf{r}_{10}\mathbf{r}_{13})}{\mathbf{r}_{17} - \mathbf{r}_{10}\mathbf{r}_{13}} - \frac{Gm_{1}(\mathbf{r}_{17} - \mathbf{r}_{10}\mathbf{r}_{13})}{\mathbf{r}_{17} - \mathbf{$ $\frac{c_{4}}{c_{4}} - \frac{Gm_{5}(\mathbf{r}_{18} - \mathbf{r}_{5})}{|\mathbf{r}_{18} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{18} - \mathbf{r}_{6})}{|\mathbf{r}_{18} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{18} - \mathbf{r}_{2})}{|\mathbf{r}_{18} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{18} - \mathbf{r}_{13})}{|\mathbf{r}_{18} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{18} - \mathbf{r}_{13})}{|\mathbf{r}_{18} - \mathbf{r}_{16}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{18} - \mathbf{r}_{13})}{|\mathbf{r}_{18} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{18} - \mathbf{r}_{13})}{|\mathbf{r}_{18} - \mathbf{$ $\frac{\mathbf{r}_{4}}{\mathbf{r}_{1}} - \frac{Gm_{5}(\mathbf{r}_{19} - \mathbf{r}_{5})}{|\mathbf{r}_{19} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{19} - \mathbf{r}_{6})}{|\mathbf{r}_{19} - \mathbf{r}_{6}|^{3}} - \frac{Gm_{2}(\mathbf{r}_{19} - \mathbf{r}_{20})}{|\mathbf{r}_{19} - \mathbf{r}_{19}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{19} - \mathbf{r}_{10})}{|\mathbf{r}_{19} - \mathbf{r}_{10}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{19} - \mathbf{r}_{10})}{|\mathbf{r}_{$ $\frac{\mathbf{r}_{4}}{\mathbf{r}_{4}} - \frac{Gm_{5}(\mathbf{r}_{20} - \mathbf{r}_{5})}{|\mathbf{r}_{20} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{20} - \mathbf{r}_{6})}{|\mathbf{r}_{20} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{20} - \mathbf{r}_{13})}{|\mathbf{r}_{20} - \mathbf{r}_{15}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{20} - \mathbf{r}_{13})}{|\mathbf{r}_{20} - \mathbf{r}_{15}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{20} - \mathbf{r}_{13})}{|\mathbf{r}_{20} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{20} - \mathbf{r}_{13})}{|\mathbf{r}_{$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{4}} - \frac{Gm_{5}(\mathbf{r}_{21} - \mathbf{r}_{5})}{|\mathbf{r}_{21} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{21} - \mathbf{r}_{5})}{|\mathbf{r}_{21} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{21} - \mathbf{r}_{10})}{|\mathbf{r}_{21} - \mathbf{r}_{10}|^{3}} - \frac{Gm_{10}(\mathbf{r}_{21} - \mathbf{r}_{10})}{|\mathbf{r}_{21} - \mathbf{r}_{10}|^{3}} - \frac{Gm_$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{4}} - \frac{Gm_{5}(\mathbf{r}_{22} - \mathbf{r}_{5})}{|\mathbf{r}_{22} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{22} - \mathbf{r}_{5})}{|\mathbf{r}_{22} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{22} - \mathbf{r}_{13})}{|\mathbf{r}_{22} - \mathbf{r}_{15}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{22} - \mathbf{r}_{13})}{|\mathbf{r}_{22} - \mathbf{r}_{15}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{22} - \mathbf{r}_{13})}{|\mathbf{r}_{22} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{22} - \mathbf{r}_{13})}{$ $\frac{\mathbf{r}_{4}}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{23} - \mathbf{r}_{5})}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{23} - \mathbf{r}_{5})}{\mathbf{r}_{23} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{23} - \mathbf{r}_{6})}{\mathbf{r}_{23} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{23} - \mathbf{r}_{13})}{\mathbf{r}_{23} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{23} - \mathbf{r}_{$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{4}} - \frac{\mathbf{G}m_{5} \left(\mathbf{r}_{24} - \mathbf{r}_{5}\right)}{\mathbf{r}_{24} - \mathbf{r}_{5}|^{3}} - \frac{\mathbf{G}m_{5} \left(\mathbf{r}_{24} - \mathbf{r}_{5}\right)}{\mathbf{r}_{24} - \mathbf{r}_{5}|^{3}} - \frac{\mathbf{G}m_{5} \left(\mathbf{r}_{24} - \mathbf{r}_{6}\right)}{\mathbf{r}_{24} - \mathbf{r}_{5}|^{3}} - \frac{\mathbf{G}m_{1} \left(\mathbf{r}_{24} - \mathbf{r}_{13}\right)}{\mathbf{r}_{24} - \mathbf{r}_{15}|^{3}} - \frac{\mathbf{G}m_{1} \left(\mathbf{r}$ $\frac{\mathbf{r}_{\mathbf{r}_{4}}}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{25} - \mathbf{r}_{5})}{\mathbf{r}_{3}} - \frac{Gm_{5}(\mathbf{r}_{25} - \mathbf{r}_{5})}{\mathbf{r}_{25} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{6}(\mathbf{r}_{25} - \mathbf{r}_{6})}{\mathbf{r}_{25} - \mathbf{r}_{5}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{25} - \mathbf{r}_{13})}{\mathbf{r}_{25} - \mathbf{r}_{15}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{25} - \mathbf{r}_{13})}{\mathbf{r}_{25} - \mathbf{r}_{15}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{25} - \mathbf{r}_{13})}{\mathbf{r}_{25} - \mathbf{r}_{13}|^{3}} - \frac{Gm_{1}(\mathbf{r}_{25} -$