ASTR400B HW4

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1 Output

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The COM position of the Milky Way is:
 [<Quantity -1.3121412740753178 kpc>, <Quantity 2.520475461650631 kpc>, <Quantity -1.4274886415899972 kpc>]
The COM velocity of the Milky Way is:
 [<Quantity -0.11393755297778392 km / s>, <Quantity 4.48743645868719 km / s>, <Quantity -1.3336180466739123 km / s>]

The COM position of Andromeda is:
 [<Quantity -377.0993894145071 kpc>, <Quantity 611.0328188674071 kpc>, <Quantity -284.50838434114905 kpc>]
The COM velocity of Andromeda is:
 [<Quantity 71.18864683705733 km / s>, <Quantity -73.07778950629117 km / s>, <Quantity 51.90723259521887 km / s>]

The COM position of M33 is:
 [<Quantity -476.24823771664813 kpc>, <Quantity 491.4377051995548 kpc>, <Quantity -412.4240957226904 kpc>]
The COM velocity of M33 is:
 [<Quantity 44.42150450376546 km / s>, <Quantity 101.78447255724583 km / s>, <Quantity 142.23088223206025 km / s>]

The distance between MW and M31 is:   769.1801618945904 kpc
The speed between MW and M31 is:   118.046647545657 km / s

The distance between M31 and M33 is:   201.23596733962168 kpc
The speed between M31 and M33 is:   198.6244000277576 km / s
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2 Questions

1.

Position and Velocity Coordinates for the Local Group						
Galaxy	x [kpc]	y [kpc]	z [kpc]	v_x [km/s]	v_y [km/s]	v_z [km/s]
Milky Way	-1.31	2.520	-1.427	-0.114	4.487	-1.334
M31	-377.099	611.033	-284.508	71.189	-73.078	51.907
M33	-476.248	491.438	-412.424	44.422	101.784	142.231

2. Andromeda is 769 kpc from the Milky Way moving at 118 km/s
3. M33 is 201 kpc from Andromeda moving at 199 km/s.
4. The iterative process gets closer core of the galaxies and will be less affected by the