

1. Total mass of MW is similar to M31, same in precision of 3 significant numbers. Halo mass is almost the same for both galaxies, which is the dominant component of the total mass.
2. As the baryon fraction of MW is smaller than one of M31. As M31 has a larger fraction of stellar mass while both galaxies have similar total mass, we expect M31 to appear to be more luminous.
3. Dark Matter mass seems to be pretty similar in both galaxies. This is not intuitive but given we are rounding to three significant digits, still acceptable.
4. Baryon fraction of galaxies is smaller than the universal baryon fraction. Some may from the stellar activities in the galaxy help to eject baryons into outer space. This may come from diffused gas.

	Galaxy Name	Halo Mass ( $10^{12} M_{\text{sun}}$ )	Disk Mass ( $10^{12} M_{\text{sun}}$ )	Bulge Mass ( $10^{12} M_{\text{sun}}$ )	Total Mass ( $10^{12} M_{\text{sun}}$ )	Baryon Fraction
	MW	1.975	0.075	0.01	2.06	0.04126213592
	M31	1.921	0.12	0.019	2.06	0.06747572816
	M33	0.187	0.009	0	0.196	0.04591836735
	Local Group (MW+M31+M33)	4.083	0.204	0.029	4.316	0.05398517146