

HW 6, #2

See file "ugc 11861_hi.png" for plot of emission line.
The width of the line is

$$\text{FWHM} = 240 \text{ km/s}$$

Corrected line width is

$$\text{corrected FWHM} = \frac{\text{FWHM}}{\sin(75^\circ)} = 248 \text{ km/s}$$

Using the equation

$$M_r = -20.57 - 7.96 \left[\log_{10}(\text{cor FWHM}) - 2.5 \right]$$

we find

$$\text{abs mag } M_r = -19.74$$

The apparent magnitude of this galaxy is given in HyperLeda as

$$m_r \approx 12.24$$

We can now compute a distance

$$(m_r - M_r) = 5 \log d - 5$$

$$\Rightarrow d = 10^{0.2 \{ (m_r - M_r) + 5 \}}$$

$$= 24.8 \text{ Mpc}$$