

HW 3, #1

Hardie's paper appears in ApJ 122, 256 (1955). The average apparent magnitude is

$$m \cong 7.75$$

Gaia has measured for RR Lyr

$$\text{parallax} = 3.98 \pm 0.02 \text{ mas}$$

$$\rightarrow \text{dist} = 251 \text{ pc}$$

We would then infer

$$(m - M) = 5 \log(251) - 5 = 7.00$$

and so

$$M_V = m_V - 7.00 = 0.75$$

This is a bit fainter than the absolute mag of RR Lyr as a class given by Muraveva et al., MNRAS 481, 1195 (2018)

$$\text{Muraveva: } M_V = 0.66$$