

13 The following statement appears on a website:

Messier 87 (M87) is 55 million light-years from Earth.

The spectrum of light from M87 includes an absorption line at a wavelength of 394.5 nm. The same line produced by a source on Earth has a wavelength of 393.4 nm.

A light-year is the distance travelled in a year by light in a vacuum.

Assess the accuracy of the statement made on the website.

$$1 \text{ year} = 3.15 \times 10^7 \text{ s}$$

$$H_0 = 1.62 \times 10^{-18} \text{ s}^{-1}$$