2) A standard candle is an object of known luminosity. If the luminosity of an object is known, its distance can be calculated using the formula $d = \left(\frac{L_W}{4\pi F_W}\right)^{1/2}$ or $d = \left(\frac{L}{4\pi F}\right)^{1/2}$ where L (L_W) is the absolute luminosity (in any wavelength band) and F (F_W) is the flux per unit area received at the earth (in that wavelength band) (usually the visual band is used). In practice stars are dimmed because of obscuration by interstellar gas and dust, and so F (F_W) must be corrected for this.

calculated from $F = \frac{L}{4\pi d^2}$ (more basic)

4/4

b) The number of globular clusters per unit parsec peaks in and near the centre of the Galaxy. Hence by finding the distances to many globular clusters, we can find the distance to the peak of globular cluster density, which will be the distance to the centre of the Galaxy.

per unit volume

OK

4/4

c) Cepheids are of higher mass than RR-Lyrae, and so the peak luminosity of a cepheid is higher than that of a typical RR-Lyrae, by an average factor of 30 or so. (According to my calculations they vary from about 5 - 400 times

Use Fig 3.21, p127 Bookl

$\frac{L_C}{L_{RR}} \sim 100$

3/3