



230 a) (i) The star winks as the two stars rotate around eclipsing each other.

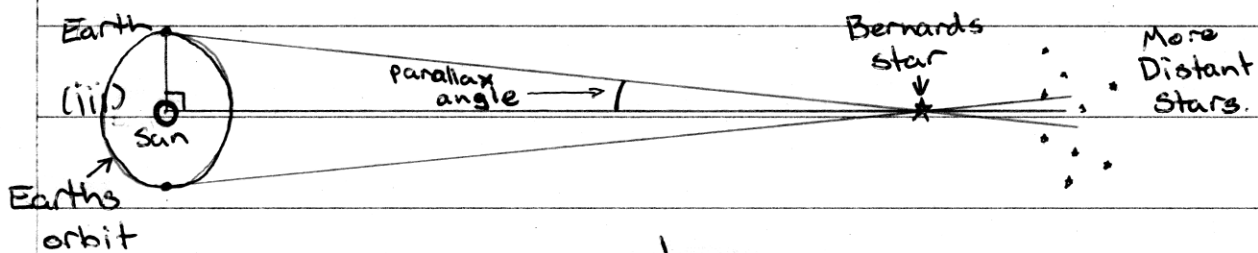
(ii) The radius of the ~~star~~ binary star is used to calculate the total mass of each star. The formula

$$\text{used is } m_1 + m_2 = \frac{4\pi^2 r^3}{GT^2}$$

b) (i) Proxima centuri is the most blue in colour because it has the largest colour index.

(ii) Ross 154 = 10.37

Proxima Centuri = 11.01



$$\text{distance} = \frac{1}{\text{parallax}}$$

$$d = \frac{1}{p}$$



c) (i) White dwarfs are found in position "S".

White dwarfs have low luminosities and relatively low surface temperature.

(ii) A White dwarf has a stable core so it doesn't burn and continue shrinking.

(iii) Hydrogen fission.

d) Adaptive optics has meant that astronomers can see a star ~~is~~ from Earth without the interference of the atmosphere. This means that expensive satellites don't need to be used to observe stars. Interferometry has also ~~not that~~ improved ground based astronomy. Like Adaptive optics interferometry eliminates the distortion from the atmosphere giving a clearer picture of celestial objects.

Both these developments have meant astronomy can be ~~not~~ studied in much more detail from ground based satellites and telescopes.