

a.) i) When astronomer's plotted Algol's light curve it would look something like this



Because one star would go in front of the other making the light curve change then when the different star went in front the light curve would change again.

ii) By working out the different binary stars orbital-periods their masses can be determined. Then when that the orbital periods can be worked out by the light curve or red/blue shift or simply by photo graphing them.

b.) i) distance 21185

$$ii) M - m = 5 - 5 \log d$$

$$\frac{\log 11.01}{\log 10.37} = 1.028$$

$$\frac{11.01}{10.37} = 1.06$$

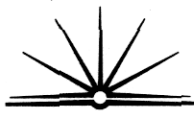


iii) $d = \frac{1}{p} = \frac{1}{1.82} = 0.549$

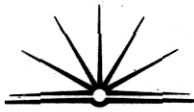
c) i) S because red dwarfs are very hot but very small which means they are not very bright so S is the most suitable place.

ii) Because it is so small gravity ^{is} ~~does~~ not strong enough to continue to crush the star to any smaller than it is already because its core is already so dense.

iii) CNO cycle (carbon nitrogen oxygen cycle) This cycle is when the heavier elements are formed by having heliums ~~existing~~ ^{combining} ~~combining~~ so heavier elements are produced. When the atoms collide their electrons are ~~shared~~ ^{combined} by the new atom giving it a higher atomic mass making a heavier element.



d) Adaptive optics have helped to improve the sensitivity of ground based astronomy because it helps to overcome the problem of seeing which is what happens because of the earth's atmosphere bending the light. Adaptive optics works by having instead of one big mirror it uses lots of smaller mirrors ~~which~~ which can be moved by a computer to account for bending of the light due to seeing. The use of honeycomb lattice mirrors has helped the light gathering ability of some telescopes by having a shiny surface placed over a hollowed out honeycomb lattice frame which means that much larger mirrors can be made which are considerably lighter than other mirrors which ~~were~~ ^{are} solid so the resolution can be improved. Active optics uses a large mirror which has various ~~the~~ devices attached to the back to push and pull the mirror into the right shape.



To allow the light to be fixed to overcome some of the points which apply pressure are run by a computer which determines what needs to be done to fix the light.