Planetary Pondering (12pts)

Aman sir has been observing a few star systems with his new telescope recently. He has collected data about the orbital velocities and the distances of the planets from their star. Out of the star systems he observed, he needs your help finding out which star system has planets with the heaviest average mass.

To do this he teaches you a couple of equations. Firstly the mass **M** of a planet is found by the equation $\mathbf{M = 4\pi^2r^3/GT^2}$, where **π** is a constant you can assume to be **3.14**, **r** is the radius or distance of the planet from the star, **G** is the gravitational constant which you can assume to be $\mathbf{6.67\times10^{-11}}$ and lastly **T** is the time period (the time it takes for the planet to orbit the star). To calculate the Time period **T** you have the second equation $\mathbf{T = 2\pi r/V}$, where **V** is the orbital velocity of the planet.

Using these equations for each planet in each star system, you need to find the average mass of a planet in the system and find the system with the highest average planet mass.

Example

V**108**-R**183**
V**37**-R**17**
V**103**-R**215**

V**83**-R**153**
V**17**-R**8**
V**74**-R**108**

Additional Info

1. Each newline is a new planet with orbital velocity **V** and distance from star (orbital radius) **R**.
2. Star systems are separated by two newlines.
3. The systems are numbered starting from **1**.

Resources

Keplar's third law - YouTube

Get Input Answer Submit