



Exoplanet Alignment

Aim To determine the time to the next alignment of exoplanets B and C.

Materials 1 Chart of the exoplanet system 1 Ruler

Method

- Assume all orbits are circular, in the plane of the chart and in the same direction.
- Neglect any motion of the star S and any interactions between the exoplanets B, C and D.
- Kepler's 3rd law states that the square of the orbital period of a planet is directly proportional to the cube of the radius of its orbit.
- Use this knowledge and the information in the chart to determine the next time to when exoplanets B and C are on the same side of their star S and aligned with each other and the centre of S.
- Give your answer in years to 3 significant figures

Conditions

- Calculators may be used.

Time limit 25 minutes

Ranking The ranking order will be determined by the difference between the time given by the team and the correct value.

Team

Result

Do not write below line

Rank