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NCERT Class VIII Science Solutions: Chapter 17-Stars and the Solar System Part 4

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Question 13:

Do all the stars in the sky move? Explain.

Answer:

All the stars move in the sky from east to west. Earth rotates about its axis and the pole star, which is situated in the direction of the earth's axis. It does not appear to move.

Question 14:

Why is the distance between stars expressed in light years? What do you understand by the statement that a star is eight light years away from the Earth?

Answer:

Stars are at a distance of millions of kilometers from the earth. Thus, these large distances are expressed in light years. One light year is the distance travelled by light in one year. One light year is equal to $9.46 \times 10^{12} \text{ km}$.

If a star is eight light years away from the Earth. It means that the time taken by light to travel in eight years. So, the distance between the star and the Earth is given by $8 \times (9.46 \times 10^{12}) \text{ km} = 7.6 \times 10^{13} \text{ km}$.

Question 15:

The radius of Jupiter is 11 times the radius of the Earth. Calculate the ratio of the volumes of Jupiter and the Earth. How many Earths can Jupiter accommodate?

Answer:

Let the radius of the Earth be R , so the radius of Jupiter be $11R$.

$$\frac{\text{Volume of Jupiter}}{\text{Volume of Earth}} = \frac{\frac{4}{3} \pi (11R)^3}{\frac{4}{3} \pi R^3} = \frac{1331}{1} = 1331 : 1$$

Since, the ratio of volumes is $1331 : 1$, so Jupiter can accommodate 1331 Earths.

Question 16:

Boojho made the following sketch (Fig.) of the solar system. Is the sketch correct? If not, correct it.

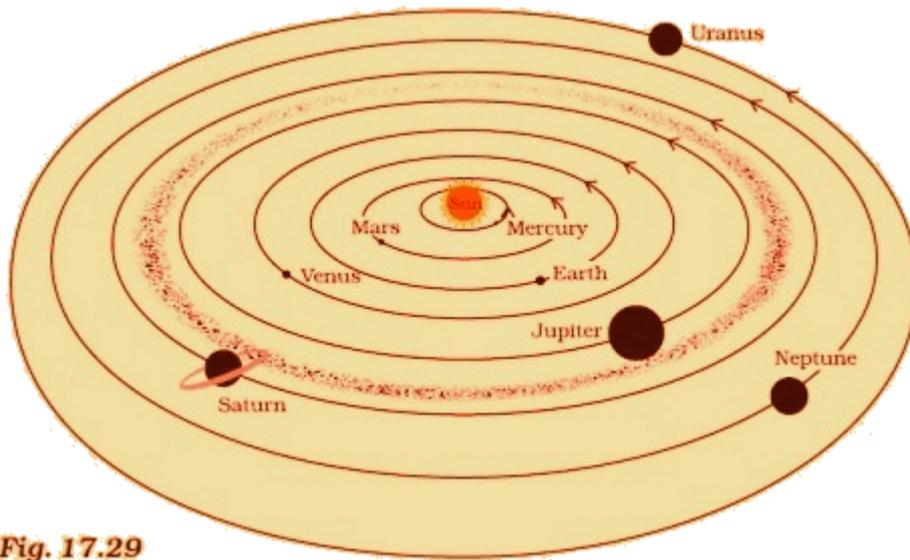
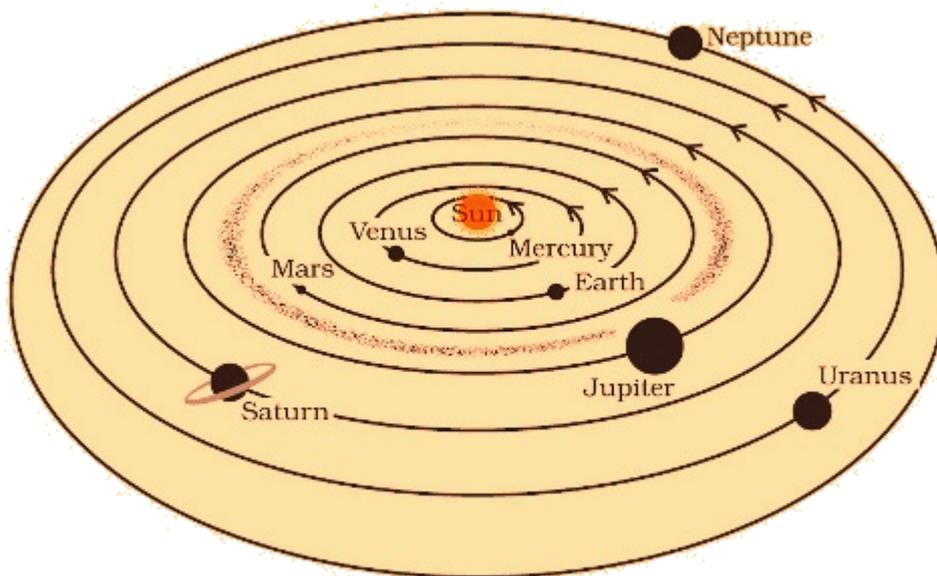


Fig. 17.29

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Answer:

Positions of Mars & Venus and Uranus & Neptune should be interchanged. The correct positions of the planets are as follows:



The Correct Sketch of Solar System

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