

■ Reading

Astronomy

Planetary Orbit and Rotation

The solar system consists of the Sun and all the planets, dwarf planets, moons, and asteroids orbiting it. Planets and dwarf planets vary in size and composition, but one thing they have in common is that they all rotate on an axis and revolve around the Sun. These rotations and revolutions have different effects on a planet's time, temperature, and its distance from the Sun.

Each planet turns on an axis—a central pole through the planet—on an individual speed and angle. For example, while the Earth completes one rotation nearly every 24 hours, Venus rotates so slowly that one day there lasts about 243 Earth days. Also, Venus rotates in the opposite direction as the Earth does. As a result, on Venus the Sun rises in the west and sets in the east, a unique characteristic in the solar system. Regarding rotation, the axis of the planet Uranus tilts at the unusually sharp angle of 97.77 degrees, which makes it roll like a barrel around the Sun. In contrast, the Earth rotates at an angle of 23 degrees, which causes the different seasons on Earth.

The planets' orbits, or revolutions around the Sun, are generally fixed. The Earth, for example, has a relatively stable orbit. In January, Earth is 147.1 million kilometers away from the Sun, and in July, its distance is 152.1 million kilometers. On the other hand, some planets have orbits with wider range. For example, Mercury's distance from the Sun ranges from 46 million km to 70 million km, while the dwarf planet Pluto's distance ranges from 4.4 billion km to 7.3 billion km. On average, Pluto is forty times farther from the Sun than the Earth is. As a result, the Sun appears much smaller and dimmer when seen from Pluto.

Q1: In paragraph 2, the word "it" refers to

- a) rotation
- b) axis
- c) angle
- d) Uranus

Q2: Which of the following can be inferred about Uranus?

- a) It does not have the same seasons as the Earth.
- b) Its sharp angle makes it rotate slowly.
- c) Its angle is sharp because of its barrel shape
- d) It rotates in the opposite direction as the Earth.

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■ Key Sentence

Key Sentence:

While the Earth completes one rotation nearly every 24 hours, Venus rotates so slowly that one day there lasts about 243 Earth days.

Pattern:

(Subject) (verb phrase), while (subject) (verb phrase).

Write your sentence.