

Questions 1 through 4 are based on the information on page 544.

1. According to the chart on page 544, which of the planets takes the shortest time to revolve, or complete its orbit, around the sun?

- A. Mars
- B. Saturn
- C. Neptune
- D. Mercury

2. According to the chart, which of the following planets is most similar to Earth?

- A. Mercury
- B. Venus
- C. Jupiter
- D. Neptune

3. Before 1781, the only planets that were known were the ones visible to the naked eye: Mercury, Venus, Mars, Jupiter, and Saturn. In 1781, William Herschel, an astronomer who made his own superb and powerful telescopes, discovered a strange "star" that appeared as a greenish disk rather than a point of light. A few nights later, he observed that this "star" had moved relative to the background of the other stars. Herschel realized he had discovered another planet. It was named Uranus, after the Greek sky god. Later it was found that Uranus had actually been observed at least 20 times before, as far back as 1690, but each time it had been identified as a star.

Which of the following is an unstated assumption that could help account for the fact that Uranus was misidentified as a star prior to 1781?

- A. Uranus takes 84 Earth years to revolve around the sun.
- B. The length of a day on Uranus is about 17 hours.
- C. Uranus was not clearly visible with the telescopes generally in use at the time.
- D. Uranus was not visible when it was on the other side of the sun.

4. According to the chart on page 544, which of the following planets has the most moons?

- A. Jupiter
- B. Saturn
- C. Uranus
- D. Neptune

5. According to some estimates, it would cost about ten times more to send a crewed mission to Mars to collect geologic samples and look for life than it would cost to send a robotic mission. Some people think that a human mission would yield much more relevant data, justifying the additional cost. Others think there is no scientific reason to send crewed missions, which are costly and risky, when robotic missions will do.

Which of the following values is most likely to provide the motivation to send a crewed mission to Mars despite the risk and the additional cost?

- A. a desire to provide equal opportunities for astronauts of all nationalities
- B. a desire for economic development
- C. a desire to demonstrate the superiority of computers over humans
- D. faith in human judgment and decision-making skills

6. The structure of the solar system, with the massive sun at the center and many objects revolving around it, is most similar to the structure of which of the following?

- A. a DNA molecule, with its twisted spiral shape
- B. an atom, with a dense nucleus and electrons orbiting the nucleus
- C. the electromagnetic spectrum, with waves of different lengths and frequencies
- D. the planet Earth, with its layers of crust, mantle, and core

Answers and explanations start on page 707.