

## Answers to Review of Chapter 12

1. (1) 2. (3) 3. (3) 4. (4) 5. (1) 6. (4) 13. (1) 14. (1) 15. (3) 16. (1) 17. (1) 18. (4)  
7. (2) 8. (2) 9. (2) 10. (2) 11. (1) 12. (2) 19. (1) 20. (2)

## Answers to Questions in Reviewing Intermediate-Level Science

### EARTH MOTIONS, TIME, AND SEASONS

#### Pages 336–338—Process Skill 1: Observing the Changing Position of the Noon Sun

1. If the length of shadow increased, the noon sun would be moving lower in the sky.
2. Between December 21 and January 15 the shadow would become shorter because the sun is moving higher in the sky.
3. The shadow would get shorter between May 21 and June 21 because the sun would get higher in the sky. From June 21 to July 21 the shadow would get longer because the sun would get lower in the sky. The shadow is shortest on June 21 when the sun is highest in the sky.

#### Review Questions Pages 339–342

##### Part I

1. (2) 2. (1) 3. (3) 4. (3) 5. (4) 6. (1)  
7. (4) 8. (1) 9. (4) 10. (3) 11. (3)

##### Part II

12. The change in position of the moon was due to Earth's rotation.
13. In another hour the moon will be up higher in the sky and to the right.
14. In 3 months, Earth will be at position *B*, and 9 months later Earth will be at position *D*.
15. Earth's distance from the sun does not affect the seasons.
16. Earth revolves about  $1^\circ$  per day.

### THE SOLAR SYSTEM

#### Page 345—Laboratory Skill: Determining a Quantitative Relationship

1. If Earth moved closer to the sun its orbital speed would have to increase.
2. If a dwarf planet were discovered farther from the sun than Eris, its orbital speed would be slower than Eris's.
3. The asteroid's orbit would be between Saturn and Uranus.
4. There is an inverse relationship between an object's average speed and its average distance from the sun. That means: the greater an object's orbital speed, the closer it is to the sun.

#### Pages 351–352—Process Skill 2: Analyzing Technology's Effect on Astronomy

1. The number of known satellites increased during the late 1900s because newer technology improved our ability to observe the universe. Three items that improved space observations are space probes, computers, and telescopes in orbit around Earth.
2. The number of satellites for the inner planets remained relatively constant because we could easily observe these satellites long ago with older technology.
3. (1)

#### Review Questions Pages 352–355

##### Part I

17. (4) 18. (2) 19. (3) 20. (3) 21. (3) 22. (4)  
23. (3) 24. (2) 25. (1) 26. (1) 27. (1)

*Part II*

28. The next low tide will occur about 6:00 A.M. ON day 3.
29. It is impossible to observe Mercury because it is located directly in line with the sun. The glare of the sun would be too bright to see Mercury.
30. If you were on Mercury, Venus would be in your night sky.
31. The asteroid belt is beyond Mars's orbit. (Not shown.)
32. Jupiter spins most rapidly.
33. The length of a day on Mars is almost equal to the length of a day on Earth.
34. Earth rotates from west to east, or if looking down at the North Pole, Earth rotates counterclockwise.
35. The object that moved in the night sky was most likely a planet.

## OUR PLACE IN THE UNIVERSE

### *Review Questions Pages 359-361*

*Part I*

36. (2) 37. (3) 38. (1) 39. (2) 40. (4) 41. (3)  
42. (1) 43. (3) 44. (4)

*Part II*

45. The distances between planets are much smaller than the distances between stars.
46. The light-year allows astronomers to express the large distances with more convenient, or smaller numbers.
47. When measuring the distance to Eris, the astronomical unit (AU) is more convenient to use.