

Astronomy Review Package

Problem

1. Mars is on average 228 000 000 km from the Sun. Calculate the distance from Mars to the Sun in astronomical units.
2. Calculate the distance in kilometers that light will travel in 15 minutes.
3. Alpha Centauri is approximately 4.3 light years away. How far is this in kilometres?
4. The distance from the Sun to Jupiter is 778 000 000 km. If you were travelling at the speed of light, how long would the round trip take?
5. The distance from the Earth to the Sun is 1 AU or approximately 150 000 000 km away. If travelling at the speed of light, how long would a trip to the Sun take?

Short Answer

6. Explain *retrograde motion* and why it occurs.
7. Describe the Earth's revolution. Be sure to include the shape of the path and its length in your answer.
8. Compare and contrast neap tides and spring tides.
9. What was Copernicus' model of the solar system, and why did he choose not to publish it?
10. Explain why Canadians enjoy earlier sunrises in July than in January.
11. The temperature on Mercury ranges from 400°C to -180°C. Explain what causes this large variation in temperature.
12. Distinguish between the terms *rotation* and *revolution*, incorporating information regarding Earth in your answer.
13. Explain why the density of Saturn is unique.
14. Describe how the Earth's atmosphere is unique from other planets.
15. Explain the term *precession* and how it applies to the Earth. You may use a diagram in your answer.
16. Draw a sketch to show how the Big Dipper can be used to locate Polaris.
17. Explain the term *zodiac*, and its connection to planetary motion.
18. How did Johannes Kepler explain the motion of the planets?
19. Explain why it is much easier to learn the constellations in city skies rather than in the very dark skies of the country.
20. The Sun and full Moon both are about half a degree in diameter. A student concludes that the Moon and the Sun must therefore be the same size. Do you agree? Explain why or why not.
21. If the star Alpha Centauri were to suddenly disappear, we would not know for another 4.3 years. Explain why this would be the case.
22. Distinguish between globular and open clusters.

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23. List two methods that astronomers use to calculate distances in space.
24. How can space probes travel very long distances using very little fuel?
25. Proxima Centauri is our closest star after the Sun. What are some reasons that travelling to Proxima Centauri currently seems impossible.
26. Explain how seasons are caused.
27. The land near the Arctic circle is often called "The Land of The Midnight Sun." Explain this term. Use a diagram that shows the revolution of the earth around the sun.
28. Draw and name the phases of the moon.
29. Draw and label both a solar eclipse and a lunar eclipse. Explain the difference between a lunar eclipse and a new moon.