

Worksheet Accelerated Physics
Chapter 14

True and False

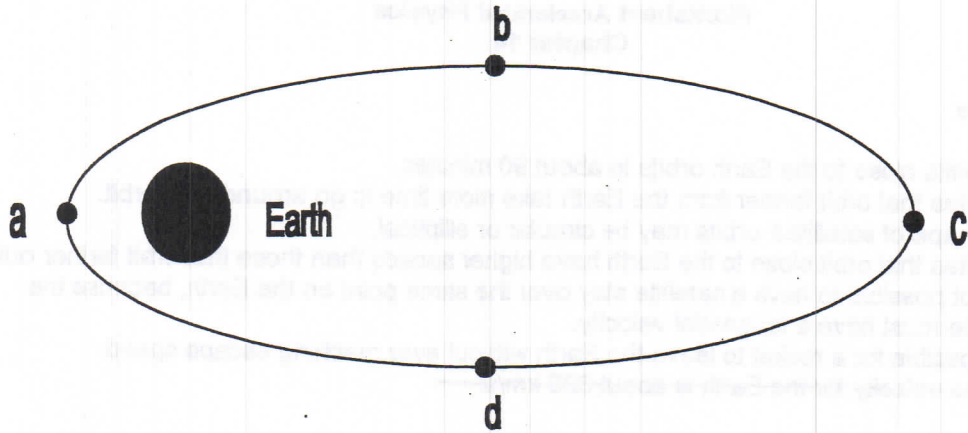
1. T A satellite close to the Earth orbits in about 90 minutes.
2. T Satellites that orbit farther from the Earth take more time to go around their orbit.
3. T The shape of satellites' orbits may be circular or elliptical.
4. F Satellites that orbit close to the Earth have higher speeds than those that orbit farther out.
5. F It is not possible to have a satellite stay over the same point on the Earth, because the satellite must have a tangential velocity.
6. T It is possible for a rocket to leave the Earth without ever reaching escape speed.
7. ~~Escape velocity for the Earth is about 620 km/s.~~

Multiple Choice

8. If the Earth's radius stayed the same but the mass increased, the escape speed would ____.
a. decrease c. stay the same
b. increase d. need to know by how much to determine the change
9. The period of a satellite revolving around the Earth is defined as ____.
a. the distance from the Earth's surface in Earth radii
b. 90 seconds
c. the time for the satellite to cross the United States
d. the time for the satellite to make one complete revolution of the Earth
10. The Moon's escape speed is ____.
a. greater than the Earth's c. the same as the Earth's
b. less than the Earth's
11. ~~If a satellite's mass is doubled, the speed, required to keep it in orbit at the same distance, ____.~~
a. doubles b. is halved c. remains unchanged
12. ~~If a tangent line is drawn from the Earth and measured out 8000 m, the Earth has curved away from it by ____ m.~~
a. 4.9 b. 9.8 c. 19.6 d. 29.4
13. A satellite is in elliptical orbit around the Earth. The Earth is located at ____.
a. the center of the ellipse
b. one of the foci
c. it can be anywhere within the ellipse
14. A satellite in geosynchronous orbit would remain ____.
a. over one spot on the Earth
b. over the equator during its revolutions
c. in orbit from north to south

Not on test

not on test



Eis the same everywhere

The above diagram represents a satellite of the Earth in an elliptical orbit.

The satellite is shown in four positions (A, B, C, & D).

Use this diagram to answer questions 15-20.

15. The position of the satellite during apogee. *C*
16. The position of the satellite when the kinetic energy is a minimum. *C*
17. The position of the satellite when the total energy is a maximum. *E (same everywhere)*
18. The position of the satellite when the speed is a maximum. *A*
19. The position of the satellite during perigee. *A*
20. The position of the satellite is experiencing the greatest gravitational pull. *A*