Circular Motion

Choose the correct answer.

1. Which of the following statements is true about an object in circular motion at constant speed?

A. There is no acceleration since the speed is constant

B. The velocity remains constant throughout the motion

C. The direction of velocity continuously changes

D. The object is not experiencing any force

2. Why is there acceleration in circular motion, even if the speed remains constant?

A. Because the object is slowing down

B. Because the direction of velocity is changing

C. Because the object is speeding up

D. Because the mass of the object is increasing

3. What is the correct definition of centripetal acceleration?

A. Acceleration in the direction of the object's velocity

B. Acceleration that increases the speed of the object

C. Acceleration directed towards the centre of the circle

D. Acceleration that pushes the object outward

4. What is the name of the force that keeps an object moving in a circular path?

A. Gravitational force

B. Frictional force

C. Centripetal force

D. Tangential force

5. Which of the following best describes the direction of the centripetal force?

A. Away from the centre of the circle

B. Along the circular path

C. Towards the centre of the circle

D. At a tangent to the circle

6. In circular motion with constant speed, why must the resultant force only change the direction of velocity and not its size?

A. To keep the object accelerating outward

B. To maintain constant speed along the path

C. To reduce friction

D. To stop the object from moving in a straight line

7. What causes the centripetal force that keeps planets in orbit around the Sun?

A. Friction

B. Centrifugal force

C. Gravitational force

D. Magnetic force

8. Which of the following is an example where gravitational force acts as a centripetal force?

A. A car turning around a bend

B. An electron orbiting the nucleus

C. A stone tied to a string being spun in a circle

D. The Moon orbiting the Earth

9. If the centripetal force is removed, what will happen to the object in circular motion?

A. It will stop immediately

B. It will fly off in a curve

C. It will move inwards towards the centre

D. It will move in a straight line along a tangent to the circle

10. What would happen if the centripetal force stopped acting on a satellite orbiting a planet?

A. The satellite would move straight towards the planet

B. The satellite would speed up and spiral outward

C. The satellite would move off in a straight line tangent to the orbit

D. The satellite would continue to orbit without change