

If the cart is moving in the direction of the arrow and suddenly stops, which direction will the pop fall? Please select from the following choices:

A. forward;

Correct Answer: A

GPT4o: A. According to the laws of inertia, an object in motion will stay in motion unless acted upon by an external force when the cart is moving and suddenly stops, the pop inside the cart will continue moving in the same direction the cart was originally moving since the cart is moving in the direction of the arrow (to the left), and it suddenly stops, the pop will continue moving forward (to the left) and fall in that direction.



An object is suspended from the ceiling by two thin strings, with the ends of the strings fixed at different positions on the ceiling. If the right string breaks, how will the object move? Please select from the following choices:

- A. Swing like a pendulum towards the right;
- B. Swing like a pendulum towards the left; Correct Answer: B C. Remain stationary;

CPTAC: B. When the right string breaks, the tension in the right string that was balancing the weight of the object will be lost as a result, the object will no longer have support from the right side and will swing to the left due to the remaining tension from the left string will act as a pious, causing the object to swing like.



pendulum towards the left

A ball is performing simple pendulum motion, where left, middle, and right respectively represent the ball being at the highest point, middle position, and lowest point. At which position will the pendulum normally travel the fastest?

A. left; B. middle; C. right:

Correct Answer: C

GPT4o: B. middle; "In a simple pendulum motion, the pendulum has the highest potential energy and the lowest kinetic energy at its highest points (left and right positions) as it swings toward the middle position (lowest point)"



One object is connected to the ceiling by a first thin string, and another object is connected to the first object by a second thin string. Is the force on the first string greater than on the second one

Correct Answer: Yes

GPT4c: Yes. The force on the first string is greater than the force on the second string this is because the first string must support the weight of both objects, while the second string only needs to support the weight of the lower object the tension in the first string results from the combined weight of the two objects, while the tension in the second string results from just the weight of the lower object.



A small ball is connected to the suspension of the car through a thin wire. According to the state of the ball and the string, does the car remain motionless

Correct Answer: No.

GPT4o: No, the car is not motionless the image shows a small ball hanging from a string, and the string is slanted backward at an angle relative to the vertical this indicates that the car is experiencing acceleration or deceleration if the car were stationary, the string would hang straight down due to gravity the backward start suggests that the car is accelerating forward, causing the ball to be cuiled backward due to inertia



A small ball is connected to the car's suspension by a thin string. The car is moving to the right. Please answer, if the car suddenly stops, the ball will: Please select from the following choices:

- Remain unchanged relative to the car;
- Move backward relative to the car:
- C. Move forward relative to the car;

Correct Answer: C

GPT4c: B move backward relative to the car. When the car suddenly stops, the ball will continue moving forward due to its inertia, as stated by newton's first taw of motion relative to the car, which has stopped, the ball will appear to move backward this backward motion relative to the car is actually the ball continuint to move forward while the car decelerates