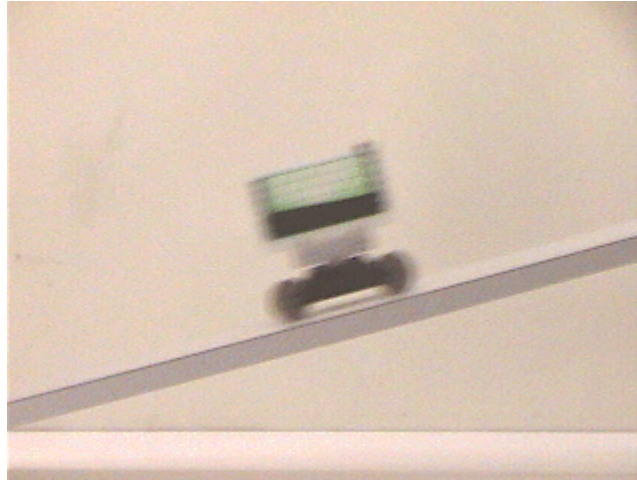


Answer #49

The answer is (c): the water will become uniformly distributed in the accelerometer with its surface parallel to the incline, as seen in the photograph below and on an mpeg video by clicking your mouse on the photograph.



One way to view this demonstration is to look at the two components of the gravitational force: that accelerating the cart down the incline and that keeping the cart in contact with the incline (parallel to and perpendicular to the incline). The force down the incline is responsible for the acceleration of the cart. The force perpendicular to the incline is responsible for the liquid surface assuming a configuration parallel to the incline. There is no inertial effect causing the liquid to accumulate toward the rear of the vessel, as in the case of acceleration of the cart along a *horizontal* surface by an external force. The component of gravity along the incline acts uniformly on both the accelerometer and the water inside. In the level case it is the rear end of the accelerometer that is pushing on the liquid and causing it to accelerate along the horizontal surface.

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