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A.P. Physics B

Physics Toy Company

Assumptions:

* The airplane flies in a perfect circle
* No air resistance
* The airplane has a constant velocity
* The string holding the plane is massless

Procedure

1. Measure the length of the string holding the airplane, from the top of one hook to the other using a meter stick.
2. Turn on the airplane and with a small push, allow the plane to circle until it has set into a circular motion so that it no longer is changing it’s radius of motion
3. While it circle, pick a set point along its path and, with a stop watch, record the time it takes for the plane to make several circles. The more revolution you allow, the better more accurate your calculation will be for its velocity.
4. The final calculation to make is finding the height of the vertical side of the right triangle formed by the plane’s motion. Hold a meter stick horizontally under the planes path so it’s just a hair below without touching the plane to disturb its motion.
5. Using a second meter stick and a level on the horizontal ruler, measure up to the hook holding the string to the bar on the ceiling. This measurement along with the original length of the string (now the hypotenuse) will allow you to calculate the radius and angle of elevation of the plane.
6. Turn off the plane, unwind the string, and return all materials