

Physics 1101 Experiment 8 Homework

NAME _____

1. Find the x- and y-components of momentum of a 2.25-kg object moving at 3.70 m/s at an angle of 120.0 degrees with respect to the positive x-axis.

2. From Eq. (5), you can see that $v_{pi} = R_o(g / 2H)^{1/2}$. Explain and show why this is the case.

3. In this experiment, the force of gravity clearly causes both the projectile and the target to accelerate. We still, however, use this situation as an example of a two-dimensional collision where conservation of momentum holds. Explain why this is the case.

4. For a two-dimensional elastic collision, two equations are required to express conservation of momentum, whereas only one equation is required to express conservation of kinetic energy. Explain why this is the case.

NOTE: You should answer question 3 in Experiment 8 in the laboratory manual before you come to the laboratory.