



ADVANCED PHYSICS CLUB

OCTOBER 27, 2024

USEFUL RESOURCES

The updates, homework assignments, and useful links for APC can be found on SchoolNova's web page:
https://schoolnova.org/nova/classinfo?class_id=adv_phy_club&sem_id=ay2024

The practical information about the club and contacts can be found on the same web page.

TODAY'S MEETING

Today we solved some of the problems on projectile motion. We will continue with the same topic next time, with two reassigned problems and one new.

Please solve the problems at home! It is most effective when during the club meeting we discuss the solutions that you already have.

If you feel like you need clarification about the formulation of any problem, you are always welcome to email apc@schoolnova.org

REASSIGNED HOMEWORK

1. What should be the initial velocity of a cannon missile in order to hit a rocket, moving vertically with a constant acceleration a ? The rocket starts accelerating at the same moment as the cannon fires. The cannon and the rocket launching point are both at the ground level, the distance between them is L . The cannon fires at an angle 45° to the horizon.
- *2. A ball is released from rest and hits an inclined plane after falling a distance H . Find the distances between points at which the ball hits the inclined plane after the initial collision. Assume that all collisions are perfectly elastic. The plane is inclined at an angle α .

NEW HOMEWORK

1. A water hose is lying on the ground, pointing at an angle 45° to the horizon. Water shoots out of this hose at the speed 10 m/s. Cross section area of the hose is 5 cm^2 . Find the total mass of water which is in the air at any given moment of time.

FOR THE NEXT MEETING

IMPORTANT: The next club's meeting is at 3:30pm, via Zoom, on Sunday, **November 3**.