

Problem :1

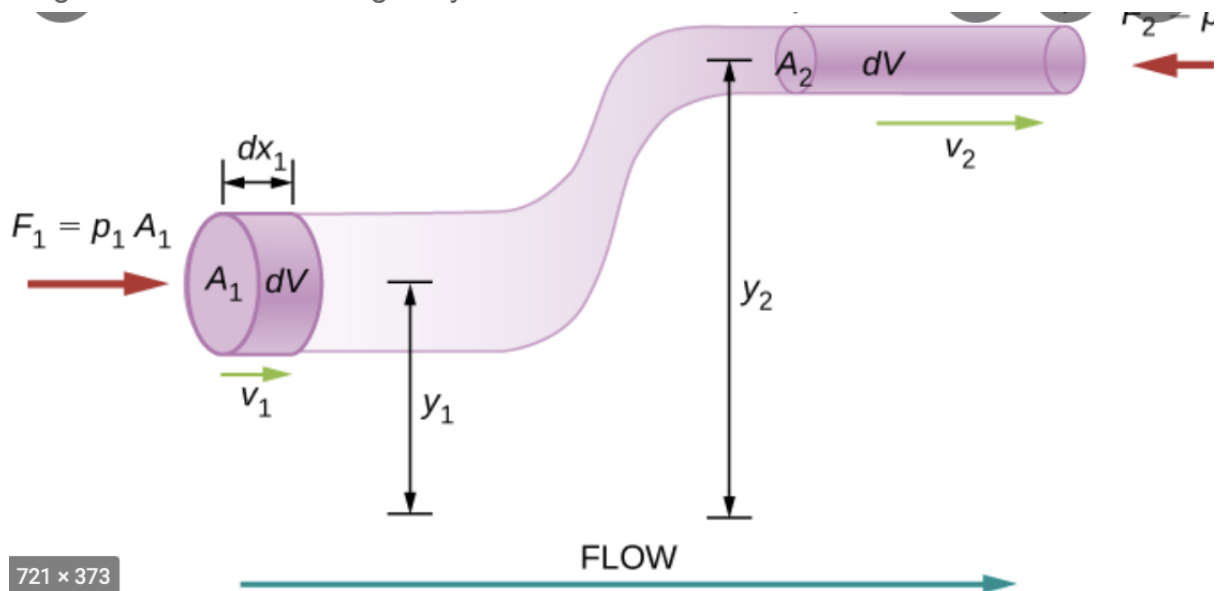
A baseball which has an weight of about 5 oz or a mass of 0.14 Kg is moving horizontally at a speed of 93 mil/h (about 42m/s) when it is struck by the bat it leaves the bat in a direction at an angle $Q = 35$ degree above its incident path and with a speed of 50m/s. Then find-

- the impulse of the force exerted on the ball?
- Assuming the collision lasts for 1.5 ms ($=0.0015$), what is the average force ?
- Find the change in momentum of the bat?

Problem :2

Water is shooting out of the end of a pipe. The end of the pipe is bent into the Figure 1. Then which answer is true according to these questions-

- The water shoots out in a curved arc.
 - The water shoots out in a straight line
- Forget about the effect of gravity



721 × 373

Problem :03

An Alpha particle travels along the inside of an evacuated straight tube 2.0 m long that forms part of a particle accelerator at $t=0$ moving at a velocity $9.5 \cdot 10^5$ m/s and emerges from the other end at time $t=8 \cdot 10^{-7}$ s. Then Find

- If the particles acceleration is constant, What is the acceleration???
- What is its velocity when it leaves the tube ??

Imagine that you have carried out an enormous galaxy survey. For each galaxy, you plot the probability of finding another galaxy at a given separation on the sky and given redshift separation. Here are some possible plots you might get.

