Active learning exercise

The following exercise is known as a **jig-saw technique**. Everyone team in the class will be assigned one of three problems. Everyone will solve their assigned problem *before* the next class. (Your assigned problem is on the back of this sheet.) **You will turn in your attempt at the problem with your next homework assignment.** You may work the problem on the back of this sheet, and you need not follow the standard homework format**.**

In our next class we will work in teams in which each member has already worked one of the three problems. One of your jobs as a team member is to serve as a guide for helping the others solve the problem you are already an "expert" on.

<u>Procedure for solving problems during class:</u>

1) Everyone will spend one (1) minute reading the problem silently.
2) Three (3) minutes will be allotted for *discussing* the problem solving strategy. Things to discuss should include
   a. The system to choose: What are the boundaries? Is it open or closed? Why this system and not another?
   b. The time frame required.
   c. Additional information required: Do you need to make any assumptions? What are they? Are there additional relationships (equations) that you can use?
3) Ten (10) minutes will be allotted for documenting the solution. Documented solutions *must* adhere to the following:
   a. When using a conservation or accounting principle, you must clearly indicate a system by drawing a system boundary on a diagram.
   b. All conservation principles must start with the most general form first and then show a logical progression to the solution.
   c. You cannot crunch number until the last step. Work all solutions in symbolic form.

Example B

A steady-state ejector is shown in the figure below. The ejector has a constant length into the page of w. V_3 is an unknown quantity. All other lengths and velocities are known. The ejector fluid can be modeled as an incompressible fluid with density ρ.

Find an expression for the velocity at the outlet, V_3 in terms of the known quantities.