

## Problem Solving Strategy

- Step 1:** State briefly the information given.
- Step 2:** State the information to be found.
- Step 3:** Draw a free-body diagram depicting the system or control volume to be used in the analysis, keeping in mind that “a sketch is worth a thousand words.”
- Step 4:** Identify the system or control volume to be used in the analysis.
- Step 5:** Identify relevant forces, mass, momentum, or energy fluxes, that exist or cross the boundaries.
- Step 6:** State the basic laws that you propose to use to solve the problem.
- Step 7:** State the assumptions that you feel are needed/appropriate to achieve a solution.
- Step 8:** Find the answer algebraically whenever possible.
- Step 9:** If time permits, check the units in the result to make sure the units are what you expect.
- Step 10:** Substitute numerical values.
- Step 11:** If time permits, and especially in reports, make sure you have referenced the source of values if taken from charts/tables.
- Step 12:** Make sure to round the answer using engineering common sense. For instance, the answer cannot be more accurate than the least accurate data used to find it.
- Step 13:** Ask yourself, does the answer sound reasonable? If not, reexamine your algebra and your technique.
- Step 14:** In some cases, you can verify that the answer is correct (e.g. by plugging it back into the governing equation) by making sure it satisfies the condition(s) given in the problem. You should do that if time permits.