Problem-Solving Strategies

1. Draw a picture of the problem or system in question (e.g., a schematic diagram, flow chart, graph, etc.)

2. If the problem is complex, break it first into smaller portions.

3. Consider carefully what you're being asked. Identify key concepts/ideas.

4. Identify the knowns & unknowns → Translate into a mathematical expression.

5. State clearly all assumptions. These often help simplify the problem, but need to be made critically and be justifiable.

6. Be systematic and thorough. Include written descriptions of your reasoning and page/text references to supporting information.

7. Work in algebraic form, substituting numbers only at end. Do the dependences make physical sense? Are the units correct? Be careful.

8. Review your work for correctness.

9. Communicate clearly by working neatly.

10. Express written answers in complete sentences.