1. True or false: Local search is a form of systematic search.

2. True or false: Local search is guaranteed to find the optimal solution to a problem.

3. What is the minimum number of states that a local search algorithm must keep track of? What is the maximum?

4. What are the advantages and disadvantages of keeping track of more states in local search?

5. Suppose you have a set of Boolean (true/false) variables, and a set of rules of the form “if $x_1$ is true, then $x_2$ must be false,” or “if both $x_1$ and $x_2$ are true, then either $x_3$ or $x_4$ are true,” and so on. Your goal is to find values (true or false) for each of the Boolean variables ($x_i$) such that all the rules are satisfied.

   Formulate this so-called Boolean Satisfiability Problem as a local search problem.