

9 Algorithm Design and Problem-solving – Part 2 —Answers

Answers

9.1 (a) a diamond; (b) a parallelogram.

9.2 It is simple to write and works on **any** list (sorted or not).

9.3 x takes 0, 1, 3, 6, 10 —the final value is 10 ($1 + 2 + 3 + 4$).

9.4 Start with a high-level outline of the solution, then expand each step into more detail until every step is simple enough to code.

9.5 It checks each element in order until it finds the target (or reaches the end). It is slow when the list is long and the item is near the end or absent.

9.6 A logic error gives the wrong answer without stopping the program, so it is hard to spot by running it. A trace table shows every variable's value step by step, so you can see exactly where a value first becomes wrong.

9.7 Up to 1000 comparisons. This happens when the target is the last item, or is not in the list at all, so every element has to be checked.