

3. Recursion :: Identifying Recursive Problems

Not all problems are amenable to solution by recursion. To apply recursion the problem must possess specific characteristics (which, uncoincidentally, are related to the key concepts):

1. The size of the problem must be reducible to a smaller, basically-equivalent subproblem.
2. The smaller, basically-equivalent subproblem must be simpler to solve than the larger problem.
3. The solution to the original problem requires repetition.
4. There must be a base case at which point the size of the problem cannot be further reduced.
5. The solution to the base case is generally easily-obtainable.
6. The solution to the smaller subproblem must be returned and used in solving the larger problem.
7. The solution to the original problem results from solving all of the subproblems.