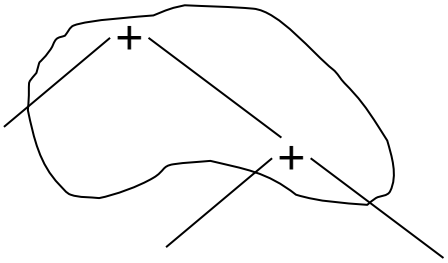
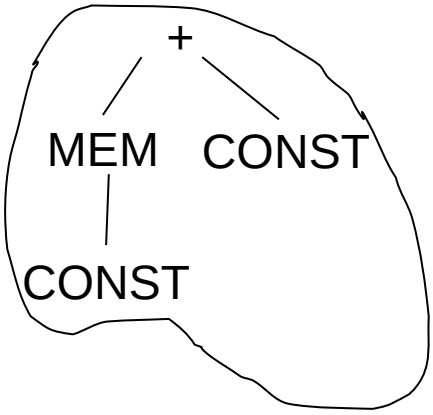
Problems 3: Code generation

Suppose that the instruction set in the lecture notes (pp 171-172) is extended by the following two instructions:

Instruction	Meaning	Tile
ADD3 Ri Rj Rk Rm	Ri ← Rj + Rk + Rm	
ADDM Ri a c	Ri ← M[a] + c	

1. Show the IR tree corresponding to the expression (x+2)+(y+3), where x and y are variables stored in memory at locations 0 and 4, respectively.
2. Use the maximal munch (greedy) algorithm to generate code for this IR tree.
3. Does this result in the shortest sequence of instructions?
4. If not, what is the shortest sequence of instructions?