

**(a)** (6 pts) Convert the following infix expression to postfix using a stack. Show the contents of the stack at the indicated points (1, 2, and 3) in the infix expression.

Diagram illustrating the state of memory cells (stacks) for three different scenarios:

- Stack 1:** Contains symbols  $($ ,  $*$ , and  $+$  from top to bottom.
- Stack 2:** Contains symbols  $*$ ,  $+$ ,  $($ ,  $*$ , and  $+$  from top to bottom.
- Stack 3:** Contains symbols  $*$  and  $+$  from top to bottom.

[illegible]

**(b)** (4 pts) Whenever a recursive function is called, the function calls go onto a call stack. The depth of the call stack is the number of different recursive calls on the stack at a particular point in time, which indicates the number of different recursive calls that have started, but have not completed. What is the maximum stack depth of the call stack when the function `fib(10)` is executed? Is this maximum stack depth equal to the number of times the recursive function, `fib`, is called? Assume the implementation of the Fibonacci function shown below:

YES NO  
Grading: 2 pts correct, 0 otherwise