3) (5 pts) ALG (Stacks)
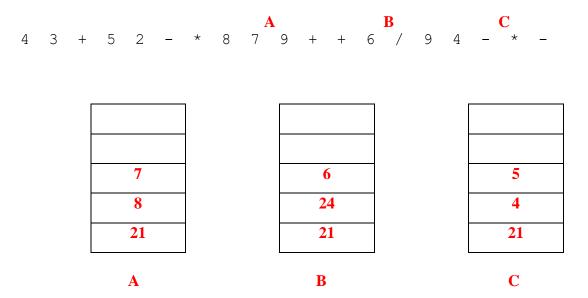
Evaluate the following postfix expression shown below, using the algorithm that utilizes an operand stack. Put the value of the expression in the slot provided and show the state of the operand stack (in this case the stacks should just have numbers in them) at each of the indicated points in the expression:

```
                          A            B           C
4   3   +   5   2   -   *   8   7   9   +   +   6   /   9   4   -   *   -
```

	A			B			C	
7			**6**			**5**	
8			**24**			**4**	
21			**21**			**21**	

| A | B | C |

Note: A indicates the location in the expression **AFTER** 7 but before 9.
   B indicates the location in the expression **AFTER** 6 but before the division.
   C indicates the location in the expression **AFTER** the subtraction but before the multiplication.

Value of the Postfix Expression: **<u>1</u>**

Grading: 1 pt for each stack (all or nothing), 2 pts for the final answer (all or nothing)

Computer Science Foundation Exam

January 14, 2023

Section B

ADVANCED DATA STRUCTURES

SOLUTION

Question #	Max Pts	Category	Score
1	10	DSN	
2	5	ALG	
3	10	ALG	
TOTAL	25		

You must do all 3 problems in this section of the exam.

Problems will be graded based on the completeness of the solution steps and <u>not</u> graded based on the answer alone. Credit cannot be given unless all work is shown and is readable. Be complete, yet concise, and above all <u>be neat</u>. For each coding question, assume that all of the necessary includes (stdlib, stdio, math, string) for that particular question have been made.