

Algorithm to Evaluate Postfix Expression

- Step 1: Start
- Step 2: Scanning the Postfix expression from left to right when an operand is encountered then push the value of operand into Stack.
- Step 3: The Scanned character is an operator then pop the two operands from top of the Stack.

Algorithm to Evaluate Postfix Expression

- Step 4: Perform the operation on the operands
- Step 5: The result is pushed into the Stack.
- Step 6: This process is continued until the Postfix expression is completed.

Example for Evaluation of Postfix Expression

Example : $AB+C^*$. where $A=7, B=4, C=2$.

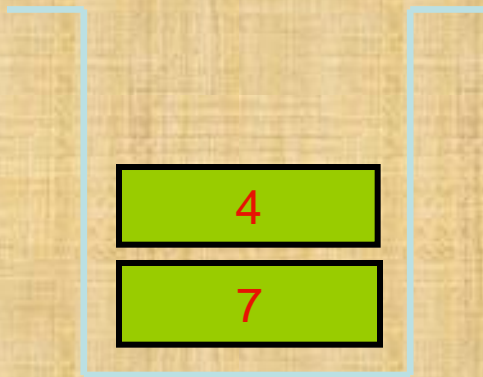
- Step 1: Start
- Step 2: Scanning the Postfix expression $AB+C^*$ from left to right first an operand “A” is encountered then push the value of “A” i.e. 7 onto the Stack.



Example for Evaluation of Postfix Expression

- Step 3: The scanned character is an operand then push “B” value into the Stack.
- Step 4: The scanned character is an arithmetic operator i.e “+”. pop A,B values into the Stack and perform an operation using that operator. i.e. $7+4=11$.

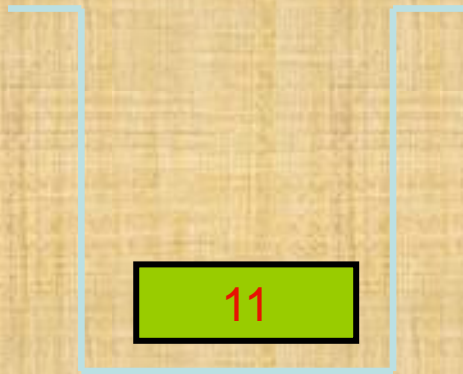
Push B=4



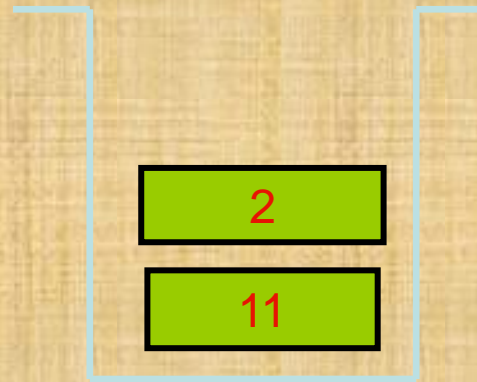
Example for Evaluation of Postfix Expression

- Step 5: The result will be pushed into the Stack.
- Step 6: Next the scanned character is an operand i.e., C then push C value into the Stack.
- Step7: Next the scanned character is an operator i.e “+” then pop the values into the stack and perform the operation.

Push result=11



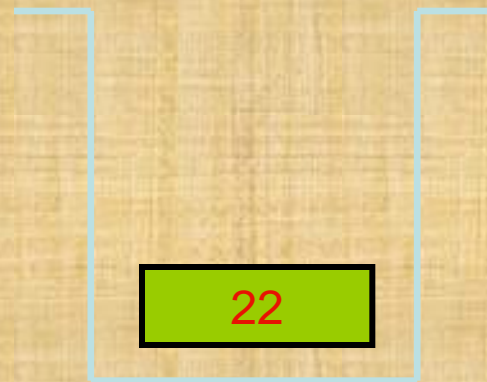
Push c=2



Example for Evaluation of Postfix Expression

- Step 8: The operation “*” is performed on the two operands.
i.e. $11 * 2 = 22$.
- Step 9: The result will be pushed into the Stack.
- Step 10: Pop the result from the stack
The process is completed.
- Step 11: Stop.

Push $c=22$



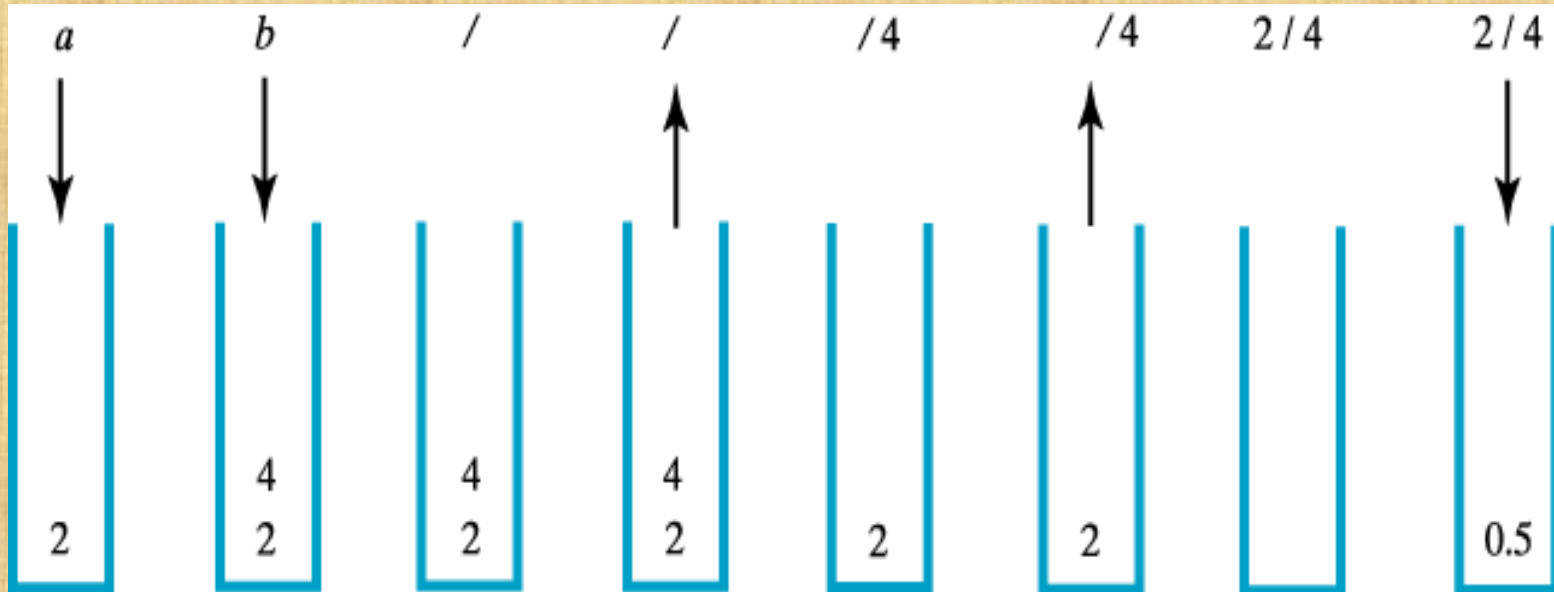
Result : $11 * 2 = 22$

Example for Evaluation of Postfix Expression

Items	Stack
7	7
4	7 4
+	11
2	11 2
*	22

Examples on Evaluation of Postfix Expression.

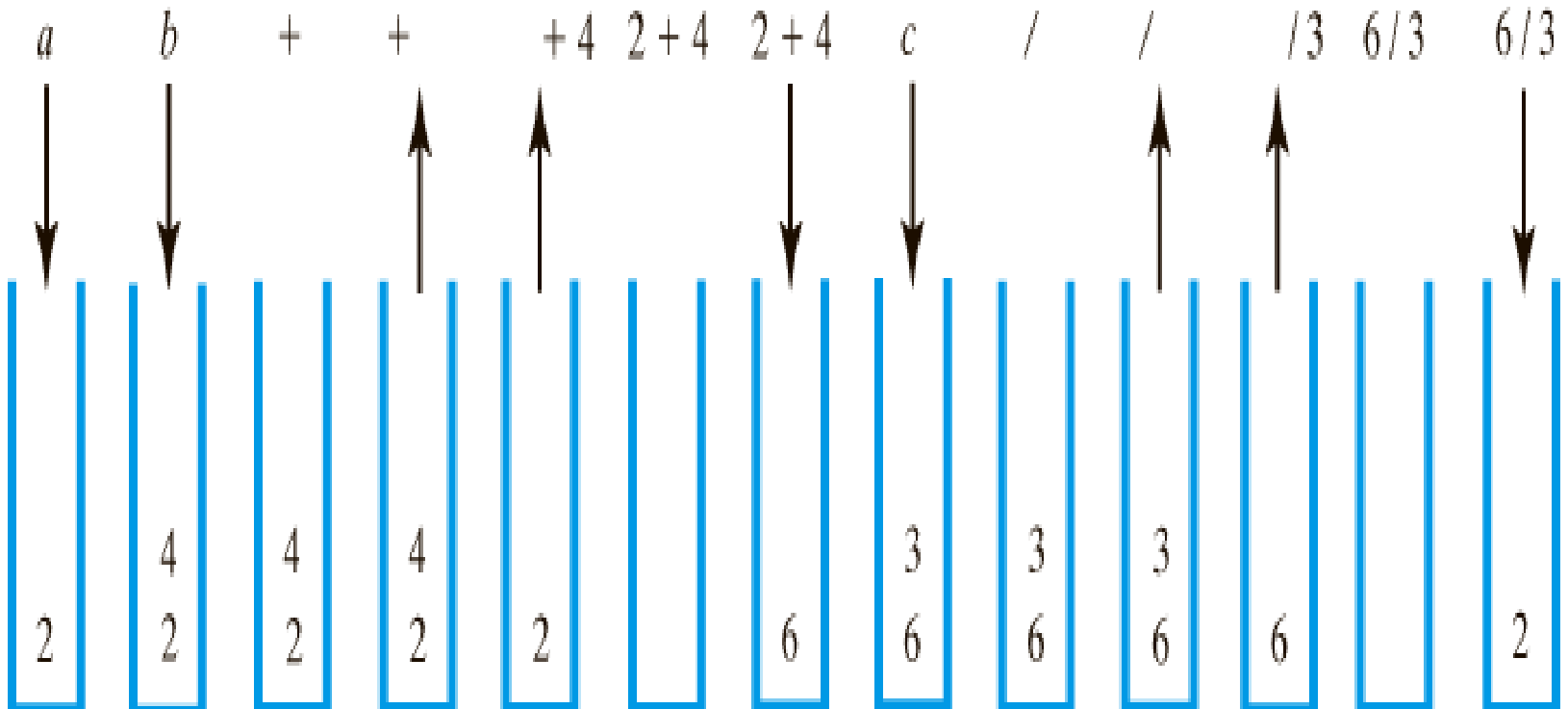
1



The stack during the evaluation of the postfix expression

$a b /$ when a is 2 and b is 4

2



The stack during the evaluation of the postfix expression $a b + c /$ when a is 2, b is 4 and c is 3

3

TABLE 5.4

Postfix Expressions

Postfix Expression	Infix Expression	Value
$\underline{5 \ 6 \ *}$	$5 * 6$	30
$\underline{5 \ \underline{6 \ 1 \ +} \ *}$	$5 * (6 + 1)$	35
$\underline{\underline{5 \ 6 \ *} \ 10 \ -}$	$(5 * 6) - 10$	20
$\underline{4 \ \underline{\underline{5 \ 6 \ *} \ 3 \ /} \ +}$	$4 + ((5 * 6) / 3)$	14