Infix to Prefix Conversion

Algorithm of Infix to Prefix

1. Step 1. Push “)” onto STACK, and add “(“ to end of the A
2. Step 2. Scan A from right to left and repeat step 3 to 6 for each element of A until the STACK is empty
3. Step 3. If an operand is encountered add it to B
4. Step 4. If a right parenthesis is encountered push it onto STACK
5. Step 5. If an operator is encountered then:
6. a. Repeatedly pop from STACK and add to B each operator (on the top of STACK) which has same
7. or higher precedence than the operator.
8. b. Add operator to STACK
9. Step 6. If left parenthesis is encontered then
10. a. Repeatedly pop from the STACK and add to B (each operator on top of stack until a left parenthesis is encounterd)
11. b. Remove the left parenthesis
12. Step 7. Exit

Infix to prefix conversion

Expression = **(A+B^C)*D+E^5**

Step 1. Reverse the infix expression.

5^E+D*)C^B+A(

Step 2. Make Every '(' as ')' and every ')' as '('

5^E+D*(C^B+A)

Step 3. Convert expression to postfix form.

A+(B*C-(D/E-F)*G)*H

Expression	Stack	Output	Comment
5^E+D*(C^B+A)	Empty	-	Initial
^E+D*(C^B+A)	Empty	5	Print
E+D*(C^B+A)	^	5	Push
+D*(C^B+A)	^	5E	Push
D*(C^B+A)	+	5E^	Pop And Push
*(C^B+A)	+	5E^D	Print
(C^B+A)	+*	5E^D	Push

C^B+A)	+*(	5E^D	Push
^B+A)	+*(	5E^DC	Print
B+A)	+*(^	5E^DC	Push
+A)	+*(^	5E^DCB	Print
A)	+*(+	5E^DCB^	Pop And Push
)	+*(+	5E^DCB^A	Print
End	+*	5E^DCB^A+	Pop Until '('
End	Empty	5E^DCB^A+*+	Pop Every element

Step 4. Reverse the expression.

+*+A^BCD^E5

Result

+*+A^BCD^E5