**CONVERTING INFIX TO POSTFIX EXPRESSION**

The method of converting infix expression A + B \* C to postfix form is:

A + B \* C Infix Form

A + (B \* C) Parenthesized expression

A + (B C \*) Convert the multiplication

A (B C \*) + Convert the addition

A B C \* + Postfix form

The rules to be remembered during infix to postfix conversion are:

1. Parenthesize the expression starting from left to light.

2. During parenthesizing the expression, the operands associated with operator

having higher precedence are first parenthesized.

For example in the above expression

B \* C is parenthesized first before A + B.

3. The sub-expression (part of expression), which has been converted into postfix, is to be treated as single operand.

4. Once the expression is converted to postfix form, remove the parenthesis.

**Problem 3.4.2.1. Give postfix form for**

**A + [ (B + C) + (D + E) \* F ] / G**

**Solution.** Evaluation order is

A + { [ (BC +) + (DE +) \* F ] / G}

A + { [ (BC +) + (DE +)F \*] / G}

A + { [ (BC + )DE + F \* +] / G} .

A + [ BC + DE + F \*+ G / ]

ABC + DE + F \* + G / + Postfix Form

**Problem 3.4.2.2. Give postfix form for**

**(A + B) \* C / D + E ^ A / B**

**Solution.** Evaluation order is

[(AB + ) \* C / D ] + [ (EA ^) / B ]

[(AB + ) \* C / D ] + [ (EA ^) B / ]

[(AB + ) C \* D / ] + [ (EA ^) B / ]

(AB + ) C \* D / (EA ^) B / +

AB + C \* D / EA ^ B / +

Postfix examples

Demo6

a+b\*c

a+bc\*

abc\*+

Demo7

a+b-c

ab+-c

ab+c-

demo8

(a\*b+c)/(d-e)+g

(ab\*+c)/(d-e)+g

(ab\*c+)/(d-e)+g

(ab\*c+)/(de-)+g

(ab\*c+)(de-)/+g

(ab\*c+)(de-)/g+

ab\*c+de-/g+

Demo3 infix to prefix

a+b\*c

a+\*bc

+a\*bc

Demo4

a+b-c

+ab-c

-+abc

Demo 5

(a\*b+c)/(d-e)+g

(\*ab+c)/(d-e)+g

(+\*abc)/(d-e)+g

(+\*abc)/(-de)+g

+/(+\*abc)(-de)g

+/+\*abc-deg

$ and ^ has highest precedence

Demo1 prefix(polish notation)

1. a\*b$c
2. a\*$bc
3. \*a$bc

Demo2

Note if there is only $ its R to L and mixture of operator l to r

1. a$b$c
2. a$$bc
3. $a$bc

Demo 3 postfix

a\*b$c

a\*bc$

abc$\*

demo 4

a$b$c

abc$$

1. *Convert the expression ((A + B) \* C – (D – E) ^ (F + G)) to equivalent Prefix and Postfix notations.*

Prefix Notation:

^ - \* +ABC - DE + FGPostfix Notation:

AB + C \* DE - - FG + ^

(AB+)\*c-(de-)^(fg+)

AB+c\*de--fg+^

<http://scanftree.com/Data_Structure/prefix-postfix-infix-online-converter>

The postfix form of the expression ABCDEF / G is

**(A)** ABCDE FG /**(B)** AB CDE F G /

**(C)** AB CDE F G / **(D)** AB CDE F G /

**Ans: A b + C D \* E - \* F \* G /**

**Q.21** What is the postfix form of the following prefix expression -A/B\*C$DE

**(A)** ABCDE$\*/- **(B)** A-BCDE$\*/-

**(C)** ABC$ED\*/- **(D)** A-BCDE$\*/

**Ans:A**

**Infix A-B/ C\*D$E postfix A B C / DE$ \* -**

The postfix form of A\*B+C/D is

**(A)** \*AB/CD+ **(B)** AB\*CD/+

**(C)** A\*BC+/D **(D)** ABCD+/\*

**Ans:B**

**A B \* C D / +**

What is the postfix form of the following prefix *\*+ab–cd*

**(A)** *ab+cd–\** **(B)** *abc+\*–*

**(C)** *ab+\*cd–* **(D)** *ab+\*cd–*

**Ans:A**

**Infix == a+b\* c-d postfix=** **a b c \* + d -**