

# ↳ Infix to postfix:-

Infix expression :  $A * (B * C + D * E) + F$ ;

S.No	Current token	Operator stack	Post fix String
1.	A		A
2.	*	*	A
3.	(	*(	A
4.	B	*(	AB
5.	*	*( *	AB
6.	(	*( *	ABC
7.	+	*( +	ABC *
8.	D	*( +	ABC * D
9.	*	*( + *	ABC * D *
10.	E	*( + *	ABC * D E
11.	)	*	ABC * D E *
12.	+	+	ABC * D E * +
13.	F	+	ABC * D E * + F
14.			ABC * D E * + F +

Postfix Expression is :-  $ABC * DE * + * F +$

2) Infix Expression :  $A * B^{\wedge} C + D$

S.No	Current token	Operator Stack	Postfix String
1.	A		A
2.	*	*	A
3.	B	*	AB
4.	A	*A	AB
5.	C	*A	ABC
6.	+	+	ABC <sup>^</sup> *
7.	D	+	ABC <sup>^</sup> *D
8.		+	ABC <sup>^</sup> *D+

Postfix Expression :  $ABC^{\wedge} * D +$



3) Post fix to infix :

Postfix Expression :  $AB-DE+F^*/$

S.No	Reading of Post fix	Stack top	Expression
1.	A	A	<div style="border: 1px solid black; padding: 2px; display: inline-block;">A</div>
2.	B	B	<div style="border: 1px solid black; padding: 2px; display: inline-block;">B A</div>
3.	-	A-B	<div style="border: 1px solid black; padding: 2px; display: inline-block;">A-B</div>
4.	D	D	<div style="border: 1px solid black; padding: 2px; display: inline-block;">D A-B</div>
5.	E	E	<div style="border: 1px solid black; padding: 2px; display: inline-block;">E D A-B</div>
6.	+	D+E	<div style="border: 1px solid black; padding: 2px; display: inline-block;">D+E A-B</div>
7.	F	F	<div style="border: 1px solid black; padding: 2px; display: inline-block;">F D+E A-B</div>
8.	*	$((D+E)*F)$	<div style="border: 1px solid black; padding: 2px; display: inline-block;"><math>(D+E)*F</math> A-B</div>
9.	/	$(A-B)/((D+E)*F)$	

Infix Expression :  $(A-B)/((D+E)*F)$

4) Postfix conversion :  $abc * de - / +$

S.No	Symbol	Stack
1.	a	a
2.	b	ab
3.	c	abc
4.	*	$a(b*c)$
5.	d	$a(b*c)d$
6.	e	$a(b*c)de$
7.	-	$a(b*c)(d-e)$
8.	/	$a((b*c)/(d-e))$
9.	+	$(a + ((b*c)/(d-e)))$

Infix conversion :  $(a + ((b*c)/(d-e)))$



## 5) Balanced Symbols:

$$((a+b)*(c-d))$$

S.No	Symbol	Stack	Action Taken	Expression so far
1.	(	(	Push '('	(
2.	(	((	Push '('	((
3.	a	((	Append 'a'	(( a
4.	+	((	Append '+'	(( a +
5.	b	((	Append 'b'	(( a + b
6.	)	(	POP '('	(( a + b
7.	*	( *	push '*'	(( a + b ) *
8.	(	( * (	Push '('	(( a + b ) * (
9.	(	( * (	Append 'c'	(( a + b ) * ( c
10.	-	( * (	Append '-'	(( a + b ) * ( c -
11.	d	( * (	Append 'd'	(( a + b ) * ( c - d
12.	)	( *	POP 'c'	(( a + b ) * ( c - d )
13.	)		POP 'c'	(( a + b ) * ( c - d ) )

It is valid for 'Balanced Symbol.'

6) i)  $[ \{ (a+b)^*c \} - d ]$

S.No	Symbol	Stack	Action taken	Expression so far
1.	(	[(	Push '('	(
2.	a	[(	Append 'a'	(a
3.	+	[(,+]	Push '+'	(a+
4.	b	[(,+]	Append 'b'	(a+b
5.	)	[(,+]	Pop '('	(a+b)
6.	*	[(,+,*]	Push '*'	(a+b)*
7.	c	[(,*,*]	Append 'c'	(a+b)*c
8.	)	[(,*]	Pop 'c'	(a+b)*c
9.	-	[(,-]	Push '-'	(a+b)*c-
10.	d	[(,-]	Append 'd'	(a+b)*c-d
11.	End	∅ )	pop remaining operators	(a+b)*c-d

It is valid for "Balanced Symbol"