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Home Taxt

1. Write an algorithm to convert an infix expression to postifix and infix to prefix

Input Character	Strack	Postfix Expreession
A	Empty	A
*	*	A
B	*	AB
-	-	AB*
(	-(	AB*
C	-(	AB*C
+	-(+	AB*C
D	-(+	AB*CD
)	-	AB*CD+
+	+	AB*CD+-
E	+	AB*CD+-E
End of input	Empty	AB*CD+-E-

Jadi, postfix expreesion = -AB*CD+-E+

Input Character	Strack	Expreession
F	Empty	F
^	^	F
)	^)	FE
E	^)	FE
-	^)-	FE
D	^)-	FED
(	^)-	FED-
-	-	FED-^
C	-	FED-^C
+	+	FED-^C-
)	+)	FED-^C-
B	+)	FED-^C-B
+	+)+	FED-^C-B
A	+)+	FED-^C-BA
(	+	FED-^C-BA+
End of input	Empty	FED-^C-BA++

Jadi, Prefix expression = ++AB-C^-DEF

2. Write an algorithm to evaluate a postfix and a prefix expression

✳ Prefix

$- * + 4 3 2 5$

$- * + 4 3 2 \overset{\downarrow}{5}$ $- * + 4 3 \overset{\downarrow}{2} 5$ $- * + 4 \overset{\downarrow}{3} 2 5$

| 5 |

| 2 |
| 5 |

| 3 |
| 2 |
| 5 |

$- * \overset{\downarrow}{+} 4 3 2 5$ $- \overset{\downarrow}{*} + 4 3 2 5$ $\overset{\downarrow}{-} * + 4 3 2 5$

| 4 |
| 3 |
| 2 |
| 5 |

| 14 |

| |
| |

$\overset{\downarrow}{-} * + 4 3 2 5$

| |
| |

✳ Postfix

$4 5 6 * +$

$\overset{\downarrow}{4} 5 6 * +$ $4 \overset{\downarrow}{5} 6 * +$ $4 5 \overset{\downarrow}{6} * +$

| 4 |

| 5 |
| 4 |

| 6 |
| 5 |
| 4 |

$4 5 6 \overset{\downarrow}{*} +$ $4 5 6 * \overset{\downarrow}{+}$

| 120 |

| 120 |