

$$1 - P^n$$

DSA LAB 8

Task 1

$$A + B * (C * D - E) ^ {(F + G * H)} - I$$

$$I -) H * G + F (^) E - D ^ {C (* B + A)}$$

Input	Stack	Print expression
I		I
-	-	T
))	I
H	-) *	I H
*	-) *	I H G
G	-) *	I H G *
+	-) +	I H G *
F	-) +	I H G *
(-	I H G *
)	- ^)	I H G *
E	- ^)	I H G *
-	- ^) -	I H G *
D	- ^) -	I H G *
^	- ^) - ^	I H G *
C	- ^) - ^	I H G *
(- ^	I H G *
*	- *	I H G *
B	- *	I H G *
+	++	I H G *
A	- +	I H G *

Final Ans: - + A * B ^ ^ C D E + F * G H I

Task 2

Convert Infix \rightarrow Prefix
 $R + S * T - (U / V)^n (W + X)^* Y + Z$
 $(Z + Y^*) X + W (^n V (U - T^* S + R$

Input	Stack	Print Expression
Z		Z
+	+	Z
Y	+	ZY
*	+	ZY
)	+	ZY
X	+	ZYX
+	+	ZYX
W	+	ZYXW
(+	ZYXW+
^	+	ZYXW+
)	+	ZYXW+
V	+	ZYXW+V
	+	ZYXW+V
U	+	ZYXW+UU
(+	ZYXW+UU)
-	-	ZYXW+UU)*
T	-	ZYXW+UU ^*T
*	-*	ZYXW+UU^*TS
S	-*	ZYXW+UU ^*TS*
+	-+	ZYXW+UU ^*TS*
R	-+	ZYXW+UU ^*TS*

Reverse:

+ - + R * S T * ^ / U V + W X Y Z

① ② ③

Task 3

$$T_1 + U_2 * (V_3 * W_4 - X_5) ^ {(Y_6 + X_7 * A_8) B_9}$$

$$V_3 \ W_4 \ ^ \wedge \ X_5 -$$

$$Y_6 \ Z_7 \ AB \ * +$$

$$V_3 W_4 * X_5 - Y_6 Z_7 AB * + ^$$

$$= U_2 \ V_3 \ W_4 * \ X_5 - Y_6 \ Z_7 \ A_8 \\ * + ^ *$$

$$= T_2 \ U_2 \ V_3 \ W_4 ^ * S - Y_6 \ Z_7 \ A_8 * + \\ ^ * +$$

$$= T_1 \ U_2 \ V_3 \ W_4 ^ * S - Y_6 \ Z_7 \ A_8 * + \\ * + B_9 -$$