

Q1. $A+B-C \cdot D / E - F + G \cdot H$

Prefix Infix Postfix

A		A
+	+	A
B		AB
-	-	AB+
C	-	AB+C
*	-*	AB+C
D	-*	ABCD*-
/	/	AB+CD*-
E	/	AB+CD*-E
-	-	AB+CD*-E/
F	-	AB+CD*-E/F
+	-+	AB+CD*-E/F
G	-+	AB+CD*-E/FG
*	-+*	AB+CD*-E/FG
H		AB+CD*-E/FGH*+-

$AB+CD*-E/FGH*+-$

Q2. $a*b-c*d+e-f+g*h$

Prefix Infix Postfix

a		a
*	*	a
b		ab*
-	-	ab*
c	-	ab*c
*	-*	ab*c
d	-	ab*cd*-
+	+	ab*cd*-
e		ab*cd*-e
-	-	ab*cd*-e
f	-	ab*cd*-ef
+	-+	ab*cd*-ef
g	+	ab*cd*-ef+g
*	+*	ab*cd*-ef+g
h		ab*cd*-ef+gh*+

$ab*cd*-e+f-gh*+$

108 $a + b * c * d / (e * f) * g + h$

$abcd^{**+}ef^*g^*/h+$

a		a
+	+	a
b	+	ab
*	*+	ab
c	*+	abc
+	*+*	abc
d		abcd^{**+}
/	/	abcd^{**+}
(/	"
e	/	abcd^{**+}e
*	/*	abcd^{**+}e
f	/	abcd^{**+}ef*
)	/	"
*	/*	abcd^{**+}ef*
g	/*	abcd^{**+}ef*g
+	+*	abcd^{**+}ef*g
h		abcd^{**+}ef*g^*/h+

Q4. $a+b-c(d+e)-f+gh$

infix stack postfix

a		a
+	+	a
b	+	ab
-	+ -	ab
c	+ -	abc
(	+ -	abc
*	+ *	abc
d		abcd ⁺⁻
)		abcd ⁺⁻
-	-	abcd ⁺⁻
e		abcd ⁺⁻ e
-	-	abcd ⁺⁻ e
f		abcd ⁺⁻ ef
+	+	abcd ⁺⁻ ef
g		abcd ⁺⁻ efg
-	-	abcd ⁺⁻ efg
h		abcd ⁺⁻ efgh

Q5. $a+(b+c)*d/e+f/g*h$

infix stack postfix

a		a
+	+	a
(		a
b	+	ab
+	++	ab
c	++	abc
)	++	abc
*	+*+	abc
d	*	abcd++
/	*/	abcd++
e	*/	abcd++e
+	*/+	abcd++e
f	*/+	abcd++ef
/	*/f/	abcd++ef
g	*/+/	abcd++efg
*	*/+/	abcd++efg
h		abcd++efgh*+/

nonb a/b * c * d * (e-f) + g^h / (a^b) / c * d / e-f + g + h

token	stack	prefix	index	stack	postfix
a		a	(
/	/	a	a		a
b	/	ab)		
*	/*	ab	b	^	ab^
c	/*	abc	)		ab^
*	/**	abc	/	/	ab^
d		abcd/**	c	/	ab^c
*	*	abcd/***	*	* /	ab^c
(		abcd/***	d		ab^cd*/
e		abcd/***e	/	/	ab^cd*/
-	-	abcd/***ef	e		ab^cd*/e/
f	-	abcd/***ef	-	-	ab^cd*/e/
)	-	abcd/***ef	f	-	ab^cd*/e/f
+	-+	abcd/***ef+	+	+ -	ab^cd*/e/f
g		abcd/***ef+g	g	+ -	ab^cd*/e/f/g
^	^	abcd/***ef+g	+	H -	ab^cd*/e/f/g
h		abcd/***ef+g^h	h	++ -	ab^cd*/e/f/g^h++ -

108 $a^*b^*c^*(d-e-f)^*g-h$ / 109 $a+b-c^*(d-e-f)^*(g-h)$

input	stack	prefix
a		a
*	*	a
b	*	ab
^	^*	ab
c	^*	abc
*	*	abc ^{^*}
(	*	abc ^{^*}
(	*	abc ^{^*}
d	*	abc ^{^*} d
-	*-	abc ^{^*} d
e	*	abc ^{^*} de-
)	*	abc ^{^*} de-
-	*-	abc ^{^*} de-
f	*	abc ^{^*} de-f*-
)	*	abc ^{^*} de-f*-
*	*	abc ^{^*} de-f*-
g	*	abc ^{^*} de-f*-g*
-	-	abc ^{^*} de-f*-g*
h		abc ^{^*} de-f*-g*h-

input	stack	Postfix
a		a
+	+	a
b		ab+
-	-	ab+
c	-	ab+c
^	-^	ab+c
(	-^	ab+c
(	-^	ab+c
d	-^	ab+c d
-	-^-	ab+c d
e	-^-	ab+c d e-
)	-^-	ab+c d e-
-	-^-	ab+c d e-
f	-	ab+c d e-f^
)	-	ab+c d e-f^
*	-*	ab+c d e-f^
(	-*	ab+c d e-f^
g	-*	ab+c d e-f^ g
-	-*-	ab+c d e-f^ g
h		ab+c d e-f^ g h+--
)		

Q10 a | (b+c) * (d+(e+f)) ^ g+h

Infix	Stack	Postfix
a		a
|	|	a
(	|	a
b	|	ab
+	|+	ab
c		abc+
)		abc+
*	*	abc+
(	*	abc+
d	*	abc+d
+	++	abc+d
(	++	abc+d
e	++	abc+d
+	+++	abc+d
f	+	abc+d+e
)	+	abc+d+e
)	+	abc+d+e
^	*^	abc+d+e
g		abc+d+e+g^
+	+	abc+d+e+g^
h		abc+d+e+g^+h