

STACK CONVERSIONS

INFIX TO PREFIX
 to LHS

PRECEDENCE OF OPERATOR

Exponential operators \wedge
Multi/Div $*, /$
Add/Sub $+, -$

$$\begin{aligned} \underline{\underline{1}} & \quad (A * B) + C \\ & = (*AB) + C \\ & = + * AB C \end{aligned}$$

$$\begin{aligned} \underline{\underline{2}} & \quad (A * B + (C / D)) - F \\ & = ((*AB) + (/CD)) - F \\ & = (+ * AB / CD) - F \\ & = - + * AB / CDF \end{aligned}$$

$$\begin{aligned} \underline{\underline{3}} & \quad (A - (B / C)) * ((D * E) - F) \\ & = (A - (/BC)) * ((*DE) - F) \\ & = (- A / BC) * (- * DEF) \\ & = * - A / BC - * DEF \end{aligned}$$

$$\begin{aligned} \underline{\underline{4}} & \quad A / B^{\wedge} C - D \\ & = (A / (B^{\wedge} C)) - D \\ & = (A / (^{\wedge} ABC)) - D \\ & = (/ A ^{\wedge} BC) - D \\ & = - / A ^{\wedge} BCD \end{aligned}$$

INFIX TO POSTFIX to RHS

1

$$\begin{aligned} & A * B + C / D \\ = & (A * B) + (C / D) \\ = & (AB * + CD /) \\ = & AB * CD / + \end{aligned}$$

NOTE \rightarrow '*' will be solved first as compared to '/'

2

$$\begin{aligned} & ((A+B) * C / D) + E ^ F / G \\ = & (((A+B) * C) / D) + ((E ^ F) / G) \\ = & (((AB +) C) * / D) + (((EF ^) / G) \\ = & (AB + C * D /) + (EF ^ G /) \\ = & AB + C * D / EF ^ G / + \end{aligned}$$

3

$$\begin{aligned} & A - B / (C * D ^ E) \\ = & A - (B / (C * (D ^ E))) \\ = & A - (B / (C * (DE ^))) \\ = & A - (B / (CDE ^ *)) \\ = & A - (BCDE ^ * /) \\ = & ABCDE ^ * / - \end{aligned}$$

PREFIX TO INFIX

1

$$+ - / * 2 3 4 5 6$$

$$= + - / (2 * 3) 4 5 6$$

$$= + - (2 * 3) / 4 5 6$$

$$= + (2 * 3) / 4 - 5 6$$

$$= (2 * 3) / 4 - 5 + 6$$

2

$$- * A + B C / D ^ E * F 4$$

$$= - A * + B C / D ^ E * F 4$$

$$= - A * B + C / D ^ E * F 4$$

$$= - A * B + C / D ^ E F * 4$$

$$= A * B + C - / D E ^ F * 4$$

$$= A * B + C - D / E ^ F * 4$$

POSTFIX TO INFIX

1 $23 * 4 | 5 - 6 +$

$$= (2 * 3) 4 | 5 - 6 +$$

$$= 2 * 3 / 4 5 - 6 +$$

$$= 2 * 3 / 4 - 5 6 +$$

$$= 2 * 3 / 4 - 5 + 6$$

2 $A B C + * D E F 4 * \wedge / -$

$$= A B + C * D E F * 4 \wedge / -$$

$$= A * B + C D E \wedge F * 4 / -$$

$$= A * B + C D / E \wedge F * 4 -$$

$$= A * B + C - D / E \wedge F * 4$$

POSTFIX TO PREFIX

$$\begin{aligned} \underline{\underline{1}} & \quad 23*4|5-6+ \\ & = (*23)4|5-6+ \\ & = (/(*234)5-6+ \\ & = (-/*2345)6+ \\ & = +-/*23456 \end{aligned}$$

$$\begin{aligned} \underline{\underline{2}} & \quad ABC+*DEF4*\wedge|- \\ & = A(+BC)*DEF4*\wedge|- \\ & = (*A+BC)DEF4*\wedge|- \\ & = (*A+BC)DE(*F4)\wedge|- \\ & = (*A+BC)D(\wedge E*F4)|- \\ & = (*A+BC) \quad (/D\wedge E*F4)- \\ & = -(+A+BC) \quad (/D\wedge E*F4) \end{aligned}$$

$$\begin{aligned} \underline{\underline{3}} & \quad AB \text{ AND } CD \text{ OR } EF \text{ AND } \wedge D|+ \\ & = (AND AB) CD \text{ OR } EF \text{ AND } \wedge D|+ \\ & = (AND AB) (OR CD) EF \text{ AND } \wedge D|+ \\ & = (AND AB)(OR CD)(AND EF) \wedge D|+ \\ & = (AND AB) (\wedge OR CD AND EF) D|+ \\ & = (AND AB) (/ \wedge OR CD AND EF D) + \\ & = + AND AB / \wedge OR CD AND EF D \end{aligned}$$

PREFIX TO POSTFIX

1

$$+ - / * 23456$$

$$= + - / (23*) 456$$

$$= + - (23*4/) 56$$

$$= + (23*4/5-) 6$$

$$= 23*4/5-6+$$

2

$$- * A + BC / D^{\wedge} E * F4$$

$$= - * A + BC / D^{\wedge} E (FG*)$$

$$= - * A + BC / D (EFG*^{\wedge})$$

$$= - * A + BC (DEFG*^{\wedge}/)$$

$$= - * A (BC+) (DEFG*^{\wedge}/)$$

$$= - (ABC+*) (DEFG*^{\wedge}/)$$

$$= ABC+* DEFG*^{\wedge}/-$$