

CHAPTER-4 FORTRAN EXPRESSIONS

(ফোরট্রান এক্সপ্রেশান)

4.1. Rules for convert mathematical expression to Fortran expression

[ম্যাথমেটিক্স এক্সপ্রেশান হতে ফোরট্রান এক্সপ্রেশান এ রূপান্তর করার নিয়মগুলো নিম্নরূপ]

In Mathematics	In Fortran
+ (যোগ)	+
- (বিয়োগ)	-
× (গুণ)	* (Asterisk / Times)
÷ (ভাগ)	/ (Slash)
= (সমান)	=
সূচকীকরণ (power)	** (Double Asterisk)
\sqrt{x} (Square root of x)	SQRT(X)
x (Absolute value of x)	ABS(X)
e^x (Exponential of x)	EXP(X)
$\log x$ or $\log_e x$ or $\ln x$	ALOG(x) or LOG(X)
$\log_{10} x$	ALOG10(X) or LOG10(X)
$\sin x$	SIN(X)
$\cos x$	COS(X)
$\tan x$	TAN(X)
$\sec x$	1.0/COS(X)
$\operatorname{cosec} x$	1.0/SIN(X)
$\cot x$	1.0/TAN(X) or, COS(X)/SIN(X), or COTAN(X)
$\sin^{-1} x$	ASIN(X)
$\cos^{-1} x$	ACOS(X)
$\tan^{-1} x$	ATAN(X)
$\cos 32^\circ$	COS (32.0 * 3.14159/180.0)
$\sinh x$	SINH(X)
$\cosh x$	COSH(X)
() (১ম বন্ধনী)	() (Parenthesis)
{ } (২য় বন্ধনী)	() (Parenthesis)
[] (৩য় বন্ধনী)	() (Parenthesis)
— (রেখা বন্ধনী)	() (Parenthesis)

লক্ষণীয় যে, নিম্নলিখিত প্রতীক (symbol) গুলি Mathematical expression হতে Fortran expression এ রূপান্তর করার সময় সেগুলিকে উচ্চারণ করে লিখতে হবে। যেমন :

α - Alpha	π - Pi	μ - Mu
β - Beta	θ - Theta	η - Eta
γ - Gamma	ϕ - Phi	ρ - Rho
δ - Delta	ψ - Psi	σ - Sigma
λ - Lamda	ω - Omega	Ω - Comega

4.2. Translate the following into Fortran [নিম্নলিখিতগুলো Fortran এ অনুবাদ কর]

Mathematical expression	Fortran expression
1. $x = [(a + b)^2 + (3c)^3]^{a/b}$ [NU(Pass)-2010]	$X = ((A + B) ** 2 + (3.0 * C) ** 3) ** (A/B)$
2. $a + \frac{b}{c} + d$	$A + B/C + D$
3. $\frac{a + b}{c + d}$	$(A + B)/(C + D)$
4. $a^3 - b^3$	$A ** 3 - B ** 3$
5. $3 + \frac{2a}{b + 5/c}$ [NU(Pre)-2000]	$3.0 + (2.0 * A/(B + 5.0/C))$
6. $\sqrt{b^2 - 4ac}$	$SQRT(B** 2 - 4.0 * A * C)$
7. $\tan^{-1} \{\log_{10}(a + 5b)^n\}$	$ATAN(ALOG10(A + 5.0 * B) ** N)$
8. $\sin^{-1}(x + y)$	$ASIN(X + ABS(Y))$
9. $\left e^x + \left\{ \frac{x^n}{\ln(xy)} \right\}^{1/2} \right $	$ABS(EXP(X) + (X ** N/ALOG(X * Y)) ** 0.5)$
10. $e^{a+x} \geq (a - 2)^7$ [NU(Pre)-2017]	$IF (EXP(A + X).GE. (A - 2)**7$
11. $\sin(2n\pi + x)$	$SIN(2.0 * FLOAT(N) * 3.14159 + X)$
12. $\frac{\sin x}{ y + \cos z}$	$SIN(X)/(ABS(Y) + COS(Z))$
13. $a + \frac{b}{ m - n }$ [NU(Pass)-10, 17, NU(Pre)-2000]	$A + B/ABS(FLOAT(M - N))$ Or, $A + B/ABS(REAL(M - N))$
14. $3x^2y^2 - 2z + 5 \log_2 x$ [NU(Pre)-2017]	$3.0 * X**2 * Y**2 - 2.0 * Z$ $+ 5.0 * LOG10(X)/LOG10(2)$
15. $\cos(\log_{10}(a + 3b))$ [NU(Pass)-12]	$COS(ALOG10(A + 3.0 * B))$
16. $e^{x+y} - \sqrt{\sin(x + ny)}$ [DUH-2010]	$EXP(X + Y) - SQRT(SIN(X + FLOAT(N) * Y))$
17. $a = (i^k + 3c^4)^{m/n}$ [NUH-10, 13 NU(Pass)-11, 17, DUH (Aff. Coll.)-17]	$A = ((REAL(I) ** J) ** K + 3.0 * C ** 4)**$ $(FLOAT(M)/FLOAT(N))$
18. $\sqrt{\frac{a^2}{b + c}}$	$SQRT(A ** 2/(B + C))$
19. $\sqrt{5x^2 + 8y^2}$ [NU(Pass)-2017]	$SQRT(5.0 * X ** 2 + 8.0 * Y ** 2)$
20. $e^{a+x} \geq (a + 1)^7$ [NUH-14, NU(Pass)-11, 12, DUH (Aff. Coll.)-17]	$EXP(A + X) .GE. (A + 1.0) ** 7$
21. $e^{ a } - \frac{b^2}{ c }$	$EXP(ABS(A)) - B ** 2/ABS(C)$
22. $\sqrt{ \cos(a - nb) }$ [NUH-2001]	$SQRT(ABS(COS(A - FLOAT(N) * B)))$
23. $A = \frac{x + a/x}{1 - \frac{a}{1 + 1/x}}$ [NUH-2010]	$A = (X + A/X)/(1.0 - A/(1.0 + 1.0/X))$
24. $a = \sqrt{\sin^{-1}(x + y)}$ [NU(Pass)-04, 12]	$A = SQRT(ASIN(X + ABS(Y)))$
25. $-1 \leq x \leq 5$ [NU(Pass)-2017]	$IF (X.LGE. - 1) .AND. (X.LE.5)$
26. $\log_{10} a.b $	$ALOG10(ABS(A * B))$

27. $\frac{x^5}{5!}0$		X**5/(5.0*4.0*3.0*2.0*1.0)
28. $a + \frac{1}{1 + \frac{1}{1+a}}$	[NU(Pass)-2010]	A + 1.0/(1.0 + 1.0/(1.0 + A))
29. $\sqrt{x^2 / (y + z)}$		SQRT(X**2/(Y + Z))
30. $\log_c(x + 3y)^2$		ALOG((X + 3.0 * Y)**2)
31. $e^{ z } - \frac{y^3}{ x }$		EXP(ABS(Z)) - Y**3/ABS(X)
32. $\log_{10}(2a - 3b)^2$		ALOG10(2.0 * A - 3.0 * B)**2
33. $\log_5 x + \tan \frac{\pi x}{4} + i^n$	[NUH-16, NU(Pas)-18]	ALOG5(X)+TAN(3.14*X/4.0)+REAL(I)* *(REAL(M)/REAL(N))
34. If $x \in (-1, 1)$ হলে $M = 5$ অন্যথায় $M = 7$	[NUH-2016]	IF (X.GT.-1.0).AND.(X.LE.1.0) Then M=5 ELSE M=7 ENDIF
35. $x \in (-2, 2)$ হলে $M = 6$ অন্যথায় $M = 9$.	[DUH (Aff. Coll.)-2017]	IF (X.GT.-2.0).AND.(X.LE.2.0) Then M=6 ELSE M=9 ENDIF
36. $s_1 = s_0 + v_0 t + \frac{1}{2} a t^2$		S1 = S0 + V0 * T + 1.0/2.0 * A * T**2
37. Force = $F_x \cos 60^\circ$	[NU(Pas)-03, NU(Pre)-13]	FORCE = FX * COS(60.0 * 3.14159/180.0)
38. $a = \sqrt{\sin^{-1}(x + y)}$		A = SQRT(ASIN(X + Y))
39. $\frac{\cos x}{ y + \sin z}$		COS(X)/(ABS(Y) + SIN(Z)).
40. $\sqrt{ \sin(x - 2y) }$		SQRT(ABS (SIN(X - 2.0 * Y)))
41. $y = mx + \log_{10} a$		Y = FLOAT(M) * X + ALOG10(A)
42. $q = \ln(x - y) + e^{-x^2}$		Q = ALOG(ABS(X - Y)) + EXP(-(X**2))
43. $\sin(x + 2y) - e^{x+y}$		SIN(X + 2.0 * Y) - EXP(X + Y)
44. $\frac{1}{ a - c } + b$		1.0/ABS(A - C) + B
45. $\frac{e^{x+y}}{\sin(xy)} + e^{x^2 y}$	[NUH-04, 15, NU(Pas)-09, 16]	EXP(X + Y)/SIN(X * Y) + EXP((X**2) * Y)
46. $\tan^{-1} \{\log_{10}(a + 5b)^n\}$		ATAN(ALOG10((A + 5.0 *.B)**N))
47. $\sin x + \cos x + e^{ x }$	[NU(Pass)-2010]	SIN(X) + COS(X) + EXP(ABS(X))
48. $z = \sin^{-1}(x + y)$		Z = ASIN(X + ABS(Y))
49. $S = \tan^{-1} (x/(y + ax))$		S = ATAN(X/(Y + A*X))
50. $\frac{AB}{C + \frac{DF}{G} + H} + E$		(A * B)/(C + (D * F/G) + H) + E
51. $\Delta = \sqrt{s(s - a)(s - b)(s - c)}$	[NUH-2000]	DEL = SQRT (S *(S -A) * (S - B) * (S - C))

52. $e^{x+y} - \sin(x + ny)$	EXP(X + Y) - SIN(X + FLOAT(N) * Y)
53. $\cos(\log_{10}(a - 3b))$	COS(ALOG10(ABS(A - 3.0 * B)))
54. $m_0 / \sqrt{1 - \frac{u^2}{c^2}}$	FLOAT(M0)/SQRT(1.0 - U * U/C*C) [NU(Pass)-08, 12, NU(Pre)-04, 13]
55. $(j + 5c^4)^{m/n}$	(REAL(1) ** J + 5.0 * C**4) ** (REAL(M)/REAL(N))
56. $\sin(x + 2y) - e^{x+y}$	SIN(X + 2.0 * Y) - EXP(X + Y)
57. $\sin(x - 2y) + e^{xy} - x^2 - y^2 = \sin(x - 2.0 * y) + \exp(x * y) - \text{ABS}(x**2 - y**2)$	
58. $\left \sqrt{x - y^3} - \frac{z^2}{\cos(a + b)} \right = \text{ABS}(\text{SQRT}(X - Y**3) - Z**2/\text{COS}(A + B))$	[NUH-2001, NU(Pass) 2000, 2007]
59. $\left \sqrt{a - b^2} - \frac{c^2}{\sin(x + y)} \right = \text{ABS}(\text{SQRT}(A - B**2) - C**2/\text{SIN}(X + Y))$	
60. $\frac{\sqrt[3]{a^2 + \sqrt{a^3}}}{\sqrt{a} \sqrt{b + a}} = (((A**2) ** (1.0/3.0)) + \text{SQRT}(A**3))/(\text{SQRT}(A*\text{SQRT}(B)) + A)$	[NUH-2006, NU(Pass)-2009, 2013]
61. $(a^b + b^a) \left(a + b + \frac{ab}{a + b} \right) = (((A**B)**2) + ((B**A)**2)) * (A + B + (A*B)/(A + B))$	
62. $abc + \frac{1}{ab} + \frac{bc}{ab + bc} + \frac{ab + bc + ca}{\left(\frac{a + b + c}{abc} \right)} =$ $A*B*C + (1.0/A*B) + B*C/(A*B + B*C) + (A*B + B*C + C*A)/((A + B + C)/(A * B * C))$	[NUH-2009, 2015]
63. $\frac{x^3}{\cos(x + y)} + \sqrt{x^2 - y^2} + e^{xy} = X**3/\text{COS}(X + Y) + \text{SQRT}(\text{ABS}(X**2 - Y**2)) + \text{EXP}(X*Y)$	[NUH-2011]
64. $G = \frac{1}{2} \log_{10} \frac{1 + \sin \theta }{1 - \sin \theta }$; $G = 0.5 * \text{ALOG10}((1.0 + \text{ABS}(\text{SIN}(\text{THETA}))) / (1.0 - \text{ABS}(\text{SIN}(\text{THETA}))))$	
65. $x = \sin^{-1} \{ \log_{10} (\sqrt{a - b^2 c})^{1/2} \}$; $X = \text{ASIN}(\text{ALOG10}(\text{ABS}(\text{SQRT}(A - (B**2) * C)))**0.5)$	[NUH-2003, 2004, NU(Pre)-2008]
66. $x = abc + \frac{1}{ab} + \frac{bc}{ab + bc} + \frac{ab + bc + ca}{abc}$ $X = A * B * C + 1.0/(A*B) + B*C/(A*B + B*C) + (A*B + B*C + C*A)/((A + B + C)/(A*B*C))$	[NUH-04, NU(Pre)-12, 14]
67. $\text{sum} = \log_{10} \{ \sin^2 (\sqrt{ u - v }) \} e^{-x^2}$ $\text{SUM} = \text{ALOG10}((\text{SIN}(\text{SQRT}(\text{ABS}(U - V)))) ** 2) * \text{EXP}(-(X**2))$	[NUH-2006]
68. $y = \sin^{-1} x + \ln u^2 - v^2 ^{1/n}$; $Y = \text{ASIN}(X) + \text{ALOG}(\text{ABS}(U**2 - V**2)) ** 1.0/\text{FLOAT}(N)$	
69. $A = \frac{1}{2} \ln \left\{ \frac{1 + \sin \theta}{1 - \sin \theta} \right\}$; $A = 0.5 * \text{ALOG}(\text{ABS}(1.0 + \text{SIN}(\text{THETA}))/\text{ABS}(1.0 - \text{SIN}(\text{THETA})))$	[NU(Pass)-2011]
70. $\frac{\sqrt[3]{a^2 + \sqrt{a^3}}}{\sqrt{a} \sqrt{b + a}} = ((A**2) ** (1.0/3.0) + (A**3) ** 0.5)/\text{SQRT}(A*\text{SQRT}(B) + A)$	[NUH-2010, 2015, NU(Pre)-2006]

$$71. \sin(x + 2y) - e^{xy} + \frac{\cos x}{|y| + \sin z} = \text{SIN}(X + 2.0*Y) - \text{EXP}(X + Y) + \text{COS}(X)/(\text{ABS}(Y) + \text{SIN}(Z))$$

[NUH-2004(Old), NU(Pass)-2007]

$$72. a = \sqrt{\sin^{-1}(x + |y|)} \quad A = \text{SQRT}(\text{ASIN}(X + \text{ABS}(Y)))$$

[NU(Pre)-2017]

$$73. S = \log(\sin\sqrt{u^2 + v^2}); S = \text{ALOG}(\text{SIN}(\text{SQRT}(U**2 + V**2)))$$

[NU(Pre)-2004]

$$74. a = \left| \frac{e^x \cdot \sqrt{y}}{\cos|x-z|} - \sqrt{x^2 - y^2} \right| + \sin(x^{-1}y)$$

[NUH-2005, 2006, 2004(Old)]

$$A = \text{ABS}(\text{EXP}(X) * \text{SQRT}(Y)/\text{COS}(\text{ABS}(X - Z)) - \text{SQRT}(\text{ABS}(X**2 - Y**2))) + \text{SIN}(Y/X)$$

$$75. 2.5 \ln x + \cos 32^\circ + |x^2 + y^2| + \sqrt{2xy}$$

$$= 2.5 * \text{ALOG}(X) + \text{COS}(32.0 * 3.14159 / 180.0) + \text{ABS}(X**2 + Y**2) + \text{SQRT}(2.0 * X * Y)$$

[NU(Pre)-2013]

$$76. y = \frac{\cos\left(\frac{\pi x}{2}\right) - 1}{x - 1} |x_1^2 - x_2^2|$$

[NUH-2000, NU(Pass)-2004]

$$= Y = ((\text{COS}(3.14159 * X / 2.0) - 1.0) * \text{ABS}(X1**2 - X2**2)) / (X - 1.0)$$

$$77. A = \cos^{-1} \{ \log_{10}(a + 3b)^n \} + \left| \sqrt{x - y^3} - \frac{e^{xy}}{\sin(a + |b|)} \right|$$

$$= A = \text{ACOS}(\text{ALOG10}((A + 3.0 * B) ** N))$$

$$+ \text{ABS}(\text{SQRT}(X - Y**3) - \text{EXP}(X * Y) / \text{SIN}(A + \text{ABS}(B)))$$

$$78. \sqrt{|\sin(x + 2y)| + \log_{10}(x - 5y)^3}$$

$$\text{SQRT}(\text{ABS}(\text{SIN}(X + 2.0 * Y))) + \text{ALOG10}((X - 5.0 * Y) ** 3)$$

$$79. a = \sin^{-1}(x + |y|) + \left| e^{x^2} - \left\{ \frac{x^n}{\ln(xy)} \right\}^{1/2} \right|$$

[NUH-2000, NU(Pass)-2003, NU(Pre)-2007]

$$= A = \text{ASIN}(X + \text{ABS}(Y)) + \text{ABS}(\text{EXP}(X**2) - (X**N / \text{ALOG}(X * Y)) ** 0.5)$$

$$80. 2.5 \ln x + \cos 32^\circ + |x^2 - n^2| + \sqrt{2ny}$$

[NUH-2009]

$$2.5 * \text{ALOG}(X) + \text{COS}(32.0 * 3.14159 / 180.0)$$

$$+ \text{ABS}(X**2 - \text{REAL}(N**2)) + \text{SQRT}(2.0 * \text{REAL}(N) * Y)$$

$$81. a = \tan^{-1} \{ \log_{10}(a + 5b)^n \} + e^{2x}$$

[NU(Pre)-2011]

$$= A = \text{ATAN}(\text{ALOG10}(A + 5.0 * B) ** N) + \text{EXP}(2.0 * X)$$

$$82. p = \cos | (2n\pi - \beta) | + \frac{c^2}{\sqrt{\sin^{-1} | (3a - 5b) |}}$$

$$P = \text{COS}(\text{ABS}(2.0 * \text{FLOAT}(N) * 3.14159 - \text{BETA}))$$

$$+ C**2 / \text{SQRT}(\text{ASIN}(\text{ABS}(3.0 * A - 5.0 * B)))$$

$$83. e^x \cos(x - y) - \sqrt{x^2 - y^2} \sin^{-1} x. \text{EXP}(X) * \text{COS}(X - Y) - \text{SQRT}(X**2 - Y**2) * \text{ASIN}(X)$$

[NUH-2016, NU(Pass)-2018 DUH (Aff. Coll)-2017]

$$84. \frac{1}{2} \log_{10} \frac{1 + |\sin \theta|}{1 - |\sin \theta|}, \text{ where } \theta \text{ in degrees}$$

[NU(Pass)-2000]

$$0.5 * \text{ALOG10}((1.0 + \text{ABS}(\text{SIN}(\text{THETA} * 3.14159 / 180.0))) / (1.0 - \text{ABS}(\text{SIN}(\text{THETA} * 3.14159 / 180.0))))$$

$$85. a = \left| \frac{e^{xy}}{\cos|x-z|} - \sqrt{x^2 - y^2} \right| + \sin^{-1}(x^{-1}y)$$

[NUH-2003, NU(Pass)-2013, NU(Pre)-2009]

$$= A = \text{ABS}(\text{EXP}(X * \text{SQRT}(Y)) / \text{COS}(\text{ABS}(X - Z)) - \text{SQRT}(\text{ABS}(X**2 - Y**2))) + \text{ASIN}(Y/X)$$

$$86. a = \sin^{-1}(x + |y|) + \left| e^{-x^2} - \left\{ \frac{x^n}{\ln(xy)} \right\}^{1/2} \right|$$

[NU(Pass)-2004]

$$A = \text{ASIN}(X + \text{ABS}(Y)) + \text{ABS}(\text{EXP}(- (X**2)) - (X**N / \text{ALOG}(X * Y)) ** 0.5)$$

87. $p = \ln x - y / e^{-x^2}$ $P = \text{ALOG}(\text{ABS}(X - Y)) / \text{EXP}(- (X**2))$	[NU(Pre)-2011]
88. $b = \log_{10}x + \cos 54^\circ + x^4 + y^4 + (j^k + 3c^4)^{m/4}$ $B = \text{ALOG10}(X) + \text{COS}(54.0 * 3.14159/180.0) + \text{ABS}(X**4 + Y**4) + (I**J**K + 3.0*c**4)**(\text{FLOAT}(M)/4.0)$	[NUH-2003, 2005, 2015, NU(Pre)-08]
89. $x = \sqrt{ \cos a - nb }$ $X = \text{SQRT}(\text{ABS}(\text{COS}(\text{ABS}(A - \text{REAL}(N) * B))))$	[NUH-2010, NU(Pass)-2007, 2016]
90. $x_1 = \frac{-b + \sqrt{b^2 - 4ac}}{2a}$ $X_1 = (-B + \text{SQR} + (B**2 - 4.0*A*C/2.0*A))$	[NUH-2018]
91. $b = \left \frac{e^{1/x} \sqrt{y} - \sqrt{x^2 - y^2}}{\cos x - z } \right + \sin^{-1} \left(\frac{y}{x} \right)$ $b = \text{ABS}((\text{EXP}(1.0/x) * \text{SQRT}(y) - \text{SQRT}(X**2 - Y**2)) / \text{COS}(\text{ABS}(X - Z)) + \text{ASIN}(Y/X))$	[NU(Pre)-2008]
92. $e^{x+y} - \sqrt{\sin(x + ky)}$: $\text{EXP}(X + Y) - \text{SQRT}(\text{SIN}(X + \text{REAL}(K) * Y))$	
93. $\log_{10}x + \cos 45^\circ + x^4 + y^4 + 4xy$ $= \text{ALOG10}(X) + \text{COS}(45.0*3.14159/180.0) + \text{ABS}(X**4 + Y**4) + 4.0*X*Y$	
94. $2.5 \ln x + \cos 32^\circ + x^2 - y^2 + \sqrt{2x^{-1}y}$ $= 2.5*\text{ALOG}(X) + \text{COS}(32.0*3.14159/180.0) + \text{ABS}(X**2 - Y**2) + \text{SQRT}(2.0*Y/X)$	[NU(Pre)-2009]
95. $a + \frac{b}{ m - n } + \frac{x^4}{4!}$ $= A + B/\text{ABS}(\text{REAL}(M - N)) + X**4/(4.0 * 3.0 * 2.0 * 1.0)$	[NU(Pass)-2008]
96. $\sin(2n\pi + x) + e^{y \ln(x)}$ = $\text{SIN}(2.0 * \text{REAL}(N) * 3.14159 + X) + \text{EXP}(Y * \text{ALOG}(X))$	[NU(Pass)-2008, 2013]
97. $\tan^{-1} \{ \log_{10}(a + 5b)^n \} + \sin^{-1}(x + y)$ $= \text{ATAN}(\text{ALOG} 10 (A + 5.0 * B) ** N) + \text{ASIN}(X + \text{ABS}(Y))$	[NU(Pass)-2008]
98. $x = \sin^{-1} \{ \log_{10} ((\sqrt{a} - b^2c)^{1/2}) \} + \cos 45^\circ$ $= X = \text{ASIN}(\text{ALOG} 10 (\text{ABS} ((\text{SQRT}(a) - B ** 2 * C) ** 0.5))) + \text{COS}(45.0 * 3.14159 / 180.0)$	[NU(Pre)-2007, 2014]
99. $\sqrt{x^2 + y^2} + e^{xy}$ = $\text{SQRT}(X**2 + Y**2) + \text{EXP}(X * Y)$	[NU(Pre)-2005, 2014]
100. $\frac{e^{x+y}}{\sin(xy)} + x - y $ = $\text{EXP}(X + Y) / \text{SIN}(X * Y) + \text{ABS}(X - Y)$	[NU(Pre)-2017]
101. $j^k = I ** (J ** K)$ or $I ** J ** K$	[NU(Pre)-2005]
102. $\text{SUM} = \sqrt{\{s(x - a)(s - b)(s - c)\}} + e^{x^2\sqrt{y}}$ Ans : $\text{SUM} = \text{SQRT}(S * (X - A) * (S - B) * (S - C)) + \text{EXP}((X**2) * \text{SQRT}(Y))$	[NU(Pass)-2007]
103. $x = \sin^{-1} \{ \log_{10}x + (\sqrt{a} - b^2c)^{1/2} \}$ $X = \text{ASIN}(\text{Log} 10(x) + (\text{ABS}(\text{SQRT}(a) - b ** 2 * C)) ** 0.5)$	[NUH-2015, NU(Pre)-2008]
104. $a = \log_{10}x + \cos 54^\circ + x^4 - y^4 + j^k$ $A = \text{LOG10}(X) + \text{COS}(54.0 * 3.14159/180.0) + \text{ABS}(X**4 - Y**4) + \text{REAL}(I ** J ** K)$	[NU(Pre)-2008]
105. $c = \frac{e^{(x+y)}}{\sin(xy)} + e^{2y}$ $C = \text{EXP}(X + Y) / \text{SIN}(X * Y) + \text{EXP}(\text{EXP}(2) * Y)$	[NU(Pre)-2008]
106. $e^{a+x} \geq (a + 1)^{1/g} + \tan^{-1}(\log_{10} a^n)$ $\text{EXP}(A + X) .GE. (A + 1.0) ** (F/G) + \text{ATAN}(\text{LOG} 10(A ** N))$	[NU(Pre)-2012]

Rules for writing Fortran Variable Name [Fortran ভাষায় চলক লিখার নিয়ম] :

[NUH-2013, NU(Pass)-2018]

Rules for writing a Fortran variable name are given below :

1. 1 to 6 characters in length (In Fortran 90/95 its upto 1 to 31 characters in length)
2. May use A-Z, a-z, 0-9 and space. Upper and lower case are equivalent (In Fortran 90/95 _ (Underscore) may use). Compiler ignores blank space in a name.
3. First character of a name must be alphabet A-Z, a-z.
4. Don't use keyword or library function as a variable name.

If a variable data type is undeclared in the program it is assumed a numeric variable by compiler and if first character of the name is I, J, K, L, M or N, then the variable will be an integer variable and if first character is one of A-H, O-Z then it will be a real variable. And always use meaningful variable name.

[Fortran ভাষায় চলক লিখার নিয়ম নিম্নে প্রদত্ত হল :

1. 1 - 6 character বিশিষ্ট হতে পারে। তবে Fortran 90/95 ভার্সনে 1 - 31 character বিশিষ্ট হতে পারে।
2. A-Z, a-z, 0-9 এবং ফাঁকা স্থান ব্যবহার করা যাবে। বড় ও ছোট হাতের অক্ষর সমতুল্য এবং Fortran 90/95 ভার্সনে _ (Underscore) ব্যবহার করা যাবে। চলকের মাঝের ফাঁকা স্থান Compiler অগ্রাহ্য করবে।
3. প্রথম character অবশ্যই অক্ষর (A-Z বা a-z) হতে হবে।
4. Keyword বা Library function কে চলক হিসাবে ব্যবহার করা যাবে না।

যদি প্রোগ্রামে চলকের data Type ঘোষণা করা না হয়, তবে কম্পাইলার ঐ চলককে সাংখ্যিক চলক হিসাবে ধরে নেয়, চলকের প্রথম অক্ষর I, J, K, L, M, N হলে তা পূর্ণসংখ্যার চলক এবং A-H, O-Z হলে বাস্তব সংখ্যার চলক হিসাবে গণ্য করবে। সর্বদা অর্থপূর্ণ চলক নাম ব্যবহার করা উচিত।