

In[3265]=

(*Replacement of trigonometric function,nc=20,even*)

Table[Sin[m * Pi / 2] ^20, {m, 0, 20}]

[表格](#) [正弦](#) [圆周率](#)

Table[(1 - (-1) ^m) / 2, {m, 0, 20}]

[表格](#)

Out[3265]=

{0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1}

Out[3266]=

{0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1, 0, 1}

In[3269]=

(*Replacement of trigonometric function,nc=23,odd*)

Table[Sin[m * Pi / 2] ^23, {m, 0, 20}]

[表格](#) [正弦](#) [圆周率](#)

Table[(-I) ^ (m + 1) - I ^ (m + 1) / 2, {m, 0, 20}]

[表格](#) [虚数单位](#) [虚数单位](#)

Out[3269]=

{0, 1, 0, -1, 0, 1, 0, -1, 0, 1, 0, -1, 0, 1, 0, -1, 0, 1, 0, -1}

Out[3270]=

{0, 1, 0, -1, 0, 1, 0, -1, 0, 1, 0, -1, 0, 1, 0, -1, 0, 1, 0, -1}

(*This document is used to verify the correctness of

the trigonometric function approximation at t=pi/8 or 3pi/8.*)

For (* (n_c > n_d, and even both; ie.nc = 24, nd = 14)*)

l1 = Table[Sin[m * Pi / 4] ^24 * Cos[m * Pi / 4] ^14, {m, 0, 20}]

[表格](#) [正弦](#) [圆周率](#) [余弦](#) [圆周率](#)

Table[(Sqrt[2] / 2) ^10 / 2.0 ^14 * (1 - (-1) ^m) / 2, {m, 0, 20}]

[表格](#) [平方根](#)

Out[*]=

{0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0. + 0. i, 1.90735 × 10⁻⁶, 0.,
1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0. + 0. i, 1.90735 × 10⁻⁶,
0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0. + 0. i}

Out[*]=

{0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0.,
1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶,
0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0., 1.90735 × 10⁻⁶, 0.}

(*For (n_c>n_d,and odd both; ie.nc=23,nd=5)*)

l1 = Table[Sin[m * Pi / 4] ^ 23 * Cos[m * Pi / 4] ^ 5.0, {m, 0, 20}]

⌈表格 ⌈正弦 ⌈圆周率 ⌈余弦 ⌈圆周率

Table[(Sqrt[2] / 2) ^ 18 / (2 ^ 6.0) * (-I ^ (m + 1) - (-I) ^ (m + 1)), {m, 0, 20}]

⌈表格 ⌈平方根 ⌈虚数单位 ⌈虚数单位

Out[#]=

{0., 0.0000610352, 0., -0.0000610352, 0., 0.0000610352, 0.,
-0.0000610352, 0., 0.0000610352, 0., -0.0000610352, 0., 0.0000610352,
0., -0.0000610352, 0., 0.0000610352, 0., -0.0000610352, 0.}

Out[#]=

{0., 0.0000610352, 0., -0.0000610352, 0., 0.0000610352, 0.,
-0.0000610352, 0., 0.0000610352, 0., -0.0000610352, 0., 0.0000610352,
0., -0.0000610352, 0., 0.0000610352, 0., -0.0000610352, 0.}

In[#]:=

(*For (n_c<n_d,and even both; ie.nc=6,nd=20)*)

l1 = Table[Sin[m * Pi / 4] ^ 6 * Cos[m * Pi / 4] ^ 20.0, {m, 0, 20}]

⌈表格 ⌈正弦 ⌈圆周率 ⌈余弦 ⌈圆周率

Table[(Sqrt[2] / 2) ^ (14) / 2. ^ 7 * (1 - (-1) ^ m), {m, 0, 20}]

⌈表格 ⌈平方根

Out[#]=

{0., 0.00012207, 0., 0.00012207, 0. + 0. i, 0.00012207, 0.,
0.00012207, 0., 0.00012207, 0., 0.00012207, 0. + 0. i, 0.00012207,
0., 0.00012207, 0., 0.00012207, 0., 0.00012207, 0. + 0. i}

Out[#]=

{0., 0.00012207, 0., 0.00012207, 0., 0.00012207, 0., 0.00012207, 0., 0.00012207, 0.,
0.00012207, 0., 0.00012207, 0., 0.00012207, 0., 0.00012207, 0., 0.00012207, 0.}

In[#]:=

(*For (n_c<n_d,and odd both; ie.nc=7,nd=25)*)

l1 = Table[Sin[m * Pi / 4] ^ 7 * Cos[m * Pi / 4] ^ 25.0, {m, 0, 20}]

⌈表格 ⌈正弦 ⌈圆周率 ⌈余弦 ⌈圆周率

Table[(Sqrt[2] / 2) ^ (18) / 2. ^ 8 * (-I ^ (m + 1) - (-I) ^ (m + 1)), {m, 0, 20}]

⌈表格 ⌈平方根 ⌈虚数单位 ⌈虚数单位

Out[#]=

{0., 0.0000152588, 0., -0.0000152588, 0., 0.0000152588, 0.,
-0.0000152588, 0., 0.0000152588, 0., -0.0000152588, 0., 0.0000152588,
0., -0.0000152588, 0., 0.0000152588, 0., -0.0000152588, 0.}

Out[#]=

{0., 0.0000152588, 0., -0.0000152588, 0., 0.0000152588, 0.,
-0.0000152588, 0., 0.0000152588, 0., -0.0000152588, 0., 0.0000152588,
0., -0.0000152588, 0., 0.0000152588, 0., -0.0000152588, 0.}