

Blog Entry Friday April 15,2022 - The Gamma Function and Related Functions

The gamma function and related functions were translated from C to C#. The C functions can be found in the book: "A Numerical Library in C for Scientists and Engineers" by H. T. Lau. The tables illustrated in this blog can be verified by the tables in the numerical analysis tome by Abramowitz and Stegun.

GammaAndRelativeFunctionsMainForm

1.000	1.0000000000
1.005	0.9971385353
1.010	0.9943258512
1.015	0.9915612888
1.020	0.9888442033
1.025	0.9861739631
1.030	0.9835499506
1.035	0.9809715606
1.040	0.9784382009
1.045	0.9759492918
1.050	0.9735042656
1.055	0.9711025662
1.060	0.9687436495
1.065	0.9664269823
1.070	0.9641520425
1.075	0.9619183189
1.080	0.9597253107
1.085	0.9575725273
1.090	0.9554594882
1.095	0.9533857227
1.100	0.9513507699

Function: x0: x1: Dx:

GammaAndRelativeFunctionsMainForm

1.000	0.0000000000
1.005	-0.0028655666
1.010	-0.0056903079
1.015	-0.0084745187
1.020	-0.0112184893
1.025	-0.0139225067
1.030	-0.0165868539
1.035	-0.0192118101
1.040	-0.0217976511
1.045	-0.0243446490
1.050	-0.0268530725
1.055	-0.0293231868
1.060	-0.0317552537
1.065	-0.0341495318
1.070	-0.0365062763
1.075	-0.0388257395
1.080	-0.0411081702
1.085	-0.0433538143
1.090	-0.0455629148
1.095	-0.0477357114
1.100	-0.0498724413

Function: x0: x1: Dx:

GammaAndRelativeFunctionsMainForm

1.000	1.000	1.00000E+000	6.32121E-001	3.67879E-001	6.32121E-001
2.000	2.000	1.00000E+000	5.93994E-001	4.06006E-001	5.93994E-001
3.000	3.000	2.00000E+000	1.15362E+000	8.46380E-001	5.76810E-001
4.000	4.000	6.00000E+000	3.39918E+000	2.60082E+000	5.66530E-001
5.000	5.000	2.40000E+001	1.34282E+001	1.05718E+001	5.59507E-001
6.000	6.000	1.20000E+002	6.65184E+001	5.34816E+001	5.54320E-001
7.000	7.000	7.20000E+002	3.96208E+002	3.23792E+002	5.50289E-001
8.000	8.000	5.04000E+003	2.75708E+003	2.28292E+003	5.47039E-001
9.000	9.000	4.03200E+004	2.19481E+004	1.83719E+004	5.44347E-001
10.000	10.000	3.62880E+005	1.96706E+005	1.66174E+005	5.42070E-001
11.000	11.000	3.62880E+006	1.95996E+006	1.66884E+006	5.40111E-001
12.000	12.000	3.99168E+007	2.14913E+007	1.84255E+007	5.38403E-001
13.000	13.000	4.79002E+008	2.57174E+008	2.21828E+008	5.36895E-001
14.000	14.000	6.22702E+009	3.33490E+009	2.89212E+009	5.35552E-001
15.000	15.000	8.71783E+010	4.65834E+010	4.05949E+010	5.34346E-001
16.000	16.000	1.30767E+012	6.97324E+011	6.10350E+011	5.33255E-001
17.000	17.000	2.09228E+013	1.11364E+013	9.78639E+012	5.32262E-001
18.000	18.000	3.55687E+014	1.88995E+014	1.66692E+014	5.31352E-001
19.000	19.000	6.40237E+015	3.39656E+015	3.00581E+015	5.30516E-001
20.000	20.000	1.21645E+017	6.44406E+016	5.72045E+016	5.29743E-001

Function x0 x1 Dx

GammaAndRelativeFunctionsMainForm

1.000	1.0000000000
2.000	1.0000000000
3.000	2.0000000000
4.000	6.0000000000
5.000	24.0000000000
6.000	120.0000000000
7.000	720.0000000000
8.000	5040.0000000000
9.000	40320.0000000000
10.000	362880.0000000003
11.000	3628800.0000000037
12.000	39916800.0000000373
13.000	479001600.0000004768
14.000	6227020800.00000066757
15.000	87178291200.0000915527
16.000	1307674368000.0012207031
17.000	20922789888000.0195312500
18.000	355687428096000.3750000000
19.000	6402373705728006.0000000000
20.000	121645100408832128.0000000000

Function x0 x1 Dx



