

Continued Fractions

bigCF

d := 400 Digits Clear(a, b, x) = 1 to := time(0)

a(n) := 1
b(n) := 2 - (n = 0)
N := bigCF(a, b, d)

$$CF = 1 + \cfrac{1}{2 + \cfrac{1}{2 + \cfrac{1}{2 + \cfrac{1}{2 + \cfrac{1}{2 + \cfrac{1}{2 + \dots}}}}}}$$

1.41421356237309504880168872420969807856
9671875376948073176679737990732478462107
0388503875343276415727350138462309122970
2492483605585073721264412149709993583141
3222665927505592755799950501152782060571
4701095599716059702745345968620147285174
1864088919860955232923048430871432145083
9762603627995251407989687253396546331808
8296406206152583523950547457502877599617
2983557522033753185701135437460340849884

eval (Show (10, 0.1 · d, N))

time(0) - to = 15.206 s

a(n) := { 2 if n = 1
- 1 if n = 2
1 otherwise
b(n) := { - 1 if n = 0
1 if n = 1
4 · n - 6 / x otherwise
f_{cf}(x) := bigCF(a, b, d)
N := f_{cf}(1)

2.71828182845904523536028747135266249775
7247093699959574966967627724076630353547
5945713821785251664274274663919320030599
2181741359662904357290033429526059563073
8132328627943490763233829880753195251019
0115738341879307021540891499348841675092
4476146066808226480016847741185374234544
2437107539077744992069551702761838606261
3313845830007520449338265602976067371132
0070932870912744374704723069697720931014

Show (10, 0.1 · d, N)

$$CF = -1 + \cfrac{2}{1 + \cfrac{-1}{\cfrac{4 \cdot 2 - 6}{x} + \cfrac{1}{\cfrac{4 \cdot 3 - 6}{x} + \cfrac{1}{\cfrac{4 \cdot 4 - 6}{x} + \cfrac{1}{\cfrac{4 \cdot 5 - 6}{x} + \cfrac{1}{\cfrac{4 \cdot 6 - 6}{x} + \cfrac{1}{\cfrac{4 \cdot 7 - 6}{x} + \cfrac{1}{\cfrac{4 \cdot 8 - 6}{x} + \dots}}}}}}}}$$

time(0) - to = 21.352 s

a(n) := { 4 if n = 1
(n - 1)² otherwise
b(n) := { 0 if n = 0
2 · n - 1 otherwise
N := bigCF(a, b, d)

$$CF = 0 + \cfrac{4}{1 + \cfrac{1}{3 + \cfrac{4}{5 + \cfrac{9}{7 + \cfrac{16}{9 + \cfrac{25}{11 + \cfrac{36}{13 + \cfrac{49}{15 + \dots}}}}}}}}}}$$

3.14159265358979323846264338327950288419
7169399375105820974944592307816406286208
9986280348253421170679821480865132823066
4709384460955058223172535940812848111745
0284102701938521105559644622948954930381
9644288109756659334461284756482337867831
6527120190914564856692346034861045432664
8213393607260249141273724587006606315588
1748815209209628292540917153643678925903
6001133053054882046652138414695194151160

Show (10, 0.1 · d, N)

time(0) - to = 95.375 s

