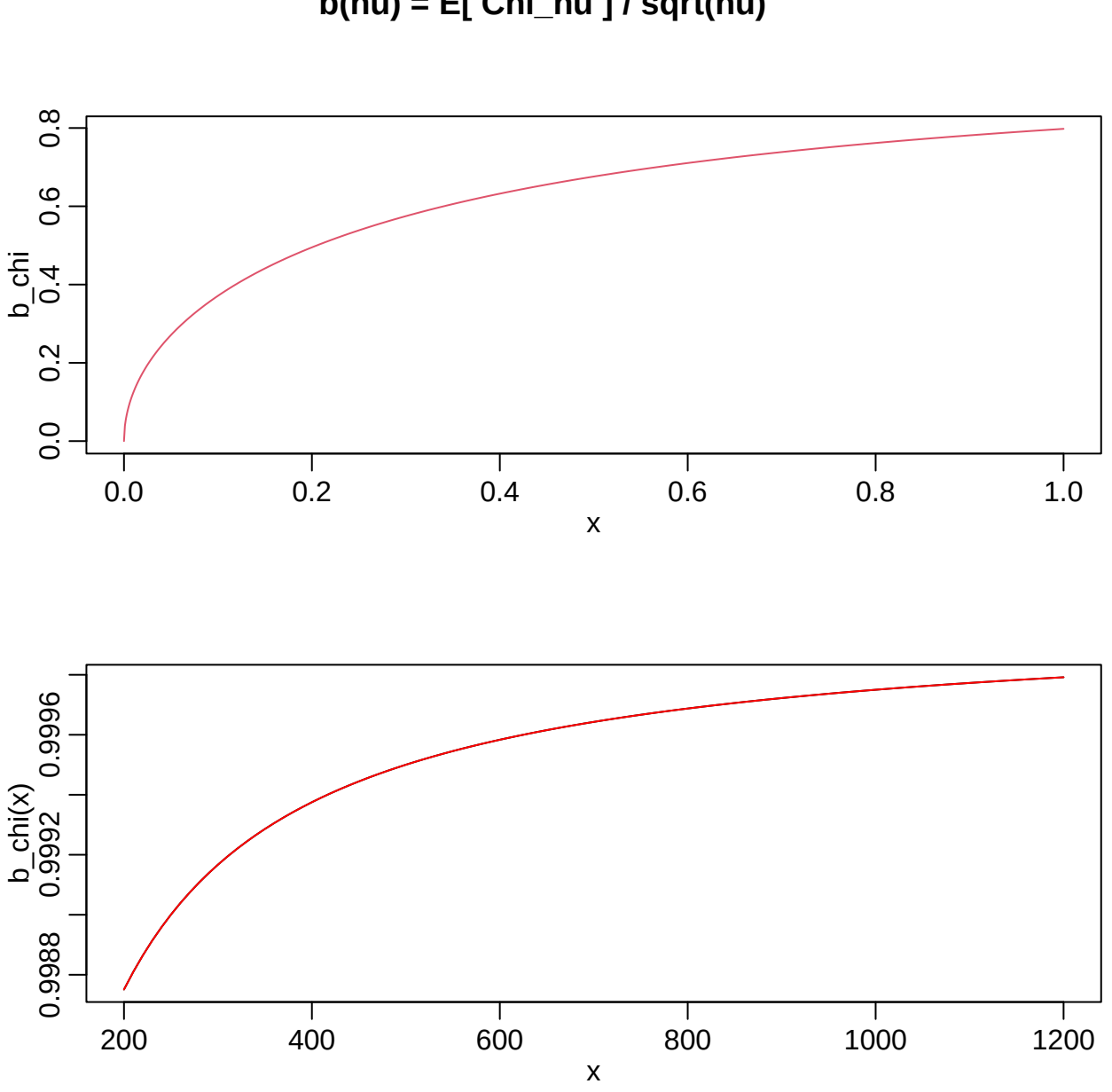
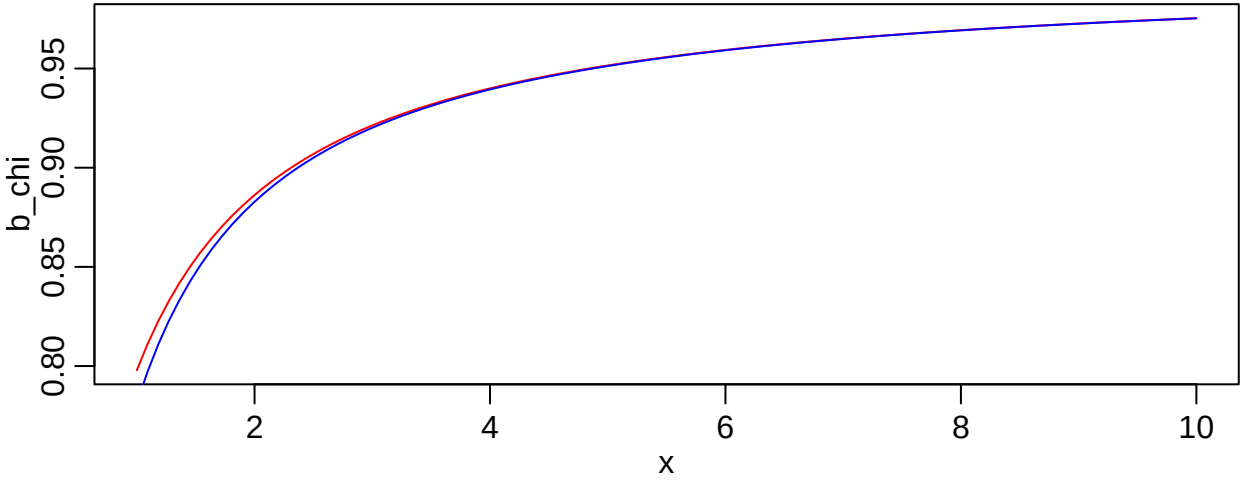
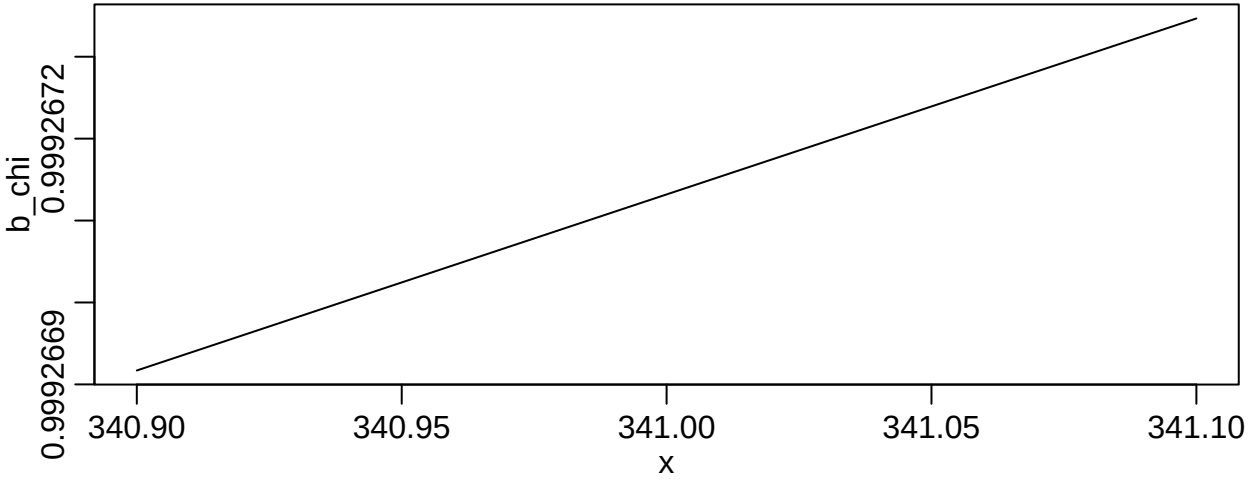
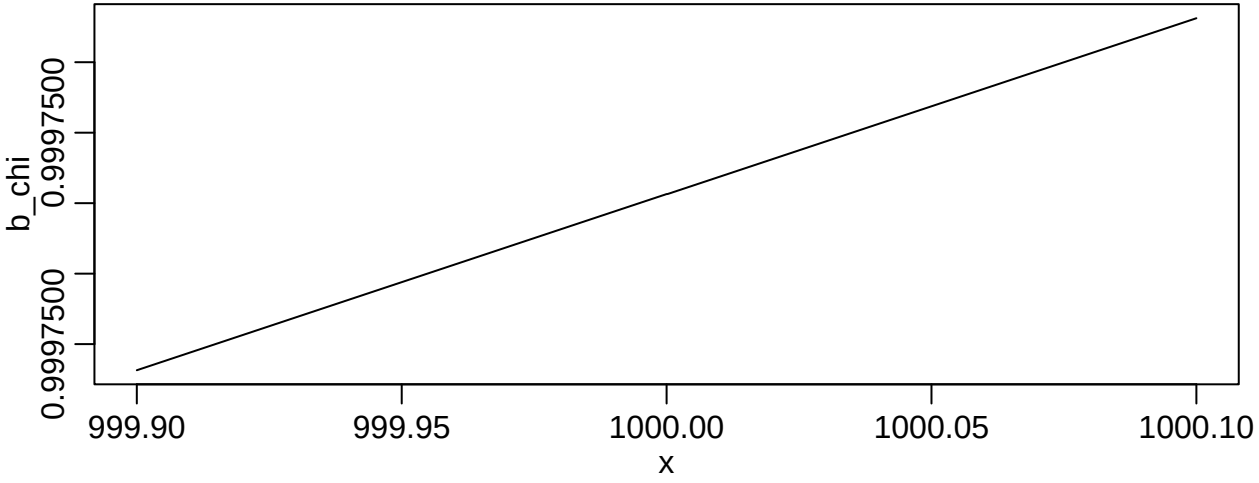
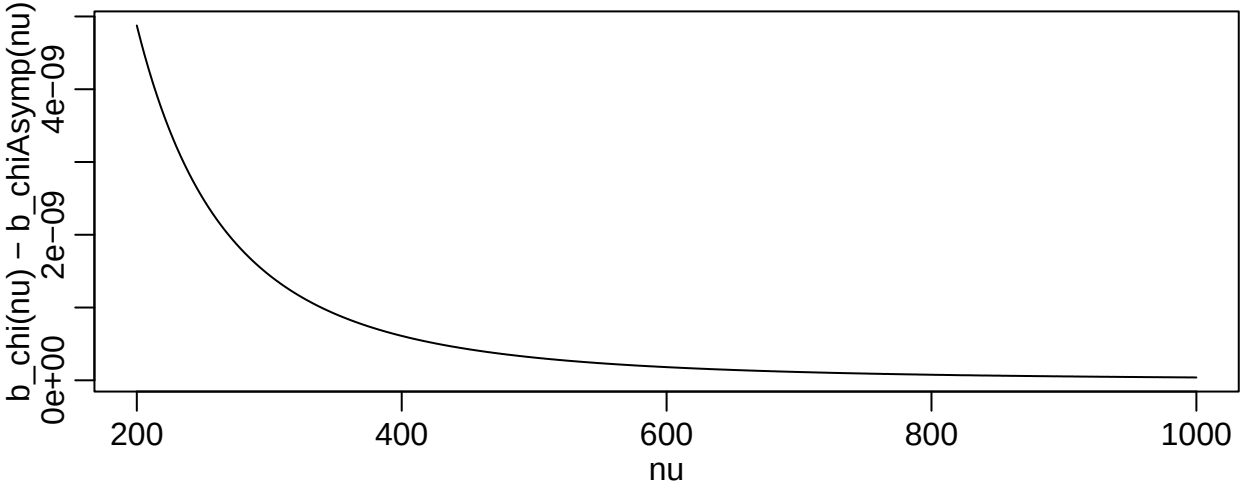
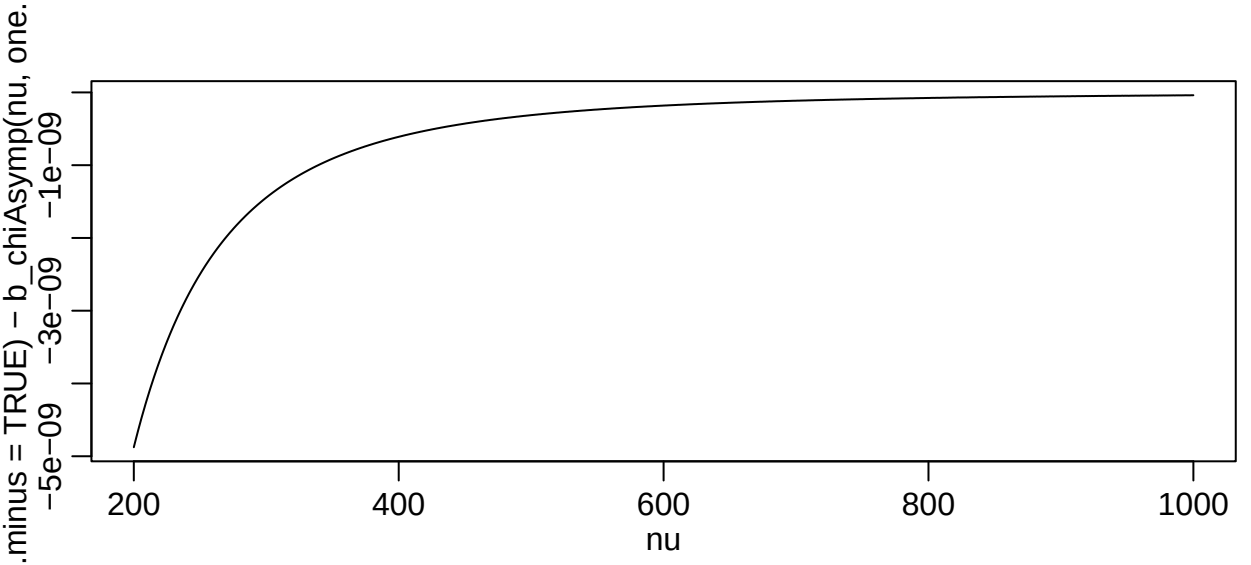

b(nu) = E[Chi_nu] / sqrt(nu)
b_chi
0.0
0.2
0.4
0.6
0.8
0.0
0.2
0.4
0.6
0.8
1.0
x
b_chi(x)
0.9988
0.9992
0.9996
200
400
600
800
1000
1200
x

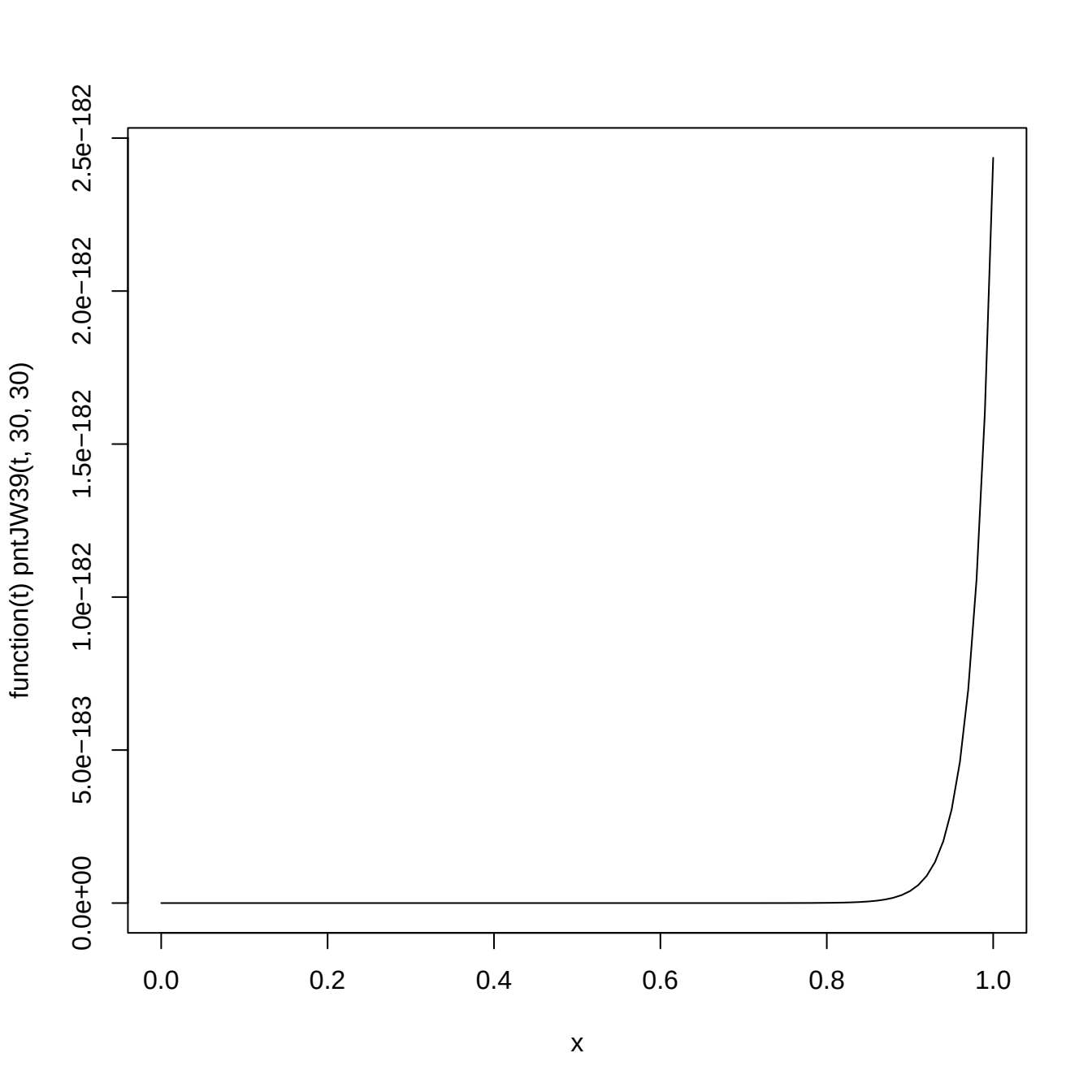

b_chi
0.80
0.85
0.90
0.95
2
4
6
8
10
x

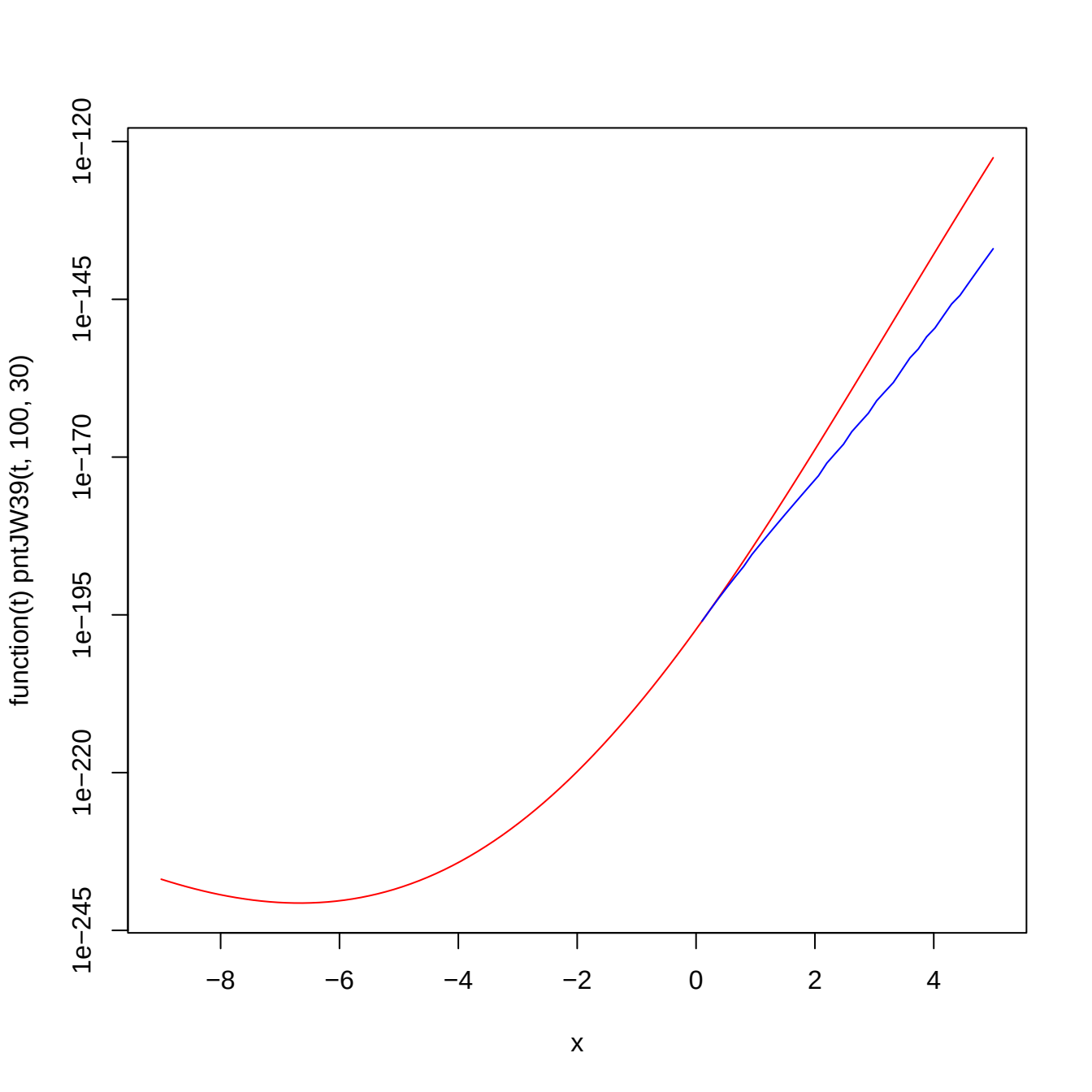

b_chi
0.9992669
0.9992672
340.90
340.95
341.00
341.05
341.10
x

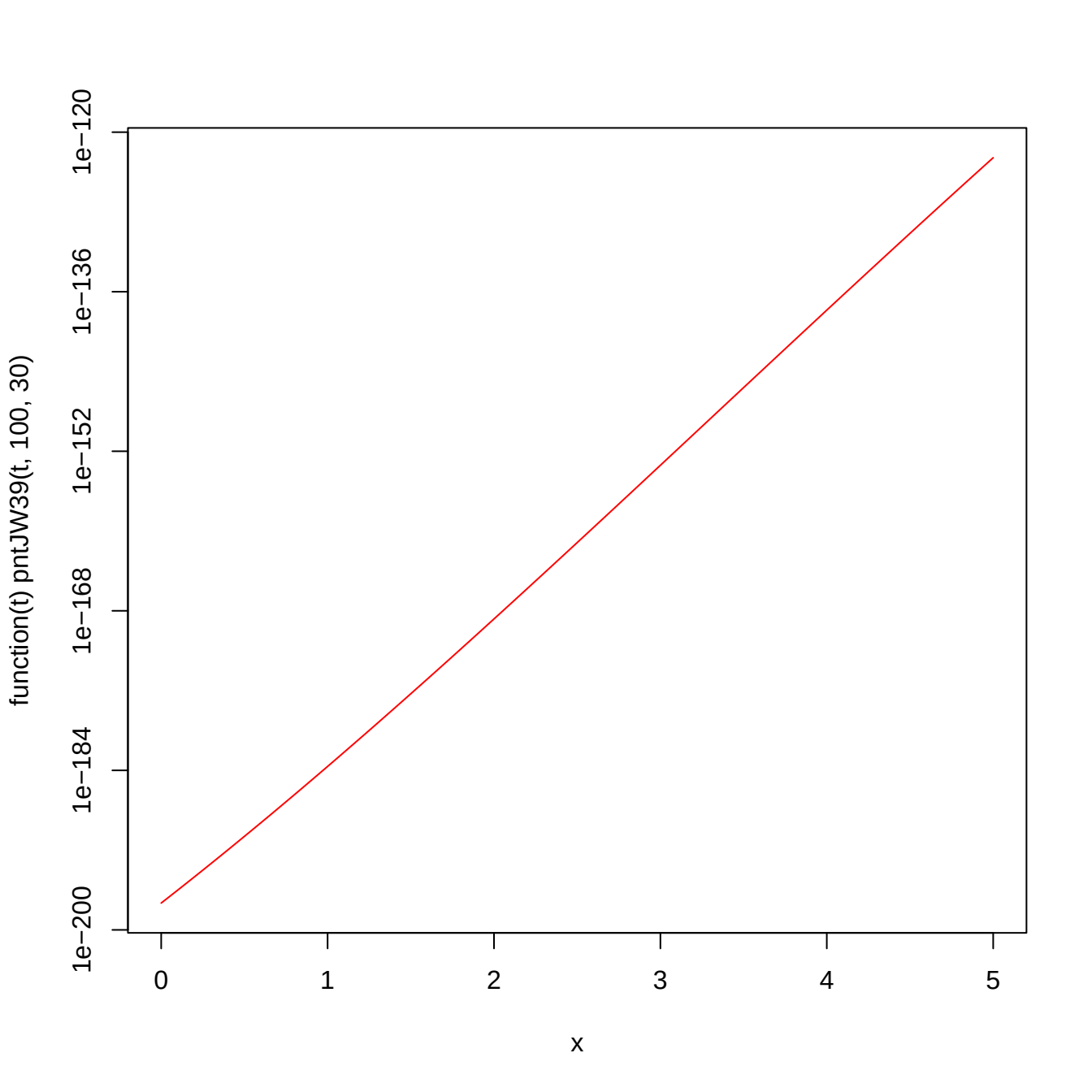

b_chi
0.9997500
0.9997500
999.90
999.95
1000.00
1000.05
1000.10
x

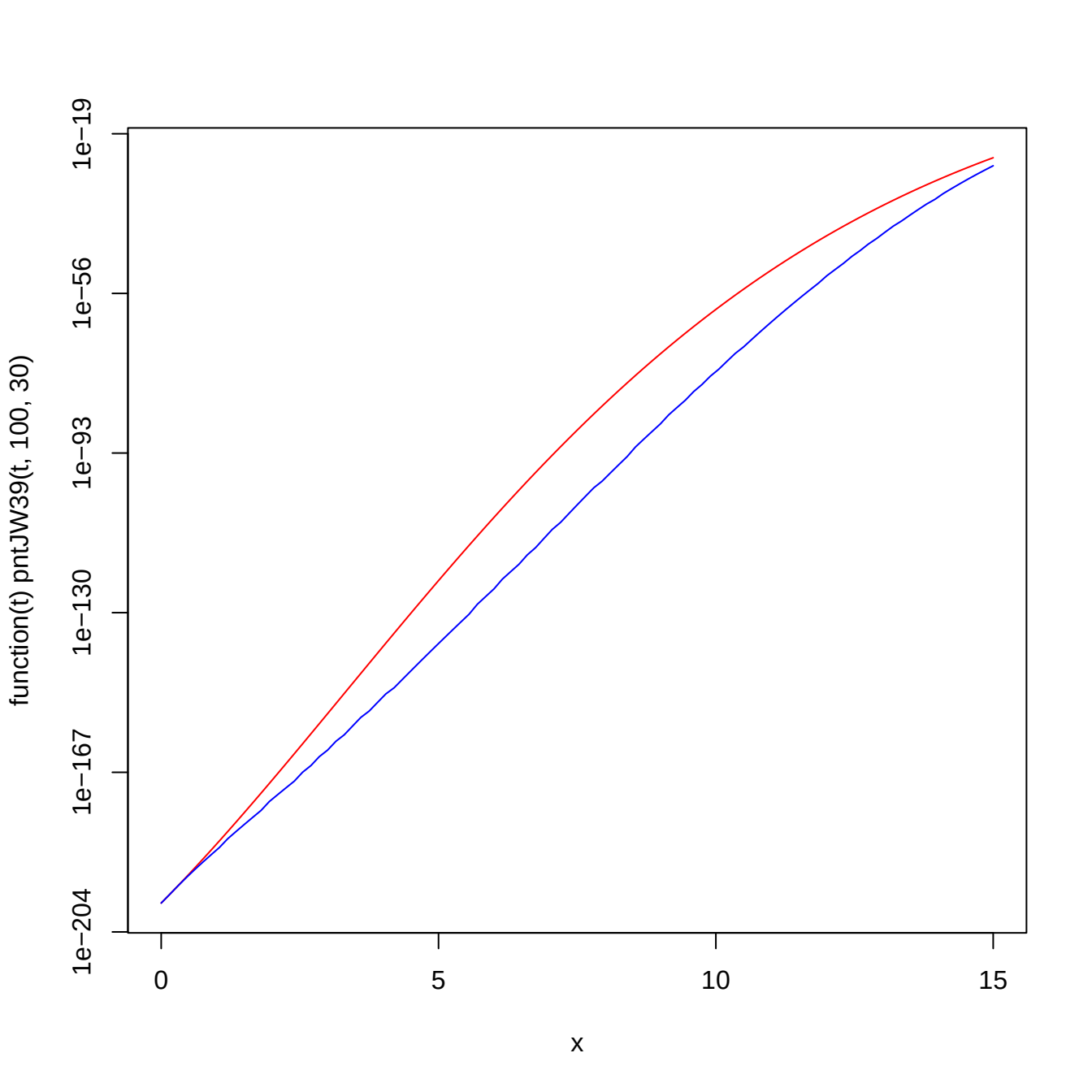

b_chi(nu) − b_chiAsymp(nu)
0e+00
2e−09
4e−09
200
400
600
800
1000
nu

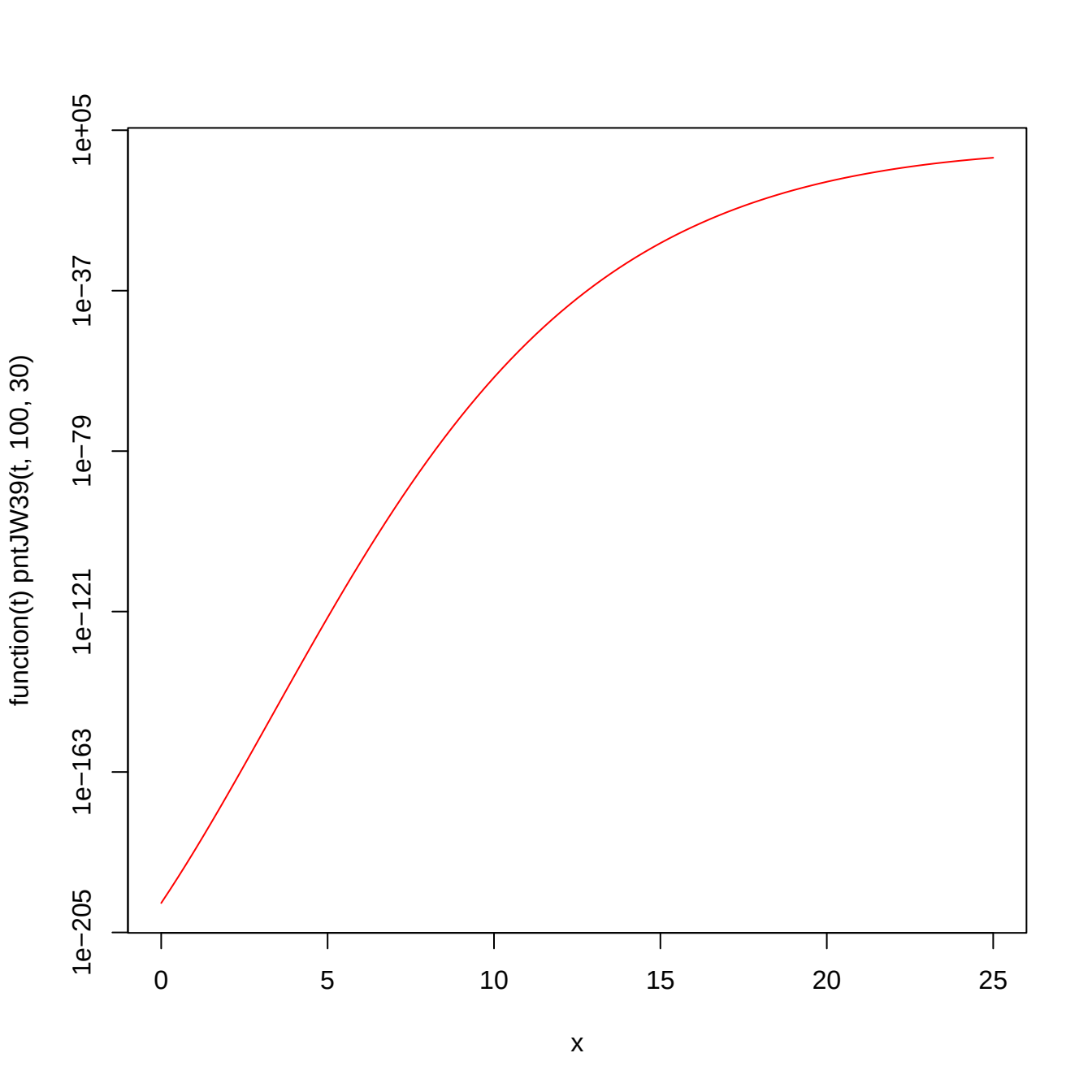

one.minus = TRUE) − b_chiAsymp(nu, one.
−5e−09
−3e−09
−1e−09
200
400
600
800
1000
nu

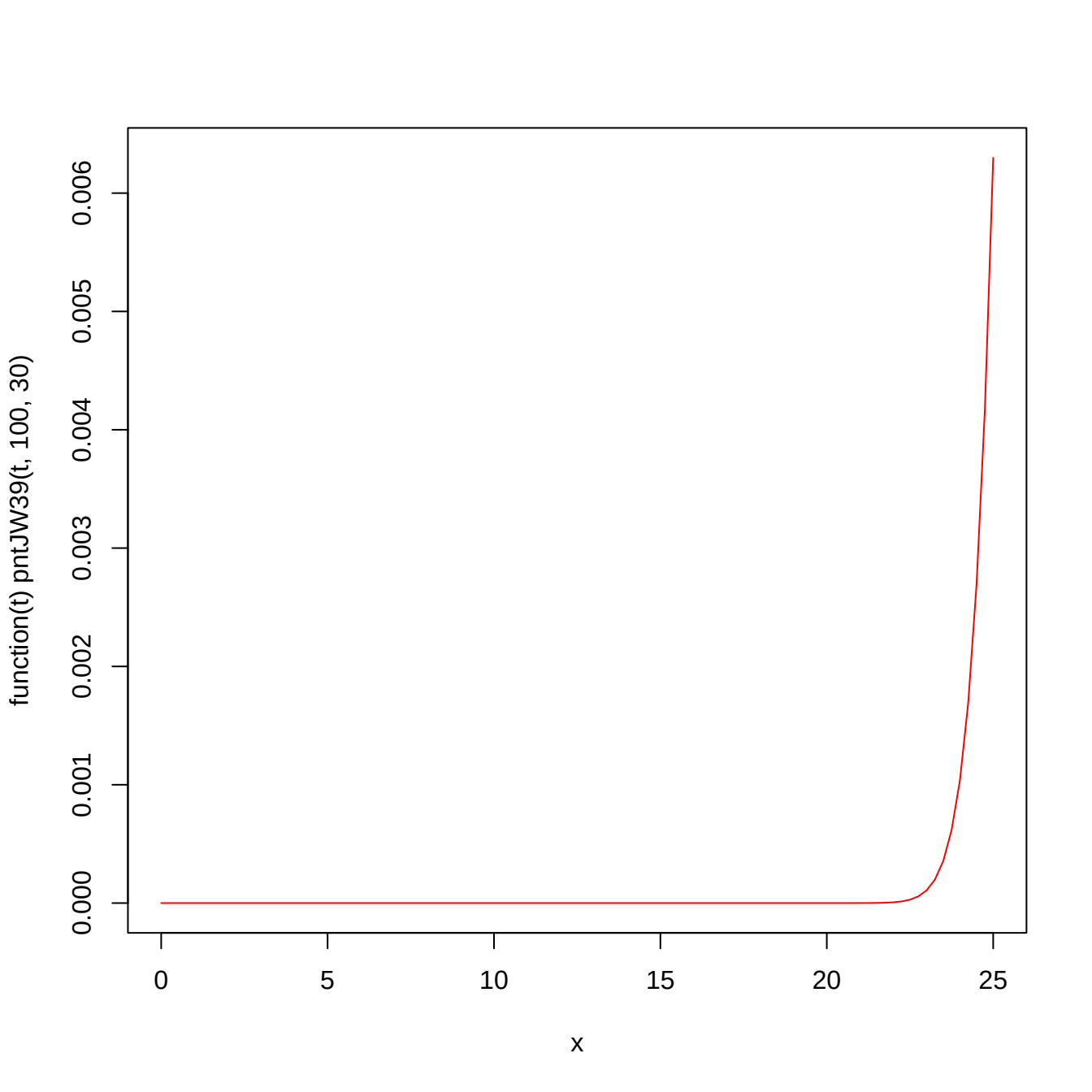

function(t) pntJW39(t, 30, 30)
0.0e+00
5.0e−183
1.0e−182
1.5e−182
2.0e−182
2.5e−182
0.0
0.2
0.4
0.6
0.8
1.0
x

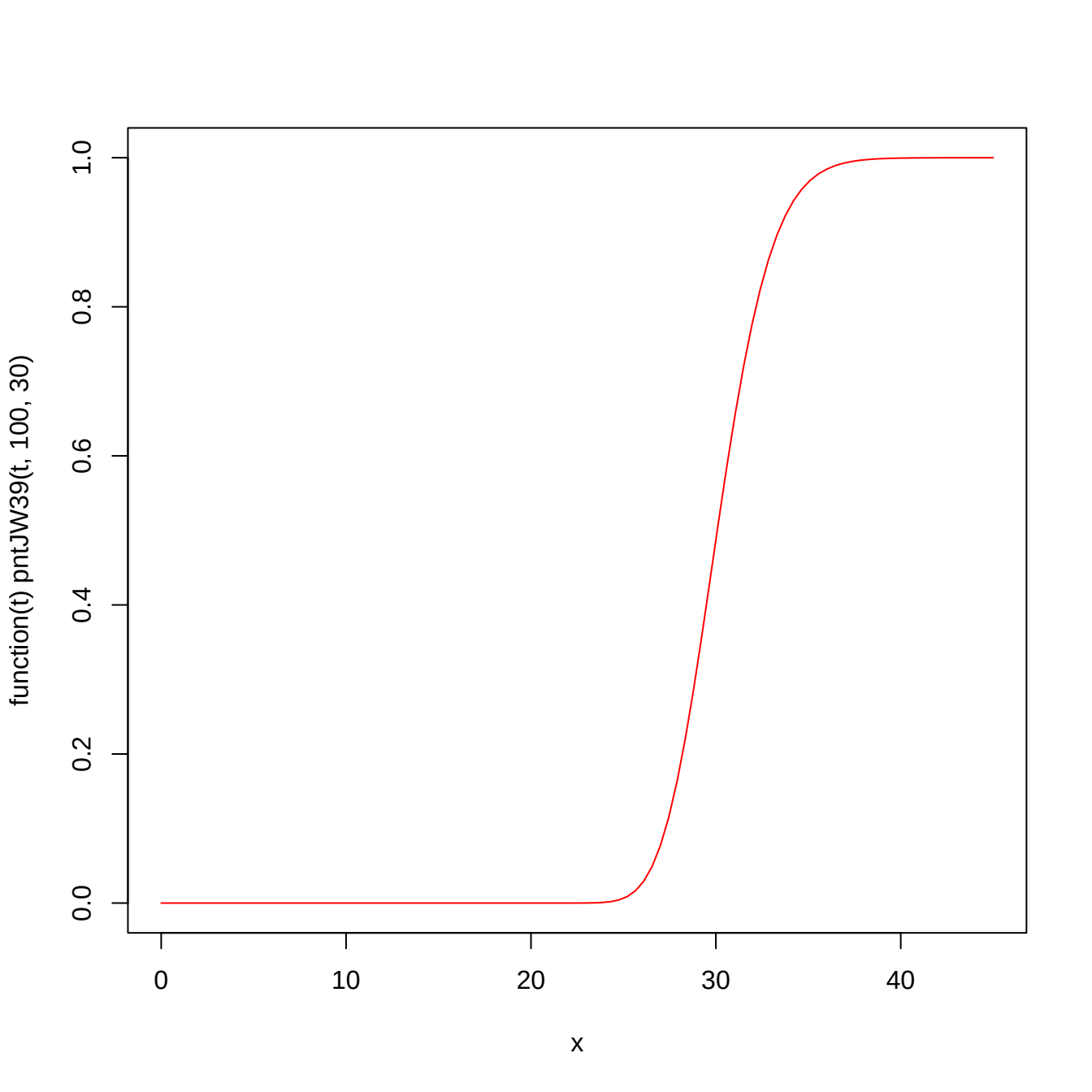

function(t) pntJW39(t, 100, 30)
1e−120
1e−145
1e−170
1e−195
1e−220
1e−245
−8
−6
−4
−2
0
2
4
x

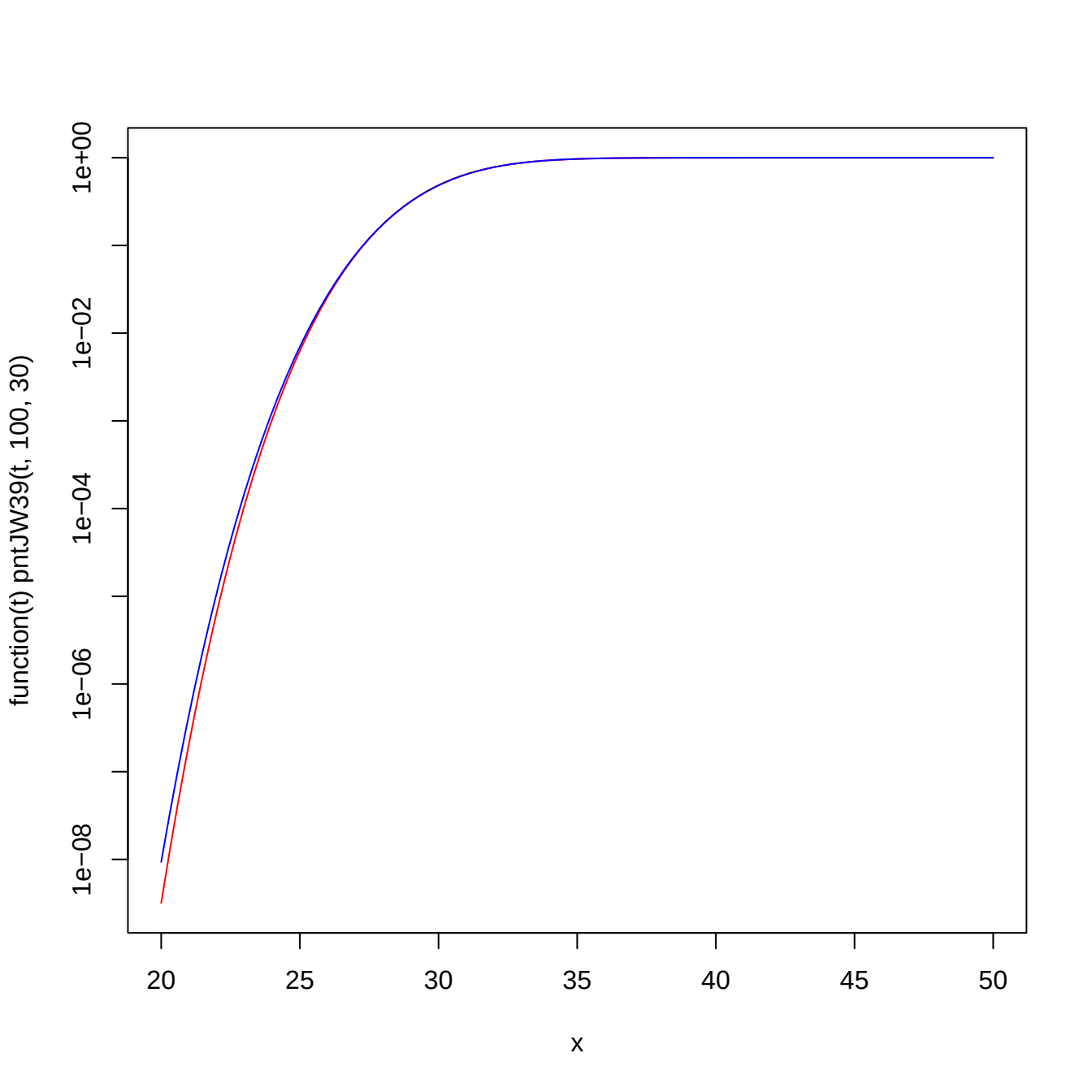

function(t) pntJW39(t, 100, 30)
1e−120
1e−136
1e−152
1e−168
1e−184
1e−200
0
1
2
3
4
5
x

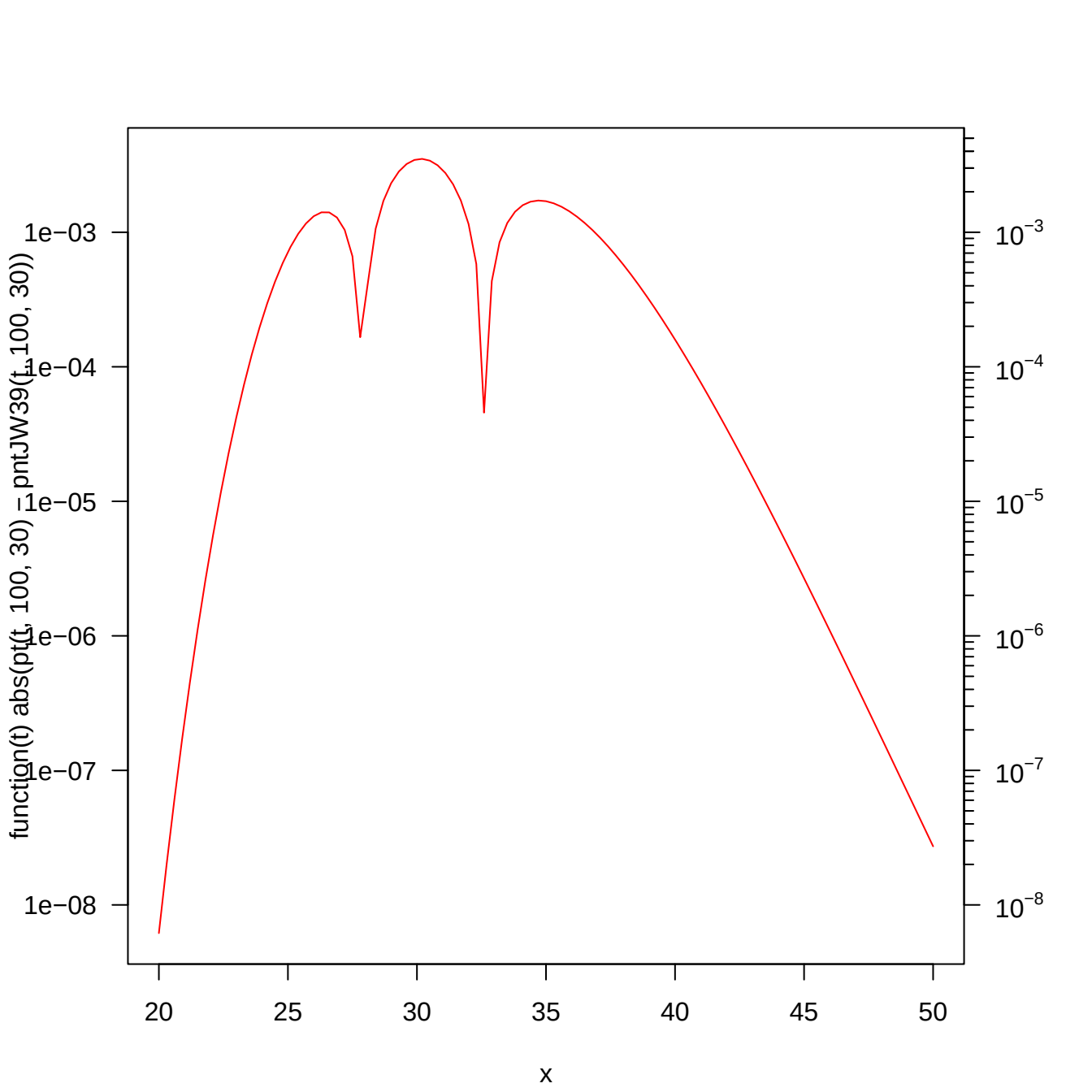

function(t) pntJW39(t, 100, 30)
1e−204
1e−167
1e−130
1e−93
1e−56
1e−19
0
5
10
15
x

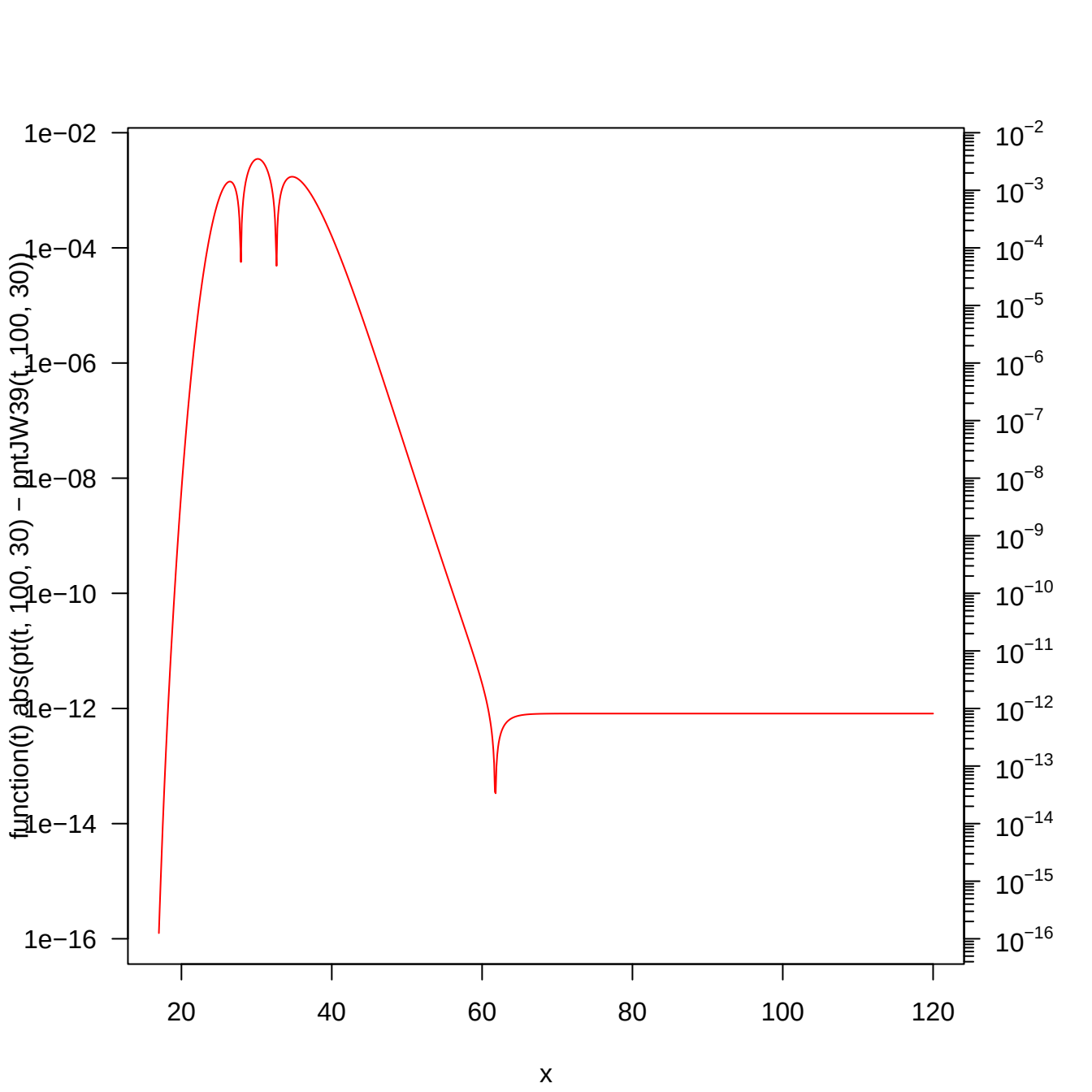

function(t) pntJW39(t, 100, 30)
1e+05
1e−37
1e−79
1e−121
1e−163
1e−205
0
5
10
15
20
25
x

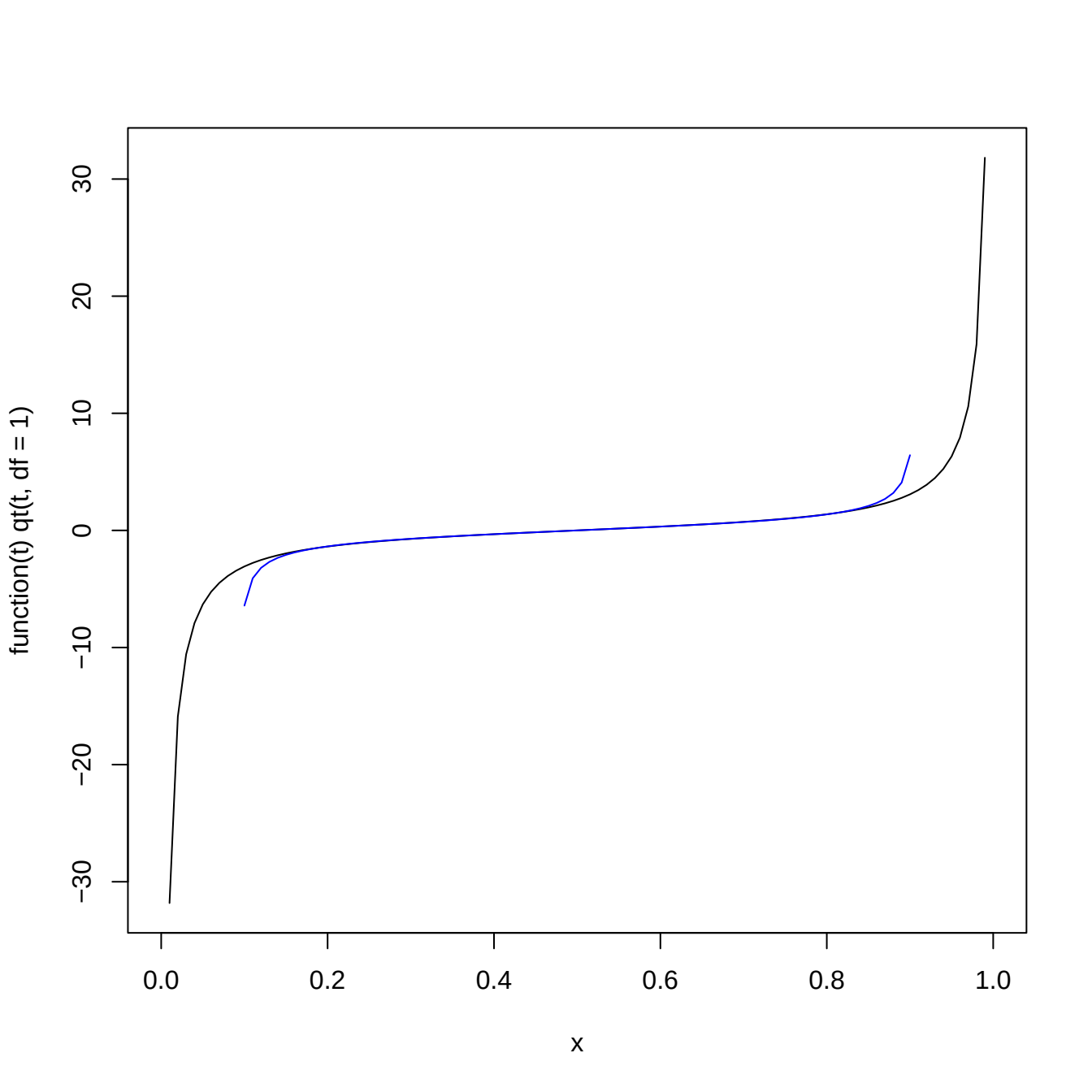

function(t) pntJW39(t, 100, 30)
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0
5
10
15
20
25
x

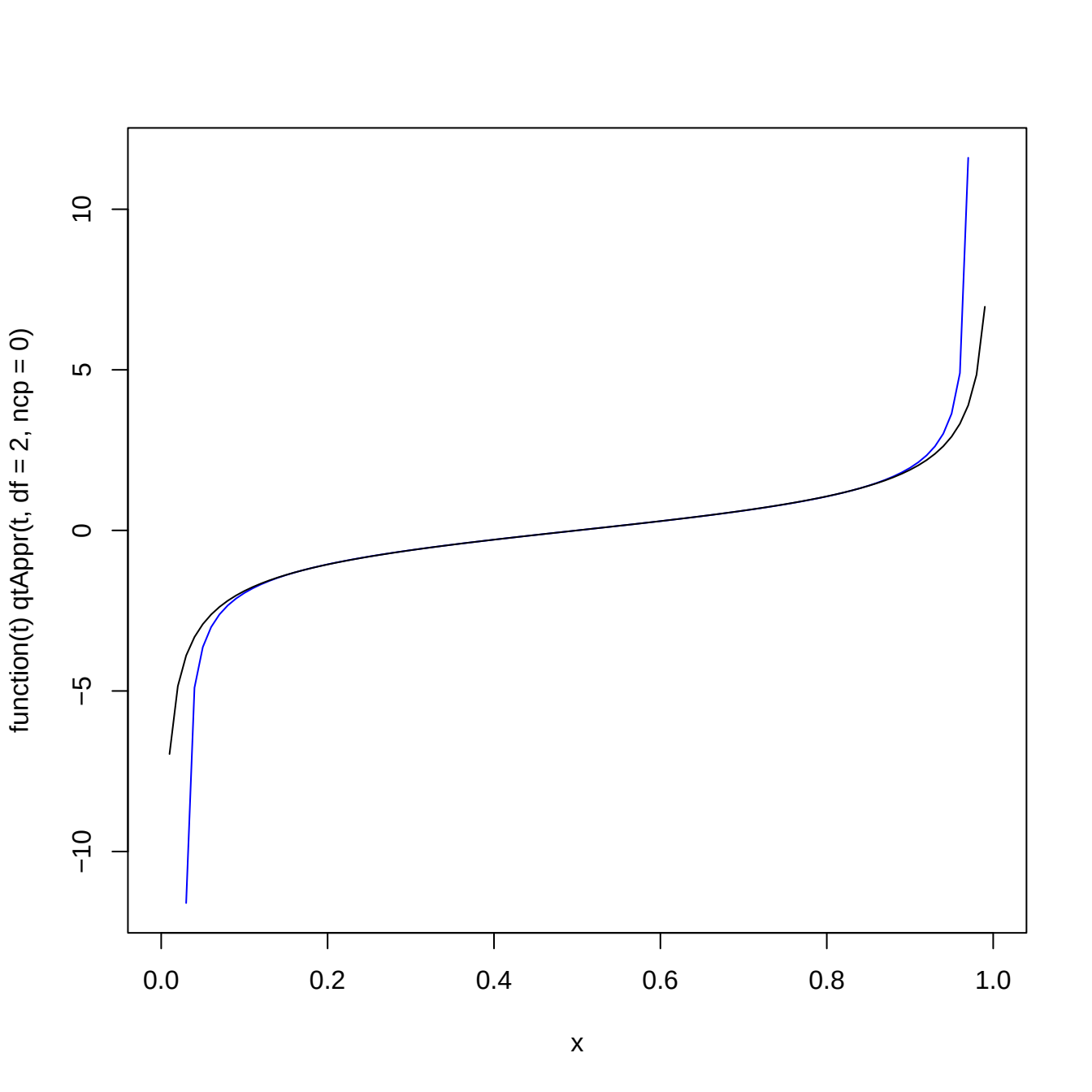

function(t) pntJW39(t, 100, 30)
1.0
0.8
0.6
0.4
0.2
0.0
0
10
20
30
40
x

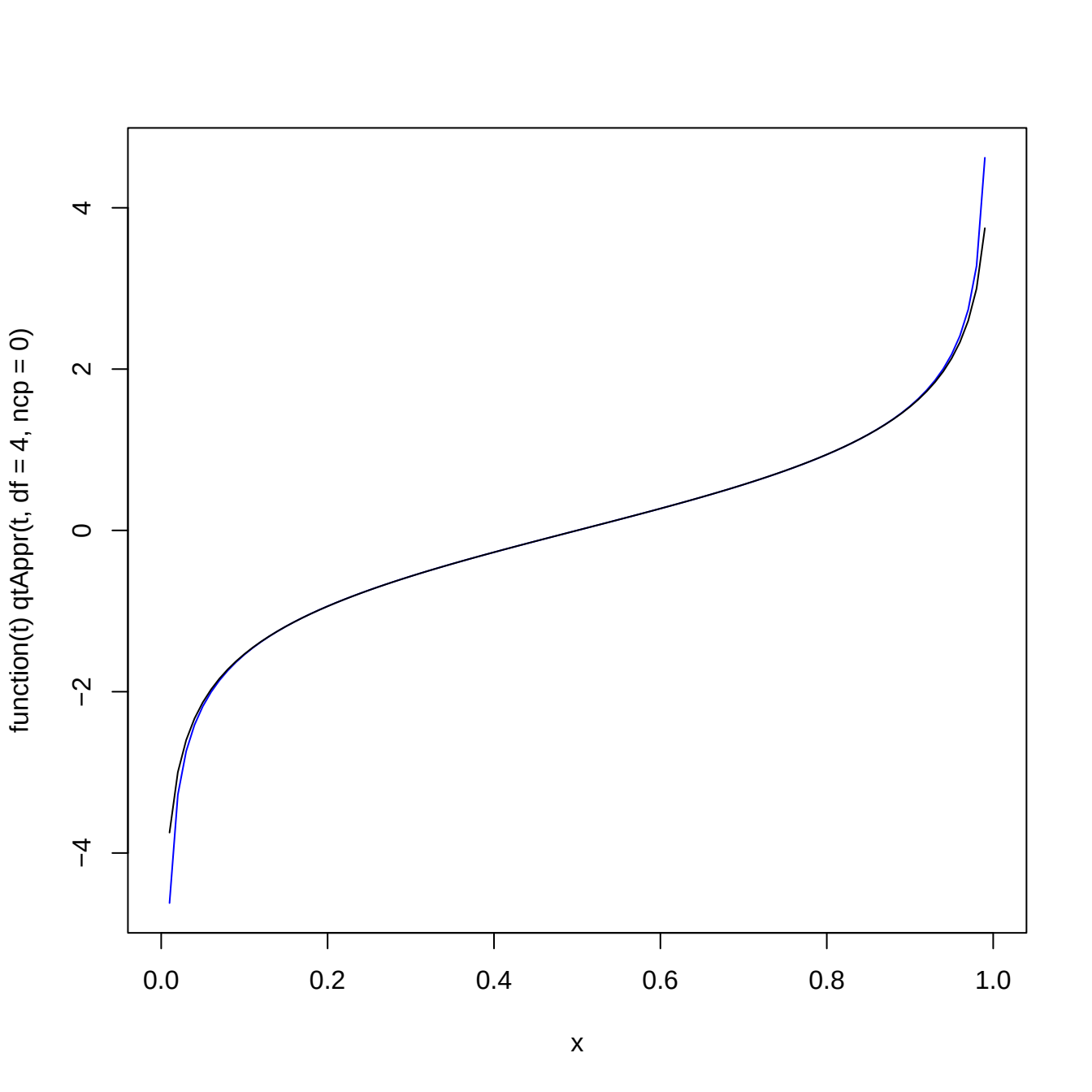

function(t) pntJW39(t, 100, 30)
1e+00
1e−02
1e−04
1e−06
1e−08
20
25
30
35
40
45
50
x

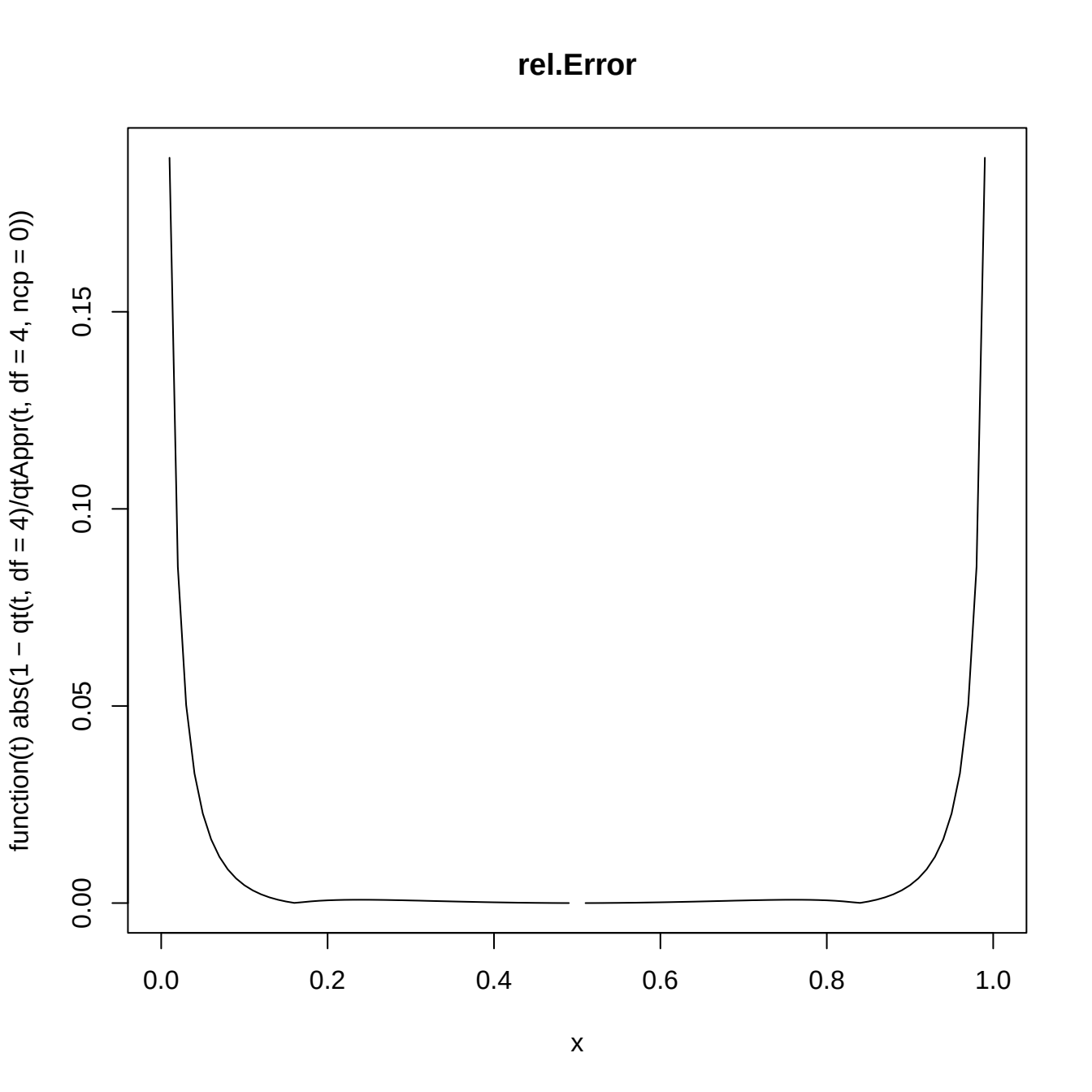

function(t) abs(ptt(t, 100, 30) − pntJW39(t, 100, 30))
1e−03
1e−04
1e−05
1e−06
1e−07
1e−08
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-7}
10^{-8}
20
25
30
35
40
45
50
x

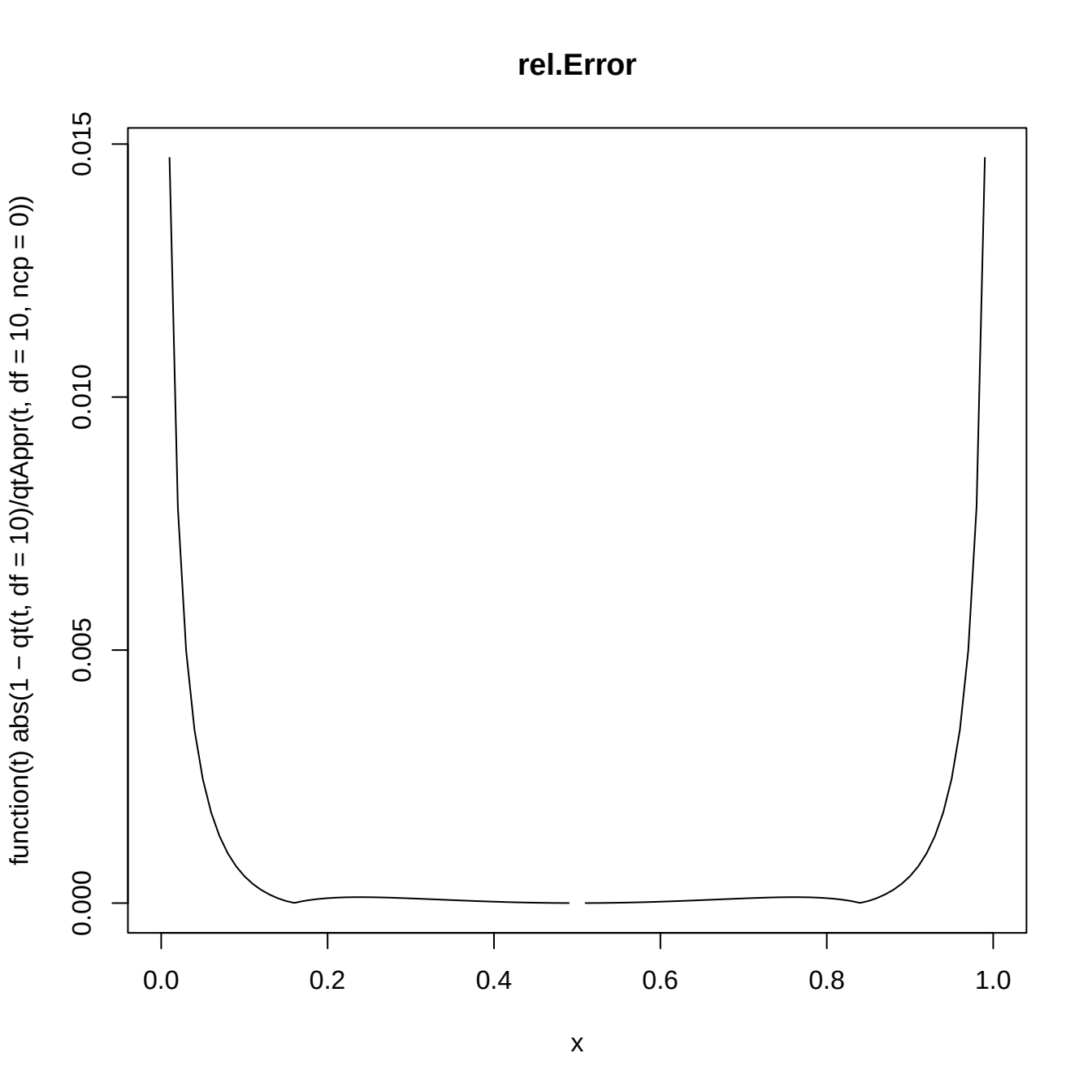

1e−02
1e−04
1e−06
1e−08
1e−10
1e−12
1e−14
1e−16
function(t) abs(pt(t, 100, 30) − pntJW39(t, 100, 30))
20
40
60
80
100
120
x

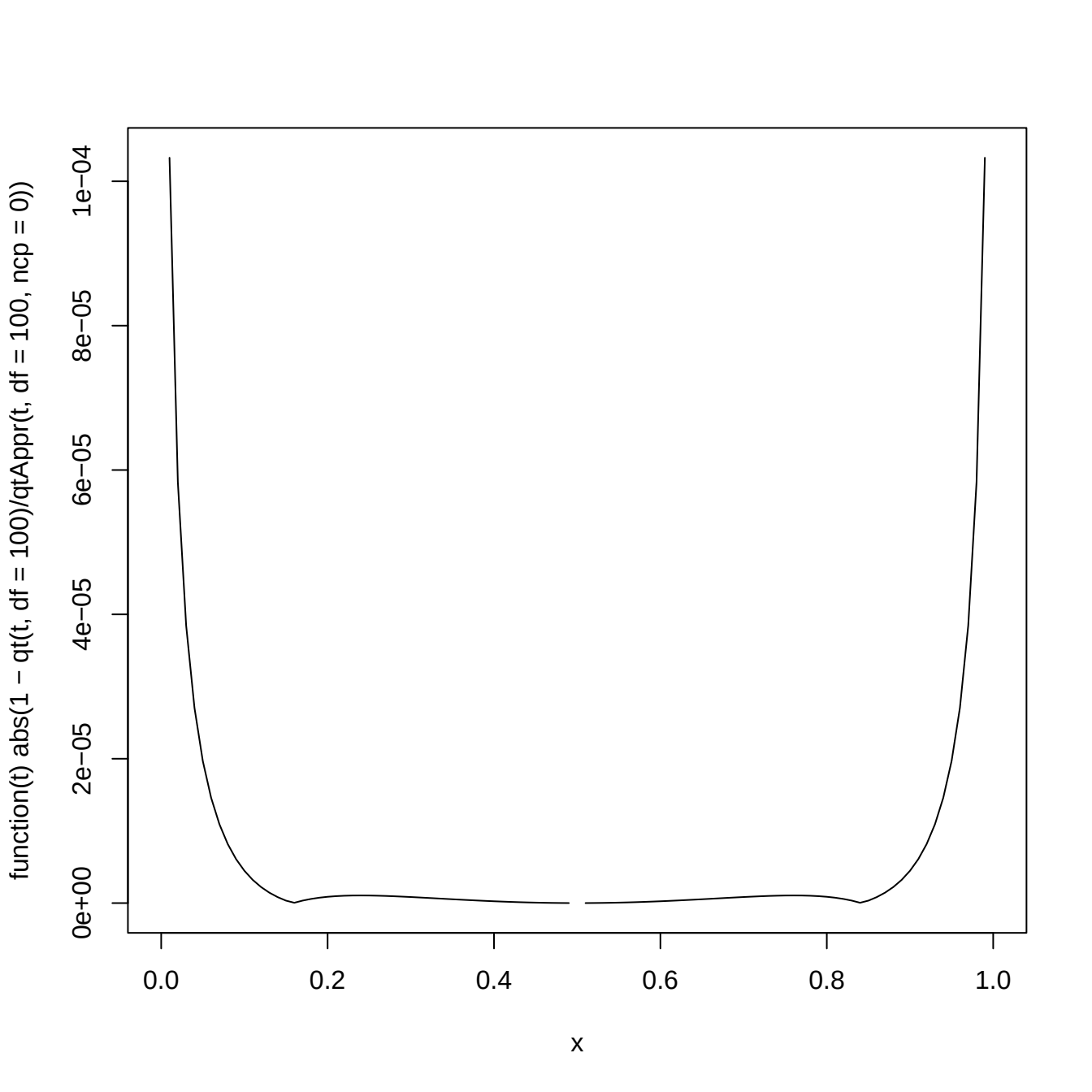

function(t) qt(t, df = 1)
30
20
10
0
−10
−20
−30
0.0
0.2
0.4
0.6
0.8
1.0
x

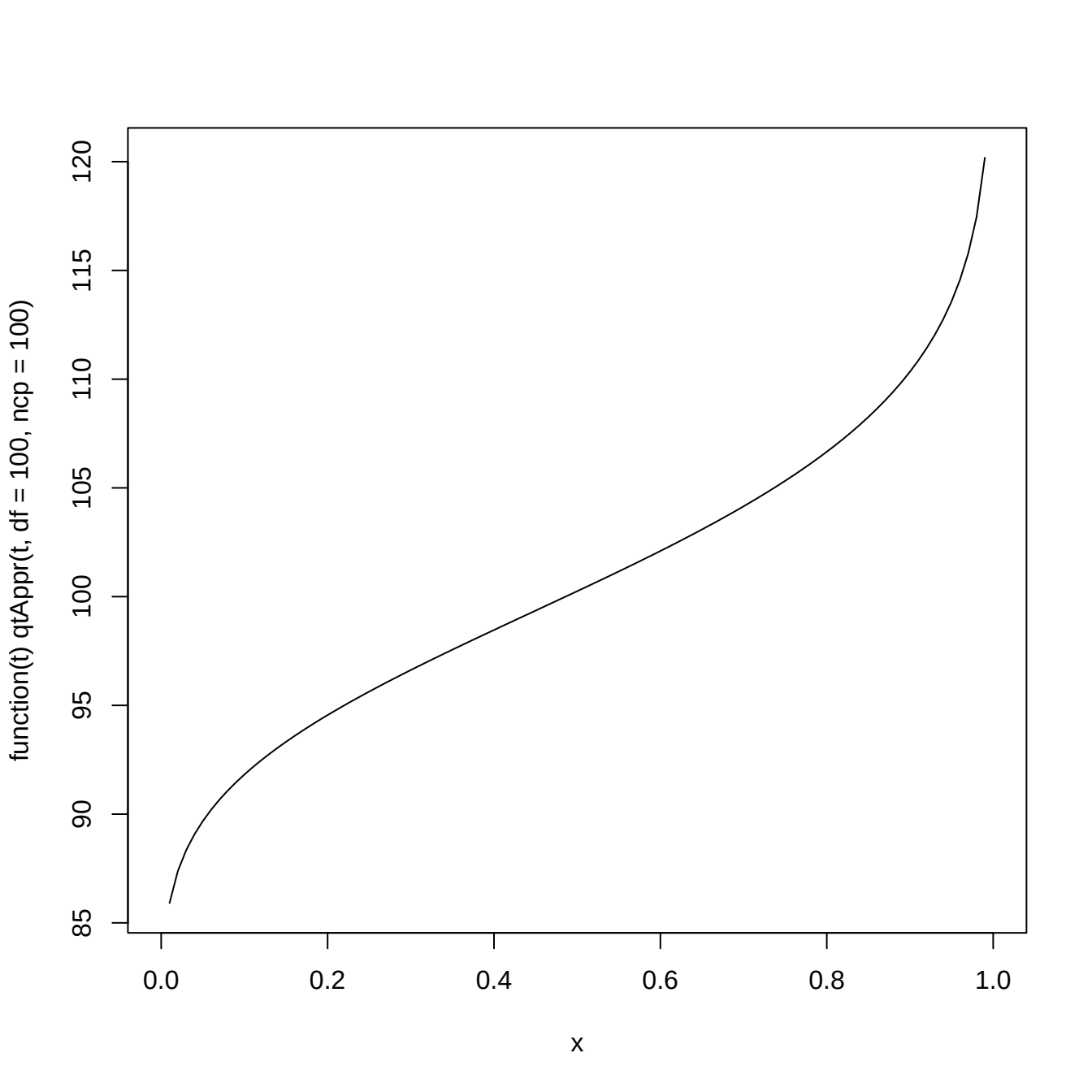

function(t) qtAppr(t, df = 2, ncp = 0)
10
5
0
−5
−10
0.0
0.2
0.4
0.6
0.8
1.0
x

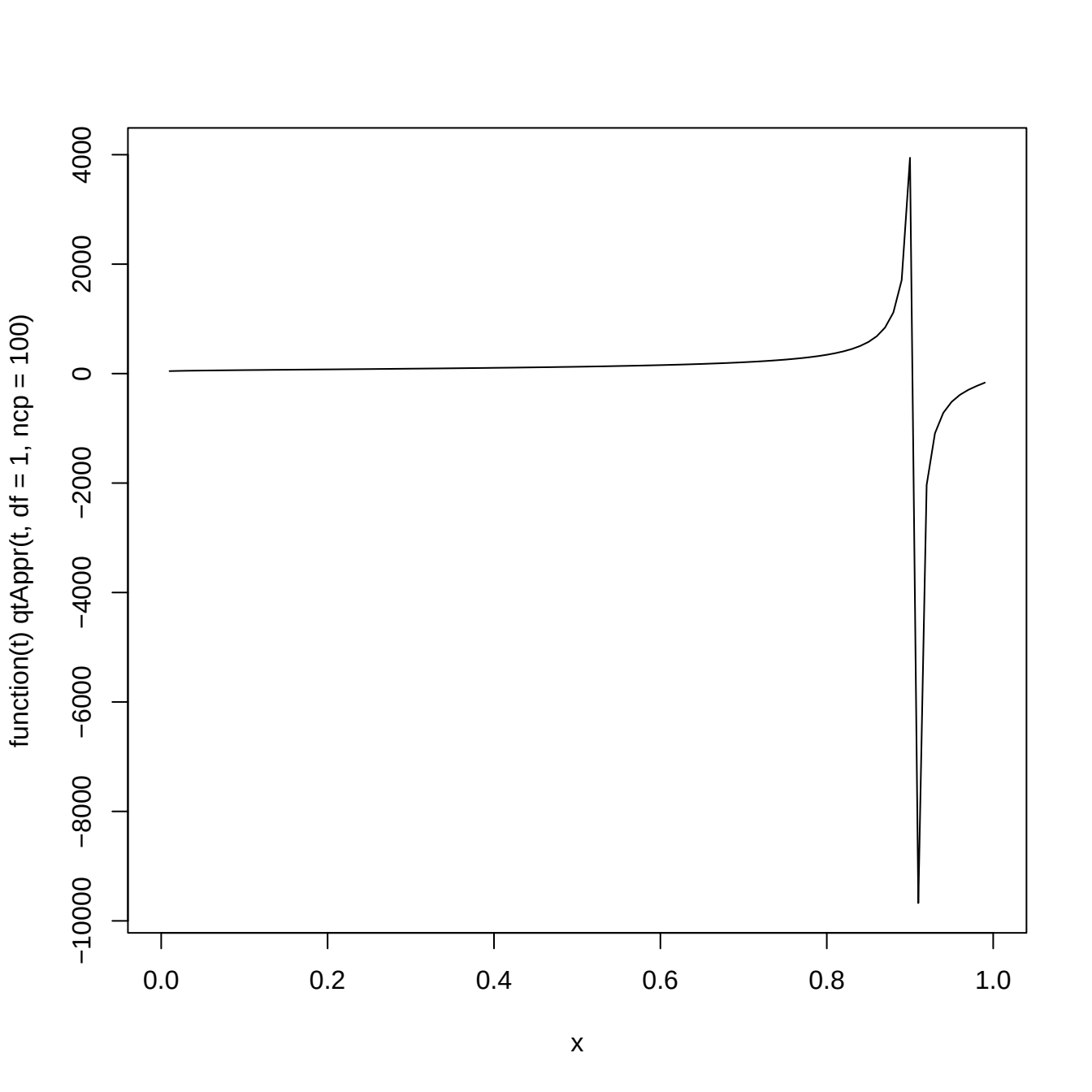

function(t) qtAppr(t, df = 4, ncp = 0)
4
2
0
−2
−4
0.0
0.2
0.4
0.6
0.8
1.0
x

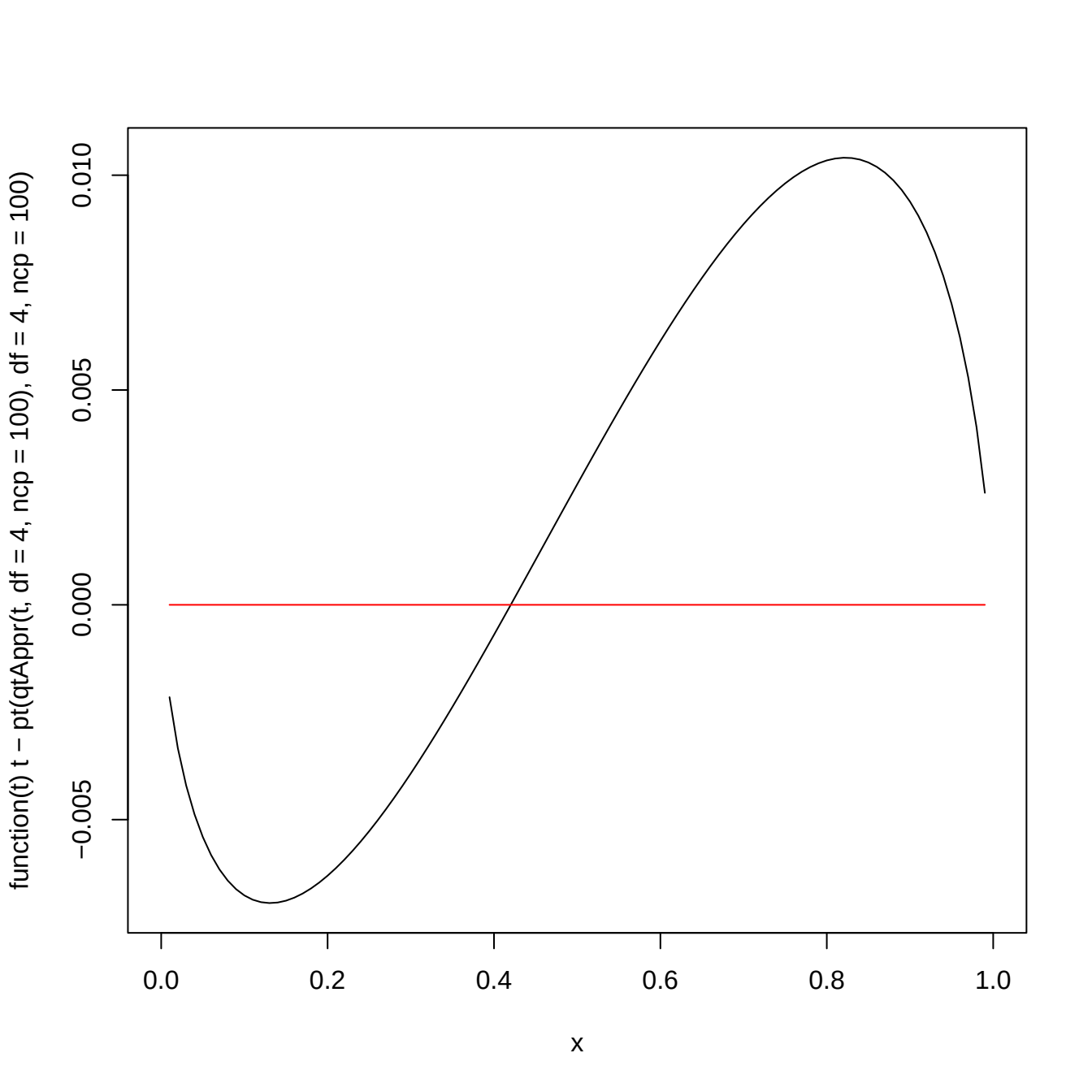

rel.Error
function(t) abs(1 − qt(t, df = 4)/qtAppr(t, df = 4, ncp = 0))
0.00
0.05
0.10
0.15
0.0
0.2
0.4
0.6
0.8
1.0
x

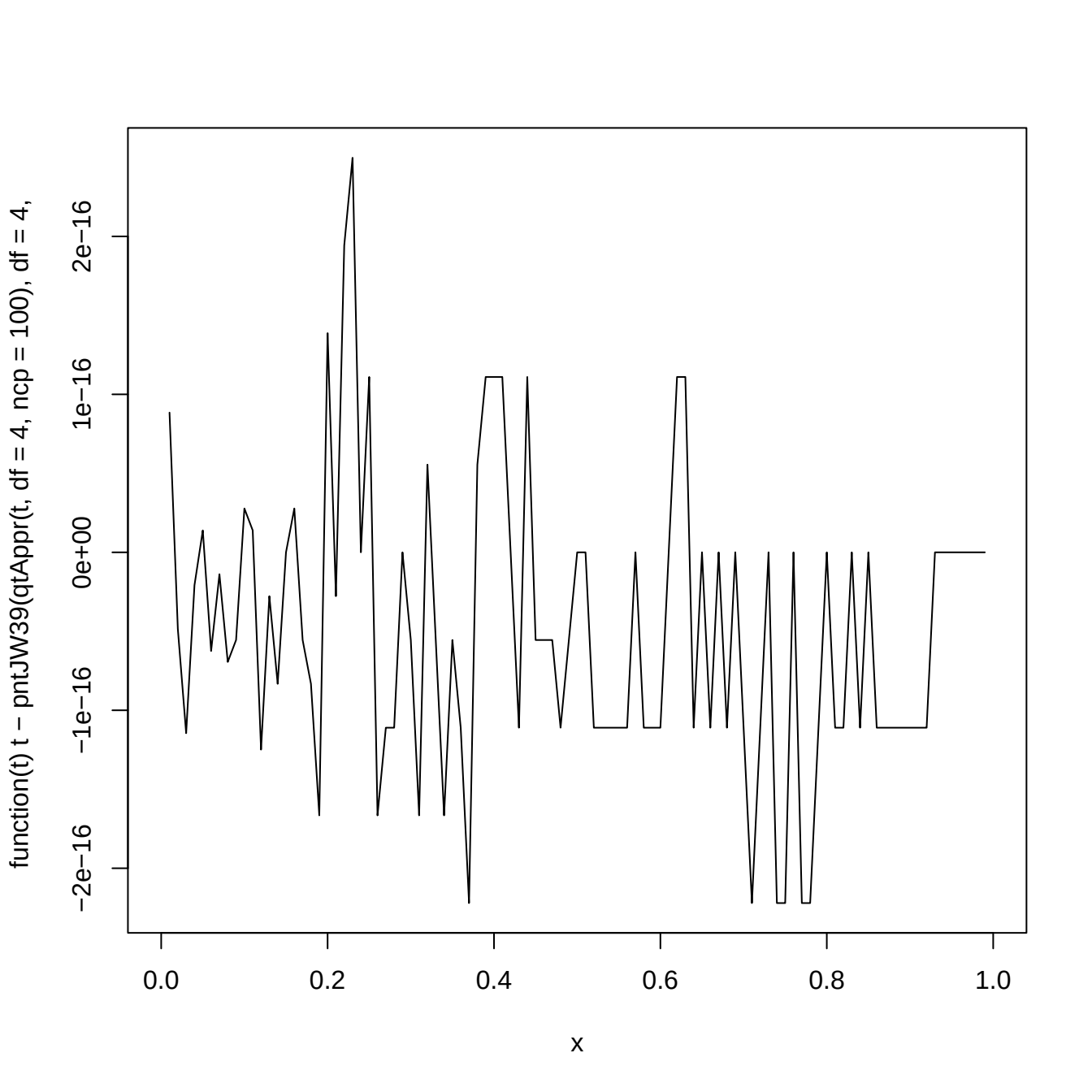

rel.Error
function(t) abs(1 − qt(t, df = 10)/qtAppr(t, df = 10, ncp = 0))
0.000
0.005
0.010
0.015
0.0
0.2
0.4
0.6
0.8
1.0
x

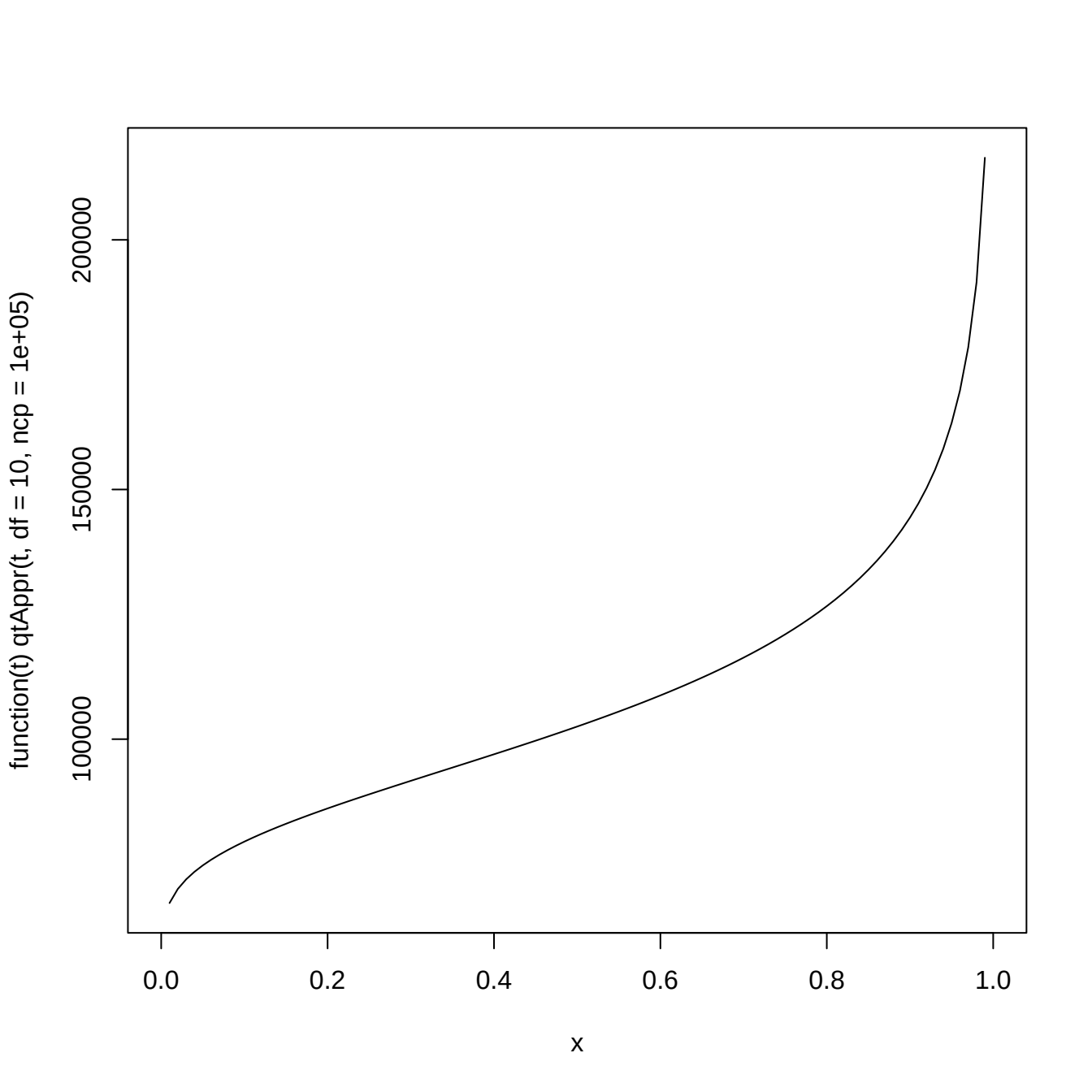

function(t) abs(1 − qt(t, df = 100)/qtAppr(t, df = 100, ncp = 0))
0e+00
2e−05
4e−05
6e−05
8e−05
1e−04
0.0
0.2
0.4
0.6
0.8
1.0
x

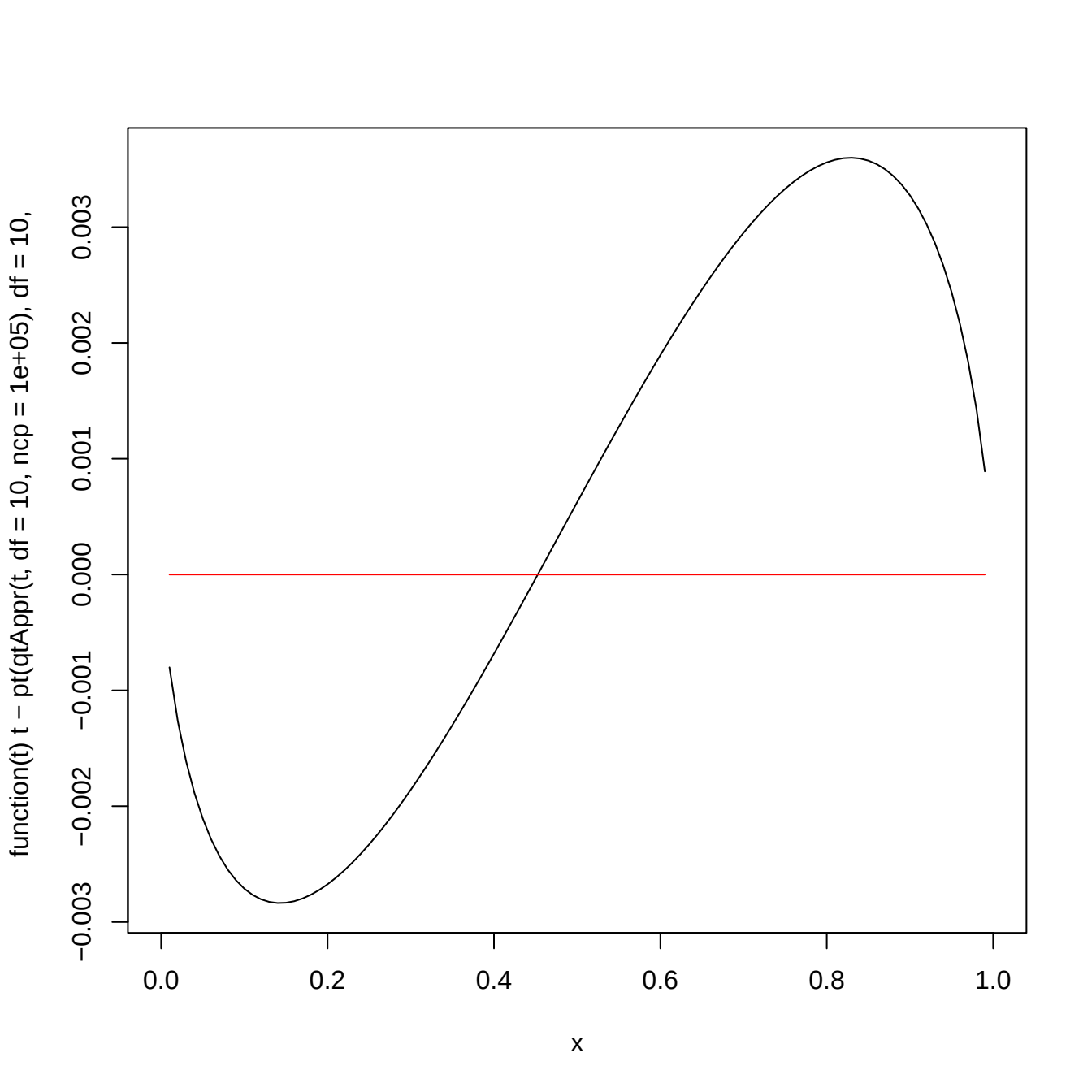

function(t) qtAppr(t, df = 100, ncp = 100)
85
90
95
100
105
110
115
120
0.0
0.2
0.4
0.6
0.8
1.0
x

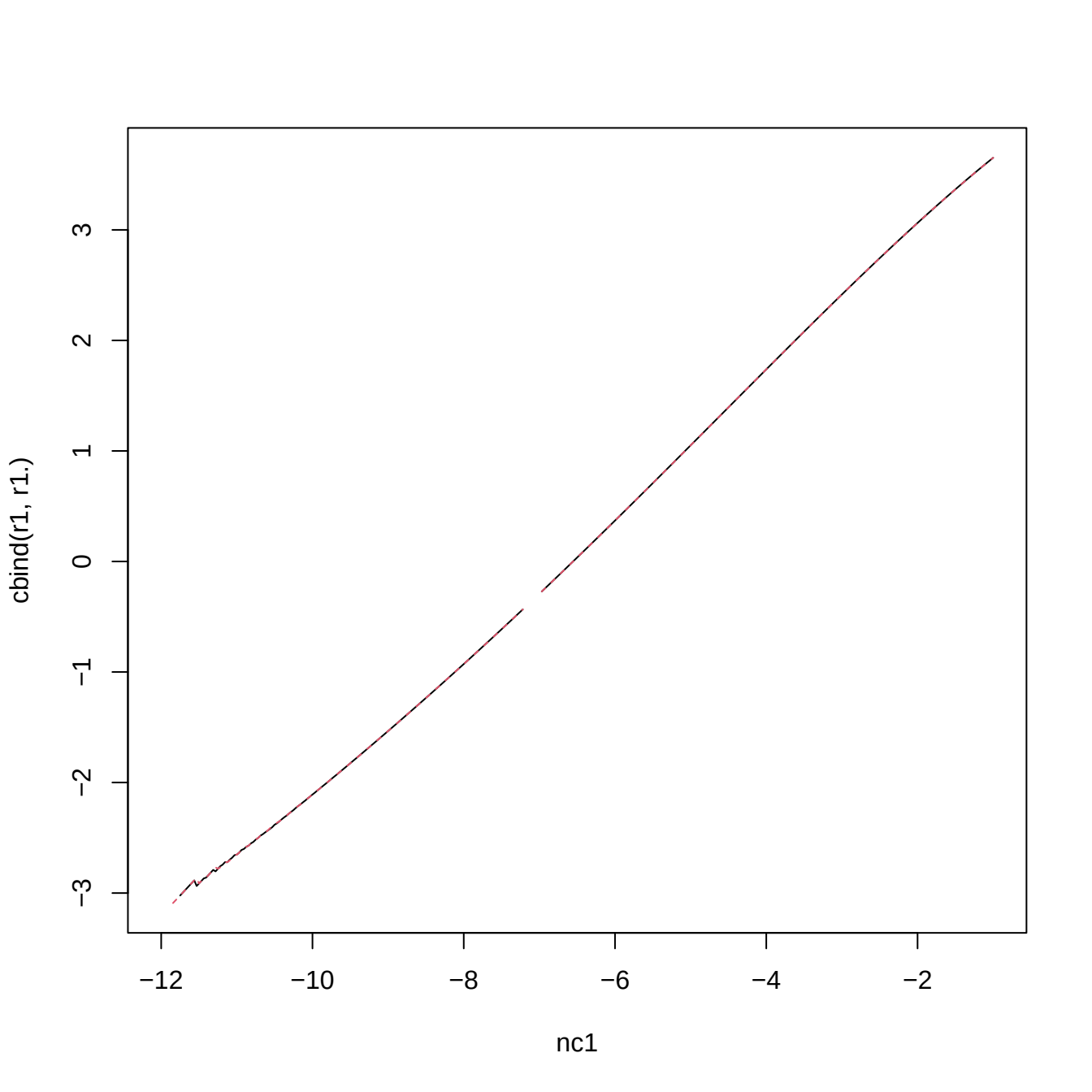

function(t) qtAppr(t, df = 1, ncp = 100)
4000
2000
0
−2000
−4000
−6000
−8000
−10000
0.0
0.2
0.4
0.6
0.8
1.0
x

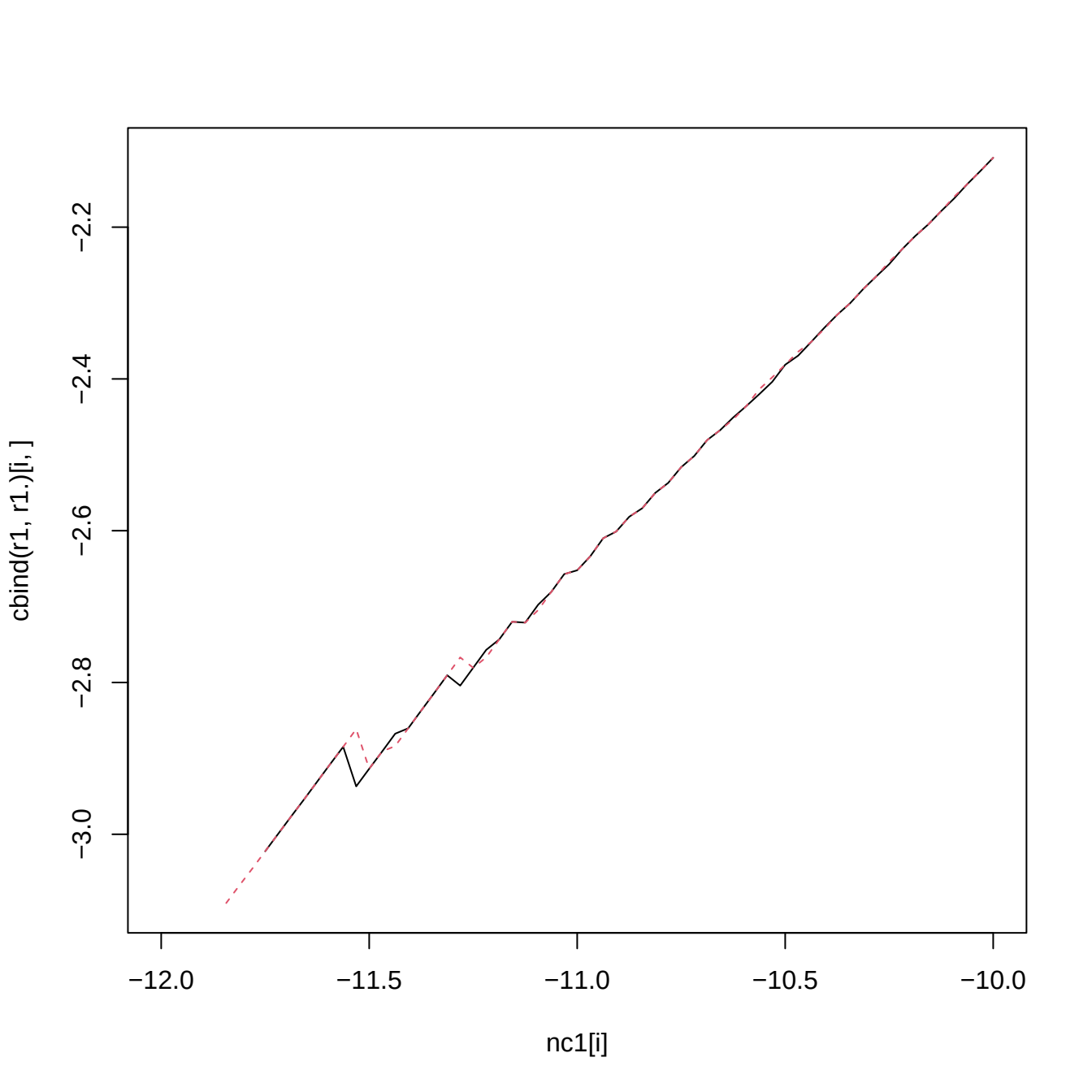

function(t) t − pt(qtAppr(t, df = 4, ncp = 100), df = 4, ncp = 100)
0.010
0.005
0.000
−0.005
0.0
0.2
0.4
0.6
0.8
1.0
x

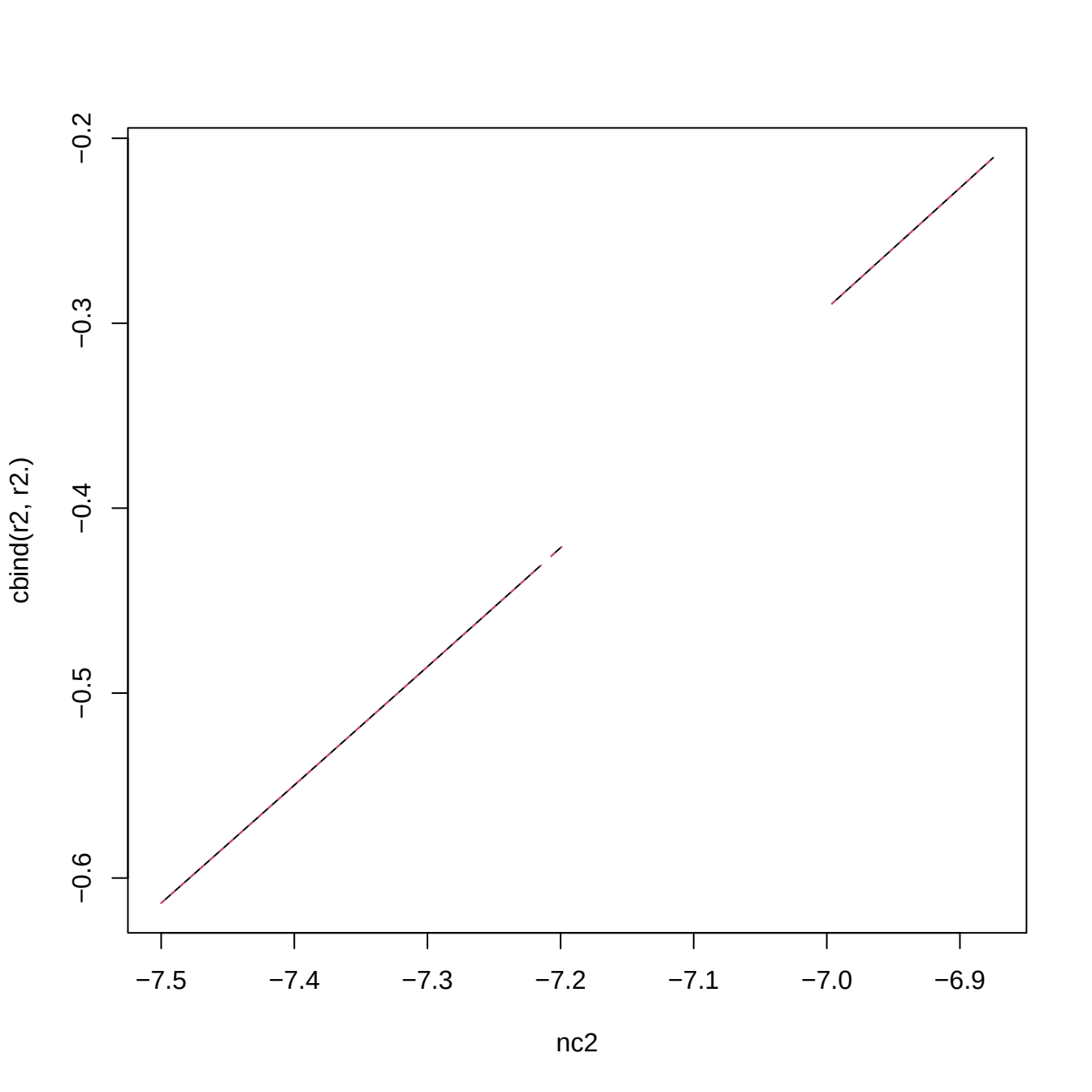

function(t) t − pntJW39(qtAppr(t, df = 4, ncp = 100), df = 4,
−2e−16
−1e−16
0e+00
1e−16
2e−16
0.0
0.2
0.4
0.6
0.8
1.0
x

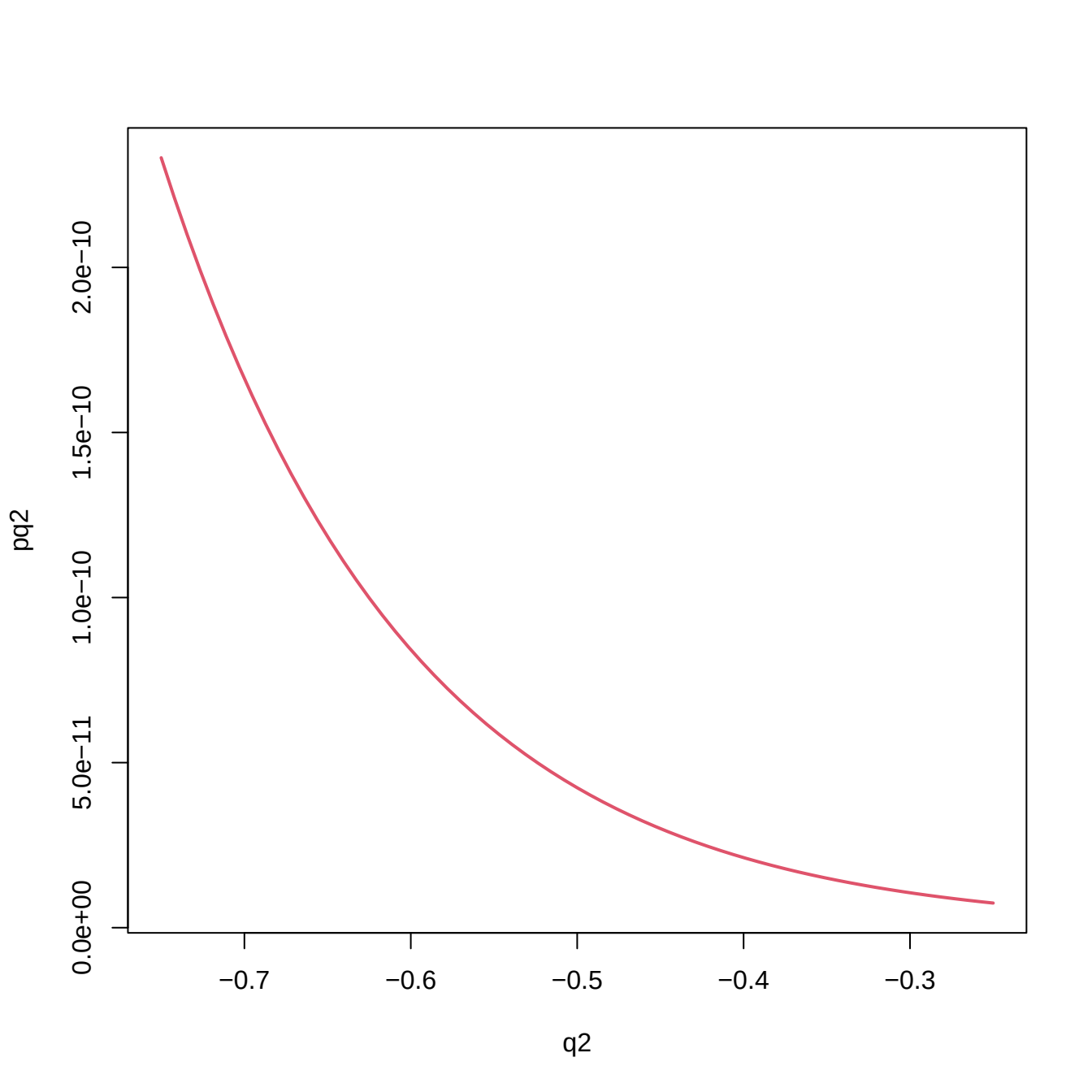

function(t) qtAppr(t, df = 10, ncp = 1e+05)
100000
150000
200000
0.0
0.2
0.4
0.6
0.8
1.0
x

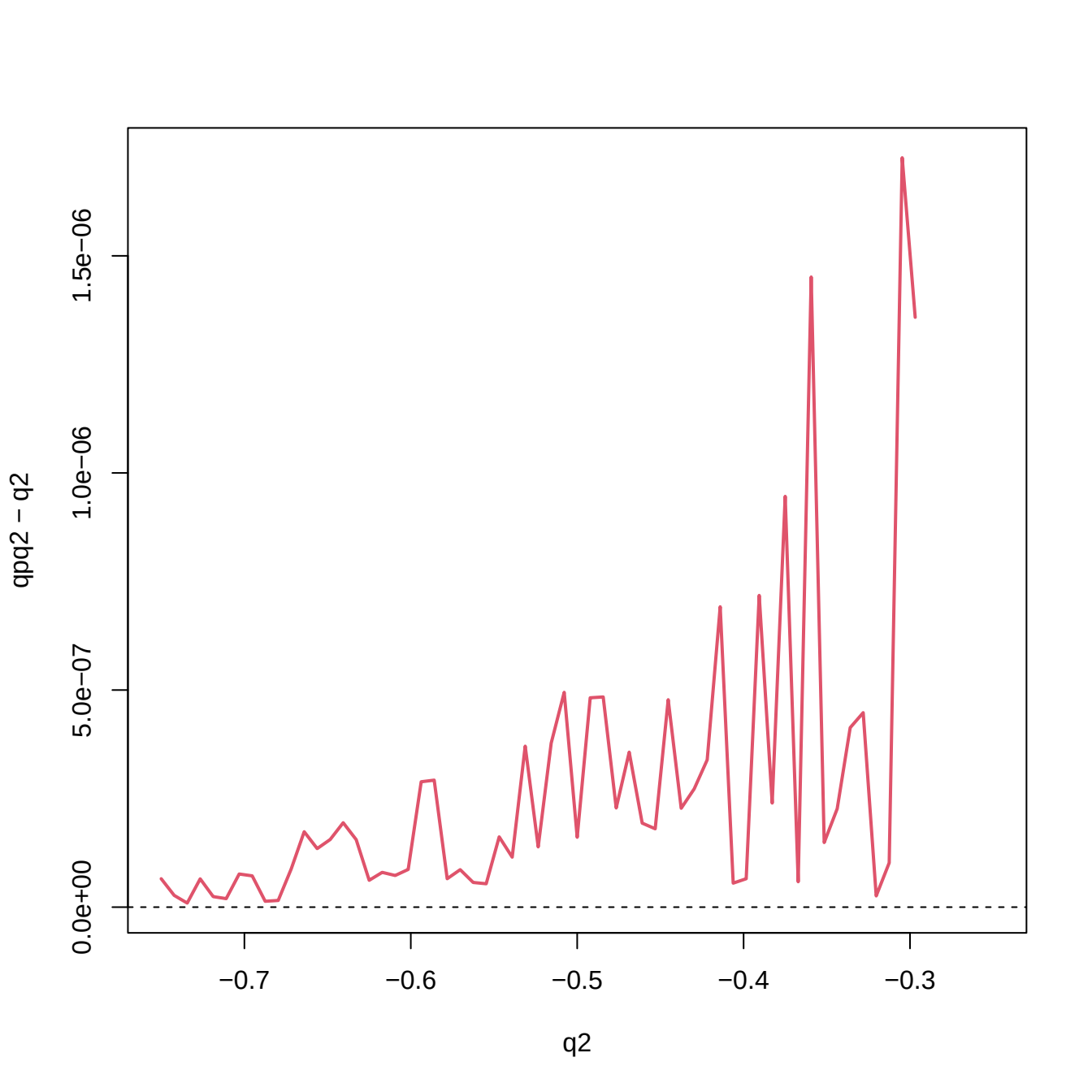

function(t) t − pt(qtAppr(t, df = 10, ncp = 1e+05), df = 10,
−0.003
−0.002
−0.001
0.000
0.001
0.002
0.003
0.0
0.2
0.4
0.6
0.8
1.0
x

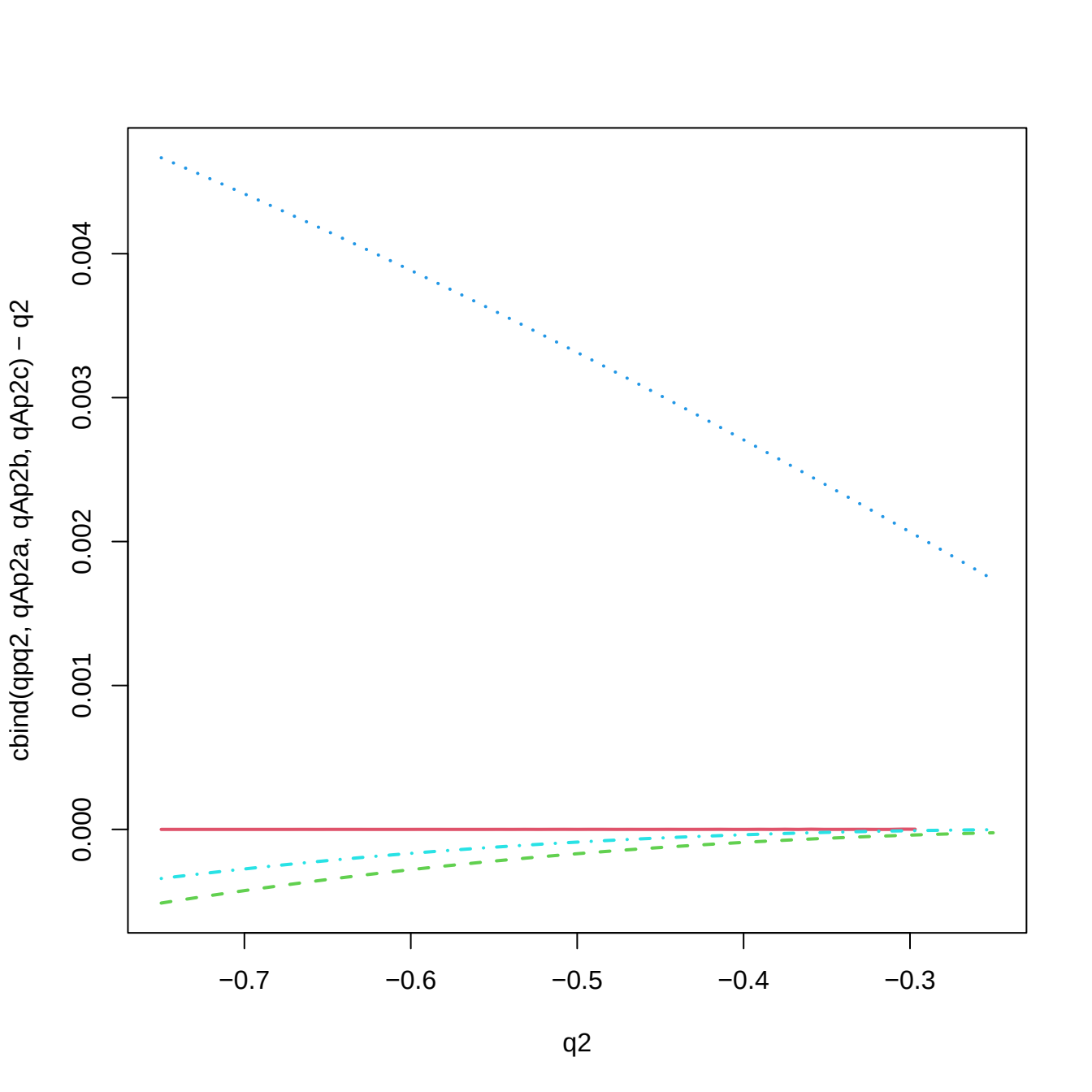

cbind(r1, r1.)
3
2
1
0
−1
−2
−3
−12
−10
−8
−6
−4
−2
nc1

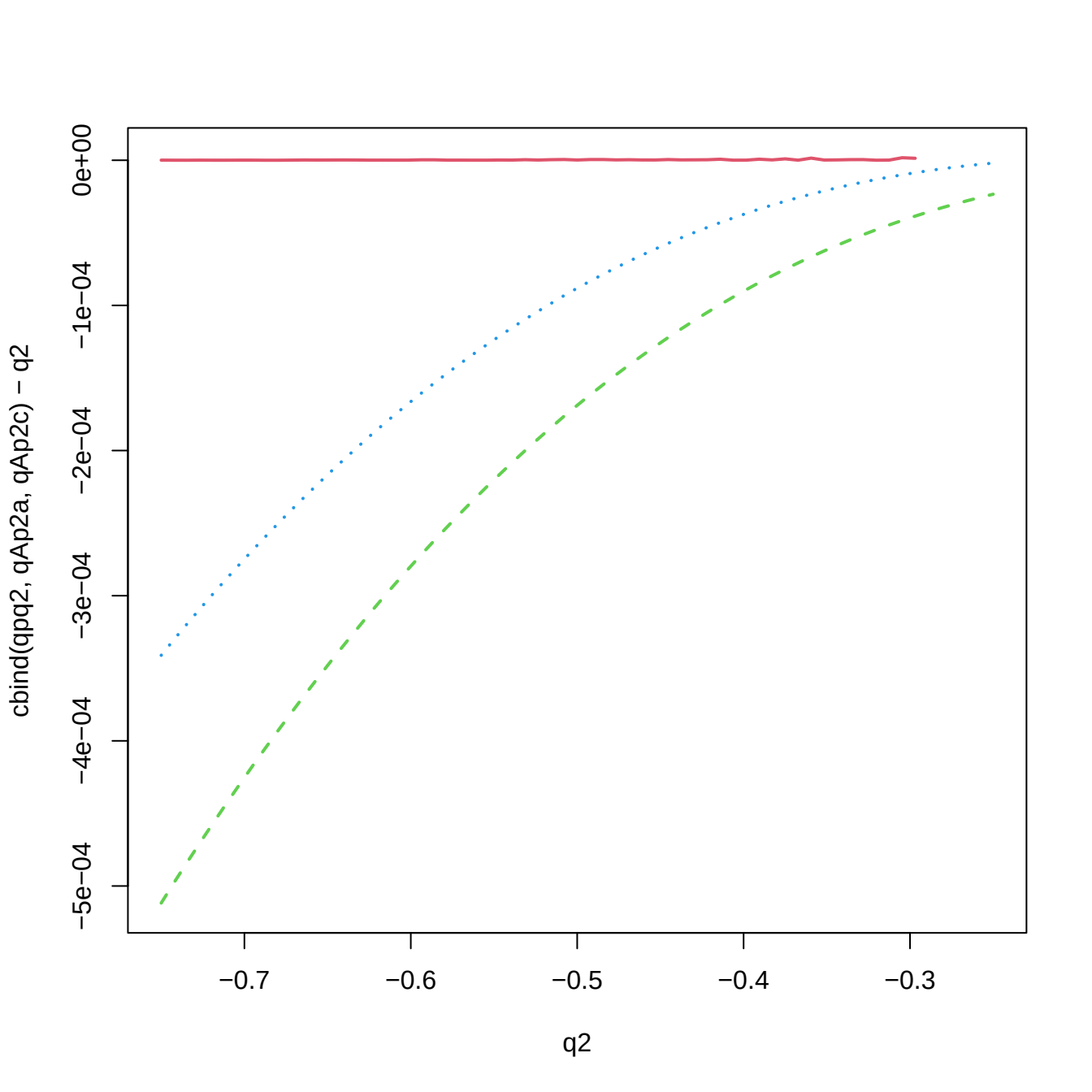

cbind(r1, r1.)[i,]
−2.2
−2.4
−2.6
−2.8
−3.0
−12.0
−11.5
−11.0
−10.5
−10.0
nc1[i]

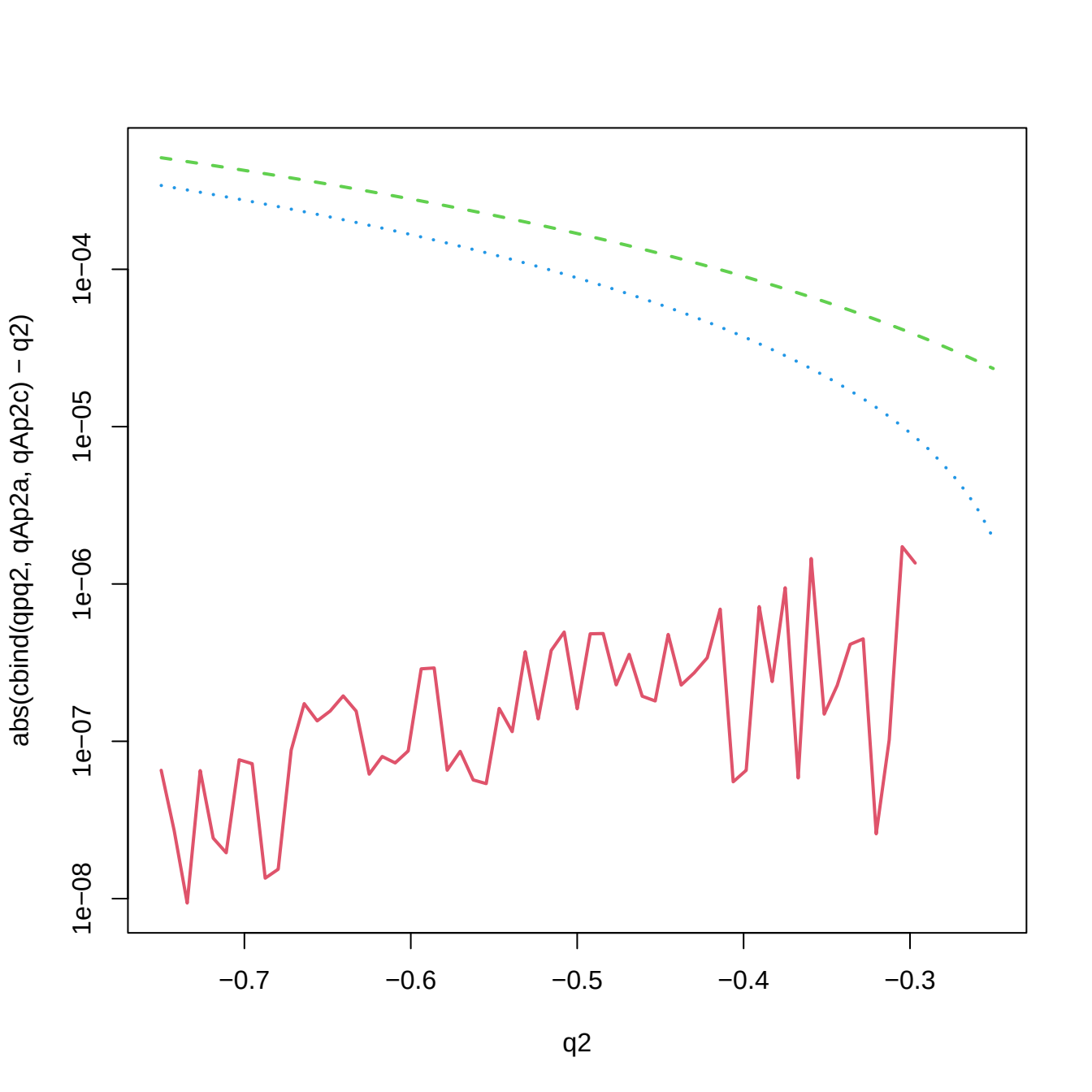

cbind(r2, r2.)
−0.2
−0.3
−0.4
−0.5
−0.6
−7.5
−7.4
−7.3
−7.2
−7.1
−7.0
−6.9
nc2


pq2
0.0e+00
5.0e−11
1.0e−10
1.5e−10
2.0e−10
−0.7
−0.6
−0.5
−0.4
−0.3
q2


qpq2 − q2
0.0e+00
5.0e−07
1.0e−06
1.5e−06
−0.7
−0.6
−0.5
−0.4
−0.3
q2


cbind(qpq2, qAp2a, qAp2b, qAp2c) − q2
0.000
0.001
0.002
0.003
0.004
−0.7
−0.6
−0.5
−0.4
−0.3
q2


cbind(qpq2, qAp2a, qAp2c) − q2
0e+00
−1e−04
−2e−04
−3e−04
−4e−04
−5e−04
−0.7
−0.6
−0.5
−0.4
−0.3
q2


abs(cbind(qpq2, qAp2a, qAp2c) − q2)
1e−04
1e−05
1e−06
1e−07
1e−08
−0.7
−0.6
−0.5
−0.4
−0.3
q2