5).The Kologorov-Simirnov test:

5.1)The test process.

H_0 : Population distribution is a continuous probability distribution,

H_1 : against H_0

The sample size is n.

The process: i) Finding the cumulative probability under H_0,

$F(x) = P(X \le x), X \sim H_0$: Population distribution is a continuous probability distribution.

The x is sample value after ascending sorting.

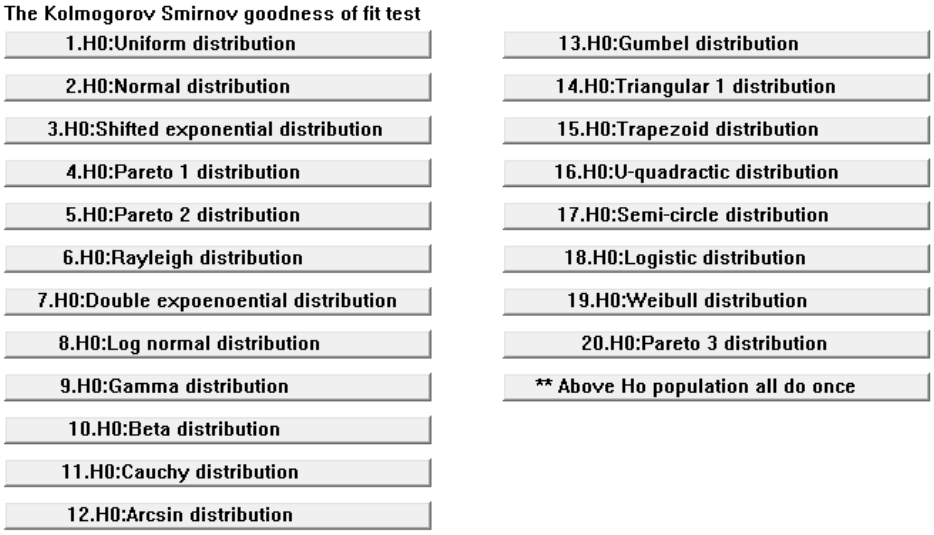
ii) Finding the relative frequency according the sample data ,

$G(x) =$ number(less than and equal x)/n.

The jacknife $Max|F(x) - G(x)| > J_{\alpha,n}$, reject H_0.

Note: There are 20 kinds of continuous probability distribution that is can be assigned to null hypothesis.

5.2) Example (The simulated sample data and computing the result by the P_S_CCC)

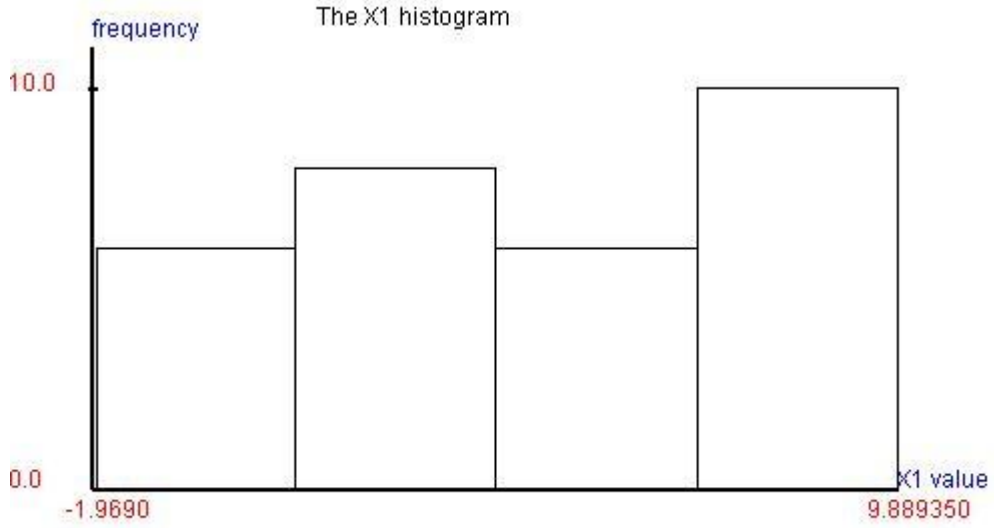


5.2.1)The population distribution is uniform distribution.

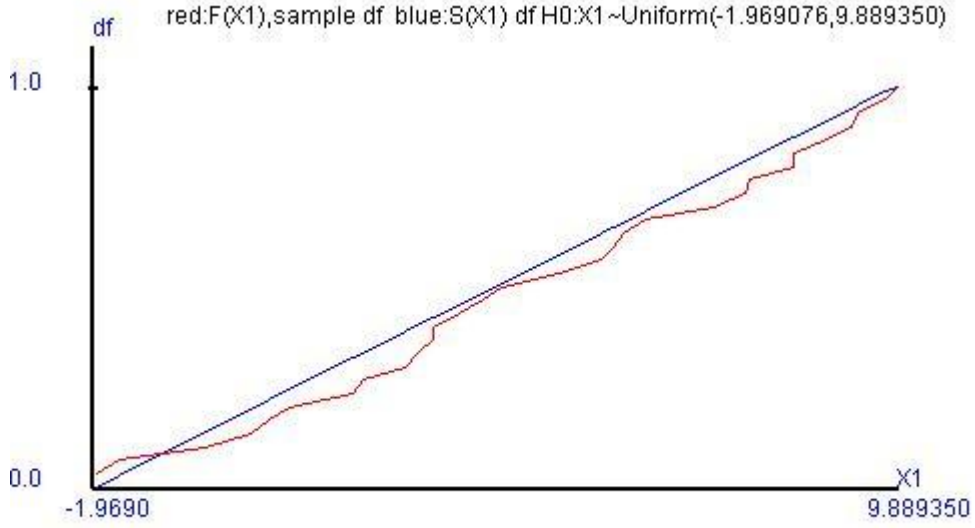
X1 is Uniform(alpha=-2.000000,beta=10.000000),

X1
-1.6180552190
9.8893501347
1.9774179208
3.4015138663
7.1643785266
3.0321121749
8.3700067294
7.7224944580
5.5233576720
5.8397663769
8.8631358696
4.0294393950
3.7762712320
8.3642925102
9.2246058230
2.7910028562
1.8321040504
9.7346300108
9.3090295016
4.9022418990
3.0161085793
0.3355152902
5.6947105705
-1.9690761403
6.1718038625
2.6079854601
7.6530819059
0.8964553441
-0.3409012446
0.5849441220

X1 is Uniform(alpha=-2.000000,beta=10.000000),



H0: X1~Uniform(alpha,beta), alpha,beta are unknown
alpha point estimated value=-1.969076 (MLE)
beta point estimated value=9.889350 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.087213
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot01_image.jpg

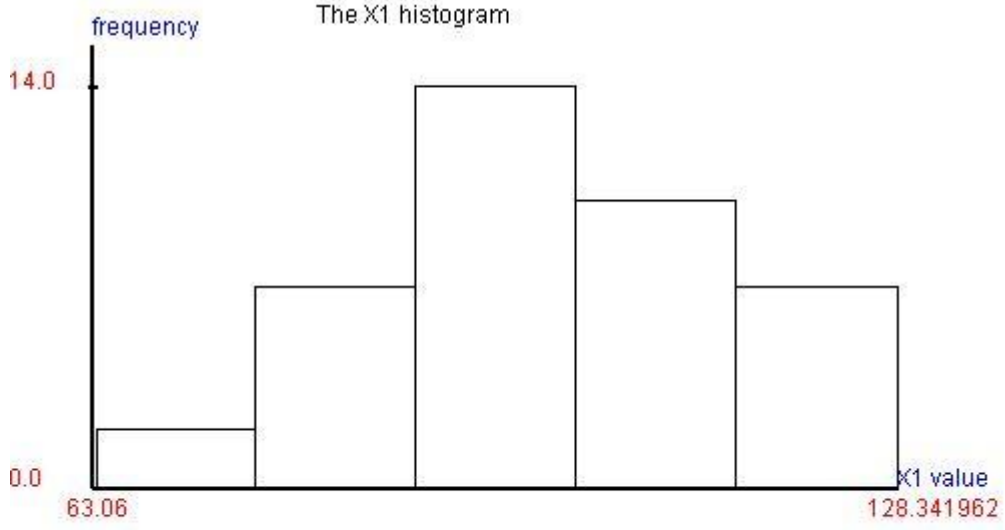


5.2.2)The population distribution is normal distribution.

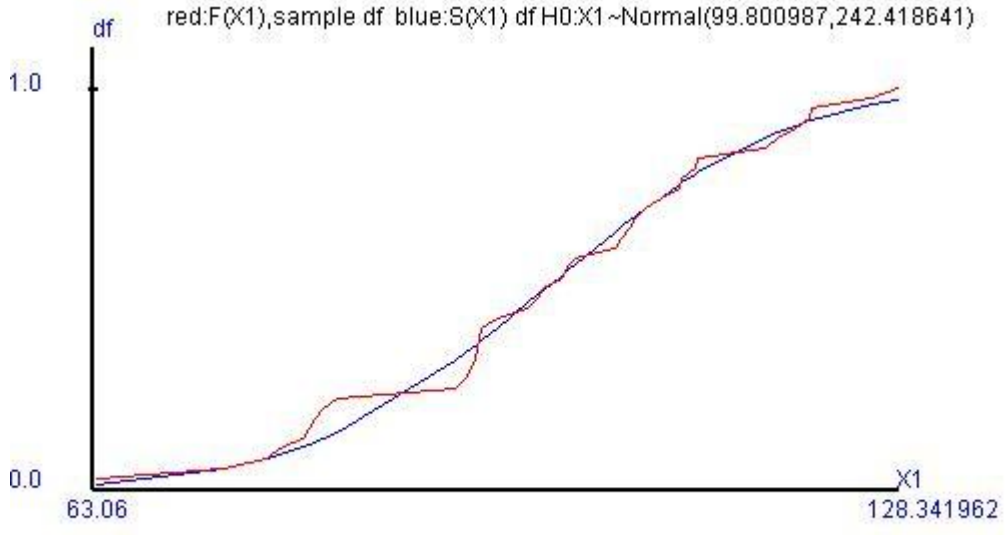
X1 is Normal(mu=100.000000,sigma*sigma=400.000000),

X1
63.0673241186
109.0951596601
111.8928722871
93.1962119393
117.7018377437
80.9257122352
98.2734722917
80.4584757811
112.1829038952
94.3816737486
93.9540165003
73.4927252032
94.5232723007
81.6234144114
95.7420924069
105.9804484562
79.9528008086
99.4818326196
118.5811623498
106.6368730128
101.5182339773
120.0522703700
77.0612292630
92.3908413963
102.1194894709
99.0775724285
107.0385283073
121.3220625655
121.4318946765
93.6264078398
100.9686630860
126.2679560182
94.0937600931
110.8361528725
82.7897545253
78.0507133987
105.3430853486
110.6726254497
128.3419628322
107.8919986972

X1 is Normal(mu=100.000000,sigma*sigma=400.000000),



H0: X1~Normal(mu,sigma*sigma), mu,sigma are unknown
population mean(mu) point estimated value=99.800987 (MLE,UMVUE)
population variance(sigma*sigma) which point estimated value=242.418641 (UMVUE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.087700
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot02_image.jpg

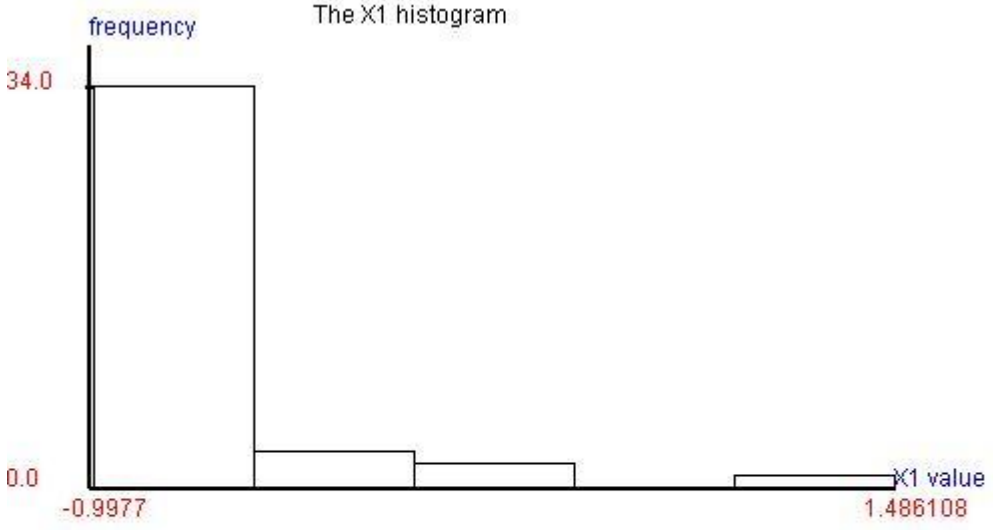


5.2.3)The population distribution is shifted exponential distribution.

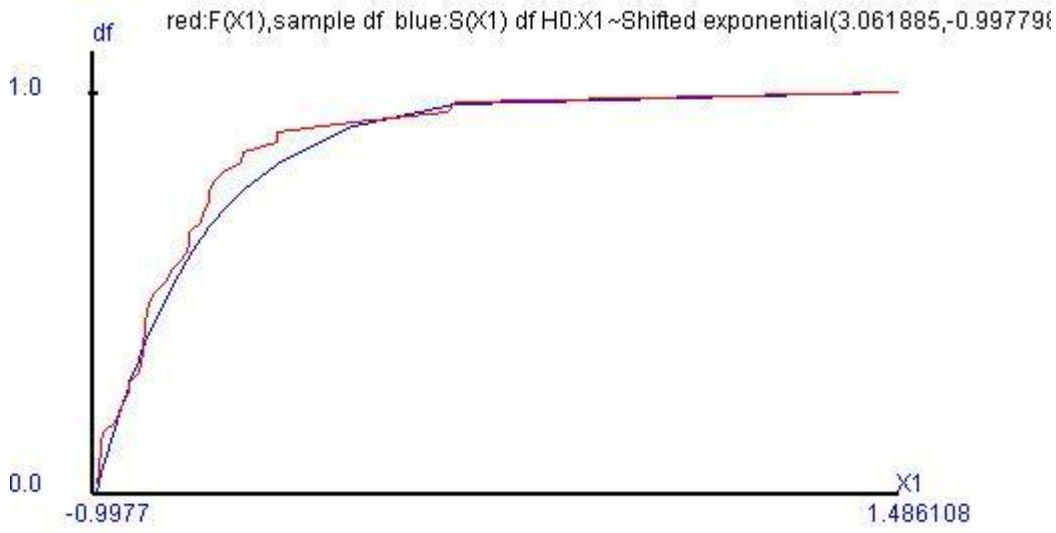
X1 is Exponetial(lamda=4.000000,c=-1.000000),

X1
-0.6442081914
-0.9889668116
1.4861087348
-0.9286822290
-0.7662822675
-0.8544256781
-0.7092304153
-0.8366979001
-0.9831981764
-0.6026335404
-0.6687245589
-0.9413516181
-0.4388986334
0.1181935084
-0.9158987577
-0.7413381001
-0.9866402639
-0.8673051547
-0.5460312496
-0.4387041655
-0.8942524992
-0.5405256835
-0.9806805616
-0.8147332720
-0.8489026733
-0.7161320217
-0.9772765496
-0.8312539305
-0.8972919258
-0.7842500710
-0.1993293206
-0.8482815597
-0.9977975831
-0.8563527925
-0.6675374454
-0.8466045739
-0.7069061372
-0.6322499092
-0.6449186840
0.0921393222

X1 is Exponetial(lamda=4.000000,c=-1.000000),



H0: X1~Shifted exponential(lamda,c), lamda,c are unknown
lamda point estimated value=3.061885 (MLE)
c point estimated value=-0.997798 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.101520
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot03_image.jpg

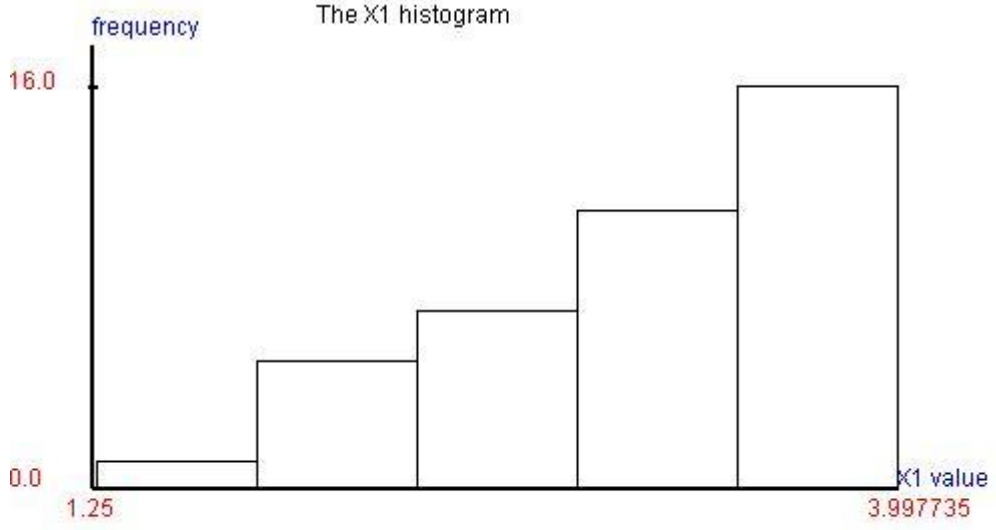


5.2.4)The population distribution is pareto1 distribution.

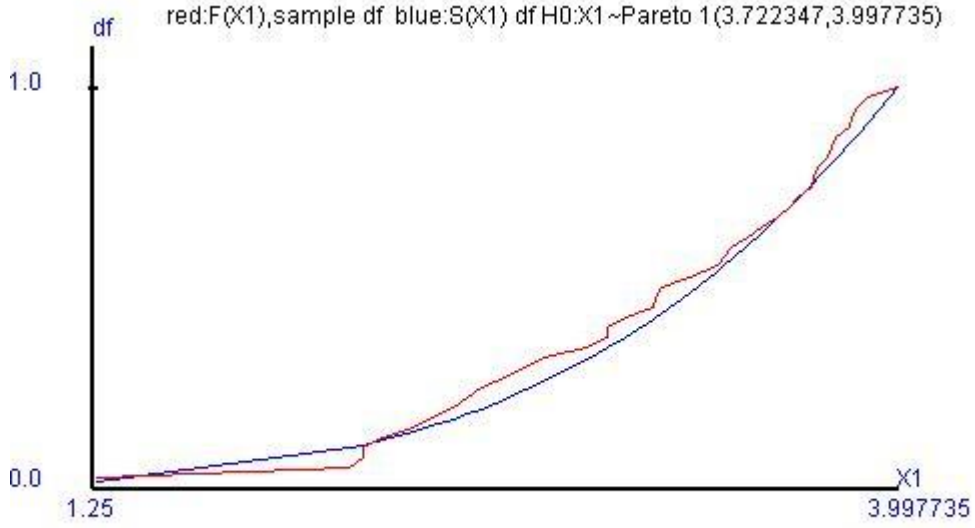
X1 is Pareto1(lamda=4.000000,c=4.000000),

X1
2.4816170260
3.8954383852
3.4337923645
3.6582321552
2.7264062695
3.0098646288
3.7599566577
2.4046715689
2.3442549910
2.5291521891
3.2897609423
2.2422927302
3.5380414426
3.5912580263
3.1660508445
3.3861596379
3.7045854300
3.7733771101
3.4862877444
2.1720114444
3.9977351633
2.1256538502
3.6310212338
3.8612852613
2.6566013826
3.8366368463
2.5741399044
3.1907213548
3.8430170727
2.7901081836
2.1712792249
3.4072905577
2.9383566751
3.7897563911
3.1719037704
3.7300604828
3.0091537376
3.7109150845
1.2552243733
3.0655701667

X1 is Pareto1(lamda=4.000000,c=4.000000),



H0: X1~Pareto 1(lamda,c), lamda,c are unknown
lamda point estimated value=3.722347 (MLE)
c point estimated value=3.997735 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.071263
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot04_image.jpg

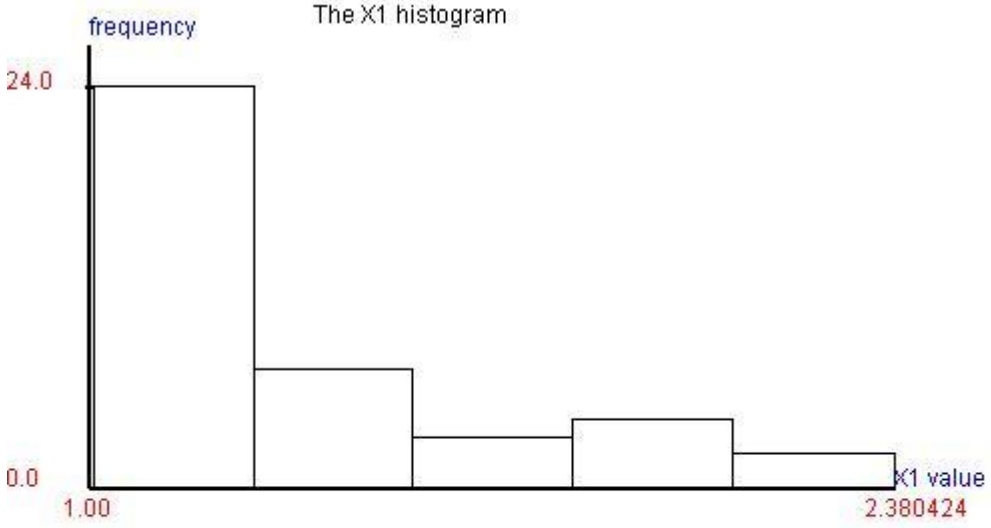


5.2.5)The population distribution is pareto2 distribution.

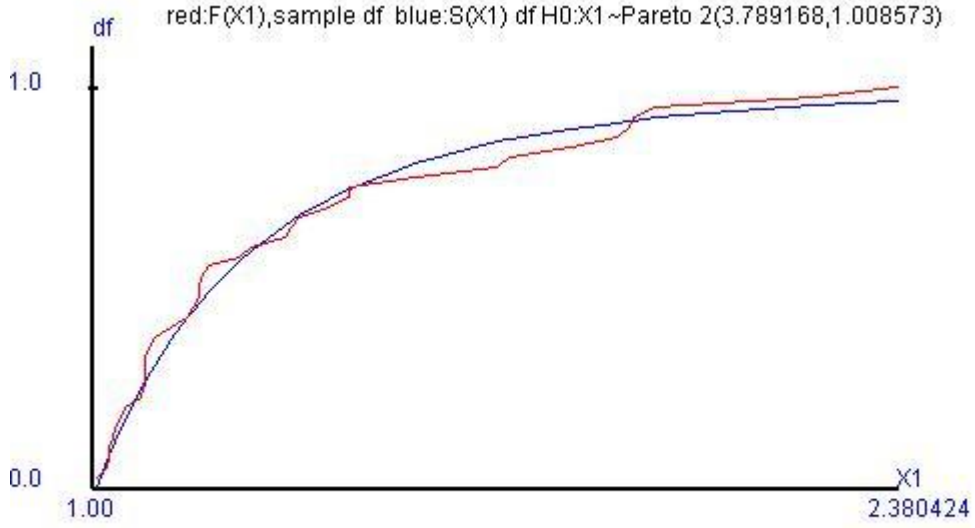
X1 is Pareto2(lamda=4.000000,c=1.000000),

X1
1.2546165294
1.1008870139
1.9674613836
1.5567897002
1.3578745261
1.0525636347
1.4408009776
1.3316632257
1.0915371327
1.1894503762
1.0870366432
1.9308694605
1.0931928473
1.7157880930
2.2397387672
2.3804244375
1.0271720617
1.4079061356
1.0307315759
1.1839562607
1.1380289137
1.0318616648
1.1653643212
1.1857493994
1.1745697254
1.6957088895
1.0085731746
1.3430887950
1.4430779864
1.1085803447
1.2023773396
1.0909030144
1.9213234045
1.0574920411
1.9012720812
1.0414596300
1.0379908866
1.8216535508
1.2748544657
1.0875703907

X1 is Pareto2(lamda=4.000000,c=1.000000),



H0: X1~Pareto 2(lamda,c), lamda,c are unknown
lamda point estimated value=3.789168 (MLE)
c point estimated value=1.008573 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.073904
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot05_image.jpg

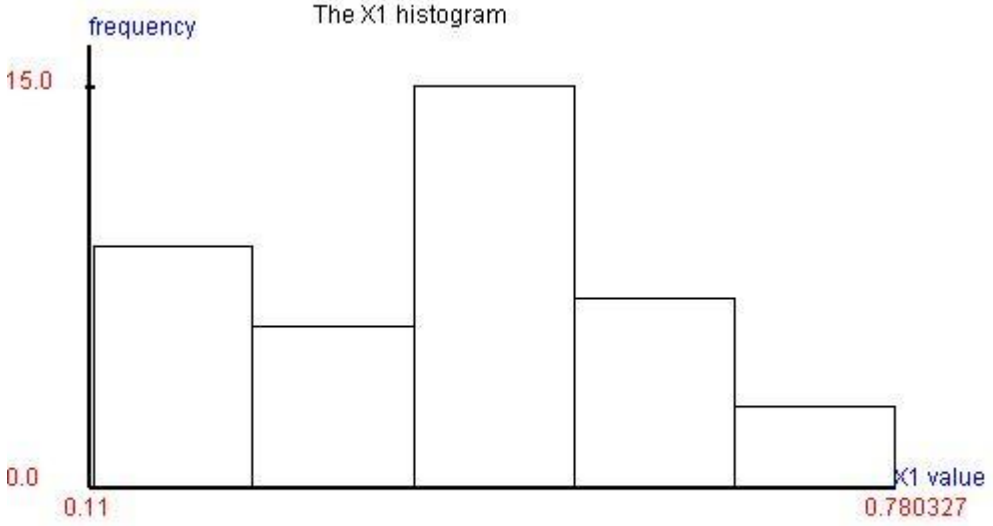


5.2.6)The population distribution is rayleigh distribution.

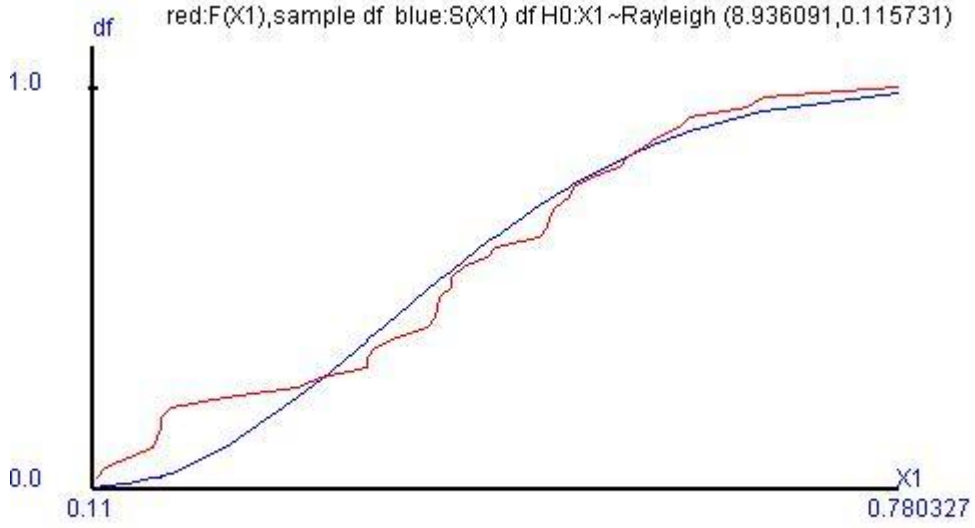
X1 is Rayleigh(lamda=4.000000,c=0.000000),

X1
0.3973560769
0.4831002786
0.1664378585
0.1785151764
0.4406565844
0.3412945518
0.4102474546
0.6694057642
0.3409657972
0.1428595489
0.5814608366
0.3998308082
0.2226389601
0.7803271089
0.5706127787
0.4009034789
0.3909768159
0.3029217020
0.2829774651
0.4926025182
0.4464061842
0.1693716027
0.5263790835
0.5091909228
0.1633088683
0.4902337849
0.1237043052
0.5563769904
0.3476084068
0.4224813657
0.5499945458
0.6006295878
0.4103266898
0.4977489876
0.1689134147
0.6079256521
0.3656945164
0.5125236697
0.1157310814
0.6567724562

X1 is Rayleigh(lamda=4.000000,c=0.000000),



H0: X1~Rayleigh(lamda,c), lamda,c are unknown
lamda point estimated value=8.936091 (MLE)
c point estimated value=0.115731 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.165389
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot06_image.jpg

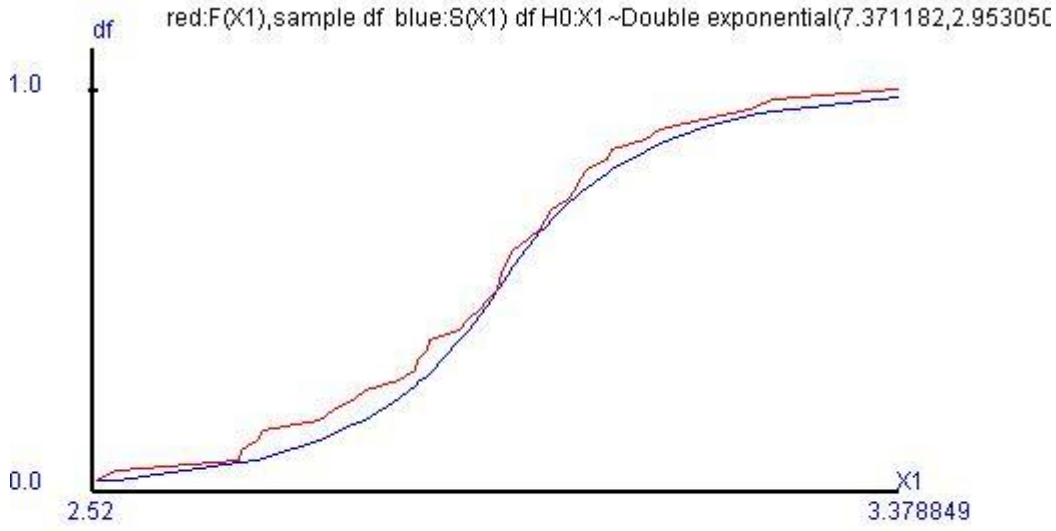


5.2.7)The population distribution is double exponential distribution.

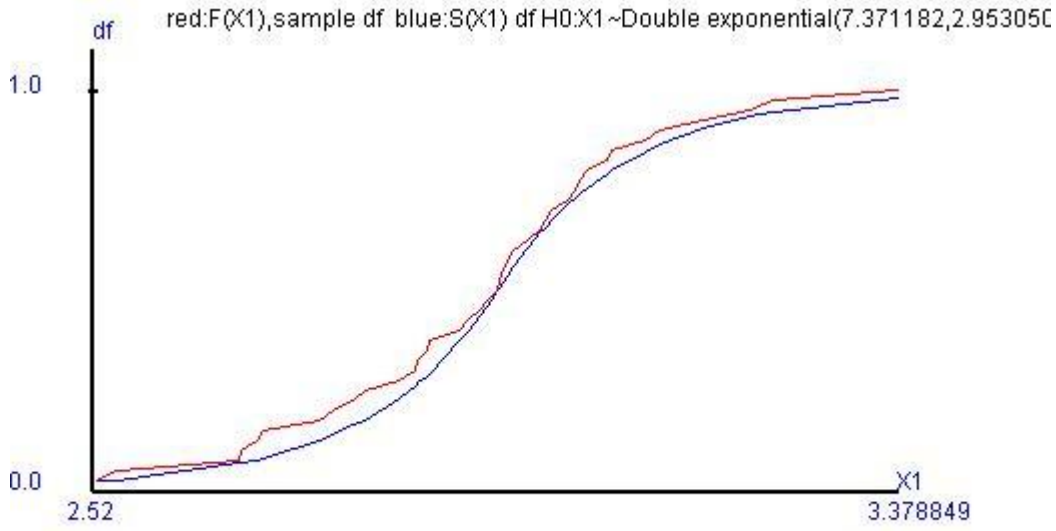
X1 is Double Exponetial(lamda=10.000000,mu=3.000000),

X1
3.0492796476
3.0745139348
3.1262004350
2.7986916207
2.5450802083
2.7779285081
2.7020648858
2.9620426447
3.3788492597
2.6777454049
2.9329665822
3.0351989627
3.0693325970
2.9979130722
3.0394772019
2.9196971054
2.8103879655
3.2474257045
2.9123553470
2.9518186359
3.1100322961
3.0030200207
2.9577783012
2.9693102210
2.8786948434
2.8765833451
2.6772646579
2.8677518911
2.9542806422
2.5234844413
2.8640143924
2.6951646162
3.1727069094
3.0098629888
2.8474435350
2.7619828067
3.2206634904
2.9410662040
3.0273465900
2.9834899117

X1 is Double Exponetial(lamda=10.000000,mu=3.000000),



H0: X1~Double exponential(lamda,mu), lamda,mu are unknown
lamda point estimated value=7.371182 (MLE)
mu point estimated value=2.953050 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.085971
0.200000<p-value<1.00000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot07_image.jpg

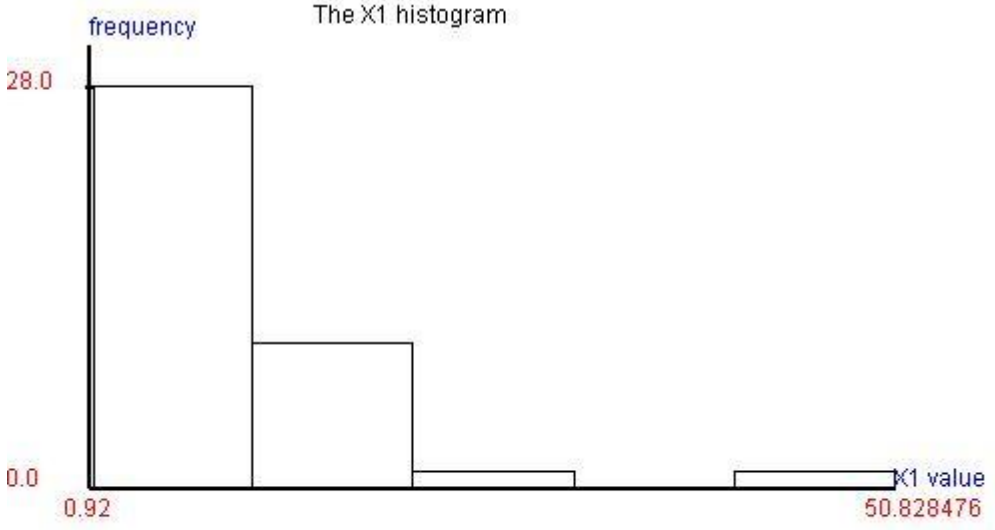


5.2.8)The population distribution is lognormal distribution.

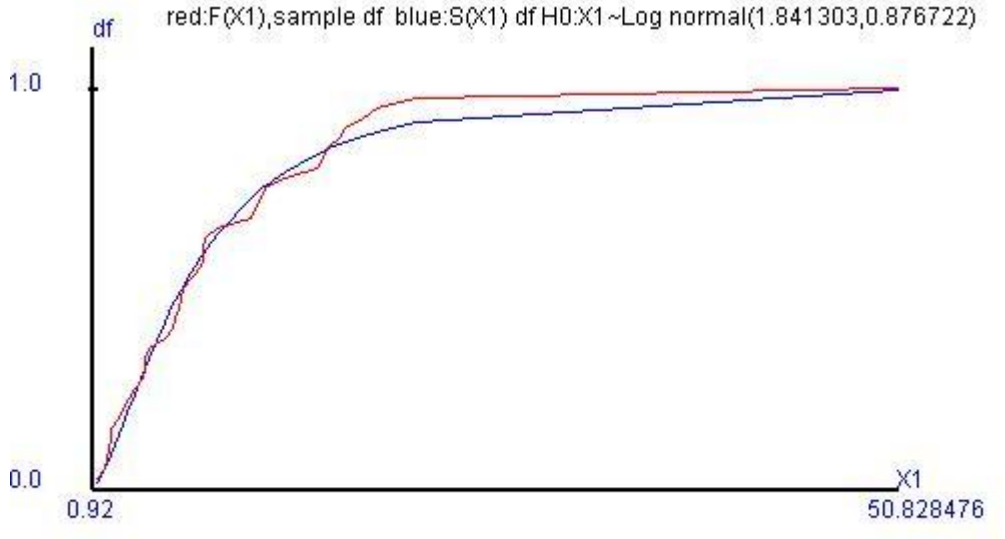
X1 is Log normal(mu=2.000000,sigma=1.000000),

X1
17.6265868389
5.1673716534
5.7877549614
7.5858798949
10.8259187122
1.5775347708
11.2379754147
12.6642904788
16.1222390767
3.9611634807
18.4082808418
15.0536338449
1.8477181905
11.4569827855
10.5533550617
15.3651705357
5.8809874397
8.4621920895
14.6780847307
3.3064104527
7.4998828863
0.9230996091
3.8566559065
50.8284769247
6.1383515344
4.2306746917
6.2129098332
2.6024844529
1.7338322581
3.0309473915
6.8752330941
7.5457087440
1.8236409868
7.7492276174
16.4699851173
3.9458948146
2.3857664667
1.5051918612
6.3540956807
20.8880250648

X1 is Log normal(mu=2.000000,sigma=1.000000),



H0: X1~Log_Normal(mu,sigma*sigma), mu,sigma are unknown
population mean(mu) point estimated value=1.841303 (MLE,UMVUE)
population variance(sigma*sigma) which point estimated value=0.768641 (UMVUE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.069200
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot08_image.jpg

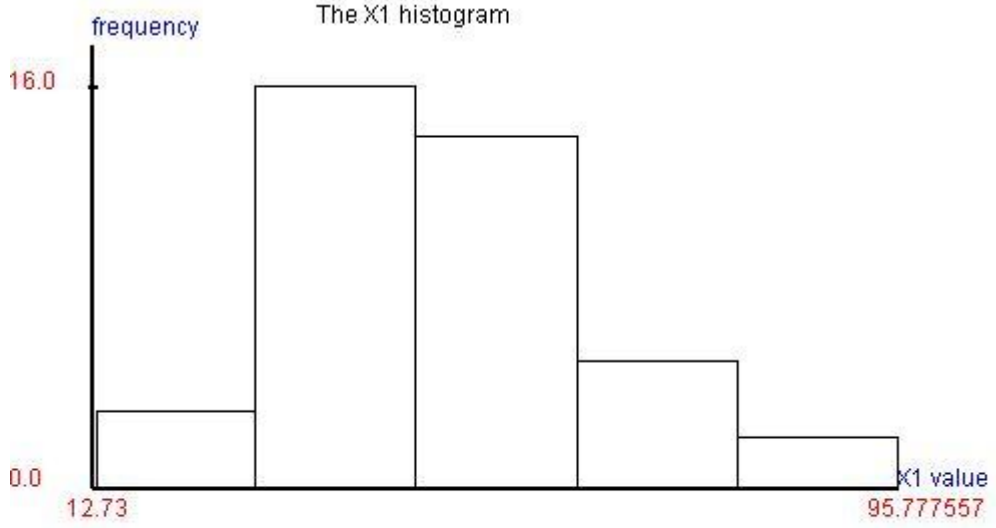


5.2.9)The population distribution is gamma distribution.

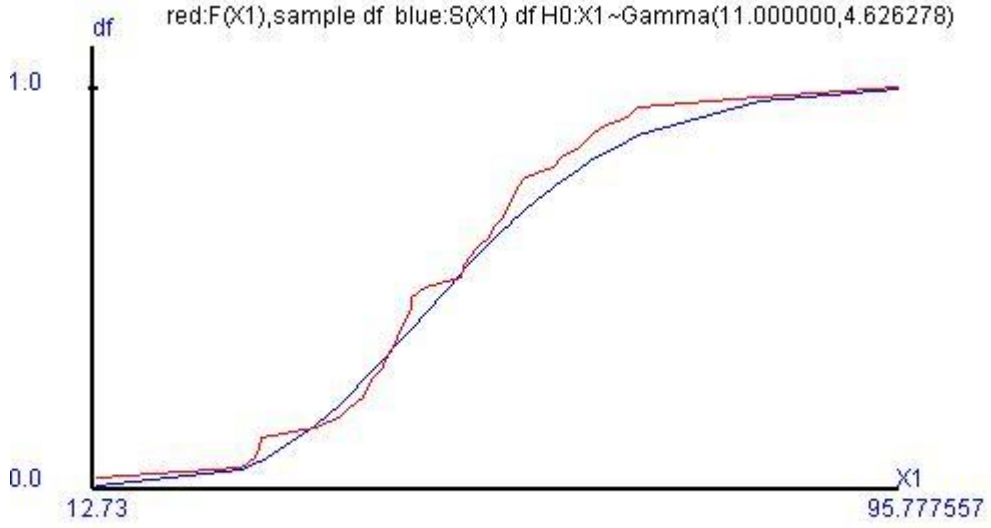
X1 is Gamma(alpha=12.000000,beta=4.000000),

X1
81.5346194149
35.4362006956
62.8156175347
41.5739263014
55.0547118822
40.5492853431
51.4791862997
42.5494261623
60.1638971001
57.3024425042
44.4529206055
44.0505057185
45.0659384866
52.3576853113
65.1426887201
56.4843248378
29.7101806682
12.7332505095
38.9056739019
50.5964045893
45.3411605447
56.0747963124
29.1730599680
37.8913377378
45.3896841018
55.3077065242
43.6123586462
46.8992880159
68.9931125355
95.7775577281
53.5647592130
67.8246692575
42.6384959031
40.9578426739
50.9137898750
61.0338934801
54.0332862776
27.6925665398
29.8492867425
63.8574308989

X1 is Gamma(alpha=12.000000,beta=4.000000),



H0: X1~Gamma(alpha,beta), alpha,beta are unknown
alpha point estimated value=11.000000 (MME)
beta point estimated value=4.626278 (MME)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.083000
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot02_image.jpg

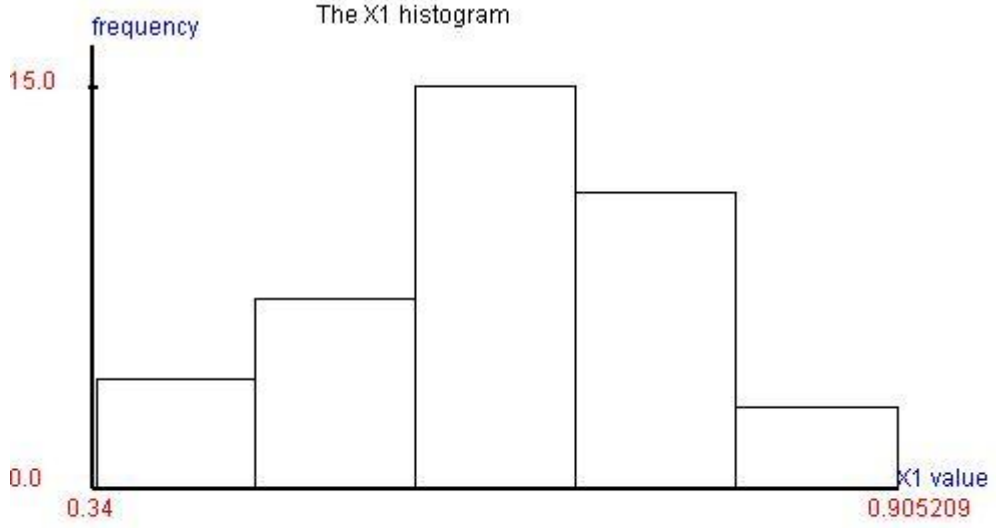


5.2.10)The population distribution is beta distribution.

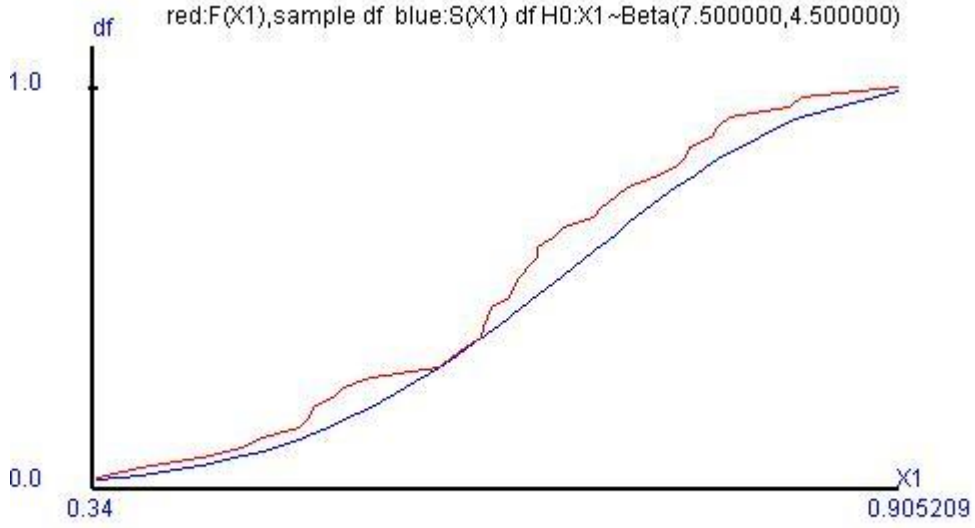
X1 is Beta(alpha=10.000000,beta=6.000000),

X1
0.8378470502
0.5359721236
0.5171018392
0.5840725264
0.6645717657
0.4171794081
0.7595105707
0.6207834522
0.6536965547
0.3747604820
0.4927252605
0.6177225780
0.6983291180
0.8299369832
0.4469333253
0.7750263560
0.6367592085
0.6920229747
0.4605272072
0.7502927934
0.9052098356
0.6477896856
0.4954563009
0.6335144265
0.5926972219
0.3434635290
0.7164975743
0.7349719819
0.6707726371
0.5095788829
0.7570339960
0.6031442976
0.7873895929
0.6527893003
0.7072734595
0.4853231574
0.6408079593
0.6144931472
0.7798440442
0.6147711863

X1 is Beta(alpha=10.000000,beta=6.000000),



H0: X1~Beta(alpha,beta), alpha,beta are unknown
alpha point estimated value=7.500000 (MME)
beta point estimated value=4.500000 (MME)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.123367
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot10_image.jpg

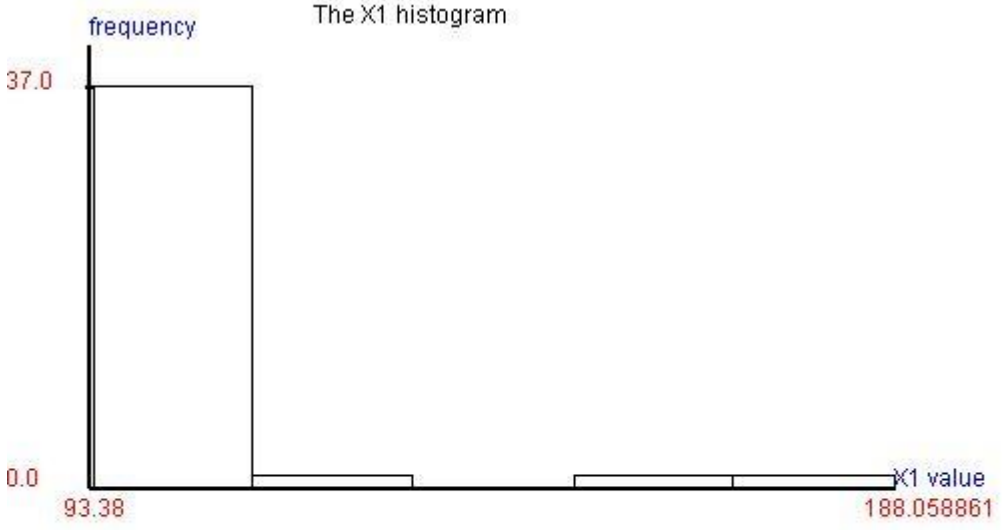


5.2.11)The population distribution is cauchy distribution.

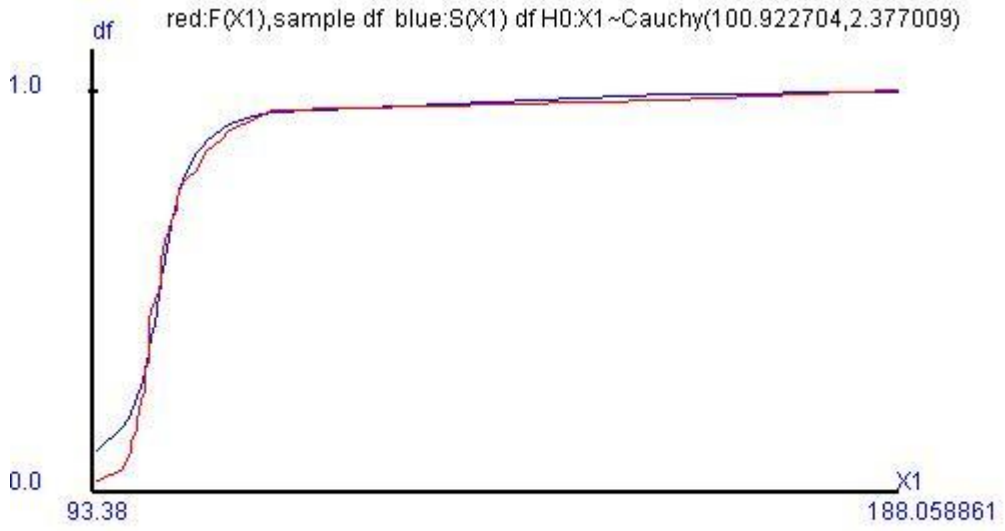
X1 is Cauchy(mu=100.000000,sigma=2.000000),

X1
188.0588619707
97.4981468908
103.2570222587
105.6991035551
106.5028241877
101.9450215396
105.4004835228
114.2579894953
99.6546403244
98.6614679372
101.1780117649
102.3269853416
98.2404801477
97.4582332196
93.3870956159
99.2107174992
101.0073010653
101.1373385408
99.5805343126
103.9414973996
98.3420419434
100.2645460099
102.8727087088
99.7448570400
99.6145593548
160.8475007318
101.2866089693
99.2016406117
98.5225849708
100.0032225373
99.1733176572
102.9971862796
112.0477064758
101.5071493409
109.1351276099
96.4281648440
100.8381064970
96.9700587895
108.0952768695
99.5677516945

X1 is Cauchy(mu=100.000000,sigma=2.000000),



H0: X1~Cauchy(mu,sigma), mu,sigma are unknown
mu point estimated value=100.922704
sigma point estimated value=2.377009
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.104849
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot11_image.jpg

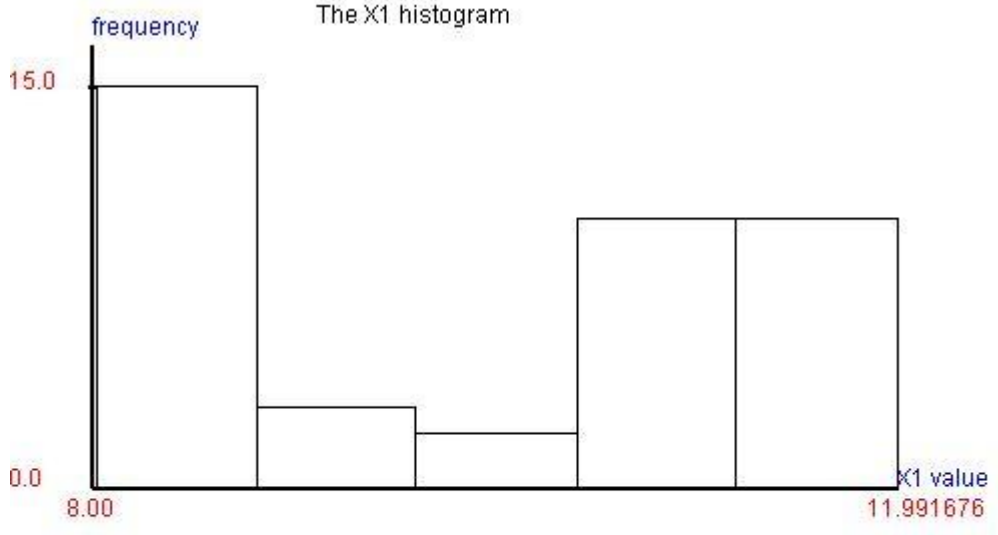


5.2.12)The population distribution is arcsin distribution.

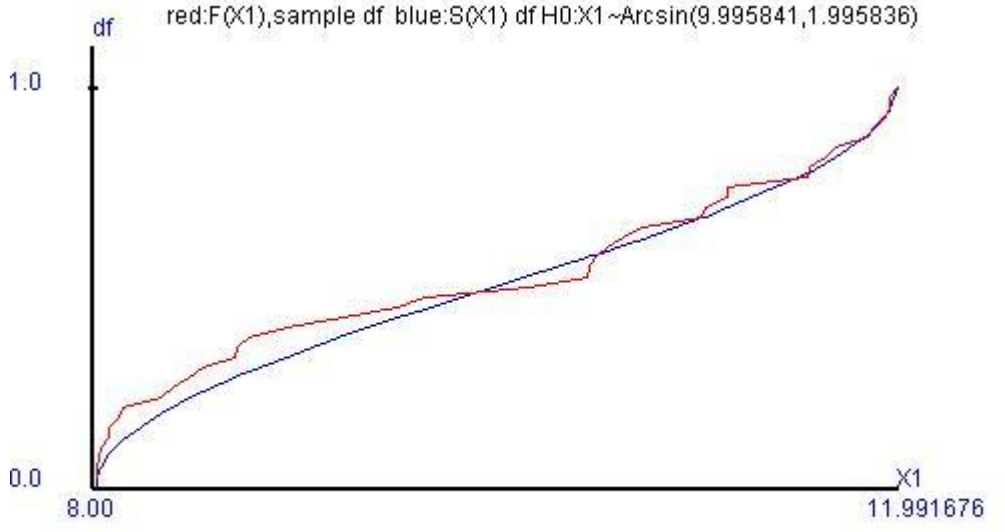
X1 is Arcsin(mu=10.000000,c=2.000000),

X1
10.4919889868
11.5534238842
11.1478798539
8.4632706564
11.0218137294
8.9482679362
10.1597462766
8.0056432740
10.5460398864
11.1507638781
11.9382901817
8.3809882974
8.0000048419
8.7000421739
9.6426942541
8.7593317000
8.0196915846
11.8779547680
11.9586586661
10.6314953982
8.1132564180
11.8481581323
8.1393025510
10.7296484673
8.5367165410
11.5452804003
11.6853387951
11.9916767994
8.3261590080
11.0369281615
11.6381664787
8.0665328298
8.0223709200
8.0683180942
8.6889166962
9.5046773603
10.4619421388
10.4481907637
11.9551542726
9.2339216097

X1 is Arcsin(mu=10.000000,c=2.000000),



H0: X1~Arcsin(mu,c), mu,c are unknown
mu point estimated value=9.995841 (MLE)
c point estimated value=1.995836 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.087683
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot12_image.jpg

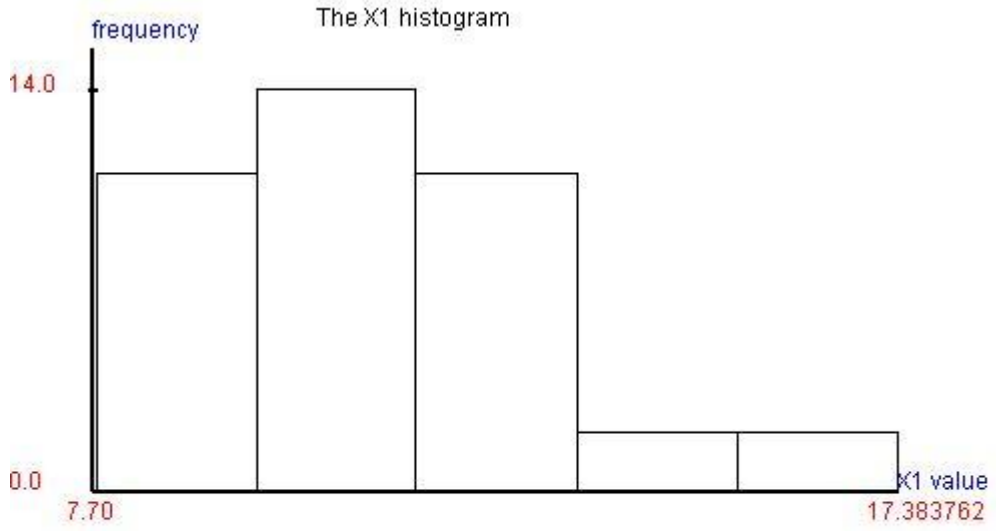


5.2.13)The population distribution is gumbel distribution.

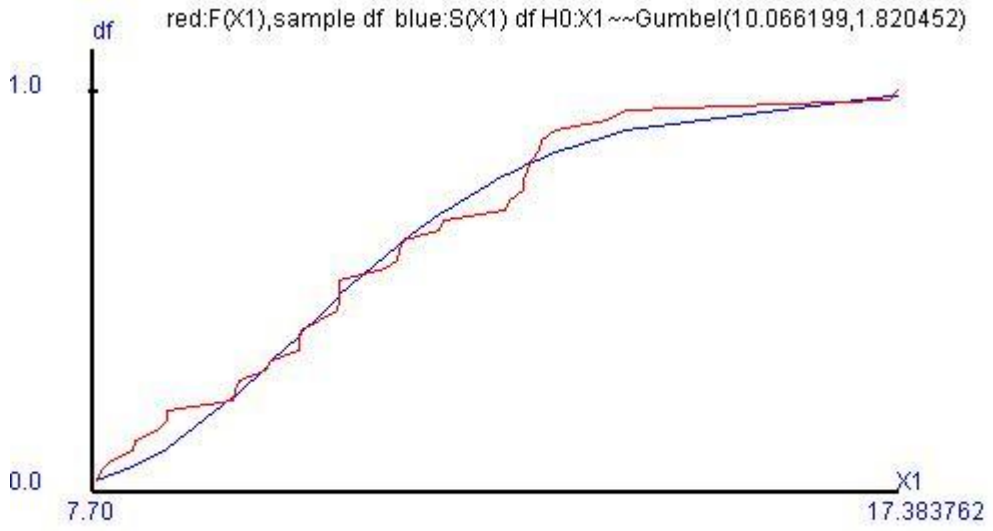
X1 is Gumbel(mu=10.000000,sigma=2.000000),

X1
7.7586452623
12.9787033852
8.4464533776
11.8562965783
17.3837625282
8.5731864668
7.8940240079
11.3744834281
12.8688527033
10.1948824871
13.8787701910
9.7415831891
8.1867187671
9.8305046037
14.0983255791
13.0918456912
9.3893045729
7.7049882319
9.3667355113
11.9043942131
11.2008553253
12.6914555174
11.4136299302
17.2953306940
10.1645717163
12.6586539325
13.0638321218
8.1600317005
10.6559062440
9.4394168364
13.2514378254
12.9282719992
10.6381652795
11.3443592506
12.8744989332
10.6277287965
10.6371391951
10.3964054383
8.5722716769
10.1494336563

X1 is Gumbel(mu=10.000000,sigma=2.000000),



H0: X1~Gumbel(mu,sigma), mu,sigma are unknown
mu point estimated value=10.066199 (MME)
sigma point estimated value=1.820452 (MME)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.096771
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot13_image.jpg

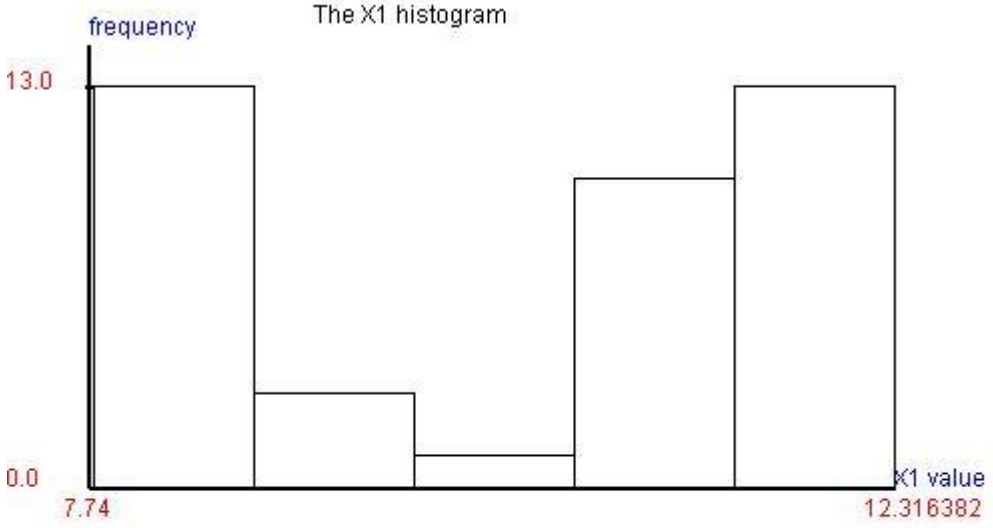


5.2.14)The population distribution is triangular 1 distribution.

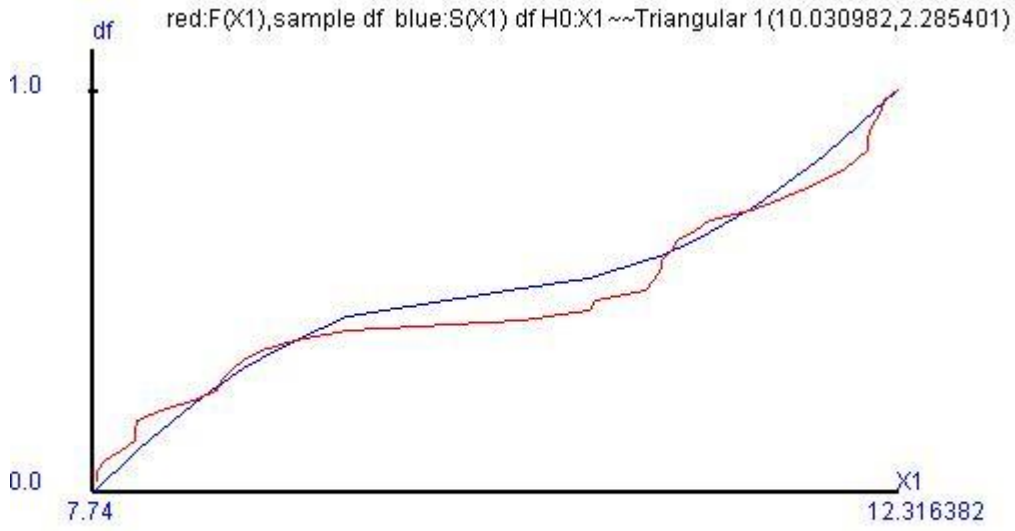
X1 is Triangular1(mu=10.000000,c=2.500000),

X1
7.8827263909
9.1778668592
10.9319693266
11.4910661151
10.9695177345
10.8861794059
7.9842803269
12.1531665940
12.2299680622
11.7719248692
10.9719601627
7.7455811937
12.0793129880
8.4406599968
8.8789284982
11.8970955504
10.1764393353
12.2002190257
12.0191192571
11.1685458994
7.8016597928
12.1576409959
11.6413269832
11.0307347845
10.5969299679
8.5168971297
8.6846774785
12.2377774553
8.2978588966
11.0600308418
12.1550015458
8.4567797299
8.1122284263
10.5630236100
7.9673281604
7.9635389273
12.3163828758
8.5889864154
11.2525408164
7.7547537932

X1 is Triangular1(mu=10.000000,c=2.500000),



H0: X1~Triangular 1(mu,c), mu,c are unknown
mu point estimated value=10.030982 (MLE)
c point estimated value=2.285401 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.081133
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot14_image.jpg

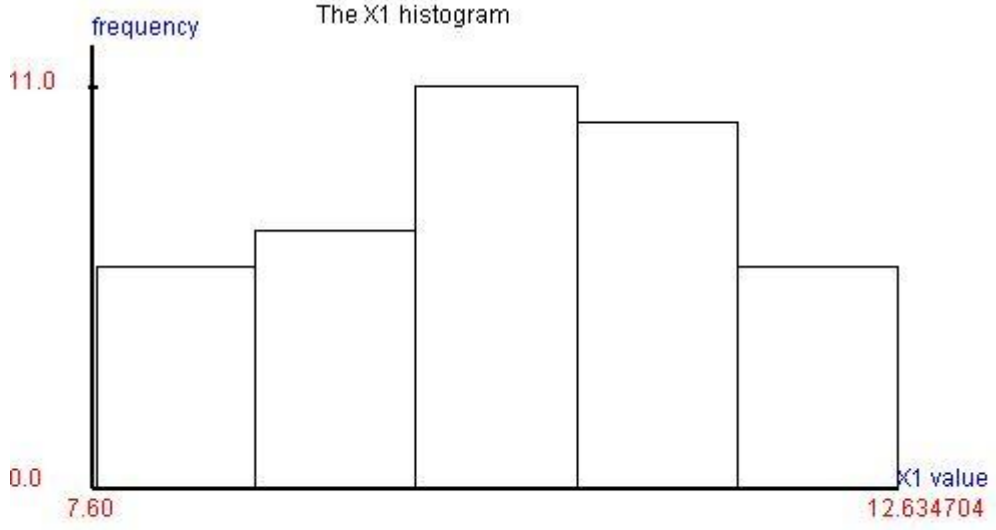


5.2.15)The population distribution is trapezoid distribution.

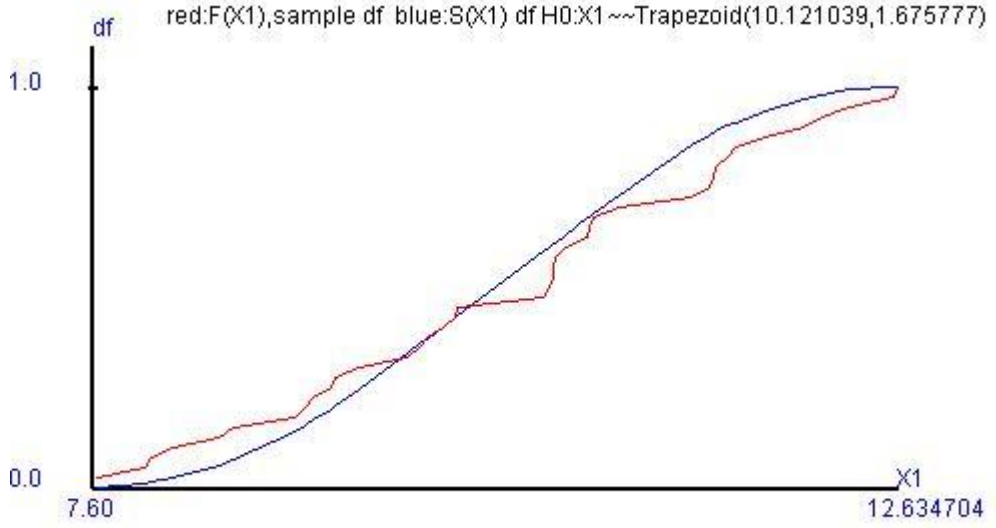
X1 is Trapezoid(mu=10.000000,c=2.000000),

X1
10.4484387398
9.6823684741
8.3843527292
11.3431785526
9.8763107099
9.1109216923
7.6073731774
10.6989242528
10.7051427006
10.8907149313
10.5547850727
8.9221127042
9.8575511264
10.4826961788
11.4785528847
9.6379123969
9.0869885681
12.1581836304
11.6183632724
8.9738891403
11.5758807317
12.6150797101
10.7309808757
11.5012457201
8.4647825823
7.9188090340
7.9498948077
8.0970063586
9.5567885713
12.0461152488
9.2586547192
10.4868825281
9.7852302520
12.3362234544
10.4206956851
12.6347046650
8.8575768688
10.4837533839
11.4588141063
11.8113803319

X1 is Trapezoid(mu=10.000000,c=2.000000),



H0: X1~Trapezoid(mu,c), mu,c are unknown
mu point estimated value=10.121039 (MLE)
c point estimated value=1.675777 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.126905
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot15_image.jpg

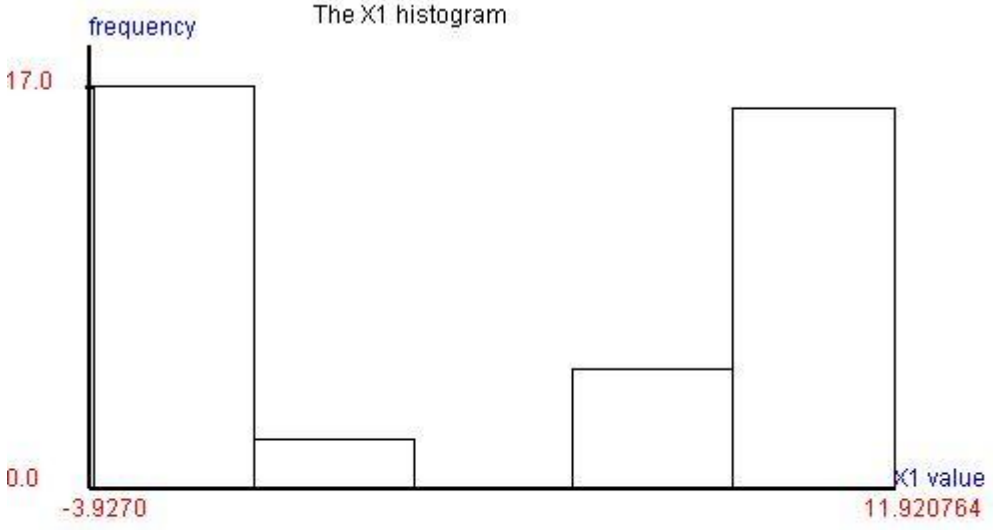


5.2.16)The population distribution is U quadratic distribution.

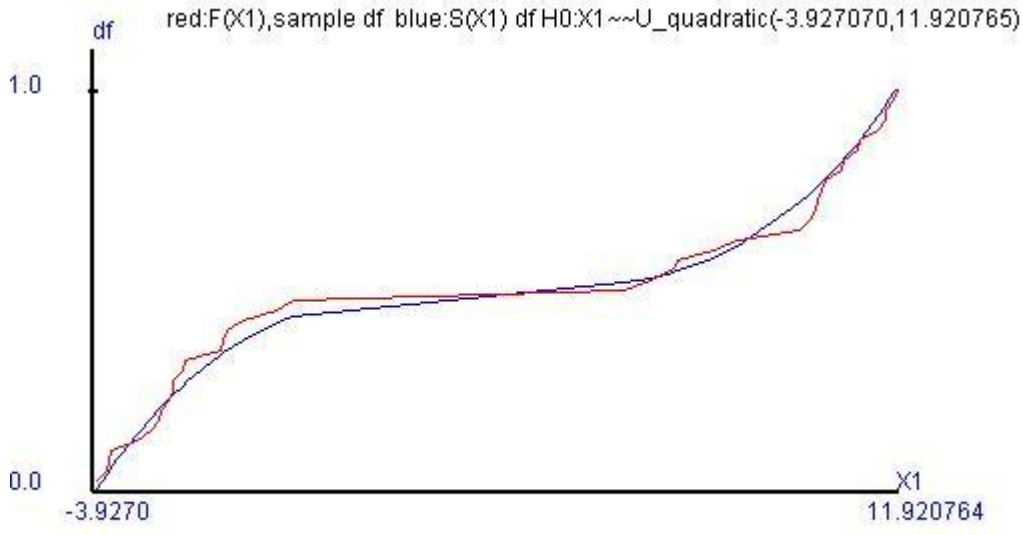
X1 is U-quadratic(a=-4.000000,b=12.000000),

X1
10.3231507946
11.1304063897
-2.4086631744
-3.1086324380
7.5039073844
7.5995005192
11.7170480897
-1.3287380312
11.9207646961
-2.1505496569
-1.3994248277
11.5398247433
-1.4520652840
10.8207671013
-2.3832051389
6.5180702388
8.7748852942
10.4161000591
11.8754456776
-3.6694194453
-2.6813877727
9.9924981999
-2.4869376521
-2.6489910306
-0.3310932925
11.1835435747
-3.6251270313
-0.0399123211
8.2858812956
10.8659437902
10.5146940077
7.0589346745
-1.0116609613
-3.9270704778
-3.7254050665
-2.8396345953
10.1904457611
10.3685023518
11.6869653152
-2.2073085265

X1 is U-quadratic(a=-4.000000,b=12.000000),



H0: X1~U_quadratic(a,b), a,b are unknown
a point estimated value=-3.927070 (MLE)
b point estimated value=11.920765 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.066600
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot16_image.jpg

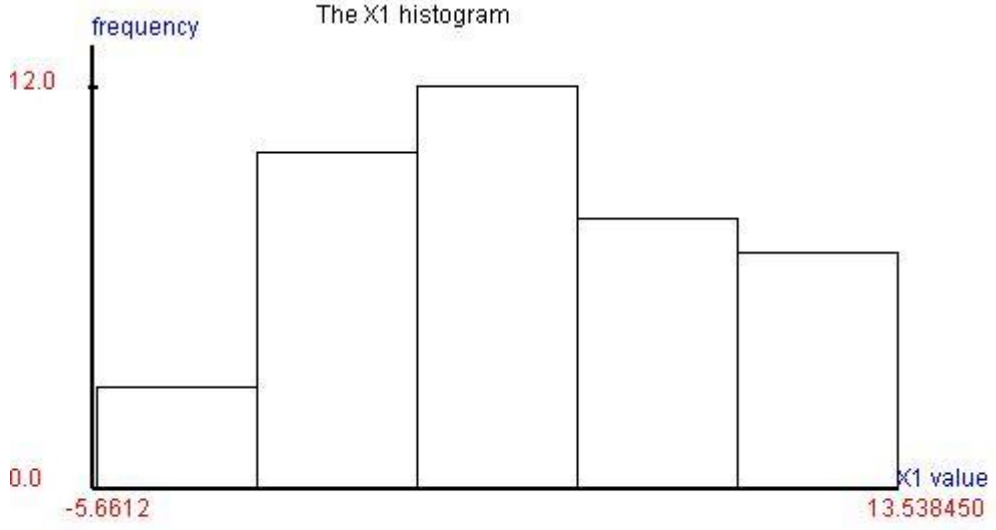


5.2.17)The population distribution is semi circle distribution.

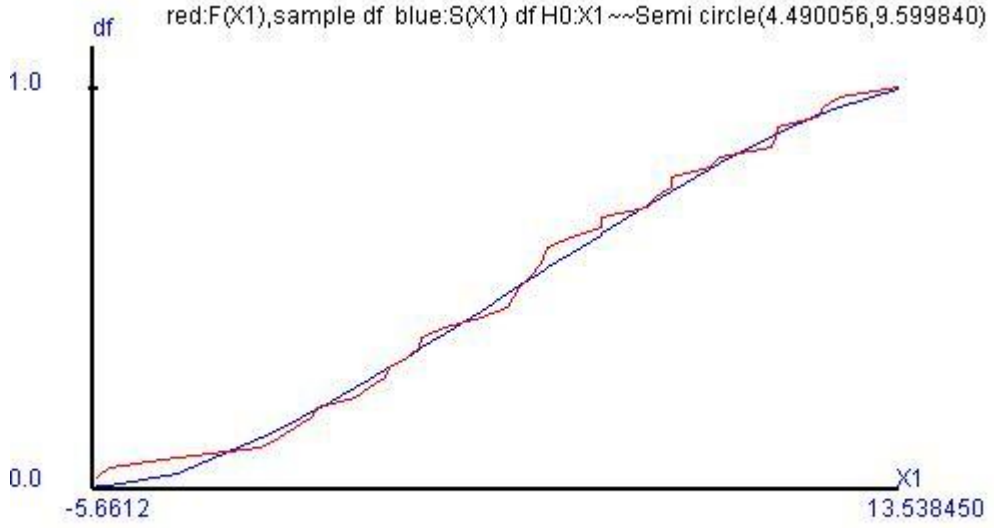
X1 is Semi-circle(mu=4.000000,R=10.000000),

X1
2.1567473950
10.6351431233
12.1528725575
-0.3695236791
8.1305607260
6.4802003524
-3.7258112119
3.5695153275
-5.3708482487
5.7314985096
4.7203898856
9.3013039658
-1.2846133518
4.1892409084
11.7702286311
2.7233022655
-0.4788309493
1.2763129246
9.0432686647
13.5384503668
11.6398261791
4.5075255718
10.6937731788
0.5774106103
7.5664429186
8.1471849728
4.9788200605
5.0880592083
-1.6911225696
0.8780093537
1.3783157795
7.7499219206
1.7996935790
2.0922508896
4.3414796391
5.1842003985
6.4532369799
-0.8655943123
10.5546401460
-5.6612302067

X1 is Semi-circle(mu=4.000000,R=10.000000),



H0: X1~Semi-circle(mu,R), mu,R are unknown
mu point estimated value=4.490056 (MLE)
R point estimated value=9.599840 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.054000
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot17_image.jpg

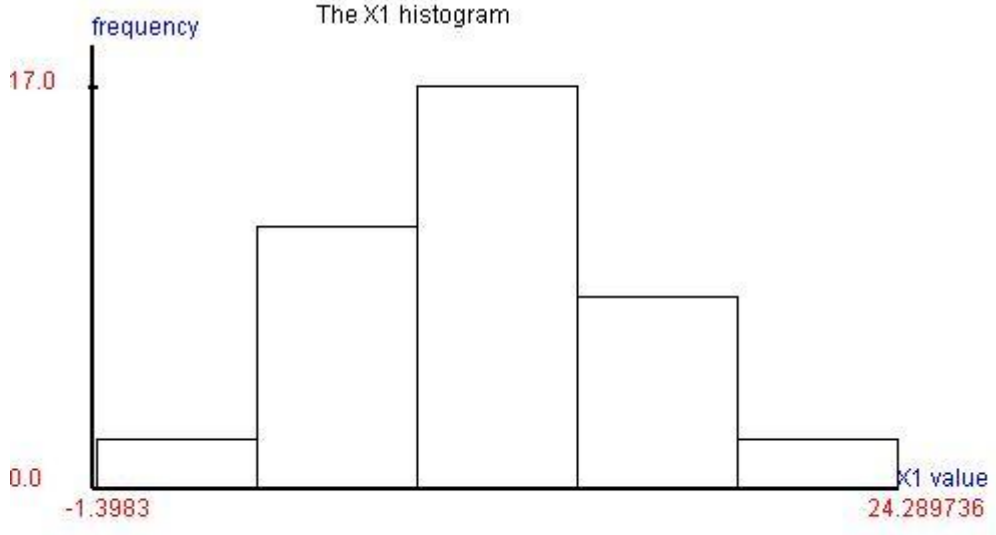


5.2.18)The population distribution is logistic distribution.

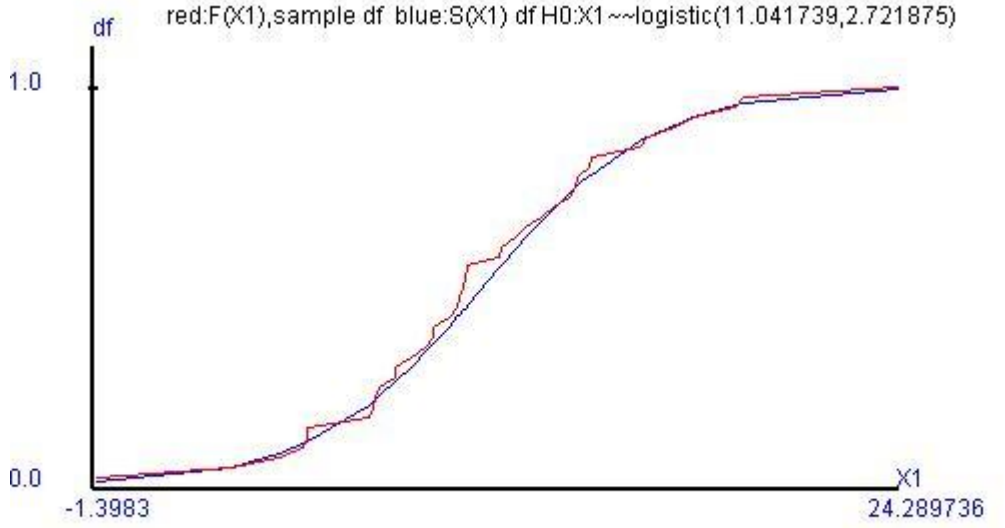
X1 is Logistic(mu=10.000000,sigma=2.000000),

X1
14.0492235986
19.1342479678
10.4304474469
17.7656188058
2.9229524107
13.2476896969
10.4117402912
5.2566977971
14.0131700731
10.2595179567
-1.3983045325
14.4316642020
7.5051157433
16.0579991961
9.4401550608
5.4076398574
12.8696882112
19.3782606555
12.3837012560
8.2177149915
9.1790478773
13.7883312083
7.3361358505
12.0733715911
9.4360835546
5.3873633984
11.5597038897
10.2214003155
8.2011137125
24.2897361450
16.2923139269
9.9091723250
7.5766211330
17.1675002127
8.7087624073
11.5945572594
14.4760694085
7.6953886626
4.4623328686
10.5296209848

X1 is Logistic(mu=10.000000,sigma=2.000000),



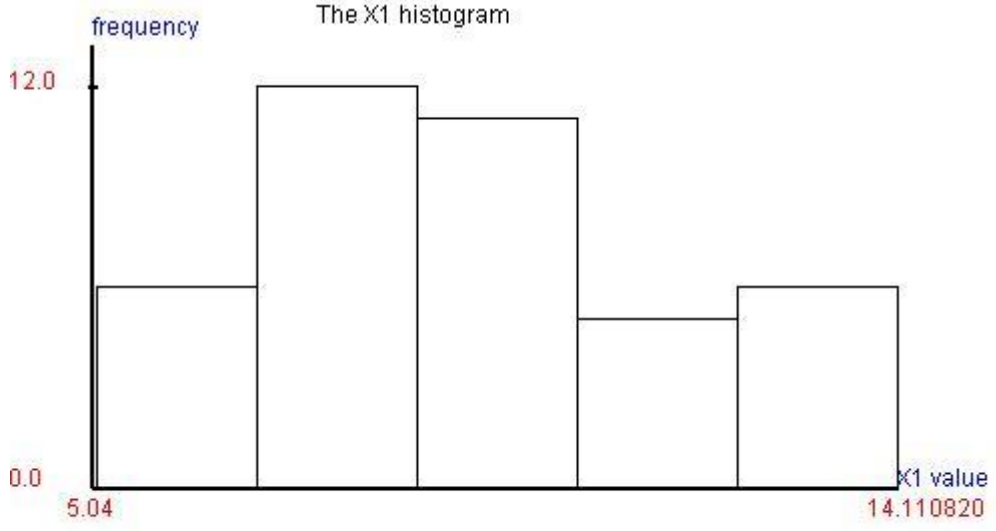
H0: X1~Logisitic(mu,sigma), mu,sigma are unknown
mu point estimated value=11.041739 (MME)
sigma point estimated value=2.721875 (MME)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.096899
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot18_image.jpg



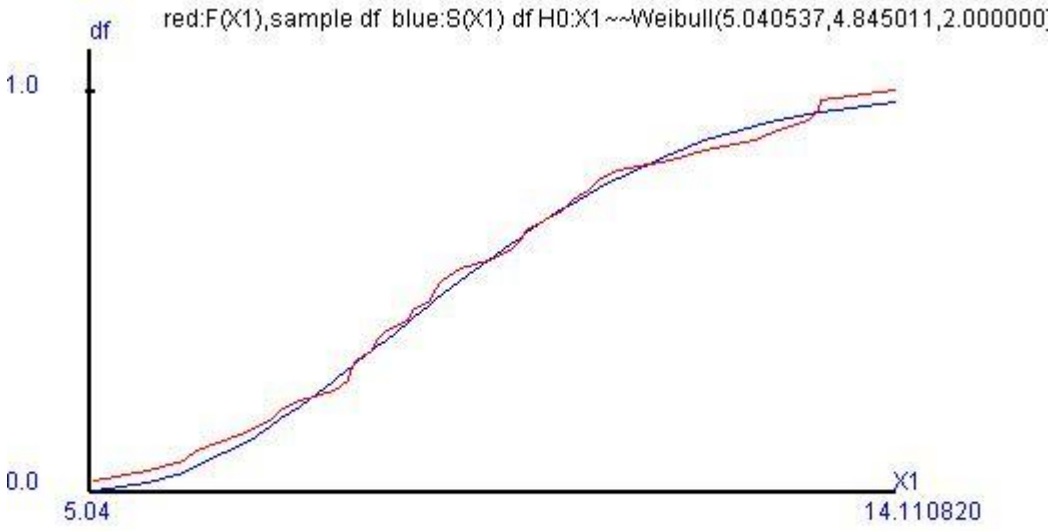
5.2.19)The population distribution is weibull distribution.
X1 is Weibull(alpha=4.000000,beta=6.000000,gamma=2.000000),
The gamma value is supposed to 2.

X1
6.0679292254
6.2058158874
12.5382002716
11.5755028517
6.5288701729
14.1108209256
7.0389393470
8.2516753261
8.6467912613
9.9488668672
8.9109246539
7.9598229891
9.2071516657
11.9711715624
9.8712878203
8.1985395009
7.7751714473
7.9390827704
10.3592113642
12.8078590994
9.5143215252
13.1370955087
10.4639910128
9.7582417098
5.6600150317
10.9996578670
8.0280552499
7.1718425772
13.2769040294
6.8098645957
10.6564962301
13.2564031967
8.6065128558
5.0405370342
9.0036844825
8.3516679054
7.3886422867
10.7555628227
10.1579445855
8.8719904854

X1 is Weibull(alpha=4.000000,beta=6.000000,gamma=2.000000),



H0: X1~Weibull(alpha,beta,gamma=2.000000), alpha,beta are unknown
alpha point estimated value=5.040537 (MLE)
beta point estimated value=4.845011 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.043796
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot19_image.jpg

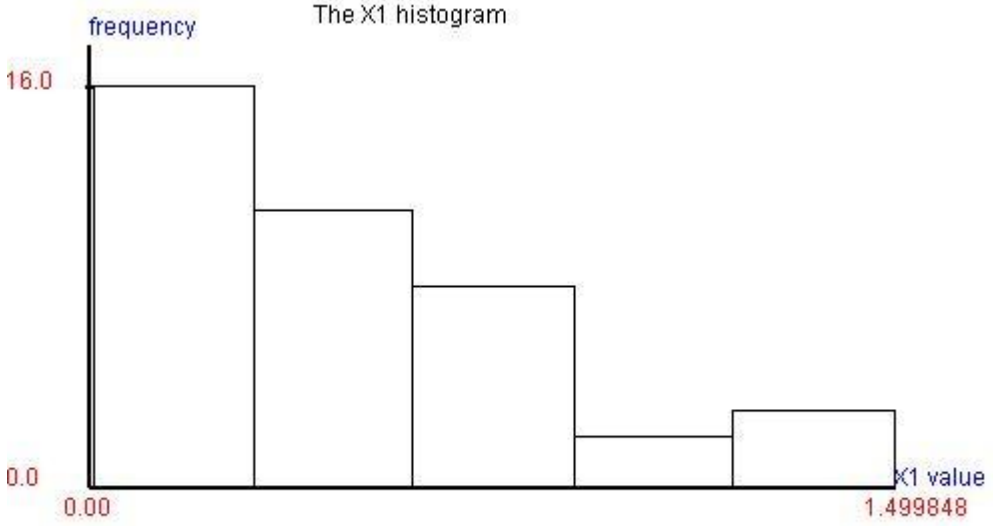


5.2.20)The population distribution is pareto 3 distribution

X1 is Pareto3(lamda=10.000000,c=5.000000),

X1
0.0075637022
0.3220744003
0.5910911500
0.4131632459
0.3114370589
0.4438359659
0.6795214455
0.8660405042
0.0120685259
0.0705138324
0.2116985576
0.0726918138
0.1597569696
0.7442823634
1.3785038137
1.4998480185
0.8466008918
0.0264432337
0.1250693713
0.8693978187
0.5646760419
0.2314683430
1.4079176332
0.6581829261
1.1666792168
0.0169742102
0.4692573498
0.0261342625
0.8929578637
0.0684821027
0.0506404825
0.6787379296
0.3747781659
0.0479361163
0.9380442256
0.1438563853
0.4681864376
0.3433820888
0.4845440299
0.1103019860

X1 is Pareto3(lamda=10.000000,c=5.000000),



H0: X1~Pareto 3(lamda,c), lamda,c are unknown
lamda point estimated value=2.161885 (MLE)
c point estimated value=1.499848 (MLE)
The Kolmogorov Smirnov goodness of fit test
F(X1) is cumulative relative frequency of sample value X1
S(X1) is cumulative probability under H0 of sample value X1
MAX|F(X1)-S(X1)|=0.148164
0.200000<p-value<1.000000
horizon axis is samples cumulative relative frequency,
vertical axis is cumulative probability under H0 from sample values.
The df comparison plot images is stored in c:\book_01\K_S_plot22_image.jpg