

## GD Cauchy Test Data

### 3 Vars Test0

ThetaCauchy: 0.468941822496 in 14

ThetaFinal: 0.468938589377

ThetaTrue: 0.468938589377

### 3 Vars Test1

ThetaCauchy: -0.44160948795 in 15

ThetaFinal: -0.441626811739

ThetaTrue: -0.441626811739

### 3 Vars Test2

ThetaCauchy: -0.892276596907 in 16

ThetaFinal: -0.892288780802

ThetaTrue: -0.892288780802

### 3 Vars Test3

ThetaCauchy: 0.986477241389 in 13

ThetaFinal: 0.986489877103

ThetaTrue: 0.986489877103

### 3 Vars Test4

ThetaCauchy: 0.809144392052 in 13

ThetaFinal: 0.809170097553

ThetaTrue: 0.809170097553

### 3 Vars Test5

ThetaCauchy: -0.761559548919 in 16

ThetaFinal: -0.761561598493

ThetaTrue: -0.761561598493

### 3 Vars Test6

ThetaCauchy: -0.21940411426 in 16

ThetaFinal: -0.219415579136

ThetaTrue: -0.219415579136

### 3 Vars Test7

ThetaCauchy: -0.804478813101 in 16

ThetaFinal: -0.804485489417

ThetaTrue: -0.804485489417

### 3 Vars Test8

ThetaCauchy: -0.567108804935 in 16

ThetaFinal: -0.567131258993

ThetaTrue: -0.567131258993

### 3 Vars Test9

ThetaCauchy: 0.334272445367 in 14

ThetaFinal: 0.334263480829

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ThetaTrue: 0.334263480829

### 4 Vars Test0

ThetaCauchy: -0.990272971212 in 22

ThetaFinal: -0.990312650704

ThetaTrue: -0.990312650704

### 4 Vars Test1

ThetaCauchy: 0.964358399198 in 20

ThetaFinal: 0.964421385832

ThetaTrue: 0.964421385832

### 4 Vars Test2

ThetaCauchy: -0.951820645494 in 22

ThetaFinal: -0.951836033897

ThetaTrue: -0.951836033897

### 4 Vars Test3

ThetaCauchy: -0.694155355323 in 22

ThetaFinal: -0.69417119808

ThetaTrue: -0.69417119808

### 4 Vars Test4

ThetaCauchy: 0.676468083233 in 19

ThetaFinal: 0.676472630579

ThetaTrue: 0.676472630579

### 4 Vars Test5

ThetaCauchy: -0.860543314306 in 23

ThetaFinal: -0.860564303628

ThetaTrue: -0.860564303628

### 4 Vars Test6

ThetaCauchy: 0.377438863799 in 21

ThetaFinal: 0.377414366318

ThetaTrue: 0.377414366318

### 4 Vars Test7

ThetaCauchy: -0.933632891472 in 22

ThetaFinal: -0.933637194555

ThetaTrue: -0.933637194555

### 4 Vars Test8

ThetaCauchy: 0.350089464855 in 19

ThetaFinal: 0.350174215116

ThetaTrue: 0.350174215116

### 4 Vars Test9

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ThetaCauchy: 0.0925353351979 in 19  
ThetaFinal: 0.09264249088  
ThetaTrue: 0.09264249088

5 Vars Test0

ThetaCauchy: -0.614326355244 in 29  
ThetaFinal: -0.614384926937  
ThetaTrue: -0.614384926937

5 Vars Test1

ThetaCauchy: -0.72527809235 in 28  
ThetaFinal: -0.725298309065  
ThetaTrue: -0.725298309065

5 Vars Test2

ThetaCauchy: 0.895546838295 in 21  
ThetaFinal: 0.895434152402  
ThetaTrue: 0.895434152402

5 Vars Test3

ThetaCauchy: 0.643870819729 in 25  
ThetaFinal: 0.643812608754  
ThetaTrue: 0.643812608754

5 Vars Test4

ThetaCauchy: 0.467916006211 in 27  
ThetaFinal: 0.467865894865  
ThetaTrue: 0.467865894865

5 Vars Test5

ThetaCauchy: 0.039417192846 in 27  
ThetaFinal: 0.0393742077325  
ThetaTrue: 0.0393742077325

5 Vars Test6

ThetaCauchy: 0.453867455514 in 27  
ThetaFinal: 0.453796834725  
ThetaTrue: 0.453796834725

5 Vars Test7

ThetaCauchy: -0.271210375577 in 28  
ThetaFinal: -0.27127389312  
ThetaTrue: -0.27127389312

5 Vars Test8

ThetaCauchy: -0.154711916879 in 27  
ThetaFinal: -0.154745345487  
ThetaTrue: -0.154745345487

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### 5 Vars Test9

ThetaCauchy: -0.485951120001 in 29

ThetaFinal: -0.485984921679

ThetaTrue: -0.485984921679

### 6 Vars Test0

ThetaCauchy: 0.0489180111918 in 32

ThetaFinal: 0.0487842783499

ThetaTrue: 0.0487842783442

### 6 Vars Test1

ThetaCauchy: -0.475763763784 in 32

ThetaFinal: -0.475729956396

ThetaTrue: -0.475729956396

### 6 Vars Test2

ThetaCauchy: -0.596677313678 in 35

ThetaFinal: -0.596719271672

ThetaTrue: -0.596719271673

### 6 Vars Test3

ThetaCauchy: -0.603433916424 in 34

ThetaFinal: -0.603462427223

ThetaTrue: -0.603462427223

### 6 Vars Test4

ThetaCauchy: -0.914959645913 in 36

ThetaFinal: -0.915051298899

ThetaTrue: -0.915051298907

### 6 Vars Test5

ThetaCauchy: -0.421637667623 in 34

ThetaFinal: -0.421671467212

ThetaTrue: -0.421671467211

### 6 Vars Test6

ThetaCauchy: -0.575469119899 in 35

ThetaFinal: -0.575512755652

ThetaTrue: -0.575512755652

### 6 Vars Test7

ThetaCauchy: -0.343698788185 in 34

ThetaFinal: -0.343748720103

ThetaTrue: -0.343748720103

### 6 Vars Test8

ThetaCauchy: 0.49711378252 in 31

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ThetaFinal: 0.497073399887

ThetaTrue: 0.497073399887

## 6 Vars Test9

ThetaCauchy: 0.280725967455 in 31

ThetaFinal: 0.280587631098

ThetaTrue: 0.280587631093

## 7 Vars Test0

ThetaCauchy: 0.591364679592 in 35

ThetaFinal: 0.591353888057

ThetaTrue: 0.591353888066

## 7 Vars Test1

ThetaCauchy: 0.724311813274 in 35

ThetaFinal: 0.724187968455

ThetaTrue: 0.724187968408

## 7 Vars Test2

ThetaCauchy: -0.57561012574 in 42

ThetaFinal: -0.575668651272

ThetaTrue: -0.575668651388

## 7 Vars Test3

ThetaCauchy: 0.243875341774 in 35

ThetaFinal: 0.243962616524

ThetaTrue: 0.24396261659

## 7 Vars Test4

ThetaCauchy: 0.396834759422 in 38

ThetaFinal: 0.396763123752

ThetaTrue: 0.396763123713

## 7 Vars Test5

ThetaCauchy: 0.601672258079 in 36

ThetaFinal: 0.601601356653

ThetaTrue: 0.601601356567

## 7 Vars Test6

ThetaCauchy: -0.0192164378652 in 36

ThetaFinal: -0.0192141046655

ThetaTrue: -0.0192141046703

## 7 Vars Test7

ThetaCauchy: 0.59703280748 in 35

ThetaFinal: 0.596972532383

ThetaTrue: 0.596972532368

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### 7 Vars Test8

ThetaCauchy: -0.870596915525 in 42

ThetaFinal: -0.870650899636

ThetaTrue: -0.870650899665

### 7 Vars Test9

ThetaCauchy: 0.747111613625 in 34

ThetaFinal: 0.747104284996

ThetaTrue: 0.747104285043

### 8 Vars Test0

ThetaCauchy: -0.511532888646 in 47

ThetaFinal: -0.511654768579

ThetaTrue: -0.511654778246

### 8 Vars Test1

ThetaCauchy: 0.481420762239 in 42

ThetaFinal: 0.48132395691

ThetaTrue: 0.4813239557

### 8 Vars Test2

ThetaCauchy: 0.0757001457204 in 45

ThetaFinal: 0.0756567552164

ThetaTrue: 0.0756567549924

### 8 Vars Test3

ThetaCauchy: 0.934412017478 in 39

ThetaFinal: 0.93477427886

ThetaTrue: 0.93477428253

### 8 Vars Test4

ThetaCauchy: 0.912990080502 in 33

ThetaFinal: 0.9135929799

ThetaTrue: 0.913592982562

### 8 Vars Test5

ThetaCauchy: -0.705549408068 in 47

ThetaFinal: -0.705585177893

ThetaTrue: -0.705585177138

### 8 Vars Test6

ThetaCauchy: -0.61668439493 in 50

ThetaFinal: -0.616819033596

ThetaTrue: -0.616819048116

### 8 Vars Test7

ThetaCauchy: -0.811185786008 in 48

ThetaFinal: -0.811235884564

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ThetaTrue: -0.81123588542

## 8 Vars Test8

ThetaCauchy: 0.9877119271 in 36

ThetaFinal: 0.987616437583

ThetaTrue: 0.987616437949

## 8 Vars Test9

ThetaCauchy: -0.163229838589 in 47

ThetaFinal: -0.163412264121

ThetaTrue: -0.163412283601

## 9 Vars Test0

ThetaCauchy: 0.175284296354 in 48

ThetaFinal: 0.175229861345

ThetaTrue: 0.175229855826

## 9 Vars Test1

ThetaCauchy: 0.650234584451 in 52

ThetaFinal: 0.650091643181

ThetaTrue: 0.650091594947

## 9 Vars Test2

ThetaCauchy: 0.943850824306 in 43

ThetaFinal: 0.943661353255

ThetaTrue: 0.943661330374

## 9 Vars Test3

ThetaCauchy: 0.593901330956 in 48

ThetaFinal: 0.593859980904

ThetaTrue: 0.593859987951

## 9 Vars Test4

ThetaCauchy: 0.00920973164854 in 51

ThetaFinal: 0.00910874660181

ThetaTrue: 0.00910872528365

## 9 Vars Test5

ThetaCauchy: -0.174153645383 in 49

ThetaFinal: -0.174154957701

ThetaTrue: -0.174154956998

## 9 Vars Test6

ThetaCauchy: -0.915511796482 in 53

ThetaFinal: -0.915568622885

ThetaTrue: -0.915568632312

## 9 Vars Test7

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ThetaCauchy: 0.0347291238964 in 52  
ThetaFinal: 0.0346262802471  
ThetaTrue: 0.0346262472398

9 Vars Test8

ThetaCauchy: 0.443871630085 in 50  
ThetaFinal: 0.443704085507  
ThetaTrue: 0.443704044728

9 Vars Test9

ThetaCauchy: 0.700743640052 in 43  
ThetaFinal: 0.700757210832  
ThetaTrue: 0.700757210742

10 Vars Test0

ThetaCauchy: 0.133873238801 in 53  
ThetaFinal: 0.133945317399  
ThetaTrue: 0.133945509219

10 Vars Test1

ThetaCauchy: -0.778104070445 in 55  
ThetaFinal: -0.778047738285  
ThetaTrue: -0.778047680675

10 Vars Test2

ThetaCauchy: -0.650095494801 in 59  
ThetaFinal: -0.650168467373  
ThetaTrue: -0.650168593

10 Vars Test3

ThetaCauchy: -0.469822542746 in 56  
ThetaFinal: -0.469840080138  
ThetaTrue: -0.469840086187

10 Vars Test4

ThetaCauchy: -0.436945388614 in 63  
ThetaFinal: -0.437202281957  
ThetaTrue: -0.437204361387

10 Vars Test5

ThetaCauchy: -0.970447051857 in 64  
ThetaFinal: -0.970602836952  
ThetaTrue: -0.970603790951

10 Vars Test6

ThetaCauchy: 0.768665746315 in 45  
ThetaFinal: 0.768857097312  
ThetaTrue: 0.76885712629



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### 10 Vars Test7

ThetaCauchy: -0.283779764788 in 59

ThetaFinal: -0.283840253222

ThetaTrue: -0.28384024491

### 10 Vars Test8

ThetaCauchy: 0.612988531449 in 53

ThetaFinal: 0.612883979781

ThetaTrue: 0.612883885277

### 10 Vars Test9

ThetaCauchy: -0.386116210426 in 55

ThetaFinal: -0.386116806251

ThetaTrue: -0.386116745026

### 11 Vars Test0

ThetaCauchy: -0.358673808672 in 59

ThetaFinal: -0.358566451741

ThetaTrue: -0.358565982355

### 11 Vars Test1

ThetaCauchy: -0.545632355272 in 65

ThetaFinal: -0.545707714755

ThetaTrue: -0.545708391011

### 11 Vars Test2

ThetaCauchy: -0.00253517297078 in 64

ThetaFinal: -0.00267859057973

ThetaTrue: -0.00268010114317

### 11 Vars Test3

ThetaCauchy: -0.643218158857 in 67

ThetaFinal: -0.643343153886

ThetaTrue: -0.643344790651

### 11 Vars Test4

ThetaCauchy: -0.350546777864 in 66

ThetaFinal: -0.350709402536

ThetaTrue: -0.35071142894

### 11 Vars Test5

ThetaCauchy: 0.23709257223 in 58

ThetaFinal: 0.237049851844

ThetaTrue: 0.237049742873

### 11 Vars Test6

ThetaCauchy: 0.847619556483 in 48

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ThetaFinal: 0.848481993902

ThetaTrue: 0.848483359219

11 Vars Test7

ThetaCauchy: -0.460176977408 in 62

ThetaFinal: -0.460253101529

ThetaTrue: -0.460253660415

11 Vars Test8

ThetaCauchy: -0.580660564276 in 67

ThetaFinal: -0.580757478101

ThetaTrue: -0.580758541853

11 Vars Test9

ThetaCauchy: -0.758723865797 in 71

ThetaFinal: -0.758947833414

ThetaTrue: -0.758954172043