

Best solutions found by the parallel simulated annealing algorithm for Solomon's vehicle routing problem with time windows (VRPTW) benchmark instances

Test	Vehicles	Distance	Test	Vehicles	Distance
C101	10	828.93664	C201	3	591.55626
C102	10	828.93664	C202	3	591.55626
C103	10	828.06464	C203	3	591.17315
C104	10	824.77646	C204	3	590.59845
C105	10	828.93664	C205	3	588.87566
C106	10	828.93664	C206	3	588.49255
C107	10	828.93664	C207	3	588.28602
C108	10	828.93664	C208	3	588.32350
C109	10	828.93664			

Test	Vehicles	Distance	Test	Vehicles	Distance
R101	19	1650.79864	R201	4	1252.37074
R102	17	1486.85859	R202	3	1191.70252
R103	13	1292.67493	R203	3	939.50286
R104	9	1007.31005	R204	2	825.51880
R105	14	1377.11046	R205	3	994.42722
R106	12	1252.03013	R206	3	906.14164
R107	10	1104.65547	R207	2	890.60784
R108	9	960.87528	R208	2	726.82234
R109	11	1194.73359	R209	3	909.16288
R110	10	1118.83808	R210	3	939.37224
R111	10	1096.72605	R211	2	885.71093
R112	9	982.13919			

Test	Vehicles	Distance	Test	Vehicles	Distance
RC101	14	1696.94871	RC201	4	1406.93961
RC102	12	1554.74684	RC202	3	1365.64462
RC103	11	1261.67143	RC203	3	1049.62383
RC104	10	1135.47902	RC204	3	798.46323
RC105	13	1629.43589	RC205	4	1297.64736
RC106	11	1424.73327	RC206	3	1146.31689
RC107	11	1230.47709	RC207	3	1061.14420
RC108	10	1139.82108	RC208	3	828.14110

C101

10
13-17-18-19-15-16-14-12-0
43-42-41-40-44-46-45-48-51-50-52-49-47-0

90-87-86-83-82-84-85-88-89-91-0

67-65-63-62-74-72-61-64-68-66-69-0

98-96-95-94-92-93-97-100-99-0

5-3-7-8-10-11-9-6-4-2-1-75-0

20-24-25-27-29-30-28-26-23-22-21-0

81-78-76-71-70-73-77-79-80-0

57-55-54-53-56-58-60-59-0

32-33-31-35-37-38-39-36-34-0

Problem Set: C101

Vehicle capacity: 200.00

Routes: 10

Total travel distance: 828.93664000

Route: 1, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 2, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 3, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 4, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 5, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 6, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 7, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 8, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 9, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 10, len: 9, dist: 97.22714000, max cap: 200.00

C102

10
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 67-65-63-62-74-72-61-64-68-66-69-0
 81-78-76-71-70-73-77-79-80-0
 20-24-25-27-29-30-28-26-23-22-21-0
 90-87-86-83-82-84-85-88-89-91-0
 13-17-18-19-15-16-14-12-0
 32-33-31-35-37-38-39-36-34-0
 98-96-95-94-92-93-97-100-99-0
 57-55-54-53-56-58-60-59-0
 5-3-7-8-10-11-9-6-4-2-1-75-0
 Problem Set: C102
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.93664000
 Route: 1, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 2, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 3, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 4, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 5, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 6, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 7, len: 9, dist: 97.22714000, max cap: 200.00
 Route: 8, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 9, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 10, len: 12, dist: 59.61803000, max cap: 180.00

C103

10
 67-65-62-74-72-61-64-68-66-69-0
 20-24-25-27-29-30-28-26-23-22-21-0
 13-17-18-19-15-16-14-12-0
 81-78-76-71-70-73-77-79-80-63-0
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 5-3-7-8-10-11-9-6-4-2-1-75-0
 90-87-86-83-82-84-85-88-89-91-0
 98-96-95-94-92-93-97-100-99-0
 57-55-54-53-56-58-60-59-0
 32-33-31-35-37-38-39-36-34-0
 Problem Set: C103
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.06464000
 Route: 1, len: 10, dist: 57.78825000, max cap: 150.00
 Route: 2, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 3, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 4, len: 10, dist: 128.04031000, max cap: 200.00
 Route: 5, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 6, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 7, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 8, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 9, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 10, len: 9, dist: 97.22714000, max cap: 200.00

C104

10
 81-78-76-71-70-73-77-79-80-63-0
 13-17-18-19-15-16-14-12-10-0
 90-87-86-83-82-84-85-88-89-91-0
 67-65-62-74-72-61-64-68-66-69-0
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 98-96-95-94-92-93-97-100-99-0
 5-3-7-8-11-9-6-4-2-1-75-0
 32-33-31-35-37-38-39-36-34-0
 20-24-25-27-29-30-28-26-23-22-21-0
 57-55-54-53-56-58-60-59-0
 Problem Set: C104
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 824.77646000
 Route: 1, len: 10, dist: 128.04031000, max cap: 200.00
 Route: 2, len: 9, dist: 96.03980000, max cap: 200.00
 Route: 3, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 4, len: 10, dist: 57.78825000, max cap: 150.00
 Route: 5, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 6, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 7, len: 11, dist: 56.17475000, max cap: 170.00
 Route: 8, len: 9, dist: 97.22714000, max cap: 200.00
 Route: 9, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 10, len: 8, dist: 101.88255000, max cap: 200.00

C105

10
 98-96-95-94-92-93-97-100-99-0
 5-3-7-8-10-11-9-6-4-2-1-75-0

20-24-25-27-29-30-28-26-23-22-21-0
 81-78-76-71-70-73-77-79-80-0
 32-33-31-35-37-38-39-36-34-0
 57-55-54-53-56-58-60-59-0
 67-65-63-62-74-72-61-64-68-66-69-0
 13-17-18-19-15-16-14-12-0
 90-87-86-83-82-84-85-88-89-91-0
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 Problem Set: C105
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.93664000
 Route: 1, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 2, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 3, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 4, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 5, len: 9, dist: 97.22714000, max cap: 200.00
 Route: 6, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 7, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 8, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 9, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 10, len: 13, dist: 64.80744000, max cap: 160.00

C106

10
 13-17-18-19-15-16-14-12-0
 57-55-54-53-56-58-60-59-0
 5-3-7-8-10-11-9-6-4-2-1-75-0
 81-78-76-71-70-73-77-79-80-0
 90-87-86-83-82-84-85-88-89-91-0
 32-33-31-35-37-38-39-36-34-0
 67-65-63-62-74-72-61-64-68-66-69-0
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 98-96-95-94-92-93-97-100-99-0
 20-24-25-27-29-30-28-26-23-22-21-0
 Problem Set: C106
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.93664000
 Route: 1, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 2, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 3, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 4, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 5, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 6, len: 9, dist: 97.22714000, max cap: 200.00
 Route: 7, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 8, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 9, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 10, len: 11, dist: 50.80358000, max cap: 170.00

C107

10
 5-3-7-8-10-11-9-6-4-2-1-75-0
 98-96-95-94-92-93-97-100-99-0
 13-17-18-19-15-16-14-12-0
 20-24-25-27-29-30-28-26-23-22-21-0
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 57-55-54-53-56-58-60-59-0
 81-78-76-71-70-73-77-79-80-0
 67-65-63-62-74-72-61-64-68-66-69-0
 32-33-31-35-37-38-39-36-34-0
 90-87-86-83-82-84-85-88-89-91-0
 Problem Set: C107
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.93664000
 Route: 1, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 2, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 3, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 4, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 5, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 6, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 7, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 8, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 9, len: 9, dist: 97.22714000, max cap: 200.00
 Route: 10, len: 10, dist: 76.06953000, max cap: 170.00

C108

10
 32-33-31-35-37-38-39-36-34-0
 98-96-95-94-92-93-97-100-99-0
 43-42-41-40-44-46-45-48-51-50-52-49-47-0
 81-78-76-71-70-73-77-79-80-0
 20-24-25-27-29-30-28-26-23-22-21-0
 57-55-54-53-56-58-60-59-0
 67-65-63-62-74-72-61-64-68-66-69-0
 5-3-7-8-10-11-9-6-4-2-1-75-0

90-87-86-83-82-84-85-88-89-91-0
 13-17-18-19-15-16-14-12-0
 Problem Set: C108
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.93664000
 Route: 1, len: 9, dist: 97.22714000, max cap: 200.00
 Route: 2, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 3, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 4, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 5, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 6, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 7, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 8, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 9, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 10, len: 8, dist: 95.88470000, max cap: 190.00

C109

10
 13-17-18-19-15-16-14-12-0
 20-24-25-27-29-30-28-26-23-22-21-0
 98-96-95-94-92-93-97-100-99-0
 81-78-76-71-70-73-77-79-80-0
 57-55-54-53-56-58-60-59-0
 5-3-7-8-10-11-9-6-4-2-1-75-0
 67-65-63-62-74-72-61-64-68-66-69-0
 43-42-41-40-44-45-46-48-51-50-52-49-47-0
 90-87-86-83-82-84-85-88-89-91-0
 32-33-31-35-37-38-39-36-34-0
 Problem Set: C109
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 828.93664000
 Route: 1, len: 8, dist: 95.88470000, max cap: 190.00
 Route: 2, len: 11, dist: 50.80358000, max cap: 170.00
 Route: 3, len: 9, dist: 95.94311000, max cap: 190.00
 Route: 4, len: 9, dist: 127.29747000, max cap: 150.00
 Route: 5, len: 8, dist: 101.88255000, max cap: 200.00
 Route: 6, len: 12, dist: 59.61803000, max cap: 180.00
 Route: 7, len: 11, dist: 59.40309000, max cap: 200.00
 Route: 8, len: 13, dist: 64.80744000, max cap: 160.00
 Route: 9, len: 10, dist: 76.06953000, max cap: 170.00
 Route: 10, len: 9, dist: 97.22714000, max cap: 200.00

C201

3
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-43-42-41-48-0
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-84-86-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-19-16-14-12-15-17-13-25-9-11-10-8-21-0
 Problem Set: C201
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 591.55626000
 Route: 1, len: 32, dist: 158.04800000, max cap: 560.00
 Route: 2, len: 35, dist: 238.20830000, max cap: 620.00
 Route: 3, len: 33, dist: 195.29996000, max cap: 630.00

C202

3
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-43-42-41-48-0
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-19-16-14-12-15-17-13-25-9-11-10-8-21-0
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-84-86-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 Problem Set: C202
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 591.55626000
 Route: 1, len: 32, dist: 158.04800000, max cap: 560.00
 Route: 2, len: 33, dist: 195.29996000, max cap: 630.00
 Route: 3, len: 35, dist: 238.20830000, max cap: 620.00

C203

3
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-19-16-14-12-15-17-13-25-9-11-10-8-21-0
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-84-86-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-42-41-43-48-0
 Problem Set: C203
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 591.17315000
 Route: 1, len: 33, dist: 195.29996000, max cap: 630.00
 Route: 2, len: 35, dist: 238.20830000, max cap: 620.00
 Route: 3, len: 32, dist: 157.66489000, max cap: 560.00

C204

3
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-19-16-14-12-15-17-13-25-9-11-10-8-21-0
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-41-42-45-51-50-52-47-43-48-0
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-86-84-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 Problem Set: C204
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 590.59845000
 Route: 1, len: 33, dist: 195.29996000, max cap: 630.00
 Route: 2, len: 32, dist: 157.09019000, max cap: 560.00
 Route: 3, len: 35, dist: 238.20830000, max cap: 620.00

C205

3
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-86-84-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-19-16-14-12-15-17-13-25-9-11-10-8-21-0
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-43-42-41-48-0
 Problem Set: C205
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 588.87566000
 Route: 1, len: 35, dist: 235.52770000, max cap: 620.00
 Route: 2, len: 33, dist: 195.29996000, max cap: 630.00
 Route: 3, len: 32, dist: 158.04800000, max cap: 560.00

C206

3
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-86-84-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-19-16-14-12-15-17-13-25-9-11-10-8-21-0
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-42-41-43-48-0
 Problem Set: C206
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 588.49255000
 Route: 1, len: 35, dist: 235.52770000, max cap: 620.00
 Route: 2, len: 33, dist: 195.29996000, max cap: 630.00
 Route: 3, len: 32, dist: 157.66489000, max cap: 560.00

C207

3
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-42-41-43-48-0
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-17-18-19-16-14-12-15-13-25-9-11-10-8-21-0
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-86-84-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 Problem Set: C207
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 588.28602000
 Route: 1, len: 32, dist: 157.66489000, max cap: 560.00
 Route: 2, len: 33, dist: 195.09343000, max cap: 630.00
 Route: 3, len: 35, dist: 235.52770000, max cap: 620.00

C208

3
 20-22-24-27-30-29-6-32-33-31-35-37-38-39-36-34-28-26-23-18-17-19-16-14-12-15-13-25-9-11-10-8-21-0
 93-5-75-2-1-99-100-97-92-94-95-98-7-3-4-89-91-88-86-84-83-82-85-76-71-70-73-80-79-81-78-77-96-87-90-0
 67-63-62-74-72-61-64-66-69-68-65-49-55-54-53-56-58-60-59-57-40-44-46-45-51-50-52-47-42-41-43-48-0
 Problem Set: C208
 Vehicle capacity: 700.00
 Routes: 3
 Total travel distance: 588.32350000
 Route: 1, len: 33, dist: 195.13091000, max cap: 630.00
 Route: 2, len: 35, dist: 235.52770000, max cap: 620.00
 Route: 3, len: 32, dist: 157.66489000, max cap: 560.00

R101

19
 92-42-15-87-57-97-0
 27-69-76-79-3-54-24-80-0
 95-98-16-86-91-100-0
 36-47-19-8-46-17-0
 14-44-38-43-13-0
 39-23-67-55-25-0
 31-88-7-10-0
 62-11-90-20-32-70-0
 2-21-73-41-56-4-0
 5-83-61-85-37-93-0
 52-6-0

65-71-81-50-68-0
 59-99-94-96-0
 72-75-22-74-58-0
 33-29-78-34-35-77-0
 30-51-9-66-1-0
 45-82-18-84-60-89-0
 28-12-40-53-26-0
 63-64-49-48-0
 Problem Set: R101
 Vehicle capacity: 200.00
 Routes: 19
 Total travel distance: 1650.79864000
 Route: 1, len: 6, dist: 86.77278000, max cap: 60.00
 Route: 2, len: 8, dist: 95.32472000, max cap: 98.00
 Route: 3, len: 6, dist: 75.20345000, max cap: 102.00
 Route: 4, len: 6, dist: 132.48994000, max cap: 61.00
 Route: 5, len: 5, dist: 100.86701000, max cap: 84.00
 Route: 6, len: 5, dist: 110.15853000, max cap: 93.00
 Route: 7, len: 4, dist: 68.42601000, max cap: 57.00
 Route: 8, len: 6, dist: 103.89808000, max cap: 71.00
 Route: 9, len: 6, dist: 87.12985000, max cap: 57.00
 Route: 10, len: 6, dist: 74.50436000, max cap: 121.00
 Route: 11, len: 2, dist: 35.64697000, max cap: 12.00
 Route: 12, len: 5, dist: 118.41699000, max cap: 110.00
 Route: 13, len: 4, dist: 45.38764000, max cap: 75.00
 Route: 14, len: 5, dist: 60.59932000, max cap: 87.00
 Route: 15, len: 6, dist: 109.12702000, max cap: 59.00
 Route: 16, len: 5, dist: 95.88676000, max cap: 82.00
 Route: 17, len: 6, dist: 87.97649000, max cap: 69.00
 Route: 18, len: 5, dist: 55.63700000, max cap: 75.00
 Route: 19, len: 4, dist: 107.34572000, max cap: 85.00

R102

17
 62-88-8-46-17-93-59-0
 92-37-98-85-16-86-91-97-13-0
 27-69-76-79-3-68-0
 73-22-54-24-80-12-0
 52-7-11-19-49-48-82-0
 83-45-61-84-5-60-89-0
 63-64-90-10-31-0
 50-33-30-51-9-66-1-0
 39-23-67-55-4-25-26-0
 28-29-78-34-35-77-0
 87-57-2-58-0
 42-15-41-75-56-74-72-21-0
 94-96-99-6-0
 14-44-38-43-100-95-0
 40-53-0
 65-71-81-20-32-70-0
 36-47-18-0
 Problem Set: R102
 Vehicle capacity: 200.00
 Routes: 17
 Total travel distance: 1486.85859000
 Route: 1, len: 7, dist: 112.98176000, max cap: 90.00
 Route: 2, len: 9, dist: 77.26561000, max cap: 151.00
 Route: 3, len: 6, dist: 66.34596000, max cap: 107.00
 Route: 4, len: 6, dist: 90.21196000, max cap: 73.00
 Route: 5, len: 7, dist: 101.49904000, max cap: 125.00
 Route: 6, len: 7, dist: 78.11048000, max cap: 91.00
 Route: 7, len: 5, dist: 100.81620000, max cap: 65.00
 Route: 8, len: 7, dist: 110.43680000, max cap: 106.00
 Route: 9, len: 7, dist: 125.09697000, max cap: 129.00
 Route: 10, len: 6, dist: 99.36388000, max cap: 64.00
 Route: 11, len: 4, dist: 49.53758000, max cap: 58.00
 Route: 12, len: 8, dist: 91.79871000, max cap: 86.00
 Route: 13, len: 4, dist: 35.86110000, max cap: 50.00
 Route: 14, len: 6, dist: 106.49687000, max cap: 98.00
 Route: 15, len: 2, dist: 22.36066000, max cap: 23.00
 Route: 16, len: 6, dist: 134.25205000, max cap: 98.00
 Route: 17, len: 3, dist: 84.42296000, max cap: 44.00

R103

13
 26-39-23-67-55-24-29-3-0
 27-69-30-9-66-20-51-1-0
 2-22-75-56-4-25-54-0
 50-33-76-79-10-31-0
 36-64-49-63-90-32-70-0
 71-65-78-34-35-81-77-28-0
 42-43-15-57-41-74-72-73-21-58-0
 7-19-11-8-46-47-48-82-18-89-0
 92-98-14-44-38-86-16-61-85-91-100-37-0
 94-96-95-97-87-13-0
 60-45-83-5-99-6-0
 52-62-88-84-17-93-59-0
 40-53-12-68-80-0
 Problem Set: R103
 Vehicle capacity: 200.00
 Routes: 13

Total travel distance: 1292.67493000
 Route: 1, len: 8, dist: 124.73655000, max cap: 129.00
 Route: 2, len: 8, dist: 99.21923000, max cap: 113.00
 Route: 3, len: 7, dist: 91.54405000, max cap: 92.00
 Route: 4, len: 6, dist: 100.62418000, max cap: 103.00
 Route: 5, len: 7, dist: 139.74534000, max cap: 85.00
 Route: 6, len: 8, dist: 134.69746000, max cap: 116.00
 Route: 7, len: 10, dist: 96.86094000, max cap: 103.00
 Route: 8, len: 10, dist: 120.26550000, max cap: 150.00
 Route: 9, len: 12, dist: 108.39860000, max cap: 200.00
 Route: 10, len: 6, dist: 45.98730000, max cap: 119.00
 Route: 11, len: 6, dist: 68.85232000, max cap: 68.00
 Route: 12, len: 7, dist: 99.94734000, max cap: 96.00
 Route: 13, len: 5, dist: 61.79612000, max cap: 84.00

R104

9
 42-43-15-87-57-41-22-74-73-21-26-0
 70-30-20-66-9-35-65-71-51-50-0
 28-1-69-76-53-40-2-13-95-97-58-0
 72-75-56-23-67-39-55-4-25-54-0
 68-80-24-29-79-78-34-81-33-3-77-12-0
 18-82-48-46-8-47-36-49-19-7-0
 92-98-14-44-38-86-16-61-85-91-100-37-0
 6-94-96-59-93-99-84-17-45-83-5-60-89-0
 52-88-62-11-64-63-90-32-10-31-27-0

Problem Set: R104

Vehicle capacity: 200.00

Routes: 9

Total travel distance: 1007.31005000
 Route: 1, len: 11, dist: 109.59458000, max cap: 121.00
 Route: 2, len: 10, dist: 129.15650000, max cap: 142.00
 Route: 3, len: 11, dist: 106.88909000, max cap: 148.00
 Route: 4, len: 10, dist: 125.95089000, max cap: 179.00
 Route: 5, len: 12, dist: 106.07535000, max cap: 177.00
 Route: 6, len: 10, dist: 124.68096000, max cap: 158.00
 Route: 7, len: 12, dist: 108.39860000, max cap: 200.00
 Route: 8, len: 13, dist: 89.43475000, max cap: 180.00
 Route: 9, len: 11, dist: 107.12933000, max cap: 153.00

R105

14
 59-5-61-16-85-84-17-60-89-0
 21-73-75-22-41-56-74-58-0
 95-92-98-99-94-6-96-0
 47-36-19-49-46-48-0
 27-69-76-40-53-26-0
 33-65-71-9-66-20-1-0
 28-12-29-79-3-50-68-24-80-0
 63-64-11-90-10-32-70-0
 2-15-57-87-43-100-91-93-0
 42-14-44-38-86-37-97-13-0
 72-39-23-67-55-54-4-25-0
 31-30-51-81-78-34-35-77-0
 45-83-82-8-18-0
 52-62-88-7-0

Problem Set: R105

Vehicle capacity: 200.00

Routes: 14

Total travel distance: 1377.11046000
 Route: 1, len: 9, dist: 90.87753000, max cap: 154.00
 Route: 2, len: 8, dist: 81.97669000, max cap: 93.00
 Route: 3, len: 7, dist: 55.48489000, max cap: 82.00
 Route: 4, len: 6, dist: 126.36158000, max cap: 116.00
 Route: 5, len: 6, dist: 70.46626000, max cap: 75.00
 Route: 6, len: 7, dist: 124.85738000, max cap: 166.00
 Route: 7, len: 9, dist: 104.47286000, max cap: 138.00
 Route: 8, len: 7, dist: 125.14567000, max cap: 78.00
 Route: 9, len: 8, dist: 106.35563000, max cap: 95.00
 Route: 10, len: 8, dist: 103.03350000, max cap: 137.00
 Route: 11, len: 8, dist: 136.36090000, max cap: 155.00
 Route: 12, len: 8, dist: 111.32285000, max cap: 123.00
 Route: 13, len: 5, dist: 79.92167000, max cap: 64.00
 Route: 14, len: 4, dist: 60.47305000, max cap: 42.00

R106

12
 50-33-29-79-81-78-68-24-80-12-0
 96-85-91-16-61-99-6-0
 62-88-30-20-66-32-70-1-0
 28-26-73-41-22-75-56-74-2-58-0
 48-47-36-19-49-46-82-7-52-0
 94-92-42-15-57-87-97-95-13-0
 65-71-51-9-35-34-3-77-0
 59-37-14-44-38-86-43-100-98-93-0
 21-72-39-23-67-55-54-4-25-0
 5-45-83-18-8-84-17-60-89-0

27-69-76-40-53-0
 63-64-11-90-10-31-0
 Problem Set: R106
 Vehicle capacity: 200.00
 Routes: 12
 Total travel distance: 1252.03013000
 Route: 1, len: 10, dist: 115.83682000, max cap: 149.00
 Route: 2, len: 7, dist: 61.63764000, max cap: 97.00
 Route: 3, len: 8, dist: 114.96642000, max cap: 121.00
 Route: 4, len: 10, dist: 86.99858000, max cap: 122.00
 Route: 5, len: 9, dist: 126.93729000, max cap: 146.00
 Route: 6, len: 9, dist: 75.87546000, max cap: 130.00
 Route: 7, len: 8, dist: 135.65664000, max cap: 110.00
 Route: 8, len: 10, dist: 129.21162000, max cap: 181.00
 Route: 9, len: 9, dist: 136.38858000, max cap: 166.00
 Route: 10, len: 9, dist: 106.69670000, max cap: 101.00
 Route: 11, len: 5, dist: 55.69581000, max cap: 58.00
 Route: 12, len: 6, dist: 106.12857000, max cap: 77.00

R107

10
 52-7-62-11-64-49-19-48-82-18-89-0
 69-30-88-31-10-63-90-32-70-0
 26-21-39-23-67-55-4-25-54-0
 47-36-46-8-84-61-85-98-100-93-96-0
 83-45-99-6-87-57-2-13-97-95-94-0
 27-76-3-79-78-34-35-81-77-28-0
 53-40-12-68-29-24-80-0
 92-42-43-15-41-22-75-56-74-72-73-58-0
 59-37-91-44-14-38-86-16-17-5-60-0
 50-33-65-71-9-66-20-51-1-0
 Problem Set: R107
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 1104.65547000
 Route: 1, len: 11, dist: 115.03315000, max cap: 180.00
 Route: 2, len: 9, dist: 107.37299000, max cap: 120.00
 Route: 3, len: 9, dist: 130.61082000, max cap: 158.00
 Route: 4, len: 11, dist: 119.02399000, max cap: 163.00
 Route: 5, len: 11, dist: 113.45179000, max cap: 161.00
 Route: 6, len: 10, dist: 94.83351000, max cap: 146.00
 Route: 7, len: 7, dist: 78.46318000, max cap: 96.00
 Route: 8, len: 12, dist: 104.06521000, max cap: 129.00
 Route: 9, len: 11, dist: 113.31006000, max cap: 176.00
 Route: 10, len: 9, dist: 128.49077000, max cap: 129.00

R108

9
 27-69-1-53-40-21-4-74-22-41-0
 52-7-48-82-8-46-47-36-49-19-0
 73-72-75-56-23-67-39-55-25-54-26-0
 31-88-10-62-11-64-63-90-32-30-70-0
 28-12-80-76-3-79-78-34-29-24-68-77-0
 2-57-15-43-42-87-97-95-94-13-58-0
 92-98-91-44-14-38-86-16-61-85-100-37-0
 6-96-59-93-99-5-84-17-45-83-60-18-89-0
 50-33-81-51-9-35-71-65-66-20-0
 Problem Set: R108
 Vehicle capacity: 200.00
 Routes: 9
 Total travel distance: 960.87528000
 Route: 1, len: 10, dist: 106.63896000, max cap: 116.00
 Route: 2, len: 10, dist: 119.92813000, max cap: 155.00
 Route: 3, len: 11, dist: 112.24554000, max cap: 186.00
 Route: 4, len: 11, dist: 118.55242000, max cap: 154.00
 Route: 5, len: 12, dist: 106.09758000, max cap: 169.00
 Route: 6, len: 11, dist: 84.67281000, max cap: 160.00
 Route: 7, len: 12, dist: 106.08043000, max cap: 200.00
 Route: 8, len: 13, dist: 84.90822000, max cap: 165.00
 Route: 9, len: 10, dist: 121.75119000, max cap: 153.00

R109

11
 95-92-98-42-15-57-87-97-37-96-13-58-0
 39-67-23-75-22-41-74-56-4-0
 27-69-76-33-81-9-35-34-24-80-0
 2-72-73-21-40-53-26-54-55-25-0
 52-88-7-18-8-84-17-60-89-0
 5-45-61-85-99-94-6-0
 59-14-44-16-86-38-43-100-91-93-0
 83-82-19-47-36-49-46-48-0
 28-12-29-78-79-3-50-77-68-0
 31-30-51-71-65-66-20-70-1-0
 62-11-64-63-90-32-10-0
 Problem Set: R109
 Vehicle capacity: 200.00
 Routes: 11

Total travel distance: 1194.73359000
 Route: 1, len: 12, dist: 95.64635000, max cap: 150.00
 Route: 2, len: 9, dist: 120.24945000, max cap: 159.00
 Route: 3, len: 10, dist: 114.82541000, max cap: 119.00
 Route: 4, len: 10, dist: 115.88107000, max cap: 118.00
 Route: 5, len: 9, dist: 95.96277000, max cap: 71.00
 Route: 6, len: 7, dist: 78.44299000, max cap: 135.00
 Route: 7, len: 10, dist: 127.30241000, max cap: 183.00
 Route: 8, len: 8, dist: 128.26614000, max cap: 143.00
 Route: 9, len: 9, dist: 92.73412000, max cap: 146.00
 Route: 10, len: 9, dist: 119.70836000, max cap: 142.00
 Route: 11, len: 7, dist: 105.71452000, max cap: 92.00

R110

10
 88-62-19-47-36-49-64-32-70-0
 83-45-17-84-5-6-94-96-97-13-0
 27-69-30-51-9-71-35-34-78-33-1-0
 2-41-22-74-73-40-53-26-54-24-0
 28-76-12-29-81-79-3-50-77-68-80-0
 21-72-75-56-23-67-39-25-55-4-0
 92-98-44-16-86-38-14-37-100-91-93-0
 95-59-99-61-85-87-57-15-43-42-58-0
 52-7-82-18-8-46-48-60-89-0
 31-11-63-90-10-20-66-65-0
 Problem Set: R110
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 1118.83808000
 Route: 1, len: 9, dist: 127.51362000, max cap: 144.00
 Route: 2, len: 10, dist: 88.87930000, max cap: 138.00
 Route: 3, len: 11, dist: 106.91914000, max cap: 130.00
 Route: 4, len: 10, dist: 117.83990000, max cap: 108.00
 Route: 5, len: 11, dist: 106.96449000, max cap: 188.00
 Route: 6, len: 10, dist: 107.77126000, max cap: 172.00
 Route: 7, len: 11, dist: 112.05364000, max cap: 168.00
 Route: 8, len: 11, dist: 104.79071000, max cap: 182.00
 Route: 9, len: 9, dist: 103.71989000, max cap: 106.00
 Route: 10, len: 8, dist: 142.38613000, max cap: 122.00

R111

10
 92-98-37-59-99-97-87-6-94-13-0
 83-18-45-8-84-61-91-100-85-93-96-0
 27-69-30-65-66-71-35-34-0
 52-31-88-62-11-63-10-90-32-20-70-0
 28-50-76-53-40-4-54-12-26-0
 95-42-14-44-38-86-16-17-5-60-89-0
 2-57-15-43-41-22-74-56-72-21-58-0
 1-51-81-33-79-9-78-29-68-3-77-0
 73-75-23-67-39-55-25-24-80-0
 7-19-64-49-36-46-47-48-82-0
 Problem Set: R111
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 1096.72605000
 Route: 1, len: 10, dist: 71.81815000, max cap: 148.00
 Route: 2, len: 11, dist: 104.01922000, max cap: 160.00
 Route: 3, len: 8, dist: 129.42182000, max cap: 125.00
 Route: 4, len: 11, dist: 113.54855000, max cap: 142.00
 Route: 5, len: 9, dist: 98.86048000, max cap: 138.00
 Route: 6, len: 11, dist: 115.67148000, max cap: 179.00
 Route: 7, len: 11, dist: 103.83886000, max cap: 120.00
 Route: 8, len: 11, dist: 112.72821000, max cap: 171.00
 Route: 9, len: 9, dist: 118.64148000, max cap: 129.00
 Route: 10, len: 9, dist: 128.17780000, max cap: 146.00

R112

9
 92-98-61-16-86-38-14-44-91-100-37-93-0
 21-72-75-41-22-74-73-40-53-58-26-0
 95-59-85-99-18-83-45-17-84-5-60-89-0
 28-76-79-78-34-35-71-65-66-20-1-0
 12-29-24-55-25-67-23-56-39-4-0
 52-62-19-11-64-63-90-32-10-70-0
 69-30-51-9-81-33-50-3-77-68-80-54-0
 27-31-88-7-82-8-46-36-49-47-48-0
 2-57-15-43-42-87-94-6-96-97-13-0
 Problem Set: R112
 Vehicle capacity: 200.00
 Routes: 9
 Total travel distance: 982.13919000
 Route: 1, len: 12, dist: 106.94946000, max cap: 181.00
 Route: 2, len: 11, dist: 89.60499000, max cap: 152.00
 Route: 3, len: 12, dist: 99.47414000, max cap: 190.00
 Route: 4, len: 11, dist: 117.88694000, max cap: 156.00
 Route: 5, len: 10, dist: 129.34142000, max cap: 149.00

```
Route: 6, len: 10, dist: 118.72071000, max cap: 123.00
Route: 7, len: 12, dist: 106.63031000, max cap: 190.00
Route: 8, len: 11, dist: 117.95749000, max cap: 181.00
Route: 9, len: 11, dist: 95.57373000, max cap: 136.00
```

R201

```
4
33-65-63-31-69-52-27-28-12-29-76-30-71-9-51-81-79-78-34-3-50-20-10-32-66-35-68-77-1-70-0
95-59-92-42-15-14-98-61-16-44-38-86-85-99-6-94-53-26-54-56-74-4-55-25-24-80-0
2-72-39-75-23-67-21-40-73-41-22-87-57-43-37-97-96-13-58-0
5-83-45-82-47-36-64-11-19-62-7-88-90-18-84-8-49-46-48-60-17-91-100-93-89-0
Problem Set: R201
Vehicle capacity: 1000.00
Routes: 4
Total travel distance: 1252.37074000
Route: 1, len: 30, dist: 427.86763000, max cap: 456.00
Route: 2, len: 26, dist: 263.14251000, max cap: 373.00
Route: 3, len: 19, dist: 223.43829000, max cap: 299.00
Route: 4, len: 25, dist: 337.92231000, max cap: 330.00
```

R202

```
3
96-59-92-37-98-85-91-14-42-2-21-72-39-23-15-38-44-16-61-99-18-8-84-86-5-6-94-95-97-43-100-93-17-60-89-0
50-33-65-34-29-3-28-27-69-76-67-73-40-53-87-57-41-22-75-56-74-54-55-4-25-24-80-77-1-70-31-52-0
83-45-48-47-36-63-64-11-19-62-88-30-71-78-79-81-9-51-90-49-46-82-7-10-20-32-66-35-68-12-26-13-58-0
Problem Set: R202
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 1191.70252000
Route: 1, len: 35, dist: 350.06091000, max cap: 529.00
Route: 2, len: 32, dist: 402.92240000, max cap: 395.00
Route: 3, len: 33, dist: 438.71921000, max cap: 534.00
```

R203

```
3
94-95-97-92-98-37-42-57-15-43-14-44-38-86-16-85-59-99-96-6-84-83-8-48-47-49-19-10-63-90-32-66-20-70-7-82-17-61-91-100-93-5-60-89-0
50-33-81-65-71-51-1-69-39-67-23-72-73-21-40-53-87-2-41-22-75-56-74-4-55-25-54-24-80-77-28-0
27-52-18-45-46-36-64-11-62-88-31-30-76-3-79-78-9-35-34-29-68-12-26-13-58-0
Problem Set: R203
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 939.50286000
Route: 1, len: 44, dist: 358.39757000, max cap: 654.00
Route: 2, len: 31, dist: 324.66245000, max cap: 436.00
Route: 3, len: 25, dist: 256.44284000, max cap: 368.00
```

R204

```
2
6-94-96-92-97-42-43-15-57-41-22-75-56-23-67-39-12-76-79-9-51-50-28-53-26-54-55-4-72-74-73-2-13-95-59-93-85-98-37-100-91-16-61-5-60-83-18-89-0
27-52-7-88-31-10-30-70-1-69-62-11-19-46-45-17-86-44-38-14-99-87-84-8-82-48-47-36-49-64-63-90-32-20-66-65-71-35-34-78-81-33-3-77-68-80-29-24-25-21-40-58-0
Problem Set: R204
Vehicle capacity: 1000.00
Routes: 2
Total travel distance: 825.51880000
Route: 1, len: 48, dist: 348.87184000, max cap: 712.00
Route: 2, len: 52, dist: 476.64696000, max cap: 746.00
```

R205

```
3
28-12-29-33-65-71-51-30-90-64-49-46-8-17-91-100-37-93-96-13-58-0
45-83-5-59-95-92-98-14-42-15-2-72-39-67-23-75-22-41-73-21-40-53-76-50-3-79-81-9-78-34-35-66-20-32-10-70-48-60-89-0
27-69-31-62-63-11-19-36-47-82-7-88-52-18-84-61-16-44-38-86-85-99-6-94-97-87-43-57-74-56-4-26-54-55-25-24-80-68-77-1-0
Problem Set: R205
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 994.42722000
Route: 1, len: 21, dist: 245.42398000, max cap: 275.00
Route: 2, len: 39, dist: 384.27887000, max cap: 608.00
Route: 3, len: 40, dist: 364.72437000, max cap: 575.00
```

R206

```
3
28-27-69-1-50-33-29-34-65-71-51-30-90-64-49-46-8-83-84-17-60-93-100-97-13-58-0
96-5-45-82-48-47-36-19-11-63-62-88-7-18-6-87-59-99-61-16-86-38-43-57-2-74-75-56-4-25-55-54-24-80-68-77-12-26-0
94-95-92-37-98-85-91-44-14-42-15-39-67-23-41-22-72-73-21-40-53-76-3-79-78-81-9-35-66-20-32-10-70-31-52-89-0
Problem Set: R206
```

Vehicle capacity: 1000.00
 Routes: 3
 Total travel distance: 906.14164000
 Route: 1, len: 26, dist: 272.03499000, max cap: 328.00
 Route: 2, len: 38, dist: 335.37463000, max cap: 563.00
 Route: 3, len: 36, dist: 298.73202000, max cap: 567.00

R207

2
 42-92-45-46-36-64-11-62-88-30-20-65-71-9-81-34-78-79-3-76-28-53-40-2-87-57-41-22-73-21-72-74-75-56-4-25-55-54-80-68-77-12-26-58-13-97-37-100-98-93-59-95-94-27-1-69-50-33-29-24-39-67-23-15-43-14-44-38-86-16-61-91-85-99-96-6-84-8-82-7-48-47-49-19-10-63-90-32-66-35-51-70-31-52-18-83-17-5-60-89-0
 Problem Set: R207
 Vehicle capacity: 1000.00
 Routes: 2
 Total travel distance: 890.60784000
 Route: 1, len: 53, dist: 437.33879000, max cap: 752.00
 Route: 2, len: 47, dist: 453.26905000, max cap: 706.00

R208

2
 27-52-7-88-31-10-62-11-63-90-32-30-70-69-1-50-76-12-26-28-53-2-57-42-87-97-59-99-5-84-17-45-8-46-47-36-49-64-19-48-82-18-83-60-93-91-100-37-95-94-13-0
 89-6-96-92-98-85-61-16-86-44-38-14-43-15-41-22-75-56-23-67-39-24-29-79-33-81-9-51-20-66-65-71-35-34-78-3-77-68-80-54-55-25-4-72-74-73-21-40-58-0
 Problem Set: R208
 Vehicle capacity: 1000.00
 Routes: 2
 Total travel distance: 726.82234000
 Route: 1, len: 51, dist: 367.44493000, max cap: 722.00
 Route: 2, len: 49, dist: 359.37741000, max cap: 736.00

R209

3
 27-69-31-88-82-47-19-11-63-90-70-30-71-9-51-81-33-50-3-79-78-34-35-65-66-20-32-10-48-60-89-0
 28-76-12-29-39-67-23-75-72-73-21-40-53-18-7-62-64-49-36-46-8-45-17-84-96-37-100-91-97-13-58-0
 52-83-5-59-98-92-95-2-42-14-44-38-86-16-61-85-93-99-6-94-87-57-15-43-41-22-74-56-4-26-54-55-25-24-80-68-77-1-0
 Problem Set: R209
 Vehicle capacity: 1000.00
 Routes: 3
 Total travel distance: 909.16288000
 Route: 1, len: 31, dist: 288.62426000, max cap: 468.00
 Route: 2, len: 31, dist: 304.19379000, max cap: 433.00
 Route: 3, len: 38, dist: 316.34483000, max cap: 557.00

R210

3
 28-33-71-65-30-1-69-31-88-62-11-64-49-46-8-84-61-91-14-43-57-2-13-97-37-98-100-93-17-5-60-89-0
 95-59-92-42-15-75-23-67-39-12-76-3-79-29-78-81-9-51-20-32-90-63-10-70-66-35-34-24-80-68-77-50-0
 27-52-7-19-36-47-48-82-18-83-45-86-38-44-16-85-99-6-94-87-53-40-21-73-72-22-41-74-56-4-55-25-54-26-58-0
 Problem Set: R210
 Vehicle capacity: 1000.00
 Routes: 3
 Total travel distance: 939.37224000
 Route: 1, len: 32, dist: 319.88787000, max cap: 415.00
 Route: 2, len: 32, dist: 324.46123000, max cap: 483.00
 Route: 3, len: 36, dist: 295.02314000, max cap: 560.00

R211

2
 95-59-92-98-42-15-2-21-73-72-39-67-23-75-22-41-57-87-94-6-53-40-12-76-29-79-33-81-9-71-65-66-20-51-35-34-78-3-77-68-80-24-54-55-25-4-56-74-58-0
 28-27-52-69-31-30-63-64-11-19-62-88-7-82-18-83-84-5-99-85-61-16-44-14-38-86-17-45-8-46-48-47-36-49-90-32-10-70-1-50-26-13-97-96-37-43-100-91-93-60-89-0
 Problem Set: R211
 Vehicle capacity: 1000.00
 Routes: 2
 Total travel distance: 885.71093000
 Route: 1, len: 49, dist: 416.46993000, max cap: 707.00
 Route: 2, len: 51, dist: 469.24100000, max cap: 751.00

RC101

14
 28-33-85-89-91-0
 65-52-99-57-86-74-0
 69-98-88-53-78-55-68-0
 27-29-31-30-34-26-32-93-0
 92-95-62-67-71-94-50-80-0
 64-90-84-56-66-0
 72-36-38-41-40-43-37-35-0

14-47-12-73-79-46-4-60-0
 63-76-51-22-49-20-24-0
 59-75-87-97-58-77-0
 39-42-44-61-81-54-96-0
 83-23-21-19-18-48-25-0
 82-11-15-16-9-10-13-17-0
 5-45-2-7-6-8-3-1-70-100-0
 Problem Set: RC101
 Vehicle capacity: 200.00
 Routes: 14
 Total travel distance: 1696.94871000
 Route: 1, len: 5, dist: 158.03334000, max cap: 60.00
 Route: 2, len: 6, dist: 90.42578000, max cap: 93.00
 Route: 3, len: 7, dist: 85.26543000, max cap: 124.00
 Route: 4, len: 8, dist: 149.17384000, max cap: 133.00
 Route: 5, len: 8, dist: 116.62820000, max cap: 112.00
 Route: 6, len: 5, dist: 97.78853000, max cap: 76.00
 Route: 7, len: 8, dist: 133.24083000, max cap: 178.00
 Route: 8, len: 8, dist: 135.96699000, max cap: 142.00
 Route: 9, len: 7, dist: 119.39322000, max cap: 126.00
 Route: 10, len: 6, dist: 162.69783000, max cap: 110.00
 Route: 11, len: 7, dist: 98.68956000, max cap: 91.00
 Route: 12, len: 7, dist: 112.30184000, max cap: 144.00
 Route: 13, len: 8, dist: 116.74320000, max cap: 169.00
 Route: 14, len: 10, dist: 120.60012000, max cap: 166.00

RC102

12
 42-61-81-90-68-54-96-0
 14-47-73-78-79-7-55-100-70-0
 36-44-40-38-41-43-35-37-72-0
 65-83-19-23-18-48-21-25-77-0
 69-88-53-9-10-13-17-12-0
 85-63-76-51-22-49-20-24-0
 92-95-62-29-30-32-89-0
 91-64-99-86-57-74-59-52-0
 33-28-27-26-31-34-50-93-94-80-0
 2-45-1-3-5-8-6-46-4-60-98-0
 39-71-67-84-56-66-0
 82-11-15-16-87-97-75-58-0
 Problem Set: RC102
 Vehicle capacity: 200.00
 Routes: 12
 Total travel distance: 1554.74684000
 Route: 1, len: 7, dist: 125.77566000, max cap: 98.00
 Route: 2, len: 9, dist: 136.53697000, max cap: 144.00
 Route: 3, len: 9, dist: 141.69330000, max cap: 188.00
 Route: 4, len: 9, dist: 125.53553000, max cap: 167.00
 Route: 5, len: 8, dist: 109.05075000, max cap: 151.00
 Route: 6, len: 8, dist: 119.41582000, max cap: 128.00
 Route: 7, len: 7, dist: 146.57190000, max cap: 78.00
 Route: 8, len: 8, dist: 129.68408000, max cap: 126.00
 Route: 9, len: 10, dist: 139.08468000, max cap: 189.00
 Route: 10, len: 11, dist: 117.17802000, max cap: 196.00
 Route: 11, len: 6, dist: 120.83130000, max cap: 86.00
 Route: 12, len: 8, dist: 143.38883000, max cap: 173.00

RC103

11
 83-24-23-76-89-63-85-51-91-0
 92-95-62-50-67-84-56-66-0
 98-60-73-78-79-7-46-4-100-70-0
 2-45-1-3-5-8-6-55-68-0
 61-42-43-44-40-38-41-72-71-93-94-80-0
 69-88-53-10-13-16-17-47-0
 12-14-15-11-9-87-59-74-86-52-82-90-0
 64-20-22-49-19-18-48-21-25-57-0
 81-39-36-35-37-54-96-0
 65-99-97-75-58-77-0
 33-27-30-32-28-26-29-31-34-0
 Problem Set: RC103
 Vehicle capacity: 200.00
 Routes: 11
 Total travel distance: 1261.67143000
 Route: 1, len: 9, dist: 140.38025000, max cap: 150.00
 Route: 2, len: 8, dist: 94.56500000, max cap: 115.00
 Route: 3, len: 10, dist: 120.50131000, max cap: 184.00
 Route: 4, len: 9, dist: 101.02827000, max cap: 157.00
 Route: 5, len: 12, dist: 109.15921000, max cap: 190.00
 Route: 6, len: 8, dist: 100.99513000, max cap: 141.00
 Route: 7, len: 12, dist: 117.75693000, max cap: 196.00
 Route: 8, len: 10, dist: 105.44462000, max cap: 200.00
 Route: 9, len: 7, dist: 95.00520000, max cap: 132.00
 Route: 10, len: 6, dist: 134.10769000, max cap: 109.00
 Route: 11, len: 9, dist: 142.72782000, max cap: 150.00

RC104

10
 88-60-78-73-79-7-6-2-55-0
 42-44-43-38-37-35-36-40-39-41-0
 85-63-89-76-84-51-64-83-66-0
 22-20-49-19-23-48-18-21-25-24-0
 80-91-56-95-62-67-94-93-71-72-54-96-81-0
 61-70-1-3-5-45-8-46-4-100-68-0
 14-47-15-11-9-87-59-74-86-57-52-0
 69-98-53-12-17-16-13-10-82-0
 92-50-33-32-30-28-26-27-29-31-34-0
 90-65-99-97-75-58-77-0

Problem Set: RC104
 Vehicle capacity: 200.00

Routes: 10

Total travel distance: 1135.47902000
 Route: 1, len: 9, dist: 100.86958000, max cap: 184.00
 Route: 2, len: 10, dist: 102.54543000, max cap: 200.00
 Route: 3, len: 9, dist: 133.04216000, max cap: 148.00
 Route: 4, len: 10, dist: 108.90051000, max cap: 200.00
 Route: 5, len: 13, dist: 107.44823000, max cap: 163.00
 Route: 6, len: 11, dist: 102.26595000, max cap: 176.00
 Route: 7, len: 11, dist: 125.64249000, max cap: 194.00
 Route: 8, len: 9, dist: 92.71370000, max cap: 150.00
 Route: 9, len: 11, dist: 127.60087000, max cap: 194.00
 Route: 10, len: 7, dist: 134.45010000, max cap: 115.00

RC105

13
 92-95-64-99-52-86-57-74-0
 72-71-81-41-54-96-94-93-0
 2-45-5-7-79-55-68-0
 63-62-67-84-51-85-91-0
 90-53-66-56-0
 98-14-47-15-16-9-10-13-17-0
 83-19-23-18-22-49-20-77-0
 31-29-27-30-28-26-32-34-50-80-0
 69-88-78-73-60-0
 65-82-12-11-87-59-97-75-58-0
 42-61-8-6-46-4-3-1-100-0
 39-36-44-38-40-37-35-43-70-0
 33-76-89-48-21-25-24-0

Problem Set: RC105
 Vehicle capacity: 200.00

Routes: 13

Total travel distance: 1629.43589000
 Route: 1, len: 8, dist: 122.75963000, max cap: 114.00
 Route: 2, len: 8, dist: 127.54476000, max cap: 120.00
 Route: 3, len: 7, dist: 108.96624000, max cap: 147.00
 Route: 4, len: 7, dist: 129.29309000, max cap: 70.00
 Route: 5, len: 4, dist: 73.45077000, max cap: 46.00
 Route: 6, len: 9, dist: 121.02107000, max cap: 149.00
 Route: 7, len: 8, dist: 143.05359000, max cap: 171.00
 Route: 8, len: 10, dist: 134.62325000, max cap: 183.00
 Route: 9, len: 5, dist: 81.70051000, max cap: 95.00
 Route: 10, len: 9, dist: 142.50703000, max cap: 188.00
 Route: 11, len: 9, dist: 144.53492000, max cap: 132.00
 Route: 12, len: 9, dist: 132.92800000, max cap: 193.00
 Route: 13, len: 7, dist: 167.05303000, max cap: 116.00

RC106

11
 95-62-63-85-76-51-84-56-66-0
 42-44-39-40-36-38-41-43-37-35-0
 65-83-64-19-23-21-18-48-25-77-0
 69-98-88-53-12-10-9-13-17-0
 92-61-81-90-94-96-54-68-0
 82-52-99-86-57-22-49-20-24-91-0
 15-16-47-78-73-79-60-55-70-0
 14-11-87-59-75-97-58-74-0
 2-45-5-8-7-6-46-4-3-1-100-0
 72-71-67-30-32-34-50-93-80-0
 33-31-29-27-28-26-89-0

Problem Set: RC106
 Vehicle capacity: 200.00

Routes: 11

Total travel distance: 1424.73327000
 Route: 1, len: 9, dist: 109.97336000, max cap: 120.00
 Route: 2, len: 10, dist: 131.85046000, max cap: 200.00
 Route: 3, len: 10, dist: 132.23449000, max cap: 184.00
 Route: 4, len: 9, dist: 109.36513000, max cap: 160.00
 Route: 5, len: 8, dist: 119.86481000, max cap: 125.00
 Route: 6, len: 10, dist: 120.09921000, max cap: 161.00
 Route: 7, len: 9, dist: 132.34835000, max cap: 168.00
 Route: 8, len: 8, dist: 151.83792000, max cap: 161.00
 Route: 9, len: 11, dist: 109.75120000, max cap: 193.00
 Route: 10, len: 9, dist: 139.64374000, max cap: 127.00
 Route: 11, len: 7, dist: 167.76460000, max cap: 125.00

RC107

11
 69-98-88-53-78-73-79-60-55-70-68-0
 90-81-94-93-96-54-0
 31-29-27-28-26-30-32-34-33-0
 64-22-19-23-21-18-48-49-20-24-0
 38-41-72-71-67-50-62-91-80-0
 82-99-52-87-59-86-57-66-0
 61-42-44-43-40-37-35-36-39-0
 11-12-14-47-17-16-15-13-9-10-0
 65-83-25-77-75-97-58-74-0
 2-6-7-8-5-3-1-45-46-4-100-0
 92-95-84-85-63-51-76-89-56-0
 Problem Set: RC107
 Vehicle capacity: 200.00
 Routes: 11
 Total travel distance: 1230.47709000
 Route: 1, len: 11, dist: 116.69298000, max cap: 199.00
 Route: 2, len: 6, dist: 69.33685000, max cap: 84.00
 Route: 3, len: 9, dist: 140.98342000, max cap: 150.00
 Route: 4, len: 10, dist: 105.27227000, max cap: 197.00
 Route: 5, len: 9, dist: 126.11734000, max cap: 140.00
 Route: 6, len: 8, dist: 96.79332000, max cap: 126.00
 Route: 7, len: 9, dist: 98.40220000, max cap: 159.00
 Route: 8, len: 10, dist: 100.97982000, max cap: 200.00
 Route: 9, len: 8, dist: 150.62867000, max cap: 136.00
 Route: 10, len: 11, dist: 101.80103000, max cap: 193.00
 Route: 11, len: 9, dist: 123.46919000, max cap: 140.00

RC108

10
 90-61-81-96-94-93-72-54-0
 71-67-62-50-63-85-84-92-56-91-80-0
 65-83-57-24-22-49-21-23-25-77-0
 69-98-88-53-78-73-79-60-55-70-68-0
 2-6-7-8-46-4-45-5-3-1-100-0
 41-42-44-43-40-38-37-35-36-39-0
 82-99-52-86-87-59-97-75-58-74-0
 64-51-76-89-18-48-19-20-66-0
 12-14-47-17-16-15-13-9-11-10-0
 95-33-30-28-26-27-29-31-34-32-0
 Problem Set: RC108
 Vehicle capacity: 200.00
 Routes: 10
 Total travel distance: 1139.82108000
 Route: 1, len: 8, dist: 91.80977000, max cap: 101.00
 Route: 2, len: 11, dist: 124.42452000, max cap: 141.00
 Route: 3, len: 10, dist: 122.45681000, max cap: 180.00
 Route: 4, len: 11, dist: 116.69298000, max cap: 199.00
 Route: 5, len: 11, dist: 96.01488000, max cap: 193.00
 Route: 6, len: 10, dist: 104.35962000, max cap: 200.00
 Route: 7, len: 10, dist: 126.38843000, max cap: 166.00
 Route: 8, len: 9, dist: 124.15223000, max cap: 188.00
 Route: 9, len: 10, dist: 97.22714000, max cap: 200.00
 Route: 10, len: 10, dist: 136.29470000, max cap: 156.00

RC201

4
 65-14-47-59-75-16-15-11-12-73-78-79-7-6-8-46-3-4-1-55-68-0
 69-82-52-83-64-19-23-21-18-76-85-84-51-49-22-20-66-56-96-54-37-43-35-93-91-80-0
 42-36-39-72-45-5-2-98-88-61-44-40-38-41-81-94-50-34-32-26-89-48-24-25-77-58-0
 92-95-63-33-28-27-29-31-30-62-67-71-90-99-57-86-87-9-53-10-97-74-13-17-60-100-70-0
 Problem Set: RC201
 Vehicle capacity: 1000.00
 Routes: 4
 Total travel distance: 1406.93961000
 Route: 1, len: 21, dist: 258.12889000, max cap: 400.00
 Route: 2, len: 26, dist: 318.05067000, max cap: 456.00
 Route: 3, len: 26, dist: 447.66305000, max cap: 480.00
 Route: 4, len: 27, dist: 383.09700000, max cap: 388.00

RC202

3
 65-82-12-14-47-15-11-98-69-88-73-16-87-99-53-78-79-8-6-46-2-55-68-54-43-35-37-72-96-93-94-80-0
 45-5-3-1-42-39-36-44-64-23-19-18-76-51-22-57-86-9-10-97-59-74-13-17-7-4-60-100-70-0
 91-92-95-85-63-33-28-26-27-29-31-34-30-62-67-71-61-41-38-40-81-90-84-49-20-83-66-56-50-32-89-48-21-24-25-77-75-58-52-0
 Problem Set: RC202
 Vehicle capacity: 1000.00
 Routes: 3
 Total travel distance: 1365.64462000
 Route: 1, len: 32, dist: 388.61988000, max cap: 541.00
 Route: 2, len: 29, dist: 450.15954000, max cap: 623.00
 Route: 3, len: 39, dist: 526.86520000, max cap: 560.00

RC203

3
81-61-42-39-36-43-44-69-88-98-82-99-87-9-53-78-79-8-6-7-46-4-2-55-68-70-100-0
90-65-91-92-95-50-33-32-34-31-29-27-26-28-30-62-67-94-96-54-41-38-40-35-37-72-71-93-80-0
1-3-5-45-60-73-16-15-11-86-57-64-23-21-48-18-76-89-63-85-84-51-22-19-49-20-56-66-52-10-12-14-47-17-13-74-59-97-75-58-77-25-24-83-0
Problem Set: RC203
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 1049.62383000
Route: 1, len: 27, dist: 304.92780000, max cap: 476.00
Route: 2, len: 29, dist: 246.43254000, max cap: 460.00
Route: 3, len: 44, dist: 498.26349000, max cap: 788.00

RC204

3
80-91-92-94-62-51-89-76-18-23-21-48-19-49-20-57-99-52-87-9-13-86-74-59-97-75-58-77-25-24-22-83-65-90-0
69-98-82-10-11-15-16-17-47-14-12-53-60-78-73-79-7-8-46-45-5-3-1-4-6-2-88-55-100-70-61-68-0
81-96-54-41-39-42-44-43-40-36-35-37-38-72-71-93-67-84-85-63-33-32-30-28-26-27-29-31-34-50-95-56-64-66-0
Problem Set: RC204
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 798.46323000
Route: 1, len: 34, dist: 321.72022000, max cap: 594.00
Route: 2, len: 32, dist: 221.44829000, max cap: 580.00
Route: 3, len: 34, dist: 255.29472000, max cap: 550.00

RC205

4
65-83-64-19-23-21-18-57-86-52-99-9-87-59-75-97-10-66-56-50-34-32-26-89-48-25-77-58-0
2-45-5-42-39-36-72-71-62-94-61-44-40-38-41-81-90-53-98-55-68-43-35-37-54-96-93-91-80-0
92-95-33-28-27-29-31-30-63-76-85-67-84-51-49-22-20-24-74-13-17-60-0
69-82-11-15-16-47-14-12-88-78-73-79-7-6-8-46-4-3-1-70-100-0
Problem Set: RC205
Vehicle capacity: 1000.00
Routes: 4
Total travel distance: 1297.64736000
Route: 1, len: 28, dist: 418.42504000, max cap: 566.00
Route: 2, len: 29, dist: 400.14345000, max cap: 455.00
Route: 3, len: 22, dist: 292.30121000, max cap: 310.00
Route: 4, len: 21, dist: 186.77766000, max cap: 393.00

RC206

3
65-83-52-82-12-14-47-16-15-11-59-75-23-21-18-19-49-22-57-99-86-87-97-9-13-10-17-60-55-100-70-68-0
69-98-2-45-5-44-42-39-38-36-40-41-61-88-53-78-73-79-7-6-8-46-4-3-1-43-35-37-54-96-93-91-80-0
72-92-95-62-31-29-27-28-30-33-63-85-76-51-64-84-67-71-94-81-90-66-56-50-34-32-26-89-20-24-48-25-77-58-74-0
Problem Set: RC206
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 1146.31689000
Route: 1, len: 32, dist: 335.31302000, max cap: 621.00
Route: 2, len: 33, dist: 334.39084000, max cap: 592.00
Route: 3, len: 35, dist: 476.61303000, max cap: 511.00

RC207

3
82-99-52-9-11-15-16-47-14-12-53-78-73-79-7-6-8-46-4-45-3-1-43-36-35-37-54-0
69-98-88-2-5-42-44-40-38-39-41-72-71-93-81-61-90-56-84-85-94-96-92-62-50-34-27-26-32-89-48-24-66-91-80-0
65-83-64-95-67-31-29-28-30-33-63-76-51-19-21-18-23-75-59-87-74-86-57-22-20-49-25-77-58-97-13-10-17-60-55-100-70-68-0
Problem Set: RC207
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 1061.14420000
Route: 1, len: 27, dist: 232.71719000, max cap: 480.00
Route: 2, len: 35, dist: 419.82875000, max cap: 577.00
Route: 3, len: 38, dist: 408.59826000, max cap: 667.00

RC208

3
90-82-99-52-57-23-21-18-19-49-22-24-20-48-25-77-58-75-97-59-87-74-86-9-13-10-14-17-60-55-100-70-68-0
65-83-64-95-92-71-72-38-39-44-42-61-81-94-67-62-50-34-31-29-27-26-28-30-32-33-76-89-63-85-51-84-56-66-0
69-98-88-53-12-11-15-16-47-78-73-79-7-6-2-8-46-4-45-5-3-1-43-40-36-35-37-41-54-96-93-91-80-0
Problem Set: RC208
Vehicle capacity: 1000.00
Routes: 3
Total travel distance: 828.14110000
Route: 1, len: 33, dist: 275.40556000, max cap: 572.00
Route: 2, len: 34, dist: 309.42456000, max cap: 519.00
Route: 3, len: 33, dist: 243.31098000, max cap: 633.00
