Table 1: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 1

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 19 | 19 | 0.011138 | 8.54E-06 | 9 | 13 | 0.009534 | 1.52E-06 | 50 | 52 | 0.047282 | 9.51E-10 |
| | x2 | 19 | 19 | 0.004016 | 5.94E-06 | 5 | 7 | 0.004738 | 5.14E-06 | 28 | 30 | 0.007668 | 5.48E-10 |
| | x3 | 14 | 14 | 0.002233 | 6.83E-06 | 8 | 12 | 0.001804 | 6.74E-06 | 47 | 49 | 0.006394 | 7.72E-10 |
| | x4 | 16 | 16 | 0.00222 | 9.31E-06 | 10 | 15 | 0.001764 | 2.72E-06 | 53 | 55 | 0.006797 | 7.76E-10 |
| | x5 | 19 | 19 | 0.005796 | 5.94E-06 | 5 | 7 | 0.004014 | 5.14E-06 | 28 | 30 | 0.007186 | 5.48E-10 |
| 5000 | x1 | 19 | 19 | 0.012655 | 9.21E-06 | 10 | 14 | 0.00791 | 9.58E-06 | 43 | 45 | 0.054764 | 8.47E-10 |
| | x2 | 22 | 22 | 0.014953 | 6.31E-06 | 12 | 17 | 0.011646 | 2.24E-06 | 49 | 51 | 0.067734 | 7.88E-10 |
| | x3 | 16 | 16 | 0.009324 | 7.57E-06 | 8 | 12 | 0.008778 | 7.94E-06 | 45 | 47 | 0.063472 | 7.95E-10 |
| | x4 | 16 | 16 | 0.01126 | 8.32E-06 | 11 | 16 | 0.015407 | 9.64E-06 | 35 | 37 | 0.044842 | 7.74E-10 |
| | x5 | 22 | 22 | 0.012637 | 6.31E-06 | 12 | 17 | 0.012564 | 2.24E-06 | 49 | 51 | 0.075174 | 7.88E-10 |
| 10000 | x1 | 19 | 19 | 0.02184 | 9.21E-06 | 10 | 14 | 0.019813 | 9.58E-06 | 43 | 45 | 0.109285 | 8.47E-10 |
| | x2 | 22 | 22 | 0.026164 | 7.28E-06 | 12 | 17 | 0.018121 | 3.03E-06 | 50 | 52 | 0.118425 | 5.57E-10 |
| | x3 | 16 | 16 | 0.0187 | 8.61E-06 | 8 | 12 | 0.011714 | 8.71E-06 | 46 | 48 | 0.115025 | 5.62E-10 |
| | x4 | 17 | 17 | 0.021244 | 3.92E-06 | 12 | 17 | 0.020389 | 2.91E-06 | 36 | 38 | 0.100533 | 5.47E-10 |
| | x5 | 22 | 22 | 0.02636 | 7.28E-06 | 12 | 17 | 0.022171 | 3.03E-06 | 50 | 52 | 0.119632 | 5.57E-10 |
| 50000 | x1 | 19 | 19 | 0.086206 | 9.21E-06 | 10 | 14 | 0.086665 | 9.59E-06 | 43 | 45 | 0.439248 | 8.47E-10 |
| | x2 | 23 | 23 | 0.095266 | 5.08E-06 | 12 | 17 | 0.10214 | 6.56E-06 | 49 | 51 | 0.519772 | 6.21E-10 |
| | x3 | 17 | 17 | 0.067117 | 5.96E-06 | 7 | 11 | 0.069091 | 5.92E-06 | 45 | 47 | 0.523922 | 6.26E-10 |
| | x4 | 17 | 17 | 0.070379 | 8.77E-06 | 12 | 17 | 0.096568 | 6.51E-06 | 37 | 39 | 0.447126 | 6.12E-10 |
| | x5 | 23 | 23 | 0.11113 | 5.08E-06 | 12 | 17 | 0.1011 | 6.56E-06 | 49 | 51 | 0.594712 | 6.21E-10 |
| 100000 | x1 | 19 | 19 | 0.15056 | 9.21E-06 | 10 | 14 | 0.26048 | 9.59E-06 | 43 | 45 | 1.282938 | 8.47E-10 |
| | x2 | 23 | 23 | 0.19407 | 5.86E-06 | 12 | 17 | 0.19726 | 9.24E-06 | 48 | 50 | 1.227532 | 8.78E-10 |
| | x3 | 17 | 17 | 0.144 | 6.61E-06 | 8 | 12 | 0.21657 | 5.82E-06 | 45 | 47 | 1.232154 | 8.86E-10 |
| | x4 | 18 | 18 | 0.18626 | 4.13E-06 | 12 | 17 | 0.20422 | 9.20E-06 | 38 | 39 | 0.996014 | 8.65E-10 |
| | x5 | 23 | 23 | 0.19968 | 5.86E-06 | 12 | 17 | 0.47458 | 9.24E-06 | 48 | 50 | 1.218259 | 8.78E-10 |

Table 2: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 2

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 20 | 20 | 0.001874 | 6.50E-06 | 15 | 15 | 0.001979 | 5.95E-06 | 31 | 33 | 0.009344 | 9.75E-10 |
| | x2 | 19 | 19 | 0.001562 | 9.38E-06 | 13 | 13 | 0.00143 | 5.57E-06 | 29 | 31 | 0.005747 | 6.37E-10 |
| | x3 | 16 | 16 | 0.001408 | 6.43E-06 | 10 | 10 | 0.001294 | 9.47E-06 | 26 | 28 | 0.00387 | 6.43E-10 |
| | x4 | 20 | 20 | 0.001569 | 7.77E-06 | 15 | 15 | 0.001945 | 5.95E-06 | 31 | 33 | 0.004432 | 9.75E-10 |
| | x5 | 19 | 19 | 0.002043 | 9.38E-06 | 13 | 13 | 0.001655 | 5.57E-06 | 29 | 31 | 0.005718 | 6.37E-10 |
| 5000 | x1 | 16 | 16 | 0.00861 | 9.44E-06 | * | * | * | * | * | * | * | * |
| | x2 | 21 | 21 | 0.011708 | 8.96E-06 | * | * | * | * | * | * | * | * |
| | x3 | 16 | 16 | 0.011197 | 9.93E-06 | * | * | * | * | 21 | 23 | 0.02859 | 8.12E-10 |
| | x4 | 21 | 21 | 0.017571 | 8.96E-06 | * | * | * | * | * | * | * | * |
| | x5 | 21 | 21 | 0.012257 | 8.96E-06 | * | * | * | * | * | * | * | * |
| 10000 | x1 | 16 | 16 | 0.017094 | 9.43E-06 | * | * | * | * | * | * | * | * |
| | x2 | 22 | 22 | 0.024896 | 6.33E-06 | * | * | * | * | * | * | * | * |
| | x3 | 17 | 17 | 0.022905 | 7.00E-06 | * | * | * | * | 22 | 24 | 0.058678 | 5.49E-10 |
| | x4 | 22 | 22 | 0.029163 | 6.33E-06 | * | * | * | * | * | * | * | * |
| | x5 | 22 | 22 | 0.026342 | 6.33E-06 | * | * | * | * | * | * | * | * |
| 50000 | x1 | 16 | 16 | 0.072498 | 9.42E-06 | * | * | * | * | * | * | * | * |
| | x2 | 23 | 23 | 0.10446 | 7.07E-06 | * | * | * | * | * | * | * | * |
| | x3 | 18 | 18 | 0.08169 | 7.81E-06 | * | * | * | * | 23 | 25 | 0.243185 | 5.9E-10 |
| | x4 | 23 | 23 | 0.1219 | 7.07E-06 | * | * | * | * | * | * | * | * |
| | x5 | 23 | 23 | 0.11162 | 7.07E-06 | * | * | * | * | * | * | * | * |
| 100000 | x1 | 16 | 16 | 0.14043 | 9.42E-06 | * | * | * | * | * | * | * | * |
| | x2 | 23 | 23 | 0.31669 | 1.00E-05 | * | * | * | * | * | * | * | * |
| | x3 | 19 | 19 | 0.2796 | 5.52E-06 | * | * | * | * | 23 | 25 | 0.532722 | 8.31E-10 |
| | x4 | 23 | 23 | 0.23525 | 1.00E-05 | * | * | * | * | * | * | * | * |
| | x5 | 23 | 23 | 0.2371 | 1.00E-05 | * | * | * | * | * | * | * | * |

Table 3: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 3

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 15 | 15 | 0.00304 | 8.00E-06 | 23 | 28 | 0.00277 | 4.57E-06 | 29 | 31 | 0.027464 | 8.73E-10 |
| | x2 | 15 | 15 | 0.001288 | 5.54E-06 | 2 | 3 | 0.000815 | 9.94E-06 | 28 | 30 | 0.006402 | 8.82E-10 |
| | x3 | 7 | 7 | 0.004141 | 8.09E-06 | 3 | 4 | 0.001081 | 8.69E-06 | 27 | 29 | 0.004185 | 5.26E-10 |
| | x4 | 15 | 15 | 0.001502 | 9.39E-06 | 23 | 28 | 0.002407 | 4.57E-06 | 29 | 31 | 0.004358 | 8.73E-10 |
| | x5 | 15 | 15 | 0.002607 | 5.54E-06 | 2 | 3 | 0.000893 | 9.94E-06 | 28 | 30 | 0.00483 | 8.82E-10 |
| 5000 | x1 | 15 | 15 | 0.007252 | 8.38E-06 | 22 | 27 | 0.020533 | 2.26E-06 | 30 | 32 | 0.04282 | 5.22E-10 |
| | x2 | 20 | 20 | 0.016698 | 7.47E-06 | 30 | 35 | 0.027031 | 6.59E-06 | 35 | 37 | 0.040462 | 5.23E-10 |
| | x3 | 12 | 12 | 0.009306 | 8.00E-06 | 5 | 6 | 0.003933 | 6.95E-07 | 32 | 34 | 0.043221 | 8.21E-10 |
| | x4 | 20 | 20 | 0.011764 | 7.47E-06 | 30 | 35 | 0.021516 | 7.63E-06 | 35 | 37 | 0.038511 | 5.24E-10 |
| | x5 | 20 | 20 | 0.012044 | 7.47E-06 | 30 | 35 | 0.022665 | 6.59E-06 | 35 | 37 | 0.041674 | 5.23E-10 |
| 10000 | x1 | 15 | 15 | 0.019705 | 8.38E-06 | 22 | 27 | 0.033106 | 8.64E-06 | 30 | 32 | 0.070228 | 5.22E-10 |
| | x2 | 21 | 21 | 0.025015 | 5.28E-06 | 27 | 32 | 0.042785 | 7.40E-06 | 35 | 37 | 0.082462 | 7.4E-10 |
| | x3 | 13 | 13 | 0.015593 | 5.65E-06 | 5 | 6 | 0.006695 | 9.83E-07 | 33 | 35 | 0.069359 | 5.81E-10 |
| | x4 | 21 | 21 | 0.019026 | 5.28E-06 | 30 | 35 | 0.04547 | 9.88E-06 | 35 | 37 | 0.072403 | 7.4E-10 |
| | x5 | 21 | 21 | 0.024323 | 5.28E-06 | 27 | 32 | 0.039965 | 7.40E-06 | 35 | 37 | 0.075856 | 7.4E-10 |
| 50000 | x1 | 15 | 15 | 0.067198 | 8.38E-06 | 21 | 26 | 0.14705 | 2.02E-06 | 30 | 32 | 0.301861 | 5.22E-10 |
| | x2 | 22 | 22 | 0.10242 | 5.90E-06 | 31 | 36 | 0.22096 | 3.60E-06 | 36 | 38 | 0.377129 | 8.28E-10 |
| | x3 | 14 | 14 | 0.057336 | 6.32E-06 | 5 | 6 | 0.047043 | 2.20E-06 | 34 | 36 | 0.318153 | 6.49E-10 |
| | x4 | 22 | 22 | 0.094733 | 5.90E-06 | 32 | 37 | 0.20945 | 7.75E-06 | 36 | 38 | 0.343262 | 8.28E-10 |
| | x5 | 22 | 22 | 0.087689 | 5.90E-06 | 31 | 36 | 0.19944 | 3.60E-06 | 36 | 38 | 0.36167 | 8.28E-10 |
| 100000 | x1 | 15 | 15 | 0.12346 | 8.38E-06 | 23 | 28 | 0.39113 | 5.97E-07 | 30 | 32 | 0.616947 | 5.22E-10 |
| | x2 | 22 | 22 | 0.18972 | 8.35E-06 | 33 | 38 | 0.53977 | 6.37E-06 | 37 | 39 | 0.707057 | 5.85E-10 |
| | x3 | 14 | 14 | 0.11546 | 8.94E-06 | 5 | 6 | 0.077145 | 3.11E-06 | 34 | 36 | 0.767601 | 9.18E-10 |
| | x4 | 22 | 22 | 0.19558 | 8.35E-06 | 33 | 38 | 0.5675 | 6.48E-06 | 37 | 39 | 0.717798 | 5.85E-10 |
| | x5 | 22 | 22 | 0.17223 | 8.35E-06 | 33 | 38 | 0.56677 | 6.37E-06 | 37 | 39 | 0.71785 | 5.85E-10 |

Table 4: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 4

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 17 | 17 | 0.001889 | 6.67E-06 | 13 | 13 | 0.002405 | 9.91E-06 | 34 | 36 | 0.005386 | 9.59E-10 |
| | x2 | 16 | 16 | 0.001463 | 9.48E-06 | 5 | 6 | 0.001803 | 4.64E-07 | 17 | 19 | 0.002678 | 8.55E-10 |
| | x3 | 12 | 12 | 0.001149 | 5.32E-06 | 4 | 5 | 0.002486 | 1.05E-06 | 16 | 18 | 0.002574 | 5.39E-10 |
| | x4 | 17 | 17 | 0.001423 | 7.68E-06 | 13 | 13 | 0.001644 | 9.91E-06 | 34 | 36 | 0.004386 | 9.59E-10 |
| | x5 | 16 | 16 | 0.001797 | 9.48E-06 | 5 | 6 | 0.001227 | 4.64E-07 | 17 | 19 | 0.002688 | 8.55E-10 |
| 5000 | x1 | 17 | 17 | 0.011286 | 7.05E-06 | 11 | 12 | 0.010019 | 4.08E-06 | 37 | 39 | 0.047239 | 7.07E-10 |
| | x2 | 22 | 22 | 0.015355 | 6.15E-06 | 15 | 16 | 0.018171 | 5.36E-06 | 40 | 42 | 0.044805 | 5.81E-10 |
| | x3 | 17 | 17 | 0.008254 | 5.25E-06 | 5 | 6 | 0.008217 | 2.10E-06 | 21 | 23 | 0.024356 | 8.42E-10 |
| | x4 | 22 | 22 | 0.012698 | 6.15E-06 | 12 | 13 | 0.029448 | 6.23E-06 | 42 | 44 | 0.047104 | 7.49E-10 |
| | x5 | 22 | 22 | 0.011232 | 6.15E-06 | 15 | 16 | 0.017434 | 5.36E-06 | 40 | 42 | 0.048308 | 5.81E-10 |
| 10000 | x1 | 17 | 17 | 0.016405 | 7.05E-06 | 11 | 12 | 0.023359 | 4.08E-06 | 42 | 44 | 0.085273 | 5.09E-10 |
| | x2 | 22 | 22 | 0.021372 | 8.70E-06 | 16 | 17 | 0.028243 | 2.73E-06 | 43 | 45 | 0.080883 | 8.59E-10 |
| | x3 | 17 | 17 | 0.018491 | 7.43E-06 | 5 | 6 | 0.025995 | 2.97E-06 | 22 | 24 | 0.041508 | 5.95E-10 |
| | x4 | 22 | 22 | 0.026747 | 8.70E-06 | 12 | 13 | 0.018069 | 8.73E-06 | 46 | 48 | 0.076089 | 6.07E-10 |
| | x5 | 22 | 22 | 0.020487 | 8.70E-06 | 16 | 17 | 0.027224 | 2.73E-06 | 43 | 45 | 0.082384 | 8.59E-10 |
| 50000 | x1 | 17 | 17 | 0.065792 | 7.05E-06 | 11 | 12 | 0.099016 | 4.08E-06 | 36 | 38 | 0.286318 | 6.78E-10 |
| | x2 | 23 | 23 | 0.10519 | 9.73E-06 | 13 | 14 | 0.12364 | 7.77E-07 | 44 | 46 | 0.380383 | 8.57E-10 |
| | x3 | 18 | 18 | 0.084447 | 8.30E-06 | 5 | 6 | 0.037417 | 6.63E-06 | 23 | 25 | 0.193526 | 6.65E-10 |
| | x4 | 23 | 23 | 0.10672 | 9.73E-06 | 13 | 14 | 0.10088 | 7.78E-07 | 44 | 46 | 0.375253 | 5.32E-10 |
| | x5 | 23 | 23 | 0.10307 | 9.73E-06 | 13 | 14 | 0.097839 | 7.77E-07 | 44 | 46 | 0.343114 | 8.57E-10 |
| 100000 | x1 | 17 | 17 | 0.13562 | 7.05E-06 | 11 | 12 | 0.20305 | 4.08E-06 | 39 | 41 | 0.615117 | 5.18E-10 |
| | x2 | 24 | 24 | 0.18573 | 6.88E-06 | 13 | 14 | 0.22896 | 1.10E-06 | 45 | 47 | 0.789229 | 5.65E-10 |
| | x3 | 19 | 19 | 0.16859 | 5.87E-06 | 5 | 6 | 0.093723 | 9.38E-06 | 23 | 25 | 0.385452 | 9.41E-10 |
| | x4 | 24 | 24 | 0.19535 | 6.88E-06 | 13 | 14 | 0.25201 | 1.10E-06 | 44 | 46 | 0.699573 | 9.03E-10 |
| | x5 | 24 | 24 | 0.2059 | 6.88E-06 | 13 | 14 | 0.20804 | 1.10E-06 | 45 | 47 | 0.729416 | 5.65E-10 |

Table 5: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 5

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 18 | 18 | 0.002496 | 6.94E-06 | 13 | 16 | 0.002069 | 5.14E-06 | 29 | 31 | 0.005128 | 7.46E-10 |
| | x2 | 17 | 17 | 0.001273 | 8.79E-06 | 5 | 7 | 0.001478 | 5.14E-06 | 28 | 30 | 0.003788 | 5.48E-10 |
| | x3 | 12 | 12 | 0.001364 | 5.79E-06 | 3 | 4 | 0.000892 | 2.21E-06 | 26 | 28 | 0.003626 | 9.53E-10 |
| | x4 | 18 | 18 | 0.001571 | 8.23E-06 | 13 | 16 | 0.001992 | 5.14E-06 | 29 | 31 | 0.004407 | 7.46E-10 |
| | x5 | 17 | 17 | 0.001991 | 8.79E-06 | 5 | 7 | 0.0014 | 5.14E-06 | 28 | 30 | 0.003789 | 5.48E-10 |
| 5000 | x1 | 18 | 18 | 0.014407 | 6.93E-06 | 14 | 17 | 0.011294 | 4.21E-06 | 30 | 32 | 0.031947 | 5.48E-10 |
| | x2 | 23 | 23 | 0.008664 | 6.21E-06 | 365 | 381 | 0.28185 | 9.92E-06 | 34 | 36 | 0.02705 | 7.76E-10 |
| | x3 | 17 | 17 | 0.006934 | 5.72E-06 | 4 | 5 | 0.003926 | 4.42E-06 | 32 | 34 | 0.030829 | 7.44E-10 |
| | x4 | 23 | 23 | 0.00741 | 6.21E-06 | 379 | 395 | 0.29872 | 9.88E-06 | 34 | 36 | 0.035367 | 7.77E-10 |
| | x5 | 23 | 23 | 0.009552 | 6.21E-06 | 365 | 381 | 0.28686 | 9.92E-06 | 34 | 36 | 0.026153 | 7.76E-10 |
| 10000 | x1 | 18 | 18 | 0.020043 | 6.93E-06 | 14 | 17 | 0.042649 | 4.21E-06 | 30 | 32 | 0.051627 | 5.48E-10 |
| | x2 | 23 | 23 | 0.024196 | 8.78E-06 | 461 | 478 | 0.62769 | 9.84E-06 | 35 | 37 | 0.058771 | 5.49E-10 |
| | x3 | 17 | 17 | 0.016173 | 8.09E-06 | 4 | 5 | 0.005133 | 6.24E-06 | 33 | 35 | 0.051299 | 5.26E-10 |
| | x4 | 23 | 23 | 0.025344 | 8.78E-06 | 463 | 480 | 0.63272 | 9.83E-06 | 35 | 37 | 0.056404 | 5.49E-10 |
| | x5 | 23 | 23 | 0.020667 | 8.78E-06 | 461 | 478 | 0.64935 | 9.84E-06 | 35 | 37 | 0.055294 | 5.49E-10 |
| 50000 | x1 | 18 | 18 | 0.067563 | 6.93E-06 | 14 | 17 | 0.082981 | 4.21E-06 | 30 | 32 | 0.210048 | 5.48E-10 |
| | x2 | 24 | 24 | 0.092921 | 9.82E-06 | * | * | * | * | 36 | 38 | 0.22607 | 6.14E-10 |
| | x3 | 18 | 18 | 0.052685 | 9.04E-06 | 5 | 6 | 0.032177 | 5.59E-07 | 34 | 36 | 0.238243 | 5.88E-10 |
| | x4 | 24 | 24 | 0.074528 | 9.82E-06 | * | * | * | * | 36 | 38 | 0.228595 | 6.14E-10 |
| | x5 | 24 | 24 | 0.083959 | 9.82E-06 | * | * | * | * | 36 | 38 | 0.246021 | 6.14E-10 |
| 100000 | x1 | 18 | 18 | 0.11699 | 6.93E-06 | 14 | 17 | 0.15794 | 4.21E-06 | 30 | 32 | 0.396975 | 5.48E-10 |
| | x2 | 25 | 25 | 0.18107 | 6.94E-06 | * | * | * | * | 37 | 38 | 0.498719 | 8.68E-10 |
| | x3 | 19 | 19 | 0.11784 | 6.39E-06 | 5 | 6 | 0.047034 | 7.90E-07 | 34 | 36 | 0.435837 | 8.32E-10 |
| | x4 | 25 | 25 | 0.15742 | 6.94E-06 | * | * | * | * | 37 | 38 | 0.450214 | 8.68E-10 |
| | x5 | 25 | 25 | 0.18307 | 6.94E-06 | * | * | * | * | 37 | 38 | 0.447442 | 8.68E-10 |

Table 6: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 1

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 18 | 20 | 0.004394 | 8.74E-06 | 12 | 19 | 0.007754 | 3.01E-06 | * | * | * | * |
| | x2 | 20 | 21 | 0.001752 | 7.65E-06 | 9 | 16 | 0.00323 | 4.44E-06 | * | * | * | * |
| | x3 | 15 | 16 | 0.001574 | 6.85E-06 | 3 | 7 | 0.001214 | 6.97E-07 | 28 | 30 | 0.006293 | 5.01E-10 |
| | x4 | 21 | 22 | 0.00271 | 5.84E-06 | 12 | 19 | 0.002262 | 3.01E-06 | * | * | * | * |
| | x5 | 20 | 21 | 0.002867 | 7.65E-06 | 9 | 16 | 0.002179 | 4.44E-06 | * | * | * | * |
| 5000 | x1 | 23 | 25 | 0.021382 | 5.58E-06 | 26 | 33 | 0.03875 | 8.01E-06 | 218 | 220 | 0.39774 | 9.26E-10 |
| | x2 | 31 | 31 | 0.034438 | 5.68E-06 | 844 | 863 | 1.193 | 9.94E-06 | * | * | * | * |
| | x3 | 22 | 22 | 0.12584 | 8.02E-06 | 30 | 37 | 0.044545 | 6.58E-06 | * | * | * | * |
| | x4 | 31 | 31 | 0.023866 | 5.68E-06 | 844 | 863 | 1.1283 | 9.96E-06 | * | * | * | * |
| | x5 | 31 | 31 | 0.02908 | 5.68E-06 | 844 | 863 | 1.0649 | 9.94E-06 | * | * | * | * |
| 10000 | x1 | 23 | 25 | 0.03525 | 5.58E-06 | 26 | 33 | 0.062728 | 8.01E-06 | 218 | 220 | 1.109439 | 9.26E-10 |
| | x2 | 30 | 30 | 0.055207 | 9.17E-06 | * | * | * | * | * | * | * | * |
| | x3 | 23 | 23 | 0.041273 | 6.28E-06 | 31 | 38 | 0.080227 | 9.08E-06 | * | * | * | * |
| | x4 | 30 | 30 | 0.05733 | 9.18E-06 | * | * | * | * | * | * | * | * |
| | x5 | 30 | 30 | 0.050411 | 9.17E-06 | * | * | * | * | * | * | * | * |
| 50000 | x1 | 23 | 25 | 0.1971 | 5.58E-06 | 26 | 33 | 0.3251 | 8.01E-06 | 218 | 220 | 3.844514 | 9.27E-10 |
| | x2 | 32 | 32 | 0.24315 | 7.17E-06 | * | * | * | * | * | * | * | * |
| | x3 | 25 | 25 | 0.18809 | 7.80E-06 | 13 | 21 | 0.18896 | 6.84E-06 | * | * | * | * |
| | x4 | 32 | 32 | 0.25209 | 7.17E-06 | * | * | * | * | * | * | * | * |
| | x5 | 32 | 32 | 0.29402 | 7.17E-06 | * | * | * | * | * | * | * | * |
| 100000 | x1 | 23 | 25 | 0.45277 | 5.58E-06 | 26 | 33 | 0.66738 | 8.01E-06 | 218 | 220 | 8.307064 | 9.27E-10 |
| | x2 | 33 | 33 | 0.611 | 5.52E-06 | * | * | * | * | * | * | * | * |
| | x3 | 25 | 25 | 0.38087 | 9.42E-06 | 13 | 21 | 0.41448 | 5.57E-06 | * | * | * | * |
| | x4 | 33 | 33 | 0.35601 | 5.52E-06 | * | * | * | * | * | * | * | * |
| | x5 | 33 | 33 | 0.39795 | 5.52E-06 | * | * | * | * | * | * | * | * |

Table 7: Numerical Results for SRAWNM, Modified Algorithm 2.1, Algorithm 2.1 on Problem 7

| #Dim | Ip | SRAWNM | | | | Modified Algorithm 2.1 | | | | Algorithm 2.1 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm | #Itr | #Fev | #Tm | #Nrm |
| 1000 | x1 | 6 | 6 | 0.002549 | 6.57E-06 | 14 | 17 | 0.005713 | 8.17E-06 | 62 | 64 | 0.018521 | 7.33E-10 |
| | x2 | 6 | 6 | 0.001548 | 6.75E-06 | 16 | 19 | 0.002789 | 3.23E-06 | 47 | 49 | 0.009415 | 6.05E-10 |
| | x3 | 6 | 6 | 0.001621 | 7.20E-06 | 8 | 11 | 0.001668 | 2.63E-06 | 6 | 8 | 0.003902 | 1.9E-10 |
| | x4 | 6 | 6 | 0.001585 | 6.36E-06 | 14 | 17 | 0.00322 | 8.17E-06 | 62 | 64 | 0.01393 | 7.33E-10 |
| | x5 | 6 | 6 | 0.001694 | 6.75E-06 | 16 | 19 | 0.002891 | 3.23E-06 | 47 | 49 | 0.009515 | 6.05E-10 |
| 5000 | x1 | 6 | 6 | 0.005995 | 7.98E-06 | 6 | 7 | 0.008505 | 7.87E-07 | 37 | 39 | 0.08333 | 6.99E-10 |
| | x2 | 6 | 6 | 0.005007 | 7.63E-06 | 6 | 7 | 0.008326 | 6.48E-07 | 37 | 39 | 0.072634 | 5.75E-10 |
| | x3 | 6 | 6 | 0.003379 | 7.97E-06 | 6 | 7 | 0.008685 | 7.58E-07 | 37 | 39 | 0.079665 | 6.73E-10 |
| | x4 | 6 | 6 | 0.006219 | 7.63E-06 | 6 | 7 | 0.009173 | 6.48E-07 | 37 | 39 | 0.081267 | 5.75E-10 |
| | x5 | 6 | 6 | 0.003787 | 7.63E-06 | 6 | 7 | 0.008062 | 6.48E-07 | 37 | 39 | 0.091414 | 5.75E-10 |
| 10000 | x1 | 5 | 5 | 0.009282 | 5.65E-06 | 6 | 7 | 0.018062 | 1.11E-06 | 37 | 39 | 0.146774 | 9.89E-10 |
| | x2 | 5 | 5 | 0.005215 | 5.40E-06 | 6 | 7 | 0.021089 | 9.16E-07 | 37 | 39 | 0.134827 | 8.14E-10 |
| | x3 | 5 | 5 | 0.008695 | 5.64E-06 | 6 | 7 | 0.017031 | 1.07E-06 | 37 | 39 | 0.15813 | 9.53E-10 |
| | x4 | 5 | 5 | 0.007232 | 5.40E-06 | 6 | 7 | 0.015969 | 9.16E-07 | 37 | 39 | 0.165451 | 8.14E-10 |
| | x5 | 5 | 5 | 0.007087 | 5.40E-06 | 6 | 7 | 0.012698 | 9.16E-07 | 37 | 39 | 0.147621 | 8.14E-10 |
| 50000 | x1 | 1 | 1 | 0.007406 | 8.08E-06 | 6 | 7 | 0.082037 | 2.49E-06 | 39 | 41 | 0.696078 | 5.53E-10 |
| | x2 | 1 | 1 | 0.006239 | 7.73E-06 | 6 | 7 | 0.069294 | 2.05E-06 | 38 | 40 | 0.700864 | 9.1E-10 |
| | x3 | 1 | 1 | 0.008461 | 8.07E-06 | 6 | 7 | 0.074529 | 2.40E-06 | 39 | 41 | 0.732609 | 5.32E-10 |
| | x4 | 1 | 1 | 0.010535 | 7.73E-06 | 6 | 7 | 0.079539 | 2.05E-06 | 38 | 40 | 0.671477 | 9.1E-10 |
| | x5 | 1 | 1 | 0.008841 | 7.73E-06 | 6 | 7 | 0.067058 | 2.05E-06 | 38 | 40 | 0.679746 | 9.1E-10 |
| 100000 | x1 | 1 | 1 | 0.020188 | 2.86E-06 | 6 | 7 | 0.15124 | 3.52E-06 | 39 | 41 | 1.42568 | 7.82E-10 |
| | x2 | 1 | 1 | 0.015796 | 2.73E-06 | 6 | 7 | 0.16031 | 2.90E-06 | 39 | 41 | 1.476607 | 6.43E-10 |
| | x3 | 1 | 1 | 0.02187 | 2.85E-06 | 6 | 7 | 0.15841 | 3.39E-06 | 39 | 41 | 1.478623 | 7.53E-10 |
| | x4 | 1 | 1 | 0.016216 | 2.73E-06 | 6 | 7 | 0.16627 | 2.90E-06 | 39 | 41 | 1.471267 | 6.43E-10 |
| | x5 | 1 | 1 | 0.019422 | 2.73E-06 | 6 | 7 | 0.1698 | 2.90E-06 | 39 | 41 | 1.474739 | 6.43E-10 |