```
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.4e+00|5.5e+06| 1.813740e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.981|2.2e-07|6.6e-02|4.7e+05| 1.574434e+05  8.154072e+01| 0:0:00| chol  1✔
1
 2|1.000|1.000|5.3e-08|5.0e-03|6.0e+04| 2.909468e+04 -9.983203e+01| 0:0:00| chol  1✔
1
 3|1.000|1.000|5.1e-08|2.5e-03|1.2e+04| 6.540782e+03 -1.158352e+02| 0:0:00| chol  1✔
1
 4|0.958|0.979|1.8e-08|1.3e-03|9.4e+02| 5.016238e+02 -1.961528e+01| 0:0:00| chol  1✔
1
 5|0.692|0.989|5.5e-09|3.8e-04|5.3e+02| 4.254583e+02 -1.236072e+01| 0:0:00| chol  1✔
1
 6|0.511|1.000|2.7e-09|1.1e-04|3.5e+02| 3.200135e+02 -1.259818e+01| 0:0:00| chol  1✔
1
 7|1.000|1.000|8.4e-12|3.4e-05|1.4e+02| 1.277653e+02 -7.997736e+00| 0:0:00| chol  1✔
1
 8|0.919|0.920|4.8e-12|5.8e-06|1.5e+01| 8.462231e+00 -6.095539e+00| 0:0:00| chol  1✔
1
 9|1.000|1.000|3.3e-12|3.4e-07|5.1e+00|-8.671088e-01 -5.991539e+00| 0:0:00| chol  1✔
1
10|0.865|0.923|1.3e-11|5.7e-08|7.4e-01|-5.159219e+00 -5.903675e+00| 0:0:00| chol  2✔
1
11|0.643|1.000|5.2e-10|3.4e-09|5.1e-01|-5.357667e+00 -5.868387e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|3.6e-10|3.4e-10|1.9e-01|-5.653085e+00 -5.843650e+00| 0:0:00| chol  1✔
2
13|0.961|1.000|1.7e-10|3.7e-11|4.5e-02|-5.790021e+00 -5.835477e+00| 0:0:00| chol  2✔
2
14|1.000|1.000|3.7e-11|8.4e-12|9.6e-03|-5.822918e+00 -5.832531e+00| 0:0:00| chol  2✔
2
15|0.935|1.000|2.3e-11|7.8e-12|1.5e-03|-5.830707e+00 -5.832180e+00| 0:0:00| chol  2✔
2
16|1.000|0.986|6.1e-12|4.8e-12|6.8e-05|-5.832023e+00 -5.832090e+00| 0:0:00| chol  2✔
2
17|1.000|0.998|8.1e-12|1.2e-12|1.2e-06|-5.832084e+00 -5.832086e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.83208442e+00
 dual   objective value = -5.83208559e+00
 gap := trace(XZ)        = 1.18e-06
 relative gap           = 9.33e-08
 actual relative gap    = 9.24e-08
 rel. primal infeas     = 8.07e-12
 rel. dual   infeas     = 1.22e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 4.7e+03, 3.9e+02
```

```
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 1.0e-11  0.0e+00  1.7e-12  0.0e+00  9.2e-08  9.3e-08
 -----------------------------------------------------------------
```

ans =

    5.8321

Epoch... 99
Epoch... 100

```
 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
 *********************************************************************
    SDPT3: Infeasible path-following algorithms
 *********************************************************************
 version   predcorr  gam   expon   scale_data
    HKM       1       0.000   1        0
 it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
 -----------------------------------------------------------------
  0|0.000|0.000|1.0e+00|3.5e+00|5.8e+06| 1.887280e+05  0.000000e+00| 0:0:00| chol  1✔
 1
  1|1.000|0.982|2.1e-07|6.6e-02|4.8e+05| 1.635008e+05  7.206719e+01| 0:0:00| chol  1✔
 1
  2|1.000|1.000|5.0e-08|5.0e-03|6.2e+04| 2.978181e+04 -9.977770e+01| 0:0:00| chol  1✔
 1
  3|1.000|1.000|5.2e-08|2.5e-03|1.2e+04| 6.715801e+03 -1.183643e+02| 0:0:00| chol  1✔
 1
  4|0.959|0.982|1.7e-08|1.3e-03|9.7e+02| 5.175058e+02 -2.019548e+01| 0:0:00| chol  1✔
 1
  5|0.713|0.971|4.9e-09|4.0e-04|5.4e+02| 4.336672e+02 -1.227146e+01| 0:0:00| chol  1✔
 1
  6|0.518|1.000|2.4e-09|1.1e-04|3.6e+02| 3.237565e+02 -1.266961e+01| 0:0:00| chol  1✔
 1
  7|1.000|1.000|9.9e-12|3.4e-05|1.4e+02| 1.287246e+02 -8.085184e+00| 0:0:00| chol  1✔
 1
  8|0.917|0.919|6.4e-12|5.8e-06|1.5e+01| 8.837964e+00 -6.150282e+00| 0:0:00| chol  1✔
 1
  9|1.000|1.000|5.9e-11|3.4e-07|5.2e+00|-8.268330e-01 -6.046000e+00| 0:0:00| chol  1✔
 1
 10|0.865|0.923|9.4e-12|5.7e-08|7.6e-01|-5.186777e+00 -5.950918e+00| 0:0:00| chol  2✔
 2
 11|0.644|1.000|9.8e-12|3.4e-09|5.2e-01|-5.390245e+00 -5.911649e+00| 0:0:00| chol  1✔
 1
 12|1.000|1.000|3.1e-10|3.4e-10|1.8e-01|-5.700621e+00 -5.885031e+00| 0:0:00| chol  2✔
 1
 13|0.972|1.000|1.5e-10|3.7e-11|4.2e-02|-5.834496e+00 -5.876201e+00| 0:0:00| chol  1✔
 1
 14|1.000|1.000|5.9e-11|7.8e-12|8.2e-03|-5.865623e+00 -5.873788e+00| 0:0:00| chol  1✔
 2
 15|0.974|0.958|1.7e-11|7.3e-12|2.5e-04|-5.873033e+00 -5.873281e+00| 0:0:00| chol  2✔
```

```
2
16|0.986|0.988|1.2e-11|3.5e-12|3.4e-06|-5.873257e+00 -5.873261e+00| 0:0:00| chol  2↙
3
17|0.997|0.996|6.4e-12|1.3e-12|9.9e-08|-5.873260e+00 -5.873260e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.87326032e+00
 dual   objective value = -5.87326042e+00
 gap := trace(XZ)       = 9.91e-08
 relative gap           = 7.77e-09
 actual relative gap    = 7.16e-09
 rel. primal infeas     = 6.37e-12
 rel. dual   infeas     = 1.29e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 4.8e+03, 3.9e+02
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.9e-12  0.0e+00  1.8e-12  0.0e+00  7.2e-09  7.8e-09
-------------------------------------------------------------------

ans =

    5.8733


Epoch... 101
Epoch... 102

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.5e+00|5.9e+06| 1.934131e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.9e-07|6.6e-02|4.9e+05| 1.674546e+05  7.004646e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|4.7e-08|5.0e-03|6.3e+04| 3.019369e+04 -9.956851e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|5.0e-08|2.5e-03|1.2e+04| 6.606673e+03 -1.157275e+02| 0:0:00| chol  1↙
1
 4|0.959|0.982|1.7e-08|1.3e-03|9.4e+02| 4.940206e+02 -1.999207e+01| 0:0:00| chol  1↙
1
 5|0.694|0.941|5.2e-09|4.3e-04|5.3e+02| 4.222296e+02 -1.191409e+01| 0:0:00| chol  1↙
1
 6|0.506|1.000|2.6e-09|1.1e-04|3.5e+02| 3.195812e+02 -1.246616e+01| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.2e-11|3.4e-05|1.4e+02| 1.288401e+02 -7.876816e+00| 0:0:00| chol  1↙
```

```
1
 8|0.918|0.920|7.1e-12|5.8e-06|1.5e+01| 9.199176e+00 -5.957756e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|1.3e-10|3.4e-07|5.1e+00|-7.825069e-01 -5.868426e+00| 0:0:00| chol  1↙
1
10|0.873|0.930|1.2e-11|5.5e-08|6.8e-01|-5.110499e+00 -5.787071e+00| 0:0:00| chol  2↙
2
11|0.639|1.000|3.3e-12|3.4e-09|4.6e-01|-5.295409e+00 -5.757759e+00| 0:0:00| chol  1↙
2
12|1.000|1.000|3.7e-10|3.4e-10|1.8e-01|-5.559509e+00 -5.736880e+00| 0:0:00| chol  1↙
2
13|0.943|1.000|1.8e-10|3.5e-11|5.9e-02|-5.673609e+00 -5.732360e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|9.1e-11|5.6e-12|1.8e-02|-5.710806e+00 -5.728434e+00| 0:0:00| chol  2↙
2
15|0.952|0.884|2.7e-11|4.3e-12|1.8e-03|-5.725708e+00 -5.727515e+00| 0:0:00| chol  2↙
2
16|0.980|0.962|1.6e-11|5.3e-12|6.6e-05|-5.727312e+00 -5.727378e+00| 0:0:00| chol  1↙
2
17|0.996|0.992|5.5e-12|3.3e-12|1.2e-06|-5.727371e+00 -5.727372e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.72737059e+00
 dual   objective value = -5.72737180e+00
 gap := trace(XZ)       = 1.24e-06
 relative gap           = 9.96e-08
 actual relative gap    = 9.74e-08
 rel. primal infeas     = 5.46e-12
 rel. dual   infeas     = 3.33e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 5.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.7e-12  0.0e+00  4.7e-12  0.0e+00  9.7e-08  1.0e-07
-------------------------------------------------------------------

ans =

    5.7274


Epoch... 103
Epoch... 104

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
    HKM      1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj      cputime
```

```
 -------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.5e+00|6.1e+06| 2.008017e+05  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|1.5e-04|6.7e-02|5.1e+05| 1.735757e+05  7.173355e+01| 0:0:00| chol 1↙
1
 2|1.000|1.000|4.4e-08|5.0e-03|6.4e+04| 3.081573e+04 -9.471214e+01| 0:0:00| chol 1↙
1
 3|1.000|1.000|4.7e-08|2.5e-03|1.2e+04| 6.598222e+03 -1.141239e+02| 0:0:00| chol 1↙
1
 4|0.962|0.985|1.7e-08|1.3e-03|9.3e+02| 4.881919e+02 -1.971246e+01| 0:0:00| chol 1↙
1
 5|0.707|0.880|5.1e-09|4.8e-04|5.4e+02| 4.201810e+02 -1.128989e+01| 0:0:00| chol 1↙
1
 6|0.502|1.000|2.5e-09|1.1e-04|3.5e+02| 3.188296e+02 -1.212934e+01| 0:0:00| chol 1↙
1
 7|1.000|1.000|1.4e-11|3.4e-05|1.4e+02| 1.285112e+02 -7.575014e+00| 0:0:00| chol 1↙
1
 8|0.916|0.918|8.4e-12|5.8e-06|1.6e+01| 9.755517e+00 -5.653200e+00| 0:0:00| chol 1↙
1
 9|1.000|1.000|8.9e-12|3.4e-07|5.4e+00|-1.758659e-01 -5.549826e+00| 0:0:00| chol 1↙
1
10|0.863|0.927|1.6e-11|5.6e-08|7.8e-01|-4.675177e+00 -5.455145e+00| 0:0:00| chol 2↙
1
11|0.634|1.000|2.9e-10|3.4e-09|5.4e-01|-4.876894e+00 -5.414386e+00| 0:0:00| chol 2↙
2
12|1.000|1.000|3.2e-10|3.4e-10|1.8e-01|-5.202281e+00 -5.385517e+00| 0:0:00| chol 2↙
2
13|0.986|1.000|1.8e-10|4.0e-11|4.4e-02|-5.333471e+00 -5.377000e+00| 0:0:00| chol 2↙
1
14|1.000|0.876|5.2e-11|1.7e-11|4.0e-03|-5.370222e+00 -5.374182e+00| 0:0:00| chol 2↙
2
15|0.961|0.969|9.2e-12|1.1e-11|1.7e-04|-5.373582e+00 -5.373756e+00| 0:0:00| chol 2↙
2
16|0.984|0.987|1.4e-12|2.0e-12|2.7e-06|-5.373736e+00 -5.373739e+00| 0:0:00| chol 2↙
3
17|1.000|0.997|4.6e-11|1.0e-12|1.6e-07|-5.373739e+00 -5.373739e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.37373878e+00
 dual   objective value = -5.37373893e+00
 gap := trace(XZ)       = 1.57e-07
 relative gap           = 1.34e-08
 actual relative gap    = 1.32e-08
 rel. primal infeas     = 4.64e-11
 rel. dual   infeas     = 1.01e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.6e+03, 5.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.6e-11  0.0e+00  1.4e-12  0.0e+00  1.3e-08  1.3e-08
 -------------------------------------------------------------------
```

```
ans =

    5.3737


Epoch... 105
Epoch... 106


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap        prim-obj        dual-obj     cputime
----------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.5e+00|6.3e+06| 2.074919e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.9e-04|6.8e-02|5.3e+05| 1.791084e+05  6.925268e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|4.1e-08|5.0e-03|6.6e+04| 3.132700e+04 -8.845391e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|4.4e-08|2.5e-03|1.2e+04| 6.655791e+03 -1.143455e+02| 0:0:00| chol  1↙
1
 4|0.966|0.992|1.7e-08|1.3e-03|9.7e+02| 5.179268e+02 -1.978196e+01| 0:0:00| chol  1↙
1
 5|0.753|0.887|4.3e-09|4.7e-04|5.5e+02| 4.293721e+02 -1.059726e+01| 0:0:00| chol  1↙
1
 6|0.531|1.000|2.0e-09|1.1e-04|3.5e+02| 3.163378e+02 -1.150478e+01| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.2e-11|3.4e-05|1.4e+02| 1.257272e+02 -7.363894e+00| 0:0:00| chol  1↙
1
 8|0.916|0.917|7.0e-12|5.9e-06|1.5e+01| 9.375819e+00 -5.470410e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|1.8e-10|3.4e-07|5.3e+00|-1.011990e-01 -5.367387e+00| 0:0:00| chol  1↙
1
10|0.863|0.927|2.4e-11|5.6e-08|7.7e-01|-4.512096e+00 -5.277442e+00| 0:0:00| chol  2↙
2
11|0.624|1.000|1.4e-12|3.4e-09|5.3e-01|-4.709589e+00 -5.239978e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|2.9e-10|3.4e-10|1.8e-01|-5.028930e+00 -5.211349e+00| 0:0:00| chol  2↙
2
13|0.993|1.000|1.6e-10|3.5e-11|4.7e-02|-5.157039e+00 -5.203555e+00| 0:0:00| chol  2↙
2
14|1.000|0.850|5.4e-11|1.0e-11|3.8e-03|-5.196502e+00 -5.200322e+00| 0:0:00| chol  2↙
1
15|0.955|0.968|8.2e-11|4.0e-12|2.1e-04|-5.199626e+00 -5.199837e+00| 0:0:00| chol  2↙
2
16|0.983|0.986|1.3e-12|5.1e-12|3.6e-06|-5.199811e+00 -5.199815e+00| 0:0:00| chol  2↙
2
17|1.000|0.996|1.3e-11|1.0e-12|2.5e-07|-5.199814e+00 -5.199815e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
----------------------------------------------------------------------
```

```
 number of iterations   = 17
 primal objective value = -5.19981427e+00
 dual   objective value = -5.19981452e+00
 gap := trace(XZ)       = 2.51e-07
 relative gap           = 2.20e-08
 actual relative gap    = 2.20e-08
 rel. primal infeas     = 1.32e-11
 rel. dual   infeas     = 1.02e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.6e+03, 5.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 1.6e-11  0.0e+00  1.4e-12  0.0e+00  2.2e-08  2.2e-08
-------------------------------------------------------------------


ans =

    5.1998


Epoch... 107
Epoch... 108

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.6e+00|6.4e+06| 2.100410e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|6.5e-05|6.7e-02|5.3e+05| 1.813898e+05  4.746089e+01| 0:0:00| chol  1✓
1
 2|1.000|1.000|4.0e-08|5.0e-03|6.6e+04| 3.129930e+04 -9.096460e+01| 0:0:00| chol  1✓
1
 3|1.000|1.000|4.3e-08|2.5e-03|1.2e+04| 6.477406e+03 -1.111113e+02| 0:0:00| chol  1✓
1
 4|0.965|0.990|1.7e-08|1.3e-03|9.1e+02| 4.746945e+02 -1.940577e+01| 0:0:00| chol  1✓
1
 5|0.735|0.808|4.5e-09|5.4e-04|5.4e+02| 4.078167e+02 -1.086850e+01| 0:0:00| chol  1✓
1
 6|0.500|1.000|2.3e-09|1.1e-04|3.4e+02| 3.089422e+02 -1.190741e+01| 0:0:00| chol  1✓
1
 7|1.000|1.000|1.1e-11|3.4e-05|1.3e+02| 1.239608e+02 -7.776869e+00| 0:0:00| chol  1✓
1
 8|0.917|0.919|6.1e-12|5.8e-06|1.5e+01| 8.520446e+00 -5.938984e+00| 0:0:00| chol  1✓
1
 9|1.000|1.000|3.5e-12|3.4e-07|5.1e+00|-7.222901e-01 -5.838292e+00| 0:0:00| chol  1✓
1
10|0.864|0.930|7.6e-12|5.5e-08|7.3e-01|-5.016037e+00 -5.749442e+00| 0:0:00| chol  2✓
```

```
1
11|0.633|1.000|5.3e-10|3.4e-09|5.0e-01|-5.206868e+00 -5.711658e+00| 0:0:00| chol  1↙
2
12|1.000|1.000|2.9e-10|3.4e-10|1.7e-01|-5.515055e+00 -5.685316e+00| 0:0:00| chol  2↙
1
13|0.991|1.000|1.8e-10|3.7e-11|4.4e-02|-5.633712e+00 -5.678047e+00| 0:0:00| chol  2↙
2
14|1.000|0.858|7.5e-11|1.3e-11|4.3e-03|-5.670618e+00 -5.674886e+00| 0:0:00| chol  2↙
2
15|0.935|0.966|9.8e-12|8.4e-12|3.6e-04|-5.674054e+00 -5.674419e+00| 0:0:00| chol  2↙
2
16|0.985|0.986|2.5e-12|2.1e-12|5.4e-06|-5.674383e+00 -5.674389e+00| 0:0:00| chol  2↙
3
17|1.000|0.998|2.9e-11|1.0e-12|1.9e-07|-5.674388e+00 -5.674388e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.67438796e+00
 dual   objective value = -5.67438816e+00
 gap := trace(XZ)        = 1.87e-07
 relative gap            = 1.52e-08
 actual relative gap     = 1.58e-08
 rel. primal infeas      = 2.87e-11
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.6e+03, 5.6e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.5e-11  0.0e+00  1.4e-12  0.0e+00  1.6e-08  1.5e-08
-------------------------------------------------------------------

ans =

    5.6744

Epoch... 109
Epoch... 110

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000    1        0
it pstep dstep pinfeas dinfeas  gap        prim-obj       dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.7e+00|6.6e+06| 2.177891e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|4.2e-05|6.9e-02|5.5e+05| 1.876952e+05  4.161176e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.9e-08|5.0e-03|6.7e+04| 3.208175e+04 -9.008511e+01| 0:0:00| chol  1↙
```

```
 1
  3|1.000|1.000|4.3e-08|2.5e-03|1.2e+04| 6.756634e+03 -1.154911e+02| 0:0:00| chol  1↙
 1
  4|0.967|0.994|1.7e-08|1.3e-03|9.6e+02| 5.068060e+02 -1.987818e+01| 0:0:00| chol  1↙
 1
  5|0.777|0.813|3.7e-09|5.4e-04|5.5e+02| 4.208259e+02 -1.052643e+01| 0:0:00| chol  1↙
 1
  6|0.519|1.000|1.8e-09|1.1e-04|3.4e+02| 3.125170e+02 -1.144566e+01| 0:0:00| chol  1↙
 1
  7|1.000|1.000|1.0e-11|3.4e-05|1.3e+02| 1.242467e+02 -7.544557e+00| 0:0:00| chol  1↙
 1
  8|0.918|0.919|4.6e-12|5.8e-06|1.4e+01| 8.513064e+00 -5.695624e+00| 0:0:00| chol  2↙
 1
  9|1.000|1.000|4.1e-11|3.4e-07|5.0e+00|-5.582868e-01 -5.595376e+00| 0:0:00| chol  1↙
 1
 10|0.862|0.929|1.9e-11|5.5e-08|7.4e-01|-4.772583e+00 -5.510281e+00| 0:0:00| chol  2↙
 2
 11|0.614|1.000|2.2e-11|3.4e-09|5.1e-01|-4.959685e+00 -5.473003e+00| 0:0:00| chol  2↙
 1
 12|1.000|1.000|2.7e-10|3.4e-10|1.7e-01|-5.274922e+00 -5.444824e+00| 0:0:00| chol  2↙
 2
 13|0.989|1.000|1.5e-10|3.9e-11|3.7e-02|-5.399530e+00 -5.436401e+00| 0:0:00| chol  2↙
 2
 14|0.994|0.918|3.2e-11|1.4e-11|2.7e-03|-5.431343e+00 -5.434029e+00| 0:0:00| chol  2↙
 2
 15|0.970|0.975|6.4e-12|7.2e-12|8.3e-05|-5.433704e+00 -5.433787e+00| 0:0:00| chol  2↙
 2
 16|0.979|0.985|9.2e-13|1.4e-12|1.7e-06|-5.433778e+00 -5.433780e+00| 0:0:00| chol  3↙
 3
 17|1.000|1.000|2.3e-11|1.0e-12|1.8e-07|-5.433780e+00 -5.433780e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.43377960e+00
 dual   objective value = -5.43377977e+00
 gap := trace(XZ)        = 1.75e-07
 relative gap            = 1.48e-08
 actual relative gap     = 1.47e-08
 rel. primal infeas      = 2.26e-11
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.6e+03, 5.8e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.7e-11  0.0e+00  1.4e-12  0.0e+00  1.5e-08  1.5e-08
-------------------------------------------------------------------


ans =

    5.4338


Epoch... 111
Epoch... 112
```

```
 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk = 1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|3.8e+00|6.7e+06| 2.227244e+05  0.000000e+00| 0:0:00| chol  1
1
 1|1.000|0.982|1.6e-07|7.1e-02|5.6e+05| 1.916930e+05  3.514209e+01| 0:0:00| chol  1
1
 2|1.000|0.999|3.9e-08|5.0e-03|6.8e+04| 3.253840e+04 -8.751732e+01| 0:0:00| chol  1
1
 3|1.000|1.000|4.4e-08|2.5e-03|1.2e+04| 6.620549e+03 -1.114872e+02| 0:0:00| chol  1
1
 4|0.968|0.994|1.7e-08|1.3e-03|9.4e+02| 4.916702e+02 -1.922132e+01| 0:0:00| chol  1
1
 5|0.787|0.791|3.6e-09|5.6e-04|5.5e+02| 4.138200e+02 -1.026291e+01| 0:0:00| chol  1
1
 6|0.511|1.000|1.8e-09|1.1e-04|3.4e+02| 3.090762e+02 -1.129779e+01| 0:0:00| chol  1
1
 7|1.000|1.000|1.1e-11|3.4e-05|1.3e+02| 1.223792e+02 -7.519542e+00| 0:0:00| chol  1
1
 8|0.918|0.919|5.3e-12|5.8e-06|1.4e+01| 8.036323e+00 -5.709709e+00| 0:0:00| chol  1
1
 9|1.000|1.000|2.5e-11|3.4e-07|5.0e+00|-6.349639e-01 -5.605126e+00| 0:0:00| chol  1
1
10|0.861|0.928|6.1e-12|5.5e-08|7.3e-01|-4.788793e+00 -5.521744e+00| 0:0:00| chol  2
1
11|0.617|1.000|7.4e-11|3.4e-09|5.1e-01|-4.973564e+00 -5.484295e+00| 0:0:00| chol  2
2
12|1.000|1.000|2.5e-10|3.4e-10|1.7e-01|-5.287862e+00 -5.456397e+00| 0:0:00| chol  1
2
13|0.982|1.000|1.4e-10|3.6e-11|3.4e-02|-5.413714e+00 -5.447563e+00| 0:0:00| chol  2
1
14|0.975|0.959|8.8e-11|8.8e-12|3.0e-03|-5.442566e+00 -5.445553e+00| 0:0:00| chol  2
1
15|0.974|0.977|8.7e-11|6.7e-12|7.8e-05|-5.445305e+00 -5.445382e+00| 0:0:00| chol  2
2
16|0.980|0.986|1.2e-11|9.4e-12|1.6e-06|-5.445376e+00 -5.445378e+00| 0:0:00| chol  3
3
17|1.000|0.993|1.1e-11|2.1e-12|1.6e-07|-5.445378e+00 -5.445378e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.44537774e+00
 dual   objective value = -5.44537788e+00
 gap := trace(XZ)        = 1.57e-07
 relative gap            = 1.32e-08
 actual relative gap     = 1.17e-08
```

```
 rel. primal infeas     = 1.12e-11
 rel. dual   infeas     = 2.10e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 5.9e+03, 3.9e+02
 Total CPU time (secs) = 0.11
 CPU time per iteration = 0.01
 termination code      =   0
 DIMACS errors: 1.3e-11  0.0e+00  2.9e-12  0.0e+00  1.2e-08  1.3e-08
-------------------------------------------------------------------
```

ans =

    5.4454

Epoch... 113
Epoch... 114

```
 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
***********************************************************************
   SDPT3: Infeasible path-following algorithms
***********************************************************************
 version   predcorr  gam  expon   scale_data
   HKM       1       0.000   1         0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.0e+00|6.8e+06| 2.254496e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.6e-07|7.2e-02|5.7e+05| 1.938921e+05  2.020092e+01| 0:0:00| chol  1↙
1
 2|1.000|0.996|3.9e-08|5.1e-03|6.8e+04| 3.256422e+04 -8.119645e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|4.3e-08|2.5e-03|1.1e+04| 5.885753e+03 -9.734666e+01| 0:0:00| chol  1↙
1
 4|0.966|0.988|1.8e-08|1.3e-03|8.7e+02| 4.445958e+02 -1.770076e+01| 0:0:00| chol  1↙
1
 5|0.782|0.766|4.0e-09|5.8e-04|5.3e+02| 3.925964e+02 -1.049632e+01| 0:0:00| chol  1↙
1
 6|0.467|1.000|2.1e-09|1.1e-04|3.3e+02| 3.043732e+02 -1.119209e+01| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.1e-11|3.4e-05|1.3e+02| 1.208182e+02 -7.640905e+00| 0:0:00| chol  1↙
1
 8|0.920|0.921|5.6e-12|5.7e-06|1.3e+01| 7.167348e+00 -5.857791e+00| 0:0:00| chol  2↙
1
 9|1.000|1.000|4.8e-11|3.4e-07|4.6e+00|-1.118943e+00 -5.757380e+00| 0:0:00| chol  1↙
1
10|0.862|0.923|8.7e-12|5.7e-08|6.9e-01|-4.989318e+00 -5.677089e+00| 0:0:00| chol  2↙
2
11|0.636|1.000|9.4e-12|3.4e-09|4.8e-01|-5.165388e+00 -5.640368e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|2.5e-10|3.4e-10|1.6e-01|-5.457336e+00 -5.615105e+00| 0:0:00| chol  2↙
2
13|0.983|1.000|1.4e-10|3.6e-11|3.2e-02|-5.575085e+00 -5.606752e+00| 0:0:00| chol  2↙
```

```
2
14|0.989|0.902|3.9e-11|1.1e-11|2.2e-03|-5.602661e+00 -5.604833e+00| 0:0:00| chol  2✔
2
15|0.967|0.973|5.9e-12|6.9e-12|7.6e-05|-5.604543e+00 -5.604619e+00| 0:0:00| chol  2✔
2
16|0.981|0.986|1.1e-12|1.3e-12|1.4e-06|-5.604611e+00 -5.604613e+00| 0:0:00| chol  3✔
3
17|1.000|1.000|3.5e-11|1.0e-12|1.2e-07|-5.604612e+00 -5.604613e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.60461240e+00
 dual   objective value = -5.60461253e+00
 gap := trace(XZ)       = 1.25e-07
 relative gap           = 1.02e-08
 actual relative gap    = 1.06e-08
 rel. primal infeas     = 3.48e-11
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 6.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.2e-11  0.0e+00  1.4e-12  0.0e+00  1.1e-08  1.0e-08
-------------------------------------------------------------------


ans =

    5.6046

Epoch... 115
Epoch... 116

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.0e+00|6.8e+06| 2.230088e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.7e-07|7.4e-02|5.6e+05| 1.918170e+05  1.735967e+01| 0:0:00| chol  1✔
1
 2|1.000|0.994|4.0e-08|5.1e-03|6.8e+04| 3.220697e+04 -7.598291e+01| 0:0:00| chol  1✔
1
 3|1.000|1.000|4.3e-08|2.5e-03|9.9e+03| 5.333225e+03 -8.623893e+01| 0:0:00| chol  1✔
1
 4|0.963|0.982|2.0e-08|1.3e-03|8.2e+02| 4.153816e+02 -1.630363e+01| 0:0:00| chol  1✔
1
 5|0.812|0.781|3.7e-09|5.7e-04|5.0e+02| 3.752965e+02 -1.076061e+01| 0:0:00| chol  1✔
```

```
1
 6|0.439|1.000|2.1e-09|1.1e-04|3.3e+02| 2.974350e+02 -1.068899e+01| 0:0:00| chol  1↙
1
 7|1.000|1.000|9.7e-12|3.4e-05|1.3e+02| 1.168292e+02 -7.743659e+00| 0:0:00| chol  1↙
1
 8|0.923|0.924|5.3e-12|5.7e-06|1.2e+01| 5.962251e+00 -6.011021e+00| 0:0:00| chol  2↙
1
 9|1.000|1.000|2.6e-11|3.4e-07|4.1e+00|-1.792609e+00 -5.916269e+00| 0:0:00| chol  1↙
1
10|0.866|0.908|3.0e-11|6.1e-08|6.3e-01|-5.203204e+00 -5.833830e+00| 0:0:00| chol  2↙
2
11|0.735|1.000|8.9e-12|3.4e-09|4.1e-01|-5.379066e+00 -5.790805e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|2.2e-10|3.4e-10|1.0e-01|-5.666138e+00 -5.767009e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|9.6e-11|3.6e-11|1.5e-02|-5.745757e+00 -5.761047e+00| 0:0:00| chol  2↙
2
14|0.969|0.977|3.6e-11|8.1e-12|1.3e-03|-5.758988e+00 -5.760301e+00| 0:0:00| chol  2↙
2
15|0.974|0.982|2.6e-12|6.5e-12|3.4e-05|-5.760171e+00 -5.760205e+00| 0:0:00| chol  2↙
3
16|1.000|1.000|7.6e-12|1.0e-12|4.2e-06|-5.760199e+00 -5.760203e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|3.6e-11|1.5e-12|1.5e-07|-5.760203e+00 -5.760203e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.76020270e+00
 dual   objective value = -5.76020284e+00
 gap := trace(XZ)       = 1.45e-07
 relative gap           = 1.16e-08
 actual relative gap    = 1.09e-08
 rel. primal infeas     = 3.57e-11
 rel. dual   infeas     = 1.50e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 6.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.3e-11  0.0e+00  2.1e-12  0.0e+00  1.1e-08  1.2e-08
-------------------------------------------------------------------

ans =

    5.7602


Epoch... 117
Epoch... 118

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*******************************************************************
   SDPT3: Infeasible path-following algorithms
```

```
 ****************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.1e+00|6.7e+06| 2.208545e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.6e-07|7.3e-02|5.6e+05| 1.902495e+05  1.034456e+01| 0:0:00| chol  1↙
1
 2|1.000|0.993|3.9e-08|5.1e-03|6.7e+04| 3.163779e+04 -6.977116e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|4.0e-08|2.5e-03|9.6e+03| 5.136655e+03 -8.205890e+01| 0:0:00| chol  1↙
1
 4|0.964|0.983|2.0e-08|1.3e-03|8.0e+02| 4.041426e+02 -1.563479e+01| 0:0:00| chol  1↙
1
 5|0.837|0.795|3.3e-09|5.6e-04|4.8e+02| 3.641093e+02 -1.053687e+01| 0:0:00| chol  1↙
1
 6|0.442|1.000|1.9e-09|1.1e-04|3.2e+02| 2.882357e+02 -1.007615e+01| 0:0:00| chol  1↙
1
 7|1.000|1.000|7.2e-12|3.4e-05|1.2e+02| 1.127221e+02 -7.664857e+00| 0:0:00| chol  1↙
1
 8|0.926|0.928|3.2e-12|5.5e-06|1.1e+01| 5.005169e+00 -6.007583e+00| 0:0:00| chol  2↙
1
 9|1.000|1.000|3.9e-11|3.4e-07|3.5e+00|-2.472747e+00 -5.924274e+00| 0:0:00| chol  1↙
1
10|0.875|0.888|4.0e-11|6.7e-08|5.2e-01|-5.327507e+00 -5.851275e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|6.6e-10|3.4e-09|3.0e-01|-5.503804e+00 -5.805174e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|2.3e-10|3.4e-10|5.5e-02|-5.734934e+00 -5.789544e+00| 0:0:00| chol  2↙
1
13|0.989|0.878|8.0e-11|7.6e-11|3.1e-03|-5.782764e+00 -5.785902e+00| 0:0:00| chol  2↙
2
14|0.949|0.965|3.3e-11|1.4e-11|4.1e-04|-5.785214e+00 -5.785619e+00| 0:0:00| chol  2↙
2
15|0.980|0.985|1.0e-11|6.8e-12|7.9e-06|-5.785575e+00 -5.785583e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|1.1e-10|2.1e-12|6.2e-07|-5.785582e+00 -5.785582e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.78558165e+00
 dual   objective value = -5.78558230e+00
 gap := trace(XZ)       = 6.22e-07
 relative gap           = 4.95e-08
 actual relative gap    = 5.21e-08
 rel. primal infeas     = 1.07e-10
 rel. dual   infeas     = 2.05e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 6.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-10  0.0e+00  2.9e-12  0.0e+00  5.2e-08  5.0e-08
```

```
------------------------------------------------------------------

ans =

    5.7856

Epoch... 119
Epoch... 120

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon   scale_data
   HKM       1       0.000   1         0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj    cputime
------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.1e+00|6.7e+06| 2.213738e+05  0.000000e+00| 0:0:00| chol  1⤦
1
 1|1.000|0.983|1.5e-07|7.4e-02|5.6e+05| 1.907626e+05  3.632085e+00| 0:0:00| chol  1⤦
1
 2|1.000|0.990|3.8e-08|5.2e-03|6.7e+04| 3.142808e+04 -6.247608e+01| 0:0:00| chol  1⤦
1
 3|1.000|1.000|3.9e-08|2.5e-03|1.0e+04| 5.598794e+03 -8.880992e+01| 0:0:00| chol  1⤦
1
 4|0.975|0.996|1.9e-08|1.2e-03|8.5e+02| 4.377010e+02 -1.686744e+01| 0:0:00| chol  1⤦
1
 5|0.856|0.909|2.7e-09|4.5e-04|4.6e+02| 3.644310e+02 -9.765405e+00| 0:0:00| chol  1⤦
1
 6|0.541|1.000|1.3e-09|1.1e-04|2.9e+02| 2.670846e+02 -9.205256e+00| 0:0:00| chol  1⤦
1
 7|1.000|1.000|5.7e-12|3.4e-05|1.2e+02| 1.070203e+02 -7.516505e+00| 0:0:00| chol  1⤦
1
 8|0.927|0.930|3.0e-12|5.5e-06|1.1e+01| 4.682217e+00 -5.892624e+00| 0:0:00| chol  1⤦
1
 9|1.000|1.000|5.5e-11|3.4e-07|3.2e+00|-2.620577e+00 -5.809175e+00| 0:0:00| chol  1⤦
1
10|0.872|0.879|3.8e-11|7.0e-08|5.1e-01|-5.225102e+00 -5.736564e+00| 0:0:00| chol  2⤦
2
11|1.000|1.000|6.4e-10|3.4e-09|3.0e-01|-5.392068e+00 -5.690167e+00| 0:0:00| chol  2⤦
2
12|0.919|1.000|2.1e-10|3.4e-10|8.8e-02|-5.592141e+00 -5.680297e+00| 0:0:00| chol  2⤦
1
13|1.000|0.920|9.3e-11|6.3e-11|5.3e-03|-5.668485e+00 -5.673796e+00| 0:0:00| chol  2⤦
2
14|0.953|0.958|2.9e-11|1.3e-11|5.8e-04|-5.672757e+00 -5.673340e+00| 0:0:00| chol  2⤦
2
15|0.980|0.983|5.8e-12|6.1e-12|1.2e-05|-5.673277e+00 -5.673288e+00| 0:0:00| chol  3⤦
3
16|1.000|1.000|4.0e-11|1.2e-12|8.2e-07|-5.673287e+00 -5.673288e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
------------------------------------------------------------------
```

```
 number of iterations   = 16
 primal objective value = -5.67328669e+00
 dual   objective value = -5.67328753e+00
 gap := trace(XZ)       = 8.18e-07
 relative gap           = 6.62e-08
 actual relative gap    = 6.74e-08
 rel. primal infeas     = 4.02e-11
 rel. dual   infeas     = 1.15e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 1.7e+03, 6.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.8e-11  0.0e+00  1.6e-12  0.0e+00  6.7e-08  6.6e-08
-------------------------------------------------------------------


ans =

    5.6733


Epoch... 121
Epoch... 122

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.2e+00|6.6e+06| 2.156215e+05  0.000000e+00| 0:0:00| chol 1✔
1
 1|1.000|0.983|1.4e-07|7.5e-02|5.5e+05| 1.861741e+05  7.822164e+00| 0:0:00| chol 1✔
1
 2|1.000|0.988|3.7e-08|5.2e-03|6.5e+04| 3.063342e+04 -5.456048e+01| 0:0:00| chol 1✔
1
 3|1.000|1.000|3.8e-08|2.5e-03|1.1e+04| 5.967401e+03 -9.430670e+01| 0:0:00| chol 1✔
1
 4|1.000|1.000|1.8e-08|1.2e-03|9.2e+02| 4.909636e+02 -1.996545e+01| 0:0:00| chol 1✔
1
 5|0.964|0.924|6.4e-10|4.4e-04|4.1e+02| 3.233363e+02 -6.008381e+00| 0:0:00| chol 1✔
1
 6|1.000|1.000|9.5e-11|1.1e-04|1.5e+02| 1.300697e+02 -6.767490e+00| 0:0:00| chol 1✔
1
 7|0.938|1.000|8.3e-12|1.1e-05|2.1e+01| 1.462596e+01 -5.660372e+00| 0:0:00| chol 1✔
1
 8|1.000|1.000|6.9e-12|1.1e-06|5.4e+00| 1.309565e-02 -5.416436e+00| 0:0:00| chol 2✔
1
 9|0.818|1.000|6.4e-12|1.1e-07|1.1e+00|-4.306310e+00 -5.365818e+00| 0:0:00| chol 2✔
2
10|1.000|0.531|4.7e-11|5.9e-08|7.0e-01|-4.620038e+00 -5.319389e+00| 0:0:00| chol 2✔
```

```
2
11|0.458|1.000|1.3e-10|1.1e-09|5.1e-01|-4.840246e+00 -5.346522e+00| 0:0:00| chol  2↙
1
12|1.000|0.977|2.9e-10|1.4e-10|2.1e-01|-5.089179e+00 -5.295372e+00| 0:0:00| chol  2↙
1
13|0.934|0.901|1.0e-10|2.8e-11|1.6e-02|-5.265188e+00 -5.280818e+00| 0:0:00| chol  2↙
2
14|0.994|0.943|4.0e-11|9.1e-12|1.9e-03|-5.277923e+00 -5.279832e+00| 0:0:00| chol  2↙
2
15|0.951|0.943|6.1e-12|8.6e-12|1.1e-04|-5.279568e+00 -5.279681e+00| 0:0:00| chol  2↙
2
16|0.980|0.986|1.1e-11|1.3e-12|2.2e-06|-5.279669e+00 -5.279671e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|2.2e-11|1.8e-12|2.0e-07|-5.279671e+00 -5.279671e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.27967118e+00
 dual   objective value = -5.27967137e+00
 gap := trace(XZ)        = 2.05e-07
 relative gap            = 1.77e-08
 actual relative gap     = 1.67e-08
 rel. primal infeas      = 2.23e-11
 rel. dual   infeas      = 1.84e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 1.8e+03, 6.6e+03, 3.9e+02
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.7e-11  0.0e+00  2.6e-12  0.0e+00  1.7e-08  1.8e-08
-------------------------------------------------------------------

ans =

    5.2797


Epoch... 123
Epoch... 124

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.2e+00|6.2e+06| 2.033344e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.4e-07|7.6e-02|5.2e+05| 1.761042e+05  1.294965e+01| 0:0:00| chol  1↙
1
 2|1.000|0.985|3.7e-08|5.4e-03|6.2e+04| 2.912361e+04 -4.577014e+01| 0:0:00| chol  1↙
```

```
1
 3|0.980|1.000|4.1e-08|2.5e-03|1.2e+04| 6.807438e+03 -1.002706e+02| 0:0:00| chol  1↙
1
 4|1.000|1.000|1.6e-08|1.2e-03|1.6e+03| 1.025047e+03 -2.903040e+01| 0:0:00| chol  1↙
1
 5|0.827|0.831|2.8e-09|5.2e-04|4.0e+02| 2.936872e+02 -7.594984e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|8.8e-11|1.1e-04|1.9e+02| 1.744155e+02 -8.262883e+00| 0:0:00| chol  1↙
1
 7|0.948|0.973|1.2e-11|1.4e-05|2.3e+01| 1.660092e+01 -5.685950e+00| 0:0:00| chol  2↙
1
 8|1.000|1.000|8.8e-11|1.1e-06|7.8e+00| 2.213106e+00 -5.542720e+00| 0:0:00| chol  1↙
1
 9|0.890|0.957|9.7e-12|1.6e-07|8.9e-01|-4.573144e+00 -5.466723e+00| 0:0:00| chol  2↙
2
10|0.836|1.000|2.3e-11|1.1e-08|5.6e-01|-4.850753e+00 -5.409863e+00| 0:0:00| chol  2↙
1
11|1.000|1.000|4.2e-10|1.1e-09|1.9e-01|-5.201184e+00 -5.386381e+00| 0:0:00| chol  2↙
1
12|0.933|1.000|1.5e-10|1.2e-10|5.2e-02|-5.325967e+00 -5.377547e+00| 0:0:00| chol  2↙
1
13|0.998|0.926|5.8e-11|2.6e-11|2.0e-03|-5.371415e+00 -5.373404e+00| 0:0:00| chol  2↙
2
14|0.968|0.892|1.7e-11|1.4e-11|2.3e-04|-5.372954e+00 -5.373182e+00| 0:0:00| chol  2↙
2
15|0.960|0.973|4.2e-12|3.8e-12|1.0e-05|-5.373142e+00 -5.373152e+00| 0:0:00| chol  3↙
2
16|0.998|0.993|2.0e-11|1.0e-12|2.5e-07|-5.373151e+00 -5.373151e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.37315102e+00
 dual   objective value = -5.37315128e+00
 gap := trace(XZ)       = 2.54e-07
 relative gap           = 2.16e-08
 actual relative gap    = 2.16e-08
 rel. primal infeas     = 1.97e-11
 rel. dual   infeas     = 1.03e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 1.8e+03, 6.5e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.4e-11  0.0e+00  1.4e-12  0.0e+00  2.2e-08  2.2e-08
-------------------------------------------------------------------


ans =

    5.3732


Epoch... 125
Epoch... 126

 num. of constraints = 15
```

```
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
******************************************************************
   SDPT3: Infeasible path-following algorithms
******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.2e+00|6.0e+06| 1.969680e+05  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|1.4e-07|7.8e-02|5.0e+05| 1.709066e+05  2.339064e+01| 0:0:00| chol 1↙
1
 2|1.000|0.981|3.7e-08|5.5e-03|6.0e+04| 2.834992e+04 -3.577109e+01| 0:0:00| chol 1↙
1
 3|0.930|1.000|3.9e-08|2.5e-03|1.4e+04| 8.331823e+03 -1.064946e+02| 0:0:00| chol 1↙
1
 4|1.000|1.000|1.4e-08|1.2e-03|1.7e+03| 1.066458e+03 -3.083756e+01| 0:0:00| chol 1↙
1
 5|0.825|0.829|2.4e-09|5.2e-04|4.2e+02| 3.096675e+02 -8.079337e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.1e-10|1.1e-04|2.1e+02| 1.871444e+02 -8.372219e+00| 0:0:00| chol 1↙
1
 7|0.962|0.978|1.1e-11|1.3e-05|2.4e+01| 1.852057e+01 -5.527339e+00| 0:0:00| chol 2↙
1
 8|1.000|1.000|5.4e-11|1.1e-06|8.5e+00| 3.149352e+00 -5.346314e+00| 0:0:00| chol 1↙
1
 9|0.884|0.951|6.2e-12|1.6e-07|1.0e+00|-4.218400e+00 -5.252951e+00| 0:0:00| chol 2↙
2
10|0.749|1.000|2.3e-11|1.1e-08|6.7e-01|-4.510182e+00 -5.184919e+00| 0:0:00| chol 2↙
2
11|1.000|0.958|4.1e-10|1.5e-09|1.4e-01|-5.010916e+00 -5.149612e+00| 0:0:00| chol 2↙
2
12|0.969|1.000|1.2e-10|1.1e-10|4.8e-02|-5.093818e+00 -5.142032e+00| 0:0:00| chol 2↙
2
13|0.993|0.935|6.7e-11|2.2e-11|1.7e-03|-5.135994e+00 -5.137712e+00| 0:0:00| chol 2↙
2
14|0.986|0.916|1.2e-11|9.2e-12|2.0e-04|-5.137297e+00 -5.137496e+00| 0:0:00| chol 2↙
2
15|0.965|0.976|1.9e-12|2.7e-12|8.2e-06|-5.137466e+00 -5.137474e+00| 0:0:00| chol 2↙
2
16|1.000|0.997|1.5e-11|1.0e-12|4.6e-07|-5.137473e+00 -5.137473e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.13747270e+00
 dual   objective value = -5.13747316e+00
 gap := trace(XZ)        = 4.62e-07
 relative gap            = 4.10e-08
 actual relative gap     = 4.04e-08
 rel. primal infeas      = 1.55e-11
 rel. dual   infeas      = 1.01e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 1.8e+03, 6.7e+03, 3.9e+02
```

```
 Total CPU time (secs) = 0.11
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 1.9e-11  0.0e+00  1.4e-12  0.0e+00  4.0e-08  4.1e-08
-------------------------------------------------------------------


ans =

    5.1375


Epoch... 127
Epoch... 128


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version   predcorr  gam   expon   scale_data
   HKM       1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.3e+00|5.9e+06| 1.912686e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.3e-07|7.9e-02|4.9e+05| 1.663439e+05  2.273896e+01| 0:0:00| chol  1✓
1
 2|1.000|0.978|3.7e-08|5.6e-03|5.9e+04| 2.747751e+04 -2.685096e+01| 0:0:00| chol  1✓
1
 3|0.880|1.000|3.7e-08|2.5e-03|1.6e+04| 9.614627e+03 -1.124090e+02| 0:0:00| chol  1✓
1
 4|1.000|1.000|1.2e-08|1.2e-03|1.8e+03| 1.077878e+03 -3.236837e+01| 0:0:00| chol  1✓
1
 5|0.823|0.826|2.2e-09|5.2e-04|4.4e+02| 3.219189e+02 -8.698221e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|2.2e-10|1.1e-04|2.2e+02| 1.968347e+02 -8.681951e+00| 0:0:00| chol  1✓
1
 7|0.970|0.975|2.5e-11|1.4e-05|2.6e+01| 1.978195e+01 -5.572603e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|7.4e-11|1.1e-06|9.2e+00| 3.850095e+00 -5.370282e+00| 0:0:00| chol  1✓
1
 9|0.895|0.950|7.3e-11|1.6e-07|1.0e+00|-4.248703e+00 -5.273846e+00| 0:0:00| chol  2✓
1
10|0.670|1.000|6.2e-10|1.1e-08|6.8e-01|-4.527445e+00 -5.208699e+00| 0:0:00| chol  2✓
2
11|1.000|0.966|4.0e-10|1.5e-09|1.7e-01|-5.008893e+00 -5.175950e+00| 0:0:00| chol  2✓
2
12|0.843|1.000|1.7e-10|1.4e-10|7.5e-02|-5.093885e+00 -5.169376e+00| 0:0:00| chol  2✓
2
13|1.000|0.932|9.2e-11|5.3e-11|3.8e-03|-5.159411e+00 -5.163192e+00| 0:0:00| chol  2✓
2
14|0.969|0.859|1.8e-11|2.7e-11|2.3e-04|-5.162537e+00 -5.162768e+00| 0:0:00| chol  2✓
1
15|0.958|0.970|7.0e-11|4.4e-12|1.3e-05|-5.162693e+00 -5.162706e+00| 0:0:00| chol  2✓
```

```
2
16|1.000|0.990|4.5e-12|5.4e-12|4.3e-07|-5.162703e+00 -5.162703e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.16270310e+00
 dual   objective value = -5.16270349e+00
 gap := trace(XZ)       = 4.28e-07
 relative gap           = 3.78e-08
 actual relative gap    = 3.42e-08
 rel. primal infeas     = 4.46e-12
 rel. dual   infeas     = 5.43e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 1.9e+03, 6.8e+03, 3.9e+02
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.3e-12  0.0e+00  7.6e-12  0.0e+00  3.4e-08  3.8e-08
-------------------------------------------------------------------


ans =

    5.1627


Epoch... 129
Epoch... 130

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.4e+00|5.6e+06| 1.805762e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.5e-07|8.0e-02|4.6e+05| 1.576209e+05  2.966369e+01| 0:0:00| chol  1↙
1
 2|1.000|0.974|3.9e-08|5.8e-03|5.6e+04| 2.621198e+04 -1.752375e+01| 0:0:00| chol  1↙
1
 3|0.849|1.000|3.6e-08|2.5e-03|1.6e+04| 9.673003e+03 -1.030417e+02| 0:0:00| chol  1↙
1
 4|1.000|1.000|1.2e-08|1.2e-03|1.3e+03| 7.075203e+02 -2.711561e+01| 0:0:00| chol  1↙
1
 5|0.875|0.866|1.5e-09|4.9e-04|4.8e+02| 3.655284e+02 -7.254584e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.0e+02| 1.769146e+02 -7.829666e+00| 0:0:00| chol  1↙
1
 7|0.907|0.919|1.8e-11|1.9e-05|2.6e+01| 1.981940e+01 -5.518913e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|2.1e-11|1.1e-06|8.7e+00| 3.189859e+00 -5.465302e+00| 0:0:00| chol  1↙
```

```
1
 9|0.907|0.940|3.5e-11|1.7e-07|9.4e-01|-4.404397e+00 -5.347571e+00| 0:0:00| chol  2✓
2
10|0.653|1.000|1.1e-11|1.1e-08|6.1e-01|-4.666393e+00 -5.275673e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|2.8e-10|1.1e-09|2.6e-01|-5.003842e+00 -5.260422e+00| 0:0:00| chol  2✓
2
12|1.000|1.000|2.8e-10|1.2e-10|8.0e-02|-5.166447e+00 -5.246465e+00| 0:0:00| chol  2✓
2
13|0.949|0.946|9.5e-11|2.2e-11|5.8e-03|-5.234232e+00 -5.240016e+00| 0:0:00| chol  2✓
2
14|0.974|0.889|3.0e-11|1.1e-11|2.8e-04|-5.239501e+00 -5.239784e+00| 0:0:00| chol  2✓
2
15|0.941|0.967|6.7e-12|6.3e-12|2.2e-05|-5.239743e+00 -5.239765e+00| 0:0:00| chol  2✓
2
16|1.000|0.999|6.7e-12|1.3e-12|5.6e-07|-5.239763e+00 -5.239764e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.23976316e+00
 dual   objective value = -5.23976370e+00
 gap := trace(XZ)        = 5.64e-07
 relative gap            = 4.92e-08
 actual relative gap     = 4.77e-08
 rel. primal infeas      = 6.73e-12
 rel. dual   infeas      = 1.34e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 1.9e+03, 6.8e+03, 3.9e+02
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 8.1e-12  0.0e+00  1.9e-12  0.0e+00  4.8e-08  4.9e-08
-------------------------------------------------------------------

ans =

    5.2398


Epoch... 131
Epoch... 132

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk =  1
 dim. of linear var  = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.5e+00|5.5e+06| 1.789896e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.4e-07|8.2e-02|4.6e+05| 1.564219e+05  1.820304e+01| 0:0:00| chol  1✓
```

```
1
 2|1.000|0.971|4.0e-08|5.9e-03|5.5e+04| 2.577690e+04 -1.127988e+01| 0:0:00| chol  1↙
1
 3|0.826|1.000|3.2e-08|2.5e-03|1.6e+04| 9.801203e+03 -9.750396e+01| 0:0:00| chol  1↙
1
 4|0.993|1.000|1.2e-08|1.2e-03|1.1e+03| 6.152764e+02 -2.527759e+01| 0:0:00| chol  1↙
1
 5|0.897|0.903|1.3e-09|4.6e-04|5.1e+02| 3.992996e+02 -7.156355e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|1.9e+02| 1.747995e+02 -7.853129e+00| 0:0:00| chol  1↙
1
 7|0.931|1.000|1.3e-11|1.1e-05|2.9e+01| 2.350735e+01 -5.620361e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|1.3e-11|1.1e-06|8.9e+00| 3.498988e+00 -5.415000e+00| 0:0:00| chol  1↙
1
 9|0.904|0.956|3.9e-11|1.6e-07|9.5e-01|-4.363953e+00 -5.312975e+00| 0:0:00| chol  2↙
2
10|0.760|0.928|9.2e-12|2.2e-08|6.1e-01|-4.633322e+00 -5.242629e+00| 0:0:00| chol  2↙
2
11|1.000|0.560|1.1e-09|1.0e-08|3.6e-01|-4.873455e+00 -5.229747e+00| 0:0:00| chol  2↙
2
12|0.633|1.000|3.5e-10|1.1e-10|2.3e-01|-4.993646e+00 -5.226508e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|2.5e-10|1.5e-11|9.1e-02|-5.118180e+00 -5.208967e+00| 0:0:00| chol  2↙
1
14|0.970|0.909|6.0e-11|8.6e-12|3.3e-03|-5.199269e+00 -5.202595e+00| 0:0:00| chol  2↙
2
15|0.968|0.960|1.9e-11|9.7e-12|2.9e-04|-5.201977e+00 -5.202264e+00| 0:0:00| chol  2↙
2
16|0.978|0.979|2.8e-12|4.0e-12|6.3e-06|-5.202236e+00 -5.202242e+00| 0:0:00| chol  3↙
3
17|0.999|0.995|4.5e-11|1.0e-12|1.9e-07|-5.202242e+00 -5.202242e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.20224172e+00
 dual   objective value = -5.20224191e+00
 gap := trace(XZ)       = 1.86e-07
 relative gap           = 1.63e-08
 actual relative gap    = 1.62e-08
 rel. primal infeas     = 4.55e-11
 rel. dual   infeas     = 1.02e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.0e+03, 6.9e+03, 3.9e+02
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.5e-11  0.0e+00  1.4e-12  0.0e+00  1.6e-08  1.6e-08
-------------------------------------------------------------------

ans =

    5.2022
```

```
Epoch... 133
Epoch... 134


 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.5e+00|5.3e+06| 1.710480e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.5e-07|8.3e-02|4.4e+05| 1.499374e+05  1.961601e+01| 0:0:00| chol  1↙
1
 2|1.000|0.968|4.1e-08|6.1e-03|5.3e+04| 2.476979e+04 -4.763667e+00| 0:0:00| chol  1↙
1
 3|0.802|1.000|3.0e-08|2.5e-03|1.6e+04| 9.797720e+03 -9.108357e+01| 0:0:00| chol  1↙
1
 4|0.983|1.000|1.2e-08|1.2e-03|1.1e+03| 5.819100e+02 -2.357665e+01| 0:0:00| chol  1↙
1
 5|0.865|0.963|1.7e-09|4.1e-04|5.3e+02| 4.285546e+02 -7.714461e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.1e+02| 1.911193e+02 -8.395291e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|6.0e-12|1.1e-05|6.1e+01| 5.382442e+01 -6.597847e+00| 0:0:00| chol  1↙
1
 8|1.000|0.947|5.2e-12|1.7e-06|6.2e+00| 9.433088e-01 -5.286764e+00| 0:0:00| chol  1↙
1
 9|0.956|0.988|8.9e-12|1.3e-07|1.1e+00|-4.037420e+00 -5.184158e+00| 0:0:00| chol  2↙
2
10|0.688|1.000|3.7e-12|1.1e-08|6.7e-01|-4.459932e+00 -5.126097e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.1e-10|1.1e-09|2.5e-01|-4.860455e+00 -5.105814e+00| 0:0:00| chol  2↙
2
12|0.942|1.000|2.2e-10|1.1e-10|5.1e-02|-5.042159e+00 -5.093013e+00| 0:0:00| chol  1↙
2
13|1.000|1.000|6.7e-11|1.3e-11|1.0e-02|-5.079884e+00 -5.089880e+00| 0:0:00| chol  2↙
2
14|0.977|0.871|2.1e-11|6.1e-12|3.5e-04|-5.088823e+00 -5.089173e+00| 0:0:00| chol  2↙
2
15|0.943|0.960|9.6e-12|4.5e-12|3.1e-05|-5.089088e+00 -5.089119e+00| 0:0:00| chol  2↙
2
16|0.992|0.995|1.0e-11|1.9e-12|8.8e-07|-5.089115e+00 -5.089116e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.08911466e+00
 dual   objective value = -5.08911553e+00
 gap := trace(XZ)       = 8.81e-07
 relative gap           = 7.88e-08
 actual relative gap    = 7.78e-08
```

```
 rel. primal infeas    = 1.03e-11
 rel. dual   infeas    = 1.94e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.0e+03, 7.0e+03, 3.9e+02
 Total CPU time (secs) = 0.14
 CPU time per iteration = 0.01
 termination code      =   0
 DIMACS errors: 1.3e-11  0.0e+00  2.7e-12  0.0e+00  7.8e-08  7.9e-08
-------------------------------------------------------------------


ans =

    5.0891


Epoch... 135
Epoch... 136

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.7e+00|5.5e+06| 1.766935e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.5e-07|8.6e-02|4.5e+05| 1.544701e+05  9.095855e+00| 0:0:00| chol  1✓
1
 2|1.000|0.967|4.4e-08|6.2e-03|5.5e+04| 2.541679e+04 -4.258446e+00| 0:0:00| chol  1✓
1
 3|0.794|1.000|2.9e-08|2.5e-03|1.7e+04| 1.019998e+04 -9.159944e+01| 0:0:00| chol  1✓
1
 4|0.981|1.000|1.1e-08|1.2e-03|1.1e+03| 5.799506e+02 -2.352807e+01| 0:0:00| chol  1✓
1
 5|0.845|0.982|1.7e-09|3.9e-04|5.5e+02| 4.484635e+02 -7.996708e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.0e-10|1.1e-04|2.2e+02| 2.029122e+02 -8.637682e+00| 0:0:00| chol  1✓
1
 7|1.000|1.000|5.2e-12|1.1e-05|8.2e+01| 7.426512e+01 -6.992359e+00| 0:0:00| chol  1✓
1
 8|0.993|0.954|3.1e-12|1.6e-06|8.2e+00| 2.919833e+00 -5.264969e+00| 0:0:00| chol  2✓
1
 9|1.000|0.989|1.6e-11|1.3e-07|1.2e+00|-3.944555e+00 -5.161080e+00| 0:0:00| chol  2✓
2
10|0.663|1.000|6.8e-12|1.1e-08|6.9e-01|-4.419345e+00 -5.110202e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|3.5e-10|1.1e-09|2.7e-01|-4.816979e+00 -5.089574e+00| 0:0:00| chol  2✓
1
12|0.937|1.000|2.3e-10|1.1e-10|7.0e-02|-5.009575e+00 -5.079137e+00| 0:0:00| chol  2✓
1
13|1.000|1.000|1.1e-10|1.4e-11|2.3e-02|-5.052049e+00 -5.075313e+00| 0:0:00| chol  2✓
```

```
2
14|0.940|0.982|5.9e-11|5.9e-12|2.8e-03|-5.070572e+00 -5.073402e+00| 0:0:00| chol  2✔
2
15|1.000|0.984|2.2e-11|7.1e-12|2.4e-04|-5.073034e+00 -5.073278e+00| 0:0:00| chol  2✔
2
16|0.957|0.972|3.6e-11|4.6e-12|1.3e-05|-5.073253e+00 -5.073266e+00| 0:0:00| chol  3✔
3
17|1.000|1.000|2.7e-11|2.6e-12|2.0e-07|-5.073265e+00 -5.073265e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.07326496e+00
 dual   objective value = -5.07326514e+00
 gap := trace(XZ)       = 1.97e-07
 relative gap           = 1.77e-08
 actual relative gap    = 1.62e-08
 rel. primal infeas     = 2.68e-11
 rel. dual   infeas     = 2.58e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.1e+03, 7.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.15
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.3e-11  0.0e+00  3.6e-12  0.0e+00  1.6e-08  1.8e-08
-------------------------------------------------------------------

ans =

    5.0733

Epoch... 137
Epoch... 138

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.8e+00|5.3e+06| 1.702790e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.6e-07|8.7e-02|4.4e+05| 1.492857e+05 -8.545567e+00| 0:0:00| chol  1✔
1
 2|1.000|0.964|4.5e-08|6.4e-03|5.3e+04| 2.445921e+04  1.209254e+00| 0:0:00| chol  1✔
1
 3|0.770|1.000|2.7e-08|2.5e-03|1.7e+04| 1.019318e+04 -8.634207e+01| 0:0:00| chol  1✔
1
 4|0.979|1.000|1.0e-08|1.2e-03|1.0e+03| 5.466316e+02 -2.305126e+01| 0:0:00| chol  1✔
1
 5|0.753|1.000|2.6e-09|3.7e-04|5.7e+02| 4.653471e+02 -1.150854e+01| 0:0:00| chol  1✔
```

```
1
 6|1.000|1.000|5.4e-11|1.1e-04|2.5e+02| 2.225139e+02 -8.912501e+00| 0:0:00| chol  1↙
1
 7|0.923|1.000|9.4e-12|3.4e-05|5.0e+01| 4.211088e+01 -6.366531e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|5.5e-12|3.4e-06|1.5e+01| 9.392319e+00 -5.551751e+00| 0:0:00| chol  1↙
1
 9|0.929|1.000|1.9e-11|3.4e-07|1.1e+00|-4.386508e+00  5.470882e+00| 0:0:00| chol  2↙
2
10|1.000|0.480|5.7e-12|1.9e-07|6.8e-01|-4.736751e+00 -5.419464e+00| 0:0:00| chol  2↙
2
11|0.636|1.000|2.5e-10|3.4e-09|4.4e-01|-4.962212e+00 -5.401072e+00| 0:0:00| chol  1↙
2
12|1.000|1.000|3.5e-10|3.4e-10|1.5e-01|-5.218540e+00 -5.364464e+00| 0:0:00| chol  2↙
2
13|0.873|1.000|1.6e-10|3.6e-11|3.9e-02|-5.319173e+00 -5.358145e+00| 0:0:00| chol  2↙
2
14|1.000|0.988|8.3e-11|7.6e-12|3.3e-03|-5.351849e+00 -5.355171e+00| 0:0:00| chol  2↙
2
15|0.943|0.946|3.0e-11|6.5e-12|4.2e-04|-5.354558e+00 -5.354974e+00| 0:0:00| chol  2↙
2
16|0.970|0.979|1.9e-11|6.2e-12|1.7e-05|-5.354940e+00 -5.354956e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|2.8e-11|3.8e-12|3.0e-07|-5.354955e+00 -5.354955e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -5.35495508e+00
 dual   objective value = -5.35495536e+00
 gap := trace(XZ)       = 3.04e-07
 relative gap           = 2.60e-08
 actual relative gap    = 2.38e-08
 rel. primal infeas     = 2.80e-11
 rel. dual   infeas     = 3.80e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
 norm(A), norm(b), norm(C) = 2.2e+03, 7.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.4e-11  0.0e+00  5.3e-12  0.0e+00  2.4e-08  2.6e-08
-------------------------------------------------------------------

ans =

    5.3550

Epoch... 139
Epoch... 140

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
******************************************************************
   SDPT3: Infeasible path-following algorithms
```

```
 **********************************************************
  version   predcorr   gam   expon   scale_data
    HKM       1       0.000   1          0
 it pstep dstep pinfeas dinfeas  gap       prim-obj        dual-obj      cputime
 -------------------------------------------------------------------
  0|0.000|0.000|1.0e+00|4.9e+00|5.1e+06| 1.637167e+05  0.000000e+00| 0:0:00| chol 1↙
 1
  1|1.000|0.982|1.6e-07|8.7e-02|4.2e+05| 1.440034e+05 -1.167444e+01| 0:0:00| chol 1↙
 1
  2|1.000|0.959|4.5e-08|6.7e-03|5.1e+04| 2.362087e+04  9.450162e+00| 0:0:00| chol 1↙
 1
  3|0.743|1.000|2.6e-08|2.5e-03|1.7e+04| 1.029418e+04 -8.047851e+01| 0:0:00| chol 1↙
 1
  4|0.978|0.995|9.5e-09|1.3e-03|1.0e+03| 5.181602e+02 -2.259001e+01| 0:0:00| chol 1↙
 1
  5|0.705|1.000|2.8e-09|3.7e-04|5.8e+02| 4.685228e+02 -1.337191e+01| 0:0:00| chol 1↙
 1
  6|1.000|1.000|4.5e-11|1.1e-04|2.5e+02| 2.316918e+02 -8.126701e+00| 0:0:00| chol 1↙
 1
  7|0.882|1.000|1.1e-11|3.4e-05|5.9e+01| 5.087053e+01 -6.478515e+00| 0:0:00| chol 1↙
 1
  8|1.000|0.954|4.0e-12|4.8e-06|2.2e+01| 1.655297e+01 -5.222340e+00| 0:0:00| chol 1↙
 1
  9|0.909|1.000|2.1e-11|3.4e-07|2.1e+00|-3.073635e+00 -5.125750e+00| 0:0:00| chol 2↙
 2
 10|1.000|0.641|8.7e-12|1.4e-07|1.1e+00|-3.957950e+00 -5.047436e+00| 0:0:00| chol 2↙
 2
 11|0.727|1.000|3.0e-10|3.4e-09|5.9e-01|-4.437148e+00 -5.023536e+00| 0:0:00| chol 2↙
 1
 12|1.000|1.000|3.5e-10|3.4e-10|1.6e-01|-4.824110e+00 -4.982454e+00| 0:0:00| chol 2↙
 2
 13|0.888|1.000|1.6e-10|3.8e-11|4.3e-02|-4.931811e+00 -4.975062e+00| 0:0:00| chol 2↙
 2
 14|1.000|0.946|7.3e-11|1.1e-11|2.4e-03|-4.969397e+00 -4.971806e+00| 0:0:00| chol 2↙
 2
 15|0.956|0.965|2.3e-11|9.5e-12|2.8e-04|-4.971358e+00 -4.971634e+00| 0:0:00| chol 2↙
 2
 16|0.961|0.870|1.7e-11|5.9e-12|1.4e-05|-4.971601e+00 -4.971615e+00| 0:0:00| chol 2↙
 3
 17|0.996|0.991|1.3e-10|3.4e-12|9.3e-07|-4.971612e+00 -4.971613e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
  number of iterations   = 17
  primal objective value = -4.97161211e+00
  dual   objective value = -4.97161297e+00
  gap := trace(XZ)        = 9.28e-07
  relative gap            = 8.48e-08
  actual relative gap     = 7.90e-08
  rel. primal infeas      = 1.29e-10
  rel. dual   infeas      = 3.41e-12
  norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.8e+02
  norm(A), norm(b), norm(C) = 2.2e+03, 7.4e+03, 3.9e+02
  Total CPU time (secs)  = 0.11
  CPU time per iteration = 0.01
```

```
 termination code      =  0
 DIMACS errors: 1.6e-10  0.0e+00  4.8e-12  0.0e+00  7.9e-08  8.5e-08
-------------------------------------------------------------------
```

ans =

    4.9716

Epoch... 141
Epoch... 142

```
 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1     0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.8e+00|4.8e+06| 1.529315e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.983|1.8e-07|8.6e-02|4.0e+05| 1.351811e+05 -8.416178e+00| 0:0:00| chol  1✔
1
 2|1.000|0.956|4.4e-08|6.8e-03|4.9e+04| 2.250519e+04  1.229211e+01| 0:0:00| chol  1✔
1
 3|0.740|1.000|3.3e-08|2.5e-03|1.6e+04| 9.922671e+03 -7.537855e+01| 0:0:00| chol  1✔
1
 4|0.977|0.992|9.2e-09|1.3e-03|9.5e+02| 4.873301e+02 -2.143425e+01| 0:0:00| chol  1✔
1
 5|0.696|1.000|2.8e-09|3.7e-04|5.6e+02| 4.513974e+02 -1.442925e+01| 0:0:00| chol  1✔
1
 6|1.000|1.000|2.7e-11|1.1e-04|2.4e+02| 2.169834e+02 -6.720746e+00| 0:0:00| chol  1✔
1
 7|0.853|1.000|1.2e-11|1.1e-05|5.0e+01| 4.361570e+01 -5.895011e+00| 0:0:00| chol  1✔
1
 8|1.000|0.876|7.1e-12|2.4e-06|2.1e+01| 1.645888e+01 -4.856108e+00| 0:0:00| chol  1✔
1
 9|0.914|1.000|1.9e-11|1.1e-07|1.9e+00|-2.860701e+00 -4.761774e+00| 0:0:00| chol  2✔
2
10|1.000|0.612|6.4e-12|5.0e-08|1.1e+00|-3.628514e+00 -4.690834e+00| 0:0:00| chol  2✔
1
11|0.702|1.000|2.2e-10|1.1e-09|5.2e-01|-4.151847e+00 -4.673724e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|4.4e-10|1.1e-10|2.0e-01|-4.439923e+00 -4.637603e+00| 0:0:00| chol  2✔
1
13|0.855|1.000|1.7e-10|1.4e-11|4.8e-02|-4.583489e+00 -4.631376e+00| 0:0:00| chol  2✔
2
14|1.000|1.000|1.5e-10|5.4e-12|1.5e-02|-4.614278e+00 -4.629446e+00| 0:0:00| chol  2✔
2
15|0.910|1.000|6.8e-11|6.6e-12|2.9e-03|-4.625576e+00 -4.628525e+00| 0:0:00| chol  2✔
2
16|1.000|1.000|8.2e-11|9.7e-12|1.1e-03|-4.627315e+00 -4.628456e+00| 0:0:00| chol  2✔
```

```
2
17|0.922|0.984|4.3e-11|1.5e-11|1.4e-04|-4.628254e+00 -4.628395e+00| 0:0:00| chol  3↙
3
18|1.000|1.000|2.0e-10|8.5e-12|2.5e-05|-4.628368e+00 -4.628393e+00| 0:0:00| chol  2↙
3
19|1.000|1.000|1.7e-10|1.3e-11|1.4e-06|-4.628390e+00 -4.628392e+00| 0:0:00| chol  3↙
2
20|0.999|0.990|4.8e-12|3.7e-13|1.8e-08|-4.628392e+00 -4.628392e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -4.62839157e+00
 dual   objective value = -4.62839159e+00
 gap := trace(XZ)       = 1.85e-08
 relative gap           = 1.80e-09
 actual relative gap    = 1.57e-09
 rel. primal infeas     = 4.83e-12
 rel. dual   infeas     = 3.65e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.2e+03, 7.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.1e-12  0.0e+00  5.1e-13  0.0e+00  1.6e-09  1.8e-09
-------------------------------------------------------------------


ans =

    4.6284


Epoch... 143
Epoch... 144

 num. of constraints = 15
 dim. of socp  var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.9e+00|4.6e+06| 1.462100e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.9e-07|8.9e-02|3.8e+05| 1.295674e+05 -9.356431e+00| 0:0:00| chol  1↙
1
 2|1.000|0.950|4.6e-08|7.3e-03|4.7e+04| 2.167656e+04  2.502029e+01| 0:0:00| chol  1↙
1
 3|0.698|1.000|3.1e-08|2.5e-03|1.7e+04| 1.026409e+04 -6.825784e+01| 0:0:00| chol  1↙
1
 4|0.977|0.987|8.2e-09|1.3e-03|9.7e+02| 5.046544e+02 -2.116550e+01| 0:0:00| chol  1↙
1
 5|0.733|1.000|2.2e-09|3.7e-04|5.7e+02| 4.612658e+02 -1.595000e+01| 0:0:00| chol  1↙
```

```
1
  6|1.000|0.922|1.7e-11|1.3e-04|2.1e+02| 1.941179e+02 -5.590863e+00| 0:0:00| chol  1↙
1
  7|0.846|1.000|1.3e-11|1.1e-05|4.3e+01| 3.793349e+01 -5.191094e+00| 0:0:00| chol  1↙
1
  8|1.000|0.859|1.2e-11|2.5e-06|1.9e+01| 1.478523e+01 -4.454745e+00| 0:0:00| chol  1↙
1
  9|0.914|1.000|1.3e-11|1.1e-07|1.7e+00|-2.687066e+00 -4.386468e+00| 0:0:00| chol  2↙
2
 10|1.000|0.546|2.5e-11|5.7e-08|1.0e+00|-3.291498e+00 -4.320315e+00| 0:0:00| chol  2↙
1
 11|0.705|1.000|1.7e-10|1.1e-09|4.4e-01|-3.866605e+00 -4.310376e+00| 0:0:00| chol  2↙
2
 12|1.000|0.985|6.2e-10|1.3e-10|2.0e-01|-4.069602e+00 -4.272270e+00| 0:0:00| chol  2↙
2
 13|0.846|1.000|1.5e-10|2.0e-11|4.5e-02|-4.223915e+00 -4.269095e+00| 0:0:00| chol  2↙
2
 14|1.000|1.000|1.4e-10|1.4e-11|1.8e-02|-4.248661e+00 -4.266545e+00| 0:0:00| chol  2↙
2
 15|0.903|0.918|6.4e-11|2.1e-11|2.0e-03|-4.263616e+00 -4.265626e+00| 0:0:00| chol  2↙
2
 16|1.000|1.000|8.9e-11|1.3e-11|8.0e-04|-4.264753e+00 -4.265552e+00| 0:0:00| chol  2↙
2
 17|1.000|1.000|2.3e-11|1.8e-11|1.7e-04|-4.265333e+00 -4.265499e+00| 0:0:00| chol  2↙
3
 18|1.000|1.000|1.4e-10|4.6e-12|2.1e-05|-4.265468e+00 -4.265489e+00| 0:0:00| chol  3↙
3
 19|1.000|1.000|6.9e-11|6.9e-12|8.7e-07|-4.265487e+00 -4.265488e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.26548688e+00
 dual   objective value = -4.26548770e+00
 gap := trace(XZ)        = 8.74e-07
 relative gap            = 9.17e-08
 actual relative gap     = 8.53e-08
 rel. primal infeas      = 6.94e-11
 rel. dual   infeas      = 6.95e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.3e+03, 7.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 8.8e-11  0.0e+00  9.8e-12  0.0e+00  8.5e-08  9.2e-08
-------------------------------------------------------------------

ans =

    4.2655

Epoch... 145
Epoch... 146

 num. of constraints = 15
```

```
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.1e+00|4.0e+06| 1.260382e+05  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.983|1.9e-07|9.1e-02|3.3e+05| 1.131004e+05 -2.634800e+01| 0:0:00| chol 1↙
1
 2|1.000|0.938|5.4e-08|8.2e-03|4.1e+04| 1.877307e+04  4.993386e+01| 0:0:00| chol 1↙
1
 3|0.609|1.000|2.8e-08|2.5e-03|1.7e+04| 1.022168e+04 -5.877756e+01| 0:0:00| chol 1↙
1
 4|0.978|0.989|7.5e-09|1.3e-03|9.8e+02| 5.234968e+02 -2.211717e+01| 0:0:00| chol 1↙
1
 5|0.589|1.000|3.2e-09|3.7e-04|5.9e+02| 4.669326e+02 -1.986992e+01| 0:0:00| chol 1↙
1
 6|1.000|0.897|9.0e-12|1.4e-04|2.6e+02| 2.330446e+02 -6.481900e+00| 0:0:00| chol 1↙
1
 7|0.855|1.000|1.6e-11|3.4e-05|5.3e+01| 4.630727e+01 -5.393378e+00| 0:0:00| chol 1↙
1
 8|1.000|0.942|2.6e-11|5.1e-06|2.2e+01| 1.722651e+01 -4.637064e+00| 0:0:00| chol 1↙
1
 9|0.916|1.000|5.9e-12|3.4e-07|1.9e+00|-2.699076e+00 -4.579715e+00| 0:0:00| chol 2↙
2
10|1.000|0.579|3.2e-11|1.6e-07|1.1e+00|-3.412254e+00 -4.513301e+00| 0:0:00| chol 2↙
1
11|0.712|1.000|1.7e-10|3.4e-09|4.4e-01|-4.064599e+00 -4.502113e+00| 0:0:00| chol 2↙
2
12|1.000|0.948|5.6e-10|5.0e-10|2.1e-01|-4.265989e+00 -4.471031e+00| 0:0:00| chol 2↙
2
13|0.863|1.000|1.3e-10|3.8e-11|3.7e-02|-4.429852e+00 -4.467129e+00| 0:0:00| chol 2↙
2
14|1.000|1.000|1.2e-10|9.4e-12|1.7e-02|-4.448623e+00 -4.465566e+00| 0:0:00| chol 2↙
2
15|0.934|0.967|3.1e-11|9.6e-12|1.4e-03|-4.463651e+00 -4.465030e+00| 0:0:00| chol 2↙
2
16|0.875|1.000|3.6e-11|6.1e-12|3.0e-04|-4.464701e+00 -4.465003e+00| 0:0:00| chol 3↙
3
17|1.000|0.995|1.0e-10|7.2e-12|4.6e-05|-4.464948e+00 -4.464994e+00| 0:0:00| chol 2↙
2
18|0.994|1.000|4.4e-11|1.1e-11|1.4e-06|-4.464991e+00 -4.464992e+00| 0:0:00| chol 3↙
3
19|1.000|0.990|1.9e-10|7.8e-13|5.1e-08|-4.464992e+00 -4.464992e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.46499210e+00
 dual   objective value = -4.46499214e+00
 gap := trace(XZ)       = 5.12e-08
```

```
 relative gap         = 5.16e-09
 actual relative gap  = 4.67e-09
 rel. primal infeas   = 1.89e-10
 rel. dual   infeas   = 7.77e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.5e+03, 7.6e+03, 3.9e+02
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code      =   0
 DIMACS errors: 2.5e-10  0.0e+00  1.1e-12  0.0e+00  4.7e-09  5.2e-09
-------------------------------------------------------------------
```

ans =

    4.4650

Epoch... 147
Epoch... 148

```
 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam   expon   scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap        prim-obj        dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.4e+00|4.2e+06| 1.333931e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.983|1.6e-07|9.5e-02|3.5e+05| 1.191850e+05 -5.866911e+01| 0:0:00| chol  1↙
1
 2|1.000|0.941|5.6e-08|8.2e-03|4.2e+04| 1.912307e+04  5.435782e+01| 0:0:00| chol  1↙
1
 3|0.587|1.000|2.6e-08|2.5e-03|1.7e+04| 1.071751e+04 -6.307523e+01| 0:0:00| chol  1↙
1
 4|0.978|0.986|7.1e-09|1.3e-03|1.0e+03| 5.519340e+02 -2.255253e+01| 0:0:00| chol  1↙
1
 5|0.644|1.000|2.6e-09|3.7e-04|6.1e+02| 4.846657e+02 -1.917859e+01| 0:0:00| chol  1↙
1
 6|1.000|0.896|2.6e-11|1.4e-04|2.6e+02| 2.314178e+02 -6.581855e+00| 0:0:00| chol  1↙
1
 7|0.845|1.000|1.1e-11|3.4e-05|5.6e+01| 4.869551e+01 -5.567104e+00| 0:0:00| chol  1↙
1
 8|1.000|0.912|8.8e-12|6.0e-06|2.4e+01| 1.896926e+01 -4.666096e+00| 0:0:00| chol  1↙
1
 9|0.910|1.000|1.7e-12|3.4e-07|2.2e+00|-2.395531e+00 -4.599236e+00| 0:0:00| chol  2↙
2
10|1.000|0.620|9.9e-12|1.5e-07|1.2e+00|-3.273897e+00 -4.522073e+00| 0:0:00| chol  2↙
2
11|0.707|1.000|1.6e-10|3.4e-09|5.0e-01|-4.002328e+00 -4.507261e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|5.0e-10|3.4e-10|2.2e-01|-4.247894e+00 -4.472438e+00| 0:0:00| chol  2↙
```

```
2
13|0.850|1.000|1.5e-10|3.7e-11|4.8e-02|-4.419531e+00 -4.467335e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|1.4e-10|8.4e-12|2.0e-02|-4.445359e+00 -4.465268e+00| 0:0:00| chol  2↙
2
15|0.898|0.932|5.8e-11|8.5e-12|2.7e-03|-4.461620e+00 -4.464329e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|6.0e-11|1.1e-11|1.1e-03|-4.463190e+00 -4.464265e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|1.2e-10|1.2e-11|3.3e-04|-4.463888e+00 -4.464213e+00| 0:0:00| chol  2↙
2
18|0.952|0.957|2.7e-11|1.8e-11|2.2e-05|-4.464175e+00 -4.464197e+00| 0:0:00| chol  3↙
3
19|1.000|1.000|1.6e-10|5.4e-12|1.7e-06|-4.464195e+00 -4.464196e+00| 0:0:00| chol  3↙
2
20|1.000|0.992|1.4e-11|3.4e-13|2.3e-08|-4.464196e+00 -4.464196e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -4.46419621e+00
 dual   objective value = -4.46419623e+00
 gap := trace(XZ)       = 2.27e-08
 relative gap           = 2.28e-09
 actual relative gap    = 2.33e-09
 rel. primal infeas     = 1.43e-11
 rel. dual   infeas     = 3.38e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.7e+03, 8.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.14
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-11  0.0e+00  4.8e-13  0.0e+00  2.3e-09  2.3e-09
-------------------------------------------------------------------

ans =

    4.4642


Epoch... 149
Epoch... 150

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*******************************************************************
   SDPT3: Infeasible path-following algorithms
*******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000  1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.4e+00|4.1e+06| 1.297678e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.6e-07|9.8e-02|3.4e+05| 1.160725e+05 -4.952944e+01| 0:0:00| chol  1↙
```

```
 1
  2|1.000|0.939|5.7e-08|8.4e-03|4.1e+04| 1.872868e+04  6.137109e+01| 0:0:00| chol  1↙
 1
  3|0.576|1.000|2.7e-08|2.5e-03|1.7e+04| 1.065260e+04 -5.782226e+01| 0:0:00| chol  1↙
 1
  4|0.979|0.991|6.7e-09|1.3e-03|1.0e+03| 5.521590e+02 -2.116244e+01| 0:0:00| chol  1↙
 1
  5|0.594|1.000|2.8e-09|3.7e-04|6.0e+02| 4.818328e+02 -1.917074e+01| 0:0:00| chol  1↙
 1
  6|1.000|0.911|5.6e-12|1.4e-04|2.6e+02| 2.377697e+02 -6.437324e+00| 0:0:00| chol  1↙
 1
  7|0.855|1.000|1.3e-11|3.4e-05|5.4e+01| 4.699790e+01 -5.414627e+00| 0:0:00| chol  1↙
 1
  8|1.000|0.941|1.7e-11|5.1e-06|2.2e+01| 1.764098e+01 -4.654119e+00| 0:0:00| chol  1↙
 1
  9|0.906|1.000|7.2e-12|3.4e-07|2.2e+00|-2.425514e+00 -4.593999e+00| 0:0:00| chol  2↙
 2
 10|1.000|0.597|1.4e-11|1.6e-07|1.2e+00|-3.277111e+00 -4.523806e+00| 0:0:00| chol  2↙
 2
 11|0.723|1.000|1.4e-10|3.4e-09|4.7e-01|-4.041919e+00 -4.512377e+00| 0:0:00| chol  2↙
 1
 12|1.000|0.986|5.6e-10|3.8e-10|2.2e-01|-4.258437e+00 -4.478949e+00| 0:0:00| chol  2↙
 2
 13|0.851|1.000|1.3e-10|3.8e-11|5.0e-02|-4.426060e+00 -4.476503e+00| 0:0:00| chol  2↙
 2
 14|1.000|1.000|1.4e-10|1.1e-11|2.1e-02|-4.452832e+00 -4.473565e+00| 0:0:00| chol  2↙
 2
 15|0.907|0.961|4.7e-11|1.2e-11|2.3e-03|-4.470428e+00 -4.472756e+00| 0:0:00| chol  2↙
 2
 16|0.926|1.000|4.4e-11|9.5e-12|9.6e-04|-4.471759e+00 -4.472720e+00| 0:0:00| chol  2↙
 2
 17|1.000|1.000|1.3e-10|8.7e-12|3.8e-04|-4.472298e+00 -4.472683e+00| 0:0:00| chol  2↙
 2
 18|0.979|0.971|3.3e-11|1.3e-11|9.4e-06|-4.472655e+00 -4.472664e+00| 0:0:00| chol  3↙
 3
 19|0.998|0.996|4.1e-11|3.2e-12|2.4e-07|-4.472663e+00 -4.472663e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
  number of iterations   = 19
  primal objective value = -4.47266325e+00
  dual   objective value = -4.47266346e+00
  gap := trace(XZ)        = 2.38e-07
  relative gap            = 2.39e-08
  actual relative gap     = 2.17e-08
  rel. primal infeas      = 4.10e-11
  rel. dual   infeas      = 3.17e-12
  norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
  norm(A), norm(b), norm(C) = 2.8e+03, 8.5e+03, 3.9e+02
  Total CPU time (secs)  = 0.13
  CPU time per iteration = 0.01
  termination code       =  0
  DIMACS errors: 5.5e-11  0.0e+00  4.5e-12  0.0e+00  2.2e-08  2.4e-08
 -------------------------------------------------------------------
```

```
ans =

    4.4727


Epoch... 151
Epoch... 152


 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|4.1e+06| 1.297793e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.5e-07|1.0e-01|3.4e+05| 1.161390e+05 -7.320568e+01| 0:0:00| chol  1✓
1
 2|1.000|0.940|4.8e-08|8.5e-03|4.1e+04| 1.841695e+04  6.589435e+01| 0:0:00| chol  1✓
1
 3|0.560|1.000|2.3e-08|2.5e-03|1.7e+04| 1.070844e+04 -5.895872e+01| 0:0:00| chol  1✓
1
 4|0.979|0.993|6.3e-09|1.3e-03|1.1e+03| 5.710384e+02 -2.283475e+01| 0:0:00| chol  1✓
1
 5|0.572|1.000|2.7e-09|3.7e-04|6.2e+02| 4.953585e+02 -2.106830e+01| 0:0:00| chol  1✓
1
 6|1.000|0.900|3.0e-11|1.4e-04|2.8e+02| 2.496147e+02 -6.991944e+00| 0:0:00| chol  1✓
1
 7|0.858|1.000|1.0e-11|3.4e-05|5.8e+01| 5.113153e+01 -5.741951e+00| 0:0:00| chol  1✓
1
 8|1.000|0.973|3.6e-12|4.2e-06|2.4e+01| 1.921729e+01 -4.861216e+00| 0:0:00| chol  1✓
1
 9|0.899|1.000|2.2e-12|3.4e-07|2.5e+00|-2.240706e+00 -4.783603e+00| 0:0:00| chol  2✓
2
10|1.000|0.645|1.2e-11|1.4e-07|1.4e+00|-3.295003e+00 -4.704395e+00| 0:0:00| chol  2✓
2
11|0.723|1.000|1.4e-10|3.4e-09|5.2e-01|-4.171196e+00 -4.689834e+00| 0:0:00| chol  1✓
2
12|1.000|1.000|4.8e-10|3.4e-10|2.4e-01|-4.416597e+00 -4.656614e+00| 0:0:00| chol  2✓
2
13|0.853|1.000|1.2e-10|3.7e-11|5.7e-02|-4.596559e+00 -4.653260e+00| 0:0:00| chol  2✓
2
14|1.000|1.000|1.4e-10|8.4e-12|2.3e-02|-4.627277e+00 -4.650177e+00| 0:0:00| chol  1✓
2
15|0.888|1.000|4.8e-11|7.9e-12|3.6e-03|-4.645678e+00 -4.649259e+00| 0:0:00| chol  2✓
2
16|1.000|1.000|4.7e-11|9.5e-12|1.4e-03|-4.647803e+00 -4.649174e+00| 0:0:00| chol  2✓
2
17|0.957|0.972|3.1e-11|9.8e-12|2.0e-04|-4.648909e+00 -4.649107e+00| 0:0:00| chol  3✓
3
18|1.000|1.000|1.1e-10|6.1e-12|2.2e-05|-4.649078e+00 -4.649100e+00| 0:0:00| chol  3✓
```

```
3
19|1.000|1.000|2.3e-11|9.2e-12|9.1e-07|-4.649098e+00 -4.649099e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
 ------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.64909819e+00
 dual   objective value = -4.64909910e+00
 gap := trace(XZ)       = 9.14e-07
 relative gap           = 8.87e-08
 actual relative gap    = 8.83e-08
 rel. primal infeas     = 2.27e-11
 rel. dual   infeas     = 9.20e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 9.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.9e-11  0.0e+00  1.3e-11  0.0e+00  8.8e-08  8.9e-08
 ------------------------------------------------------------------


ans =

    4.6491


Epoch... 153
Epoch... 154

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
 ------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.5e+00|4.3e+06| 1.356100e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.8e-07|1.0e-01|3.5e+05| 1.205818e+05 -4.843058e+01| 0:0:00| chol  1✓
1
 2|1.000|0.939|6.6e-08|8.6e-03|4.3e+04| 1.963345e+04  6.127147e+01| 0:0:00| chol  1✓
1
 3|0.585|1.000|3.1e-08|2.5e-03|1.8e+04| 1.103425e+04 -5.624304e+01| 0:0:00| chol  1✓
1
 4|0.980|0.999|7.0e-09|1.2e-03|1.1e+03| 5.788528e+02 -2.028189e+01| 0:0:00| chol  1✓
1
 5|0.584|1.000|3.0e-09|3.7e-04|6.2e+02| 4.976933e+02 -1.880385e+01| 0:0:00| chol  1✓
1
 6|1.000|0.926|6.8e-12|1.3e-04|2.7e+02| 2.434442e+02 -5.984925e+00| 0:0:00| chol  1✓
1
 7|0.863|1.000|1.8e-11|3.4e-05|4.9e+01| 4.322633e+01 -5.063069e+00| 0:0:00| chol  1✓
1
 8|1.000|0.941|4.1e-11|5.1e-06|2.0e+01| 1.577552e+01 -4.506121e+00| 0:0:00| chol  1✓
```

```
1
 9|0.902|1.000|5.9e-12|3.4e-07|2.1e+00|-2.411867e+00 -4.462281e+00| 0:0:00| chol  2↙
2
10|1.000|0.556|2.3e-11|1.7e-07|1.2e+00|-3.174216e+00 -4.397932e+00| 0:0:00| chol  2↙
1
11|0.756|1.000|1.3e-10|3.4e-09|4.4e-01|-3.952179e+00 -4.391171e+00| 0:0:00| chol  2↙
2
12|1.000|0.926|6.6e-10|5.6e-10|2.1e-01|-4.149788e+00 -4.359864e+00| 0:0:00| chol  2↙
2
13|0.848|1.000|1.6e-10|3.8e-11|5.0e-02|-4.307103e+00 -4.357480e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|1.6e-10|9.3e-12|2.1e-02|-4.333241e+00 -4.353978e+00| 0:0:00| chol  2↙
2
15|0.885|0.971|5.2e-11|9.6e-12|3.1e-03|-4.350257e+00 -4.353346e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|7.6e-11|1.0e-11|1.4e-03|-4.351814e+00 -4.353217e+00| 0:0:00| chol  2↙
2
17|0.891|0.928|2.1e-11|1.6e-11|2.1e-04|-4.352944e+00 -4.353151e+00| 0:0:00| chol  3↙
3
18|1.000|1.000|3.4e-10|4.1e-12|7.7e-05|-4.353068e+00 -4.353146e+00| 0:0:00| chol  3↙
3
19|1.000|1.000|1.9e-10|6.2e-12|8.5e-06|-4.353133e+00 -4.353142e+00| 0:0:00| chol  3↙
3
20|1.000|1.000|2.9e-10|9.3e-12|1.2e-06|-4.353140e+00 -4.353141e+00| 0:0:00| chol  3↙
3
21|1.000|0.992|1.6e-11|3.7e-13|2.2e-08|-4.353141e+00 -4.353141e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 21
 primal objective value = -4.35314126e+00
 dual   objective value = -4.35314127e+00
 gap := trace(XZ)       = 2.23e-08
 relative gap           = 2.30e-09
 actual relative gap    = 1.40e-09
 rel. primal infeas     = 1.55e-11
 rel. dual   infeas     = 3.71e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.7e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs) = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.1e-11  0.0e+00  5.2e-13  0.0e+00  1.4e-09  2.3e-09
-------------------------------------------------------------------

ans =

    4.3531


Epoch... 155
Epoch... 156

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk =  1
 dim. of linear var = 60
```

```
*******************************************************************
   SDPT3: Infeasible path-following algorithms
*******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas gap      prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|4.0e+06| 1.245851e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.5e-07|1.0e-01|3.3e+05| 1.118122e+05 -5.340180e+01| 0:0:00| chol  1✔
1
 2|1.000|0.938|5.0e-08|8.8e-03|4.0e+04| 1.790046e+04  7.523714e+01| 0:0:00| chol  1✔
1
 3|0.549|1.000|2.4e-08|2.5e-03|1.7e+04| 1.056855e+04 -5.266587e+01| 0:0:00| chol  1✔
1
 4|0.983|1.000|5.9e-09|1.2e-03|1.1e+03| 5.813942e+02 -2.145736e+01| 0:0:00| chol  1✔
1
 5|0.684|1.000|1.9e-09|3.7e-04|5.8e+02| 4.664243e+02 -1.465543e+01| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.3e-11|1.1e-04|2.3e+02| 2.078567e+02 -5.793649e+00| 0:0:00| chol  1✔
1
 7|0.863|1.000|1.2e-11|1.1e-05|4.1e+01| 3.586923e+01 -5.065125e+00| 0:0:00| chol  1✔
1
 8|1.000|0.937|1.0e-11|1.8e-06|1.8e+01| 1.302885e+01 -4.463545e+00| 0:0:00| chol  1✔
1
 9|0.874|1.000|5.3e-12|1.1e-07|2.3e+00|-2.077966e+00 -4.400123e+00| 0:0:00| chol  2✔
2
10|1.000|0.617|2.8e-12|5.0e-08|1.3e+00|-3.002775e+00 -4.326578e+00| 0:0:00| chol  2✔
2
11|0.737|1.000|1.3e-10|1.1e-09|5.1e-01|-3.802787e+00 -4.316000e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|5.2e-10|1.1e-10|2.3e-01|-4.053659e+00 -4.280828e+00| 0:0:00| chol  2✔
2
13|0.849|1.000|1.6e-10|1.3e-11|4.9e-02|-4.226243e+00 -4.275419e+00| 0:0:00| chol  2✔
2
14|1.000|1.000|1.3e-10|4.5e-12|2.2e-02|-4.251162e+00 -4.272924e+00| 0:0:00| chol  2✔
2
15|0.906|0.948|3.2e-11|5.4e-12|2.8e-03|-4.269111e+00 -4.271922e+00| 0:0:00| chol  2✔
2
16|1.000|1.000|1.4e-10|6.5e-12|1.1e-03|-4.270755e+00 -4.271828e+00| 0:0:00| chol  2✔
2
17|1.000|0.926|2.0e-11|1.0e-11|5.9e-05|-4.271697e+00 -4.271756e+00| 0:0:00| chol  2✔
2
18|1.000|0.994|7.0e-12|4.1e-12|3.9e-06|-4.271745e+00 -4.271749e+00| 0:0:00| chol  3✔
2
19|1.000|1.000|9.4e-12|1.4e-12|2.9e-07|-4.271748e+00 -4.271749e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.27174834e+00
 dual   objective value = -4.27174862e+00
 gap := trace(XZ)       = 2.92e-07
 relative gap           = 3.06e-08
 actual relative gap    = 2.97e-08
```

```
 rel. primal infeas    = 9.45e-12
 rel. dual   infeas    = 1.41e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 9.1e+03, 3.9e+02
 Total CPU time (secs) = 0.11
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 1.3e-11  0.0e+00  2.0e-12  0.0e+00  3.0e-08  3.1e-08
-------------------------------------------------------------------
```

ans =

    4.2717

Epoch... 157
Epoch... 158

```
 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000  1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|4.0e+06| 1.269250e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.9e-07|1.0e-01|3.3e+05| 1.134847e+05 -5.670192e+01| 0:0:00| chol  1✔
1
 2|1.000|0.935|6.1e-08|9.0e-03|4.1e+04| 1.844505e+04  7.101553e+01| 0:0:00| chol  1✔
1
 3|0.560|1.000|3.1e-08|2.5e-03|1.7e+04| 1.074212e+04 -5.138823e+01| 0:0:00| chol  1✔
1
 4|0.984|1.000|6.8e-09|1.2e-03|1.1e+03| 5.982929e+02 -2.046345e+01| 0:0:00| chol  1✔
1
 5|0.772|1.000|1.6e-09|3.7e-04|5.5e+02| 4.481415e+02 -1.113462e+01| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.2e-11|1.1e-04|2.0e+02| 1.808488e+02 -5.840962e+00| 0:0:00| chol  1✔
1
 7|0.896|1.000|1.4e-11|1.1e-05|2.8e+01| 2.264195e+01 -4.752098e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|3.9e-11|1.1e-06|1.1e+01| 6.528307e+00 -4.550379e+00| 0:0:00| chol  1✔
1
 9|0.848|1.000|1.8e-11|1.1e-07|2.0e+00|-2.543107e+00 -4.494262e+00| 0:0:00| chol  2✔
2
10|1.000|0.766|1.0e-11|3.5e-08|9.4e-01|-3.498984e+00 -4.434977e+00| 0:0:00| chol  2✔
2
11|0.728|1.000|2.2e-10|1.1e-09|4.5e-01|-3.972495e+00 -4.425408e+00| 0:0:00| chol  1✔
2
12|1.000|1.000|3.9e-10|1.2e-10|1.7e-01|-4.229102e+00 -4.398431e+00| 0:0:00| chol  2✔
2
13|0.861|1.000|1.5e-10|1.6e-11|5.1e-02|-4.343395e+00 -4.393900e+00| 0:0:00| chol  2✔
```

```
2
14|1.000|1.000|4.8e-11|8.2e-12|1.5e-02|-4.376324e+00 -4.391088e+00| 0:0:00| chol  2↙
2
15|0.909|0.923|3.7e-11|1.0e-11|2.2e-03|-4.388031e+00 -4.390210e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|1.4e-10|7.5e-12|5.5e-04|-4.389576e+00 -4.390127e+00| 0:0:00| chol  2↙
2
17|0.979|0.975|1.9e-11|1.1e-11|1.2e-05|-4.390083e+00 -4.390095e+00| 0:0:00| chol  2↙
2
18|0.993|0.993|2.5e-11|3.3e-12|2.4e-07|-4.390094e+00 -4.390094e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.39009359e+00
 dual   objective value = -4.39009380e+00
 gap := trace(XZ)       = 2.42e-07
 relative gap           = 2.48e-08
 actual relative gap    = 2.22e-08
 rel. primal infeas     = 2.49e-11
 rel. dual   infeas     = 3.26e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.8e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.4e-11  0.0e+00  4.6e-12  0.0e+00  2.2e-08  2.5e-08
-------------------------------------------------------------------


ans =

    4.3901


Epoch... 159
Epoch... 160

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.6e+06| 1.115662e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.0e-07|1.0e-01|3.0e+05| 1.010438e+05 -5.970620e+01| 0:0:00| chol  1↙
1
 2|1.000|0.929|6.1e-08|9.5e-03|3.7e+04| 1.644551e+04  8.157526e+01| 0:0:00| chol  1↙
1
 3|0.527|1.000|3.3e-08|2.5e-03|1.6e+04| 1.005198e+04 -4.801591e+01| 0:0:00| chol  1↙
1
 4|0.994|1.000|6.8e-09|1.2e-03|1.1e+03| 6.024491e+02 -2.206815e+01| 0:0:00| chol  1↙
```

```
1
 5|0.850|1.000|1.0e-09|3.7e-04|4.8e+02| 3.912920e+02 -7.237033e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|2.7e-11|1.1e-04|1.7e+02| 1.542892e+02 -6.573812e+00| 0:0:00| chol  1↙
1
 7|0.907|0.931|1.3e-11|1.8e-05|2.3e+01| 1.776505e+01 -4.697560e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|5.8e-11|1.1e-06|8.6e+00| 4.039301e+00 -4.589506e+00| 0:0:00| chol  1↙
1
 9|0.929|0.961|2.5e-11|1.5e-07|9.4e-01|-3.550637e+00 -4.489630e+00| 0:0:00| chol  2↙
2
10|0.929|0.788|4.5e-12|4.1e-08|5.1e-01|-3.929814e+00 -4.444176e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|6.1e-10|1.1e-09|2.7e-01|-4.156328e+00 -4.428288e+00| 0:0:00| chol  2↙
2
12|0.763|1.000|1.4e-10|1.1e-10|1.2e-01|-4.303785e+00 -4.426142e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|1.6e-10|1.3e-11|4.5e-02|-4.373741e+00 -4.418923e+00| 0:0:00| chol  2↙
2
14|0.941|0.870|4.7e-11|6.1e-12|4.0e-03|-4.413111e+00 -4.417092e+00| 0:0:00| chol  2↙
2
15|0.988|0.964|6.1e-11|5.4e-12|1.8e-04|-4.416681e+00 -4.416859e+00| 0:0:00| chol  1↙
2
16|0.987|0.988|4.1e-12|7.7e-12|2.4e-06|-4.416844e+00 -4.416847e+00| 0:0:00| chol  3↙
3
17|0.996|0.992|4.4e-11|8.6e-13|6.1e-08|-4.416847e+00 -4.416847e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.41684654e+00
 dual   objective value = -4.41684662e+00
 gap := trace(XZ)       = 6.08e-08
 relative gap           = 6.18e-09
 actual relative gap    = 7.98e-09
 rel. primal infeas     = 4.37e-11
 rel. dual   infeas     = 8.56e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.8e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.1e-11  0.0e+00  1.2e-12  0.0e+00  8.0e-09  6.2e-09
-------------------------------------------------------------------

ans =

    4.4168

Epoch... 161
Epoch... 162

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk =  1
 dim. of linear var = 60
```

```
   ********************************************************************
      SDPT3: Infeasible path-following algorithms
   ********************************************************************
    version  predcorr  gam  expon  scale_data
      HKM       1      0.000  1        0
   it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
   -------------------------------------------------------------------
    0|0.000|0.000|1.0e+00|5.7e+00|4.0e+06| 1.239802e+05  0.000000e+00| 0:0:00| chol  1↙
   1
    1|1.000|0.982|2.1e-07|1.0e-01|3.3e+05| 1.108199e+05 -3.894341e+01| 0:0:00| chol  1↙
   1
    2|1.000|0.933|6.3e-08|9.3e-03|4.1e+04| 1.830566e+04  7.610190e+01| 0:0:00| chol  1↙
   1
    3|0.557|1.000|3.2e-08|2.5e-03|1.7e+04| 1.070827e+04 -4.699724e+01| 0:0:00| chol  1↙
   1
    4|0.991|1.000|6.8e-09|1.2e-03|1.1e+03| 6.357839e+02 -2.142901e+01| 0:0:00| chol  1↙
   1
    5|0.859|1.000|9.8e-10|3.7e-04|5.0e+02| 4.126405e+02 -7.209522e+00| 0:0:00| chol  1↙
   1
    6|1.000|1.000|3.6e-11|1.1e-04|1.8e+02| 1.597545e+02 -6.608800e+00| 0:0:00| chol  1↙
   1
    7|0.911|0.934|9.2e-12|1.8e-05|2.1e+01| 1.603854e+01 -4.859374e+00| 0:0:00| chol  1↙
   1
    8|1.000|1.000|4.7e-11|1.1e-06|7.8e+00| 3.019876e+00 -4.774297e+00| 0:0:00| chol  1↙
   2
    9|0.936|0.971|6.3e-12|1.4e-07|7.9e-01|-3.898990e+00 -4.685879e+00| 0:0:00| chol  2↙
   2
   10|0.974|0.755|3.4e-11|4.3e-08|4.6e-01|-4.181547e+00 -4.637762e+00| 0:0:00| chol  2↙
   2
   11|1.000|1.000|6.5e-10|1.1e-09|2.4e-01|-4.377718e+00 -4.619929e+00| 0:0:00| chol  2↙
   2
   12|0.725|1.000|1.6e-10|1.1e-10|1.1e-01|-4.509266e+00 -4.619292e+00| 0:0:00| chol  2↙
   1
   13|1.000|1.000|1.4e-10|1.5e-11|4.5e-02|-4.568208e+00 -4.613433e+00| 0:0:00| chol  2↙
   2
   14|0.927|0.942|3.0e-11|8.3e-12|4.6e-03|-4.606826e+00 -4.611396e+00| 0:0:00| chol  2↙
   2
   15|0.949|1.000|3.2e-11|6.1e-12|5.6e-04|-4.610727e+00 -4.611282e+00| 0:0:00| chol  2↙
   2
   16|0.991|0.989|2.1e-10|6.5e-12|1.4e-05|-4.611253e+00 -4.611267e+00| 0:0:00| chol  2↙
   2
   17|0.998|0.999|3.1e-11|2.5e-12|1.9e-07|-4.611266e+00 -4.611266e+00| 0:0:00|
     stop: max(relative gap, infeasibilities) < 1.00e-07
   -------------------------------------------------------------------
    number of iterations   = 17
    primal objective value = -4.61126625e+00
    dual   objective value = -4.61126643e+00
    gap := trace(XZ)        = 1.92e-07
    relative gap            = 1.87e-08
    actual relative gap     = 1.77e-08
    rel. primal infeas      = 3.12e-11
    rel. dual   infeas      = 2.51e-12
    norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
    norm(A), norm(b), norm(C) = 2.8e+03, 8.1e+03, 3.9e+02
```

```
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.6e-11  0.0e+00  3.5e-12  0.0e+00  1.8e-08  1.9e-08
-------------------------------------------------------------------
```

ans =

    4.6113

Epoch... 163
Epoch... 164

```
 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.5e+06| 1.066180e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.9e+05| 9.664854e+04 -1.187191e+01| 0:0:00| chol  1✓
1
 2|1.000|0.926|5.5e-08|1.0e-02|3.6e+04| 1.612257e+04  9.449307e+01| 0:0:00| chol  1✓
1
 3|0.515|1.000|3.1e-08|2.5e-03|1.6e+04| 1.001869e+04 -4.008250e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|5.9e-09|1.2e-03|1.5e+03| 8.818403e+02 -2.730110e+01| 0:0:00| chol  1✓
1
 5|0.823|0.831|1.1e-09|5.2e-04|4.4e+02| 3.322212e+02 -7.648932e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.6e-10|1.1e-04|2.1e+02| 1.889082e+02 -7.508497e+00| 0:0:00| chol  1✓
1
 7|0.901|0.898|2.6e-11|2.1e-05|2.8e+01| 2.321720e+01 -4.737537e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|1.2e-10|1.1e-06|1.1e+01| 6.061176e+00 -4.555654e+00| 0:0:00| chol  1✓
1
 9|0.909|0.911|1.4e-11|2.0e-07|1.5e+00|-2.914017e+00 -4.409834e+00| 0:0:00| chol  2✓
2
10|1.000|1.000|3.5e-12|1.1e-08|6.4e-01|-3.712924e+00 -4.349601e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|2.7e-10|1.1e-09|2.7e-01|-4.060269e+00 -4.334894e+00| 0:0:00| chol  2✓
2
12|0.910|0.920|2.0e-10|1.9e-10|4.7e-02|-4.274810e+00 -4.321833e+00| 0:0:00| chol  2✓
2
13|1.000|1.000|7.9e-11|1.3e-11|1.9e-02|-4.302456e+00 -4.321103e+00| 0:0:00| chol  2✓
2
14|0.948|0.949|4.0e-11|5.1e-12|1.5e-03|-4.318581e+00 -4.320060e+00| 0:0:00| chol  2✓
2
15|0.983|0.985|8.3e-12|5.3e-12|3.7e-05|-4.319966e+00 -4.320003e+00| 0:0:00| chol  2✓
```

```
2
16|1.000|1.000|1.0e-10|1.7e-12|5.2e-07|-4.320001e+00 -4.320002e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.32000126e+00
 dual   objective value = -4.32000173e+00
 gap := trace(XZ)       = 5.15e-07
 relative gap           = 5.34e-08
 actual relative gap    = 4.86e-08
 rel. primal infeas     = 1.03e-10
 rel. dual   infeas     = 1.67e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 1.5e-10  0.0e+00  2.3e-12  0.0e+00  4.9e-08  5.3e-08
 -------------------------------------------------------------------


ans =

    4.3200


Epoch... 165
Epoch... 166

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000    1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.9e+06| 1.221555e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.9e-07|1.1e-01|3.2e+05| 1.093082e+05 -2.147009e+01| 0:0:00| chol  1✓
1
 2|1.000|0.933|5.8e-08|9.6e-03|4.0e+04| 1.804888e+04  8.585026e+01| 0:0:00| chol  1✓
1
 3|0.542|1.000|3.0e-08|2.5e-03|1.7e+04| 1.076890e+04 -4.492336e+01| 0:0:00| chol  1✓
1
 4|0.999|1.000|5.9e-09|1.2e-03|1.2e+03| 6.766933e+02 -2.389246e+01| 0:0:00| chol  1✓
1
 5|0.880|0.958|7.2e-10|4.1e-04|4.9e+02| 3.965022e+02 -6.293818e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|6.8e-11|1.1e-04|1.9e+02| 1.680870e+02 -7.356633e+00| 0:0:00| chol  1✓
1
 7|0.911|0.917|1.3e-11|2.0e-05|2.5e+01| 2.022446e+01 -4.683999e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|2.2e-11|1.1e-06|9.4e+00| 4.915350e+00 -4.506395e+00| 0:0:00| chol  2✓
```

```
2
 9|0.920|0.944|4.9e-12|1.7e-07|1.1e+00|-3.266760e+00 -4.398143e+00| 0:0:00| chol  2↙
2
10|0.931|0.859|8.0e-12|3.3e-08|6.0e-01|-3.734673e+00 -4.339155e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.9e-10|1.1e-09|2.9e-01|-4.034433e+00 -4.324743e+00| 0:0:00| chol  2↙
2
12|0.880|1.000|1.7e-10|1.1e-10|6.6e-02|-4.244659e+00 -4.311137e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|5.6e-11|1.5e-11|2.4e-02|-4.285582e+00 -4.309766e+00| 0:0:00| chol  2↙
2
14|0.963|0.922|3.0e-11|7.2e-12|1.4e-03|-4.307114e+00 -4.308494e+00| 0:0:00| chol  2↙
2
15|0.978|0.979|1.3e-11|6.3e-12|3.5e-05|-4.308373e+00 -4.308408e+00| 0:0:00| chol  2↙
2
16|0.995|0.997|2.5e-11|2.5e-12|7.3e-07|-4.308405e+00 -4.308406e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.30840485e+00
 dual   objective value = -4.30840557e+00
 gap := trace(XZ)        = 7.30e-07
 relative gap            = 7.59e-08
 actual relative gap     = 7.46e-08
 rel. primal infeas      = 2.49e-11
 rel. dual   infeas      = 2.55e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 3.7e-11  0.0e+00  3.6e-12  0.0e+00  7.5e-08  7.6e-08
-------------------------------------------------------------------

ans =

    4.3084

Epoch... 167
Epoch... 168

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.5e+06| 1.096969e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|2.0e-07|1.1e-01|2.9e+05| 9.916416e+04 -3.994195e+00| 0:0:00| chol  1↙
```

```
1
  2|1.000|0.928|5.5e-08|1.0e-02|3.7e+04| 1.648068e+04  9.713967e+01| 0:0:00| chol  1↙
1
  3|0.515|1.000|3.0e-08|2.5e-03|1.6e+04| 1.018738e+04 -3.828844e+01| 0:0:00| chol  1↙
1
  4|1.000|1.000|5.4e-09|1.2e-03|1.6e+03| 9.491231e+02 -2.819594e+01| 0:0:00| chol  1↙
1
  5|0.818|0.820|1.0e-09|5.3e-04|4.4e+02| 3.229313e+02 -8.081890e+00| 0:0:00| chol  1↙
1
  6|1.000|1.000|1.6e-10|1.1e-04|2.1e+02| 1.912566e+02 -7.725553e+00| 0:0:00| chol  1↙
1
  7|0.898|0.896|2.6e-11|2.2e-05|3.0e+01| 2.442414e+01 -4.812572e+00| 0:0:00| chol  2↙
1
  8|1.000|1.000|2.5e-10|1.1e-06|1.2e+01| 7.091970e+00 -4.559781e+00| 0:0:00| chol  1↙
2
  9|0.916|0.922|1.7e-11|1.9e-07|1.8e+00|-2.576017e+00 -4.387018e+00| 0:0:00| chol  2↙
1
10|1.000|1.000|1.7e-10|1.1e-08|7.5e-01|-3.573788e+00 -4.321837e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.4e-10|1.1e-09|1.8e-01|-4.110160e+00 -4.292086e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.2e-10|1.2e-10|6.3e-02|-4.223469e+00 -4.286120e+00| 0:0:00| chol  2↙
2
13|0.931|0.959|6.1e-11|2.7e-11|9.3e-03|-4.273575e+00 -4.282889e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|4.0e-11|1.3e-11|3.2e-03|-4.279443e+00 -4.282669e+00| 0:0:00| chol  2↙
2
15|0.943|0.942|1.0e-11|8.8e-12|2.5e-04|-4.282268e+00 -4.282522e+00| 0:0:00| chol  2↙
2
16|0.994|0.990|6.0e-11|2.2e-12|6.6e-06|-4.282506e+00 -4.282512e+00| 0:0:00| chol  3↙
2
17|0.997|0.998|1.6e-10|1.3e-12|1.1e-07|-4.282512e+00 -4.282512e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.28251199e+00
 dual   objective value = -4.28251207e+00
 gap := trace(XZ)        = 1.06e-07
 relative gap            = 1.11e-08
 actual relative gap     = 7.94e-09
 rel. primal infeas      = 1.55e-10
 rel. dual   infeas      = 1.35e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.8e+03, 3.9e+02
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.3e-10  0.0e+00  1.9e-12  0.0e+00  7.9e-09  1.1e-08
-------------------------------------------------------------------


ans =

    4.2825
```

```
Epoch... 169
Epoch... 170

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon   scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.6e+06| 1.114564e+05  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.981|2.0e-07|1.1e-01|3.0e+05| 1.005443e+05  6.565547e-01| 0:0:00| chol 1↙
1
 2|1.000|0.929|5.7e-08|1.0e-02|3.7e+04| 1.681253e+04  9.425868e+01| 0:0:00| chol 1↙
1
 3|0.525|1.000|3.1e-08|2.5e-03|1.6e+04| 1.026250e+04 -3.909808e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|5.6e-09|1.2e-03|1.4e+03| 8.299771e+02 -2.593324e+01| 0:0:00| chol 1↙
1
 5|0.833|0.844|9.4e-10|5.1e-04|4.5e+02| 3.370583e+02 -7.242627e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.2e-10|1.1e-04|2.0e+02| 1.841158e+02 -7.590832e+00| 0:0:00| chol 1↙
1
 7|0.903|0.901|2.0e-11|2.1e-05|2.6e+01| 2.104750e+01 -4.947002e+00| 0:0:00| chol 1↙
1
 8|1.000|1.000|8.4e-11|1.1e-06|1.0e+01| 5.190649e+00 -4.760547e+00| 0:0:00| chol 1↙
1
 9|0.924|0.929|3.0e-11|1.8e-07|1.3e+00|-3.290695e+00 -4.636656e+00| 0:0:00| chol 2↙
1
10|0.935|0.945|5.6e-11|2.1e-08|6.4e-01|-3.937308e+00 -4.578714e+00| 0:0:00| chol 2↙
2
11|1.000|1.000|2.5e-10|1.1e-09|3.0e-01|-4.269008e+00 -4.566519e+00| 0:0:00| chol 2↙
2
12|0.907|0.906|2.2e-10|2.2e-10|5.0e-02|-4.502497e+00 -4.552115e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|7.0e-11|3.1e-11|1.9e-02|-4.532113e+00 -4.550888e+00| 0:0:00| chol 2↙
2
14|0.932|0.932|4.9e-11|1.7e-11|1.8e-03|-4.548043e+00 -4.549809e+00| 0:0:00| chol 2↙
2
15|1.000|1.000|5.0e-11|1.0e-11|3.0e-04|-4.549458e+00 -4.549757e+00| 0:0:00| chol 2↙
2
16|0.980|0.979|4.6e-11|1.0e-11|6.2e-06|-4.549739e+00 -4.549745e+00| 0:0:00| chol 3↙
3
17|0.997|0.994|5.5e-12|1.3e-12|9.7e-08|-4.549744e+00 -4.549744e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.54974432e+00
 dual   objective value = -4.54974440e+00
 gap := trace(XZ)        = 9.71e-08
```

```
 relative gap          = 9.62e-09
 actual relative gap   = 7.69e-09
 rel. primal infeas    = 5.48e-12
 rel. dual   infeas    = 1.31e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 8.5e-12  0.0e+00  1.8e-12  0.0e+00  7.7e-09  9.6e-09
-------------------------------------------------------------------


ans =

    4.5497


Epoch... 171
Epoch... 172


 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.4e+06| 1.037848e+05  0.000000e+00| 0:0:00| chol 1✓
1
 1|1.000|0.981|2.1e-07|1.1e-01|2.8e+05| 9.430890e+04 -4.375718e+00| 0:0:00| chol 1✓
1
 2|1.000|0.927|5.4e-08|1.0e-02|3.5e+04| 1.571970e+04  9.803446e+01| 0:0:00| chol 1✓
1
 3|0.508|1.000|3.1e-08|2.5e-03|1.6e+04| 9.846019e+03 -3.830685e+01| 0:0:00| chol 1✓
1
 4|1.000|1.000|5.9e-09|1.2e-03|1.6e+03| 9.609012e+02 -2.794153e+01| 0:0:00| chol 1✓
1
 5|0.819|0.821|1.1e-09|5.3e-04|4.3e+02| 3.170085e+02 -8.037279e+00| 0:0:00| chol 1✓
1
 6|1.000|1.000|1.1e-10|1.1e-04|2.1e+02| 1.878949e+02 -7.706626e+00| 0:0:00| chol 1✓
1
 7|0.900|0.898|1.9e-11|2.1e-05|2.9e+01| 2.349853e+01 -4.886919e+00| 0:0:00| chol 1✓
1
 8|1.000|1.000|1.5e-11|1.1e-06|1.1e+01| 6.609211e+00 -4.644583e+00| 0:0:00| chol 2✓
1
 9|0.919|0.927|5.4e-12|1.9e-07|1.7e+00|-2.750556e+00 -4.483644e+00| 0:0:00| chol 2✓
2
10|1.000|1.000|4.2e-12|1.1e-08|7.1e-01|-3.715969e+00 -4.422977e+00| 0:0:00| chol 2✓
2
11|1.000|1.000|3.4e-10|1.1e-09|1.7e-01|-4.224125e+00 -4.396623e+00| 0:0:00| chol 1✓
2
12|1.000|1.000|1.2e-10|1.1e-10|5.3e-02|-4.338517e+00 -4.391204e+00| 0:0:00| chol 2✓
```

```
2
13|0.944|0.966|5.7e-11|1.7e-11|5.6e-03|-4.383139e+00 -4.388738e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|1.2e-11|4.5e-12|3.4e-04|-4.388237e+00 -4.388575e+00| 0:0:00| chol  2↙
2
15|0.983|0.985|3.2e-12|2.4e-12|5.8e-06|-4.388556e+00 -4.388562e+00| 0:0:00| chol  2↙
2
16|0.998|0.997|7.2e-11|1.0e-12|8.0e-08|-4.388561e+00 -4.388561e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.38856130e+00
 dual   objective value = -4.38856132e+00
 gap := trace(XZ)       = 7.96e-08
 relative gap           = 8.15e-09
 actual relative gap    = 1.70e-09
 rel. primal infeas     = 7.19e-11
 rel. dual   infeas     = 1.01e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-10  0.0e+00  1.4e-12  0.0e+00  1.7e-09  8.1e-09
-------------------------------------------------------------------


ans =

    4.3886


Epoch... 173
Epoch... 174

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.4e+06| 1.042376e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|2.1e-07|1.1e-01|2.8e+05| 9.461808e+04 -7.078659e+00| 0:0:00| chol  1↙
1
 2|1.000|0.925|5.7e-08|1.0e-02|3.5e+04| 1.583437e+04  9.786739e+01| 0:0:00| chol  1↙
1
 3|0.510|1.000|3.3e-08|2.5e-03|1.6e+04| 9.907039e+03 -3.849382e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.0e-09|1.2e-03|1.6e+03| 9.787041e+02 -2.791552e+01| 0:0:00| chol  1↙
1
 5|0.818|0.821|1.1e-09|5.3e-04|4.3e+02| 3.179488e+02 -7.818418e+00| 0:0:00| chol  1↙
```

```
1
 6|1.000|1.000|1.3e-10|1.1e-04|2.1e+02| 1.890339e+02 -7.489038e+00| 0:0:00| chol  1↙
1
 7|0.901|0.901|2.0e-11|2.1e-05|2.9e+01| 2.338861e+01 -4.694844e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|1.4e-10|1.1e-06|1.1e+01| 6.707021e+00 -4.440355e+00| 0:0:00| chol  1↙
1
 9|0.931|0.941|7.2e-12|1.7e-07|1.7e+00|-2.568663e+00 -4.286251e+00| 0:0:00| chol  2↙
2
10|1.000|1.000|1.1e-11|1.1e-08|7.0e-01|-3.531309e+00 -4.231023e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.5e-10|1.1e-09|1.6e-01|-4.045601e+00 -4.204248e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.1e-10|1.2e-10|5.8e-02|-4.142315e+00 -4.200322e+00| 0:0:00| chol  2↙
2
13|0.938|0.945|5.7e-11|2.2e-11|5.8e-03|-4.191661e+00 -4.197463e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|1.7e-11|8.4e-12|3.5e-04|-4.196921e+00 -4.197269e+00| 0:0:00| chol  2↙
2
15|0.985|0.986|3.0e-11|3.5e-12|5.4e-06|-4.197249e+00 -4.197255e+00| 0:0:00| chol  3↙
2
16|0.997|0.996|5.3e-11|9.6e-13|7.4e-08|-4.197254e+00 -4.197254e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.19725437e+00
 dual   objective value = -4.19725439e+00
 gap := trace(XZ)        = 7.43e-08
 relative gap           = 7.91e-09
 actual relative gap    = 2.26e-09
 rel. primal infeas     = 5.28e-11
 rel. dual   infeas     = 9.62e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 8.1e-11  0.0e+00  1.4e-12  0.0e+00  2.3e-09  7.9e-09
-------------------------------------------------------------------

ans =

    4.1973


Epoch... 175
Epoch... 176

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
```

```
   HKM      1     0.000   1        0
 it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj     cputime
--------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.1e+06| 9.506842e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|2.2e-07|1.1e-01|2.6e+05| 8.714219e+04 -2.083035e+01| 0:0:00| chol 1↙
1
 2|1.000|0.921|5.8e-08|1.1e-02|3.3e+04| 1.456305e+04  1.031264e+02| 0:0:00| chol 1↙
1
 3|0.490|0.993|3.4e-08|2.5e-03|1.5e+04| 9.388692e+03 -3.657246e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.052433e+03 -2.954710e+01| 0:0:00| chol 1↙
1
 5|0.817|0.818|1.1e-09|5.3e-04|4.2e+02| 3.126055e+02 -8.646777e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.1e+02| 1.905737e+02 -8.097794e+00| 0:0:00| chol 1↙
1
 7|0.908|0.906|2.3e-11|2.1e-05|3.1e+01| 2.509320e+01 -4.975581e+00| 0:0:00| chol 1↙
1
 8|1.000|1.000|5.9e-11|1.1e-06|1.2e+01| 7.283004e+00 -4.676330e+00| 0:0:00| chol 1↙
1
 9|0.909|0.928|1.0e-11|1.8e-07|2.0e+00|-2.503225e+00 -4.491971e+00| 0:0:00| chol 2↙
2
10|1.000|1.000|1.2e-11|1.1e-08|8.3e-01|-3.609471e+00 -4.435736e+00| 0:0:00| chol 2↙
2
11|0.869|0.886|3.2e-10|2.3e-09|1.9e-01|-4.214714e+00 -4.401724e+00| 0:0:00| chol 2↙
2
12|1.000|1.000|1.1e-10|1.2e-10|8.6e-02|-4.311629e+00 -4.398047e+00| 0:0:00| chol 1↙
2
13|0.915|0.917|6.2e-11|2.5e-11|1.1e-02|-4.382075e+00 -4.393363e+00| 0:0:00| chol 2↙
2
14|1.000|1.000|1.6e-11|9.4e-12|3.8e-03|-4.389212e+00 -4.392998e+00| 0:0:00| chol 2↙
2
15|0.924|0.924|8.9e-12|4.1e-12|4.1e-04|-4.392413e+00 -4.392826e+00| 0:0:00| chol 2↙
2
16|1.000|1.000|9.4e-11|1.8e-12|9.5e-05|-4.392718e+00 -4.392813e+00| 0:0:00| chol 2↙
2
17|0.973|0.973|3.6e-11|2.7e-12|2.7e-06|-4.392806e+00 -4.392809e+00| 0:0:00| chol 3↙
3
18|0.999|1.000|3.6e-10|6.5e-13|5.1e-08|-4.392809e+00 -4.392809e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
--------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.39280876e+00
 dual   objective value = -4.39280880e+00
 gap := trace(XZ)       = 5.13e-08
 relative gap           = 5.24e-09
 actual relative gap    = 3.94e-09
 rel. primal infeas     = 3.57e-10
 rel. dual   infeas     = 6.50e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.00
```

```
 termination code       =  0
 DIMACS errors: 5.4e-10  0.0e+00  9.1e-13  0.0e+00  3.9e-09  5.2e-09
------------------------------------------------------------------
```

ans =

    4.3928

Epoch... 177
Epoch... 178

```
 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.6e+06| 1.117470e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.2e-07|1.1e-01|3.0e+05| 1.007167e+05 -4.156314e+01| 0:0:00| chol  1↙
1
 2|1.000|0.928|5.9e-08|9.9e-03|3.7e+04| 1.662501e+04  8.974415e+01| 0:0:00| chol  1↙
1
 3|0.522|1.000|3.3e-08|2.5e-03|1.6e+04| 1.021344e+04 -4.313923e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.7e-09|1.2e-03|1.3e+03| 7.549839e+02 -2.520347e+01| 0:0:00| chol  1↙
1
 5|0.857|0.893|9.7e-10|4.7e-04|4.6e+02| 3.594147e+02 -7.198471e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.0e-10|1.1e-04|2.0e+02| 1.765092e+02 -7.877632e+00| 0:0:00| chol  1↙
1
 7|0.905|0.906|1.6e-11|2.1e-05|2.6e+01| 2.007266e+01 -5.240571e+00| 0:0:00| chol  2↙
1
 8|1.000|1.000|1.8e-10|1.1e-06|9.5e+00| 4.463232e+00 -5.054635e+00| 0:0:00| chol  1↙
1
 9|0.922|0.935|2.2e-11|1.8e-07|1.3e+00|-3.621596e+00 -4.938691e+00| 0:0:00| chol  2↙
2
10|0.985|0.979|9.4e-12|1.5e-08|6.0e-01|-4.286456e+00 -4.884890e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.0e-10|1.1e-09|2.8e-01|-4.597398e+00 -4.873303e+00| 0:0:00| chol  2↙
2
12|0.901|0.915|2.2e-10|2.0e-10|5.4e-02|-4.806484e+00 -4.860322e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|8.2e-11|1.5e-11|2.2e-02|-4.836697e+00 -4.858828e+00| 0:0:00| chol  2↙
2
14|0.927|0.930|5.2e-11|8.5e-12|2.5e-03|-4.855054e+00 -4.857534e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|9.6e-11|9.6e-12|5.3e-04|-4.856939e+00 -4.857469e+00| 0:0:00| chol  2↙
2
16|0.976|0.975|6.7e-11|1.5e-11|1.4e-05|-4.857431e+00 -4.857445e+00| 0:0:00| chol  2↙
```

```
2
17|0.999|0.997|4.5e-11|3.1e-12|2.3e-07|-4.857445e+00 -4.857445e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.85744460e+00
 dual   objective value = -4.85744480e+00
 gap := trace(XZ)       = 2.33e-07
 relative gap           = 2.17e-08
 actual relative gap    = 1.83e-08
 rel. primal infeas     = 4.47e-11
 rel. dual   infeas     = 3.05e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.8e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.5e-11  0.0e+00  4.3e-12  0.0e+00  1.8e-08  2.2e-08
-------------------------------------------------------------------


ans =

    4.8574


Epoch... 179
Epoch... 180

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.0e+06| 9.018772e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.2e-07|1.1e-01|2.5e+05| 8.317745e+04 -4.197199e+01| 0:0:00| chol  1↙
1
 2|1.000|0.918|5.9e-08|1.1e-02|3.1e+04| 1.379010e+04  1.076573e+02| 0:0:00| chol  1↙
1
 3|0.475|0.988|3.5e-08|2.5e-03|1.5e+04| 9.070155e+03 -3.512627e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.0e-09|1.2e-03|1.7e+03| 1.089886e+03 -2.969418e+01| 0:0:00| chol  1↙
1
 5|0.820|0.820|1.1e-09|5.3e-04|4.2e+02| 3.093686e+02 -8.855894e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.1e+02| 1.900839e+02 -8.178823e+00| 0:0:00| chol  1↙
1
 7|0.917|0.909|1.9e-11|2.0e-05|3.2e+01| 2.613074e+01 -4.852605e+00| 0:0:00| chol  2↙
1
 8|1.000|1.000|1.3e-10|1.1e-06|1.3e+01| 8.026385e+00 -4.514864e+00| 0:0:00| chol  1↙
```

```
1
 9|0.893|0.912|1.5e-11|2.0e-07|2.2e+00|-2.116281e+00 -4.303039e+00| 0:0:00| chol  1↙
2
10|1.000|1.000|2.5e-12|1.1e-08|9.3e-01|-3.317415e+00 -4.247942e+00| 0:0:00| chol  2↙
2
11|0.854|0.866|3.1e-10|2.5e-09|1.9e-01|-4.014883e+00 -4.207449e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.1e-10|1.1e-10|8.8e-02|-4.115242e+00 -4.202764e+00| 0:0:00| chol  2↙
2
13|0.920|0.925|5.5e-11|2.1e-11|1.0e-02|-4.187165e+00 -4.197662e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|2.3e-11|4.5e-12|1.8e-03|-4.195395e+00 -4.197167e+00| 0:0:00| chol  2↙
2
15|0.985|0.986|1.2e-11|4.8e-12|2.7e-05|-4.197039e+00 -4.197066e+00| 0:0:00| chol  2↙
2
16|0.997|0.997|2.8e-11|2.4e-12|3.8e-07|-4.197064e+00 -4.197064e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.19706378e+00
 dual   objective value = -4.19706413e+00
 gap := trace(XZ)        = 3.79e-07
 relative gap            = 4.03e-08
 actual relative gap     = 3.68e-08
 rel. primal infeas      = 2.80e-11
 rel. dual   infeas      = 2.45e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code        =  0
 DIMACS errors: 4.3e-11  0.0e+00  3.4e-12  0.0e+00  3.7e-08  4.0e-08
-------------------------------------------------------------------


ans =

    4.1971


Epoch... 181
Epoch... 182

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.4e+06| 1.059645e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.4e-07|1.0e-01|2.8e+05| 9.596124e+04 -4.756502e+01| 0:0:00| chol  1↙
```

```
1
 2|1.000|0.925|6.2e-08|1.0e-02|3.5e+04| 1.594261e+04  8.977449e+01| 0:0:00| chol  1↙
1
 3|0.518|1.000|3.6e-08|2.5e-03|1.6e+04| 9.900270e+03 -4.274310e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|7.8e-09|1.2e-03|1.3e+03| 7.904998e+02 -2.443207e+01| 0:0:00| chol  1↙
1
 5|0.848|0.879|1.2e-09|4.8e-04|4.5e+02| 3.443753e+02 -6.870431e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.1e-10|1.1e-04|1.9e+02| 1.753549e+02 -7.561347e+00| 0:0:00| chol  1↙
1
 7|0.911|0.911|1.6e-11|2.0e-05|2.3e+01| 1.762953e+01 -5.190375e+00| 0:0:00| chol  2↙
1
 8|1.000|1.000|6.5e-11|1.1e-06|7.8e+00| 2.679547e+00 -5.095941e+00| 0:0:00| chol  1↙
1
 9|0.915|0.920|4.7e-12|1.9e-07|9.0e-01|-4.107769e+00 -5.011067e+00| 0:0:00| chol  2↙
2
10|0.878|0.863|6.2e-12|3.6e-08|5.2e-01|-4.453593e+00 -4.969078e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.2e-10|1.1e-09|2.4e-01|-4.719609e+00 -4.959739e+00| 0:0:00| chol  2↙
2
12|0.895|0.919|2.4e-10|2.0e-10|4.9e-02|-4.900803e+00 -4.950218e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|7.8e-11|1.4e-11|2.1e-02|-4.928246e+00 -4.949010e+00| 0:0:00| chol  2↙
2
14|0.972|0.922|3.5e-11|6.3e-12|8.9e-04|-4.947136e+00 -4.948025e+00| 0:0:00| chol  2↙
2
15|0.984|0.985|6.5e-12|6.4e-12|1.5e-05|-4.947947e+00 -4.947961e+00| 0:0:00| chol  2↙
2
16|0.993|0.992|1.2e-11|1.3e-12|2.8e-07|-4.947960e+00 -4.947960e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.94796003e+00
 dual   objective value = -4.94796033e+00
 gap := trace(XZ)       = 2.83e-07
 relative gap           = 2.60e-08
 actual relative gap    = 2.70e-08
 rel. primal infeas     = 1.16e-11
 rel. dual   infeas     = 1.35e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.7e+03, 7.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-11  0.0e+00  1.9e-12  0.0e+00  2.7e-08  2.6e-08
-------------------------------------------------------------------


ans =

    4.9480


Epoch... 183
Epoch... 184
```

```
 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj        dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.1e+06| 9.424719e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.3e-07|1.1e-01|2.6e+05| 8.647985e+04 -3.903829e+01| 0:0:00| chol  1✔
1
 2|1.000|0.921|5.5e-08|1.1e-02|3.2e+04| 1.436436e+04  1.027623e+02| 0:0:00| chol  1✔
1
 3|0.485|0.998|3.4e-08|2.5e-03|1.5e+04| 9.326807e+03 -3.861307e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.6e-09|1.2e-03|1.7e+03| 1.080658e+03 -2.950191e+01| 0:0:00| chol  1✔
1
 5|0.819|0.820|1.2e-09|5.3e-04|4.2e+02| 3.125793e+02 -8.142316e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.8e-10|1.1e-04|2.1e+02| 1.904805e+02 -7.528598e+00| 0:0:00| chol  1✔
1
 7|0.915|0.915|2.6e-11|2.0e-05|3.0e+01| 2.466538e+01 -4.566826e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|3.7e-11|1.1e-06|1.1e+01| 6.393688e+00 -4.393038e+00| 0:0:00| chol  1✔
1
 9|0.898|0.909|3.9e-11|2.0e-07|1.5e+00|-2.774793e+00 -4.247961e+00| 0:0:00| chol  2✔
1
10|1.000|1.000|2.9e-10|1.1e-08|6.2e-01|-3.579336e+00 -4.200361e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|3.8e-10|1.1e-09|2.2e-01|-3.971354e+00 -4.186819e+00| 0:0:00| chol  2✔
2
12|1.000|0.985|2.2e-10|1.5e-10|5.6e-02|-4.119663e+00 -4.175894e+00| 0:0:00| chol  2✔
2
13|0.974|1.000|9.3e-11|3.8e-11|1.6e-02|-4.158289e+00 -4.174275e+00| 0:0:00| chol  1✔
2
14|1.000|1.000|5.0e-11|2.0e-11|3.4e-03|-4.170040e+00 -4.173404e+00| 0:0:00| chol  2✔
2
15|0.939|0.950|3.0e-11|1.1e-11|2.3e-04|-4.173012e+00 -4.173241e+00| 0:0:00| chol  3✔
2
16|0.988|1.000|1.8e-10|6.1e-12|1.3e-05|-4.173222e+00 -4.173235e+00| 0:0:00| chol  3✔
3
17|1.000|1.000|9.7e-11|6.7e-12|5.2e-07|-4.173234e+00 -4.173235e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.17323404e+00
 dual   objective value = -4.17323453e+00
 gap := trace(XZ)        = 5.16e-07
 relative gap            = 5.52e-08
 actual relative gap     = 5.24e-08
```

```
 rel. primal infeas    = 9.74e-11
 rel. dual   infeas    = 6.67e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.9e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 1.5e-10  0.0e+00  9.4e-12  0.0e+00  5.2e-08  5.5e-08
-------------------------------------------------------------------
```

ans =

    4.1732

Epoch... 185
Epoch... 186

```
 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version   predcorr  gam   expon   scale_data
   HKM        1      0.000    1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|2.9e+06| 8.701197e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.3e-07|1.0e-01|2.4e+05| 8.053704e+04 -5.389800e+01| 0:0:00| chol  1✔
1
 2|1.000|0.916|6.1e-08|1.1e-02|3.0e+04| 1.338206e+04  1.059456e+02| 0:0:00| chol  1✔
1
 3|0.473|0.995|3.7e-08|2.5e-03|1.4e+04| 8.850244e+03 -3.872587e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.6e-09|1.2e-03|1.7e+03| 1.114779e+03 -3.020861e+01| 0:0:00| chol  1✔
1
 5|0.820|0.822|1.2e-09|5.3e-04|4.2e+02| 3.125538e+02 -8.526695e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.0e-10|1.1e-04|2.1e+02| 1.901261e+02 -7.879536e+00| 0:0:00| chol  1✔
1
 7|0.922|0.924|1.8e-11|1.9e-05|3.0e+01| 2.471928e+01 -4.824686e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.2e-10|1.1e-06|1.1e+01| 6.535575e+00 -4.589000e+00| 0:0:00| chol  1✔
1
 9|0.897|0.916|3.7e-11|2.0e-07|1.7e+00|-2.763203e+00 -4.435886e+00| 0:0:00| chol  2✔
2
10|1.000|1.000|2.8e-11|1.1e-08|7.0e-01|-3.687705e+00 -4.387499e+00| 0:0:00| chol  1✔
1
11|0.939|1.000|4.0e-10|1.1e-09|1.9e-01|-4.174546e+00 -4.362999e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|1.5e-10|1.2e-10|8.2e-02|-4.275157e+00 -4.356960e+00| 0:0:00| chol  2✔
2
13|0.936|0.961|8.4e-11|2.8e-11|8.7e-03|-4.344587e+00 -4.353297e+00| 0:0:00| chol  2✔
```

```
2
14|1.000|1.000|2.3e-11|1.8e-11|7.6e-04|-4.352375e+00 -4.353136e+00| 0:0:00| chol  2✓
2
15|0.984|0.980|1.9e-11|5.0e-12|1.7e-05|-4.353087e+00 -4.353104e+00| 0:0:00| chol  2✓
2
16|0.999|0.998|1.6e-11|2.9e-12|2.2e-07|-4.353103e+00 -4.353103e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.35310282e+00
 dual   objective value = -4.35310305e+00
 gap := trace(XZ)       = 2.22e-07
 relative gap           = 2.29e-08
 actual relative gap    = 2.39e-08
 rel. primal infeas     = 1.56e-11
 rel. dual   infeas     = 2.86e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.9e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.5e-11  0.0e+00  4.0e-12  0.0e+00  2.4e-08  2.3e-08
-------------------------------------------------------------------


ans =

    4.3531


Epoch... 187
Epoch... 188

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.1e+06| 9.300146e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.3e-07|1.0e-01|2.5e+05| 8.543400e+04 -4.520831e+01| 0:0:00| chol  1✓
1
 2|1.000|0.919|6.3e-08|1.1e-02|3.2e+04| 1.421385e+04  1.027125e+02| 0:0:00| chol  1✓
1
 3|0.486|1.000|3.7e-08|2.5e-03|1.5e+04| 9.239600e+03 -4.105812e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.9e-09|1.2e-03|1.7e+03| 1.047562e+03 -2.909512e+01| 0:0:00| chol  1✓
1
 5|0.818|0.821|1.3e-09|5.3e-04|4.3e+02| 3.195372e+02 -7.827226e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.1e+02| 1.905989e+02 -7.273888e+00| 0:0:00| chol  1✓
```

```
1
 7|0.908|0.911|2.3e-11|2.0e-05|2.8e+01| 2.347131e+01 -4.526995e+00| 0:0:00| chol  2↙
1
 8|1.000|1.000|3.2e-11|1.1e-06|1.0e+01| 5.734976e+00 -4.378730e+00| 0:0:00| chol  1↙
1
 9|0.907|0.917|8.0e-12|2.0e-07|1.3e+00|-2.927663e+00 -4.251949e+00| 0:0:00| chol  1↙
2
10|1.000|0.984|1.2e-11|1.4e-08|5.6e-01|-3.648955e+00 -4.206379e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.8e-10|1.1e-09|2.5e-01|-3.948939e+00 -4.196390e+00| 0:0:00| chol  2↙
2
12|0.998|0.954|2.3e-10|1.6e-10|4.1e-02|-4.143438e+00 -4.184799e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|9.7e-11|1.7e-11|1.5e-02|-4.167710e+00 -4.182985e+00| 0:0:00| chol  2↙
2
14|0.964|0.874|2.7e-11|1.1e-11|8.0e-04|-4.181456e+00 -4.182256e+00| 0:0:00| chol  2↙
2
15|0.930|0.872|3.3e-11|6.9e-12|1.3e-04|-4.182048e+00 -4.182178e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|1.1e-10|6.5e-12|4.3e-05|-4.182126e+00 -4.182170e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|1.9e-11|9.8e-12|9.8e-07|-4.182167e+00 -4.182168e+00| 0:0:00| chol  3↙
3
18|0.997|0.990|1.1e-10|3.2e-13|1.7e-08|-4.182168e+00 -4.182168e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.18216788e+00
 dual   objective value = -4.18216786e+00
 gap := trace(XZ)       = 1.70e-08
 relative gap           = 1.81e-09
 actual relative gap    = -2.10e-09
 rel. primal infeas     = 1.11e-10
 rel. dual   infeas     = 3.19e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.8e+03, 7.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-10  0.0e+00  4.5e-13  0.0e+00  -2.1e-09  1.8e-09
-------------------------------------------------------------------

ans =

    4.1822

Epoch... 189
Epoch... 190

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
****************************************************************
   SDPT3: Infeasible path-following algorithms
```

```
 **********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.5e+00|3.0e+06| 9.247751e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|2.3e-07|1.0e-01|2.5e+05| 8.509885e+04 -6.153049e+01| 0:0:00| chol 1↙
1
 2|1.000|0.919|6.5e-08|1.0e-02|3.1e+04| 1.406570e+04  9.944140e+01| 0:0:00| chol 1↙
1
 3|0.488|1.000|3.8e-08|2.5e-03|1.5e+04| 9.137745e+03 -4.352930e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|7.7e-09|1.2e-03|1.4e+03| 8.908081e+02 -2.593862e+01| 0:0:00| chol 1↙
1
 5|0.827|0.844|1.3e-09|5.1e-04|4.3e+02| 3.228464e+02 -7.267694e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.0e+02| 1.806477e+02 -7.135731e+00| 0:0:00| chol 1↙
1
 7|0.905|0.904|2.1e-11|2.1e-05|2.6e+01| 2.075310e+01 -4.688984e+00| 0:0:00| chol 1↙
1
 8|1.000|1.000|2.9e-11|1.1e-06|9.2e+00| 4.589569e+00 -4.567262e+00| 0:0:00| chol 1↙
2
 9|0.912|0.913|5.6e-12|2.0e-07|1.2e+00|-3.281901e+00 -4.453862e+00| 0:0:00| chol 2↙
2
10|0.939|0.944|1.3e-11|2.2e-08|5.3e-01|-3.878528e+00 -4.410983e+00| 0:0:00| chol 2↙
2
11|1.000|1.000|3.1e-10|1.1e-09|2.5e-01|-4.152193e+00 -4.401452e+00| 0:0:00| chol 2↙
2
12|0.907|0.914|2.6e-10|2.0e-10|4.3e-02|-4.347377e+00 -4.390856e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|6.6e-11|1.5e-11|1.5e-02|-4.374715e+00 -4.389619e+00| 0:0:00| chol 2↙
2
14|0.961|0.942|3.1e-11|7.6e-12|7.3e-04|-4.388199e+00 -4.388925e+00| 0:0:00| chol 2↙
2
15|0.984|0.980|9.5e-12|6.4e-12|1.3e-05|-4.388874e+00 -4.388886e+00| 0:0:00| chol 2↙
3
16|0.995|0.995|1.8e-11|1.9e-12|2.5e-07|-4.388885e+00 -4.388885e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 16
 primal objective value = -4.38888516e+00
 dual   objective value = -4.38888537e+00
 gap := trace(XZ)       = 2.47e-07
 relative gap           = 2.52e-08
 actual relative gap    = 2.22e-08
 rel. primal infeas     = 1.81e-11
 rel. dual   infeas     = 1.93e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.8e+03, 7.4e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 2.8e-11  0.0e+00  2.7e-12  0.0e+00  2.2e-08  2.5e-08
```

```
--------------------------------------------------------------------

ans =

    4.3889

Epoch... 191
Epoch... 192

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam   expon   scale_data
   HKM      1       0.000   1         0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
--------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.5e+00|3.3e+06| 9.986916e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|2.2e-07|1.0e-01|2.7e+05| 9.112375e+04 -6.874566e+01| 0:0:00| chol 1↙
1
 2|1.000|0.922|6.5e-08|1.0e-02|3.3e+04| 1.497383e+04  9.514018e+01| 0:0:00| chol 1↙
1
 3|0.499|1.000|3.6e-08|2.5e-03|1.5e+04| 9.564159e+03 -4.612935e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|7.5e-09|1.2e-03|1.3e+03| 7.852346e+02 -2.447598e+01| 0:0:00| chol 1↙
1
 5|0.850|0.897|1.1e-09|4.6e-04|4.5e+02| 3.531298e+02 -6.465655e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.1e-10|1.1e-04|2.0e+02| 1.768889e+02 -6.928107e+00| 0:0:00| chol 1↙
1
 7|0.908|0.907|1.8e-11|2.1e-05|2.6e+01| 2.081092e+01 -4.331918e+00| 0:0:00| chol 2↙
1
 8|1.000|1.000|2.6e-11|1.1e-06|9.0e+00| 4.762843e+00 -4.199511e+00| 0:0:00| chol 1↙
1
 9|0.912|0.919|1.1e-11|1.9e-07|1.1e+00|-2.951716e+00 -4.095125e+00| 0:0:00| chol 1↙
2
10|0.929|0.930|6.3e-12|2.4e-08|5.4e-01|-3.513108e+00 -4.053216e+00| 0:0:00| chol 2↙
2
11|1.000|1.000|3.3e-10|1.1e-09|2.6e-01|-3.788364e+00 -4.043489e+00| 0:0:00| chol 2↙
2
12|0.898|0.915|2.4e-10|2.0e-10|4.8e-02|-3.985206e+00 -4.032746e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|4.2e-11|1.4e-11|1.6e-02|-4.015310e+00 -4.031630e+00| 0:0:00| chol 2↙
2
14|0.976|0.954|2.5e-11|6.0e-12|4.9e-04|-4.030357e+00 -4.030844e+00| 0:0:00| chol 2↙
2
15|0.987|0.988|2.7e-12|5.1e-12|6.2e-06|-4.030801e+00 -4.030808e+00| 0:0:00| chol 3↙
2
16|0.994|0.992|2.8e-11|1.0e-12|1.1e-07|-4.030807e+00 -4.030807e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
--------------------------------------------------------------------
```

```
 number of iterations   = 16
 primal objective value = -4.03080695e+00
 dual   objective value = -4.03080710e+00
 gap := trace(XZ)       = 1.15e-07
 relative gap           = 1.26e-08
 actual relative gap    = 1.56e-08
 rel. primal infeas     = 2.79e-11
 rel. dual   infeas     = 1.04e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.8e+03, 7.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.3e-11  0.0e+00  1.5e-12  0.0e+00  1.6e-08  1.3e-08
-------------------------------------------------------------------


ans =

    4.0308


Epoch... 193
Epoch... 194

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.2e+06| 9.740303e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.3e-07|1.0e-01|2.6e+05| 8.899932e+04 -7.566998e+01| 0:0:00| chol  1✔
1
 2|1.000|0.919|6.7e-08|1.0e-02|3.3e+04| 1.466562e+04  9.743535e+01| 0:0:00| chol  1✔
1
 3|0.493|1.000|3.8e-08|2.5e-03|1.5e+04| 9.447716e+03 -4.476688e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|7.3e-09|1.2e-03|1.5e+03| 9.118261e+02 -2.650433e+01| 0:0:00| chol  1✔
1
 5|0.827|0.845|1.3e-09|5.1e-04|4.4e+02| 3.337037e+02 -7.193342e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.3e-10|1.1e-04|2.1e+02| 1.861163e+02 -7.052861e+00| 0:0:00| chol  1✔
1
 7|0.907|0.906|2.1e-11|2.1e-05|2.6e+01| 2.114520e+01 -4.545756e+00| 0:0:00| chol  2✔
1
 8|1.000|1.000|1.6e-10|1.1e-06|9.2e+00| 4.806001e+00 -4.407700e+00| 0:0:00| chol  1✔
1
 9|0.915|0.916|4.9e-11|2.0e-07|1.2e+00|-3.060309e+00 -4.297082e+00| 0:0:00| chol  1✔
2
10|0.982|0.987|2.4e-11|1.4e-08|5.2e-01|-3.732451e+00 -4.255783e+00| 0:0:00| chol  2✔
```

```
2
11|1.000|1.000|3.1e-10|1.1e-09|2.4e-01|-4.001379e+00 -4.246234e+00| 0:0:00| chol  2↙
2
12|0.908|0.913|2.5e-10|2.1e-10|4.4e-02|-4.192492e+00 -4.236008e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|5.6e-11|2.2e-11|1.5e-02|-4.219503e+00 -4.234784e+00| 0:0:00| chol  2↙
2
14|0.961|0.934|3.2e-11|1.4e-11|7.7e-04|-4.233309e+00 -4.234075e+00| 0:0:00| chol  2↙
2
15|0.982|0.979|1.1e-11|6.8e-12|1.5e-05|-4.234014e+00 -4.234029e+00| 0:0:00| chol  2↙
3
16|0.994|0.995|1.8e-11|2.2e-12|3.4e-07|-4.234028e+00 -4.234028e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.23402755e+00
 dual   objective value = -4.23402785e+00
 gap := trace(XZ)       = 3.44e-07
 relative gap           = 3.63e-08
 actual relative gap    = 3.27e-08
 rel. primal infeas     = 1.77e-11
 rel. dual   infeas     = 2.20e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.8e-11  0.0e+00  3.1e-12  0.0e+00  3.3e-08  3.6e-08
-------------------------------------------------------------------

ans =

    4.2340


Epoch... 195
Epoch... 196

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.1e+06| 9.395257e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.4e-07|1.0e-01|2.5e+05| 8.609240e+04 -8.056605e+01| 0:0:00| chol  1↙
1
 2|1.000|0.917|7.0e-08|1.1e-02|3.2e+04| 1.425370e+04  9.934335e+01| 0:0:00| chol  1↙
1
 3|0.489|1.000|4.0e-08|2.5e-03|1.5e+04| 9.253378e+03 -4.258678e+01| 0:0:00| chol  1↙
```

```
1
 4|1.000|1.000|7.6e-09|1.2e-03|1.6e+03| 1.042182e+03 -2.773151e+01| 0:0:00| chol  1↙
1
 5|0.820|0.828|1.4e-09|5.2e-04|4.3e+02| 3.187740e+02 -7.391418e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.1e+02| 1.882857e+02 -6.907408e+00| 0:0:00| chol  1↙
1
 7|0.909|0.918|2.2e-11|1.9e-05|2.6e+01| 2.144163e+01 -4.519510e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|6.0e-11|1.1e-06|9.1e+00| 4.732841e+00 -4.399933e+00| 0:0:00| chol  1↙
1
 9|0.915|0.928|3.7e-11|1.8e-07|1.2e+00|-3.143829e+00 -4.295793e+00| 0:0:00| chol  2↙
2
10|0.975|0.926|5.6e-12|2.4e-08|5.2e-01|-3.740832e+00 -4.257073e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|4.3e-10|1.1e-09|2.5e-01|-3.995101e+00 -4.247091e+00| 0:0:00| chol  2↙
2
12|0.873|1.000|2.2e-10|1.1e-10|6.4e-02|-4.174779e+00 -4.238888e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|6.1e-11|1.4e-11|1.8e-02|-4.219509e+00 -4.237114e+00| 0:0:00| chol  2↙
1
14|0.973|0.967|2.5e-11|5.3e-12|5.2e-04|-4.235848e+00 -4.236364e+00| 0:0:00| chol  2↙
2
15|0.983|0.988|5.5e-12|5.0e-12|8.9e-06|-4.236330e+00 -4.236339e+00| 0:0:00| chol  3↙
3
16|0.996|1.000|1.1e-10|1.1e-12|4.4e-07|-4.236338e+00 -4.236339e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.23633840e+00
 dual   objective value = -4.23633885e+00
 gap := trace(XZ)       = 4.40e-07
 relative gap           = 4.64e-08
 actual relative gap    = 4.68e-08
 rel. primal infeas     = 1.12e-10
 rel. dual   infeas     = 1.09e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.6e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 1.8e-10  0.0e+00  1.5e-12  0.0e+00  4.7e-08  4.6e-08
-------------------------------------------------------------------


ans =

    4.2363


Epoch... 197
Epoch... 198

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk =  1
 dim. of linear var  = 60
```

```
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam   expon   scale_data
   HKM       1      0.000   1         0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.1e+06| 9.435673e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.4e-07|1.0e-01|2.5e+05| 8.640870e+04 -9.358255e+01| 0:0:00| chol  1✔
1
 2|1.000|0.917|6.9e-08|1.1e-02|3.2e+04| 1.420687e+04  9.966346e+01| 0:0:00| chol  1✔
1
 3|0.486|1.000|4.0e-08|2.5e-03|1.5e+04| 9.249247e+03 -4.221702e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|7.6e-09|1.2e-03|1.7e+03| 1.047688e+03 -2.744951e+01| 0:0:00| chol  1✔
1
 5|0.821|0.829|1.4e-09|5.2e-04|4.2e+02| 3.140422e+02 -7.477387e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.1e+02| 1.864788e+02 -6.986921e+00| 0:0:00| chol  1✔
1
 7|0.908|0.920|2.4e-11|1.9e-05|2.6e+01| 2.116188e+01 -4.664996e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|2.3e-10|1.1e-06|9.0e+00| 4.405897e+00 -4.563767e+00| 0:0:00| chol  1✔
1
 9|0.913|0.928|6.6e-11|1.8e-07|1.1e+00|-3.382445e+00 -4.462183e+00| 0:0:00| chol  2✔
2
10|0.971|0.913|6.0e-12|2.6e-08|4.9e-01|-3.938790e+00 -4.426015e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|4.4e-10|1.1e-09|2.4e-01|-4.179751e+00 -4.416959e+00| 0:0:00| chol  2✔
2
12|0.856|1.000|2.0e-10|1.1e-10|6.7e-02|-4.343226e+00 -4.410554e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|9.0e-11|1.4e-11|2.0e-02|-4.388478e+00 -4.408302e+00| 0:0:00| chol  2✔
2
14|0.971|0.955|2.9e-11|5.8e-12|6.5e-04|-4.406898e+00 -4.407552e+00| 0:0:00| chol  2✔
2
15|0.981|0.987|4.2e-12|5.8e-12|1.2e-05|-4.407504e+00 -4.407516e+00| 0:0:00| chol  3✔
3
16|0.999|1.000|4.3e-11|1.0e-12|5.0e-07|-4.407515e+00 -4.407516e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.40751524e+00
 dual   objective value = -4.40751575e+00
 gap := trace(XZ)       = 5.01e-07
 relative gap           = 5.10e-08
 actual relative gap    = 5.24e-08
 rel. primal infeas     = 4.28e-11
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.6e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
```

```
 termination code       =  0
 DIMACS errors: 6.8e-11  0.0e+00  1.4e-12  0.0e+00  5.2e-08  5.1e-08
 ------------------------------------------------------------------


ans =

    4.4075


Epoch... 199
Epoch... 200


 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.1e+06| 9.465160e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.983|2.4e-07|1.0e-01|2.5e+05| 8.668493e+04 -1.010566e+02| 0:0:00| chol 1↙
1
 2|1.000|0.918|6.6e-08|1.0e-02|3.2e+04| 1.416821e+04  9.937208e+01| 0:0:00| chol 1↙
1
 3|0.484|1.000|3.8e-08|2.5e-03|1.5e+04| 9.243690e+03 -4.300438e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|7.7e-09|1.2e-03|1.6e+03| 1.021664e+03 -2.680038e+01| 0:0:00| chol 1↙
1
 5|0.822|0.833|1.4e-09|5.2e-04|4.2e+02| 3.161136e+02 -7.320709e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.856686e+02 -6.881425e+00| 0:0:00| chol 1↙
1
 7|0.908|0.917|2.2e-11|2.0e-05|2.6e+01| 2.066547e+01 -4.615613e+00| 0:0:00| chol 2↙
1
 8|1.000|1.000|1.2e-10|1.1e-06|8.5e+00| 3.976101e+00 -4.531123e+00| 0:0:00| chol 1↙
1
 9|0.912|0.922|2.4e-11|1.9e-07|1.0e+00|-3.420817e+00 -4.436274e+00| 0:0:00| chol 2↙
2
10|0.946|0.910|1.4e-11|2.7e-08|4.7e-01|-3.936917e+00 -4.403873e+00| 0:0:00| chol 2↙
2
11|1.000|1.000|4.0e-10|1.1e-09|2.3e-01|-4.170796e+00 -4.396009e+00| 0:0:00| chol 2↙
2
12|0.881|1.000|2.1e-10|1.2e-10|5.6e-02|-4.333723e+00 -4.389357e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|7.7e-11|1.8e-11|1.5e-02|-4.372933e+00 -4.387756e+00| 0:0:00| chol 2↙
2
14|0.975|0.969|2.3e-11|1.1e-11|3.9e-04|-4.386786e+00 -4.387179e+00| 0:0:00| chol 2↙
2
15|0.982|0.988|4.5e-12|4.8e-12|7.1e-06|-4.387154e+00 -4.387161e+00| 0:0:00| chol 3↙
3
16|0.999|1.000|8.6e-11|1.0e-12|3.4e-07|-4.387160e+00 -4.387160e+00| 0:0:00|
```

```
  stop: max(relative gap, infeasibilities) < 1.00e-07
 ----------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.38716003e+00
 dual   objective value = -4.38716036e+00
 gap := trace(XZ)       = 3.42e-07
 relative gap           = 3.50e-08
 actual relative gap    = 3.43e-08
 rel. primal infeas     = 8.59e-11
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 7.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-10  0.0e+00  1.4e-12  0.0e+00  3.4e-08  3.5e-08
 ----------------------------------------------------------------------

ans =

    4.3872


Epoch... 201
Epoch... 202

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
 *********************************************************************
    SDPT3: Infeasible path-following algorithms
 *********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
 it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
 ----------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.1e+06| 9.390582e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.983|2.3e-07|1.0e-01|2.5e+05| 8.619166e+04 -1.161573e+02| 0:0:00| chol  1✔
1
 2|1.000|0.918|6.3e-08|1.0e-02|3.1e+04| 1.394634e+04  1.005302e+02| 0:0:00| chol  1✔
1
 3|0.479|1.000|3.6e-08|2.5e-03|1.5e+04| 9.153819e+03 -4.358965e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|7.6e-09|1.2e-03|1.6e+03| 9.825009e+02 -2.540084e+01| 0:0:00| chol  1✔
1
 5|0.826|0.840|1.3e-09|5.1e-04|4.2e+02| 3.140238e+02 -6.980183e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.817099e+02 -6.620151e+00| 0:0:00| chol  1✔
1
 7|0.907|0.913|2.2e-11|2.0e-05|2.5e+01| 2.009101e+01 -4.461039e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|8.0e-11|1.1e-06|8.1e+00| 3.681428e+00 -4.396732e+00| 0:0:00| chol  1✔
2
 9|0.913|0.919|5.5e-12|1.9e-07|9.2e-01|-3.383011e+00 -4.305503e+00| 0:0:00| chol  2✔
```

```
2
10|0.939|0.918|3.0e-11|2.6e-08|4.3e-01|-3.849317e+00 -4.275965e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.2e-10|1.1e-09|2.0e-01|-4.072754e+00 -4.270016e+00| 0:0:00| chol  2↙
2
12|0.894|1.000|2.1e-10|1.1e-10|4.3e-02|-4.221504e+00 -4.264217e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|1.2e-10|1.5e-11|1.7e-02|-4.246109e+00 -4.263419e+00| 0:0:00| chol  2↙
2
14|0.940|0.953|5.8e-11|7.4e-12|1.4e-03|-4.261321e+00 -4.262759e+00| 0:0:00| chol  2↙
2
15|0.981|0.972|2.4e-11|8.7e-12|3.1e-05|-4.262685e+00 -4.262716e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|2.8e-11|4.8e-12|1.4e-06|-4.262713e+00 -4.262715e+00| 0:0:00| chol  3↙
3
17|1.000|0.992|1.9e-11|3.9e-13|2.7e-08|-4.262714e+00 -4.262714e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.26271447e+00
 dual   objective value = -4.26271448e+00
 gap := trace(XZ)       = 2.73e-08
 relative gap           = 2.86e-09
 actual relative gap    = 1.49e-09
 rel. primal infeas     = 1.90e-11
 rel. dual   infeas     = 3.92e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 7.8e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.0e-11  0.0e+00  5.5e-13  0.0e+00  1.5e-09  2.9e-09
-------------------------------------------------------------------


ans =

    4.2627


Epoch... 203
Epoch... 204

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.1e+06| 9.497480e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.983|2.2e-07|1.0e-01|2.6e+05| 8.713290e+04 -1.362210e+02| 0:0:00| chol  1↙
```

```
 1
  2|1.000|0.920|5.8e-08|1.0e-02|3.1e+04| 1.392545e+04  9.900342e+01| 0:0:00| chol  1↙
 1
  3|0.477|1.000|3.3e-08|2.5e-03|1.5e+04| 9.147373e+03 -4.538920e+01| 0:0:00| chol  1↙
 1
  4|1.000|1.000|7.7e-09|1.2e-03|1.4e+03| 8.838142e+02 -2.414951e+01| 0:0:00| chol  1↙
 1
  5|0.836|0.865|1.3e-09|4.9e-04|4.2e+02| 3.226079e+02 -6.959231e+00| 0:0:00| chol  1↙
 1
  6|1.000|1.000|1.1e-10|1.1e-04|2.0e+02| 1.767520e+02 -6.906829e+00| 0:0:00| chol  1↙
 1
  7|0.906|0.905|1.8e-11|2.1e-05|2.5e+01| 1.965875e+01 -4.670258e+00| 0:0:00| chol  1↙
 1
  8|1.000|1.000|9.5e-11|1.1e-06|7.8e+00| 3.202438e+00 -4.615284e+00| 0:0:00| chol  1↙
 2
  9|0.910|0.910|1.3e-11|2.0e-07|8.9e-01|-3.637623e+00 -4.522812e+00| 0:0:00| chol  2↙
 2
 10|0.936|0.941|8.4e-12|2.2e-08|4.1e-01|-4.089205e+00 -4.494134e+00| 0:0:00| chol  2↙
 2
 11|1.000|1.000|2.4e-10|1.1e-09|1.8e-01|-4.311448e+00 -4.489250e+00| 0:0:00| chol  2↙
 2
 12|0.888|0.893|2.3e-10|2.2e-10|3.2e-02|-4.451705e+00 -4.483934e+00| 0:0:00| chol  2↙
 2
 13|1.000|1.000|1.3e-10|1.5e-11|1.4e-02|-4.469234e+00 -4.483363e+00| 0:0:00| chol  2↙
 2
 14|0.919|0.923|7.1e-11|7.8e-12|1.8e-03|-4.481062e+00 -4.482854e+00| 0:0:00| chol  2↙
 2
 15|1.000|1.000|1.4e-10|8.6e-12|5.5e-04|-4.482263e+00 -4.482811e+00| 0:0:00| chol  2↙
 2
 16|0.924|0.923|3.6e-11|1.3e-11|6.1e-05|-4.482732e+00 -4.482793e+00| 0:0:00| chol  3↙
 3
 17|1.000|1.000|2.5e-10|7.1e-12|1.6e-05|-4.482774e+00 -4.482791e+00| 0:0:00| chol  3↙
 3
 18|1.000|1.000|2.9e-10|1.1e-11|1.3e-06|-4.482789e+00 -4.482790e+00| 0:0:00| chol  3↙
 3
 19|1.000|0.989|2.5e-11|4.8e-13|2.8e-08|-4.482790e+00 -4.482790e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.48279003e+00
 dual   objective value = -4.48279006e+00
 gap := trace(XZ)       = 2.77e-08
 relative gap           = 2.78e-09
 actual relative gap    = 2.64e-09
 rel. primal infeas     = 2.50e-11
 rel. dual   infeas     = 4.84e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 7.9e+03, 3.9e+02
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.8e-11  0.0e+00  6.8e-13  0.0e+00  2.6e-09  2.8e-09
-------------------------------------------------------------------
```

```
ans =

    4.4828


Epoch... 205
Epoch... 206


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon   scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.2e+06| 9.898029e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.983|2.2e-07|1.0e-01|2.6e+05| 9.034653e+04 -1.336387e+02| 0:0:00| chol  1↙
1
 2|1.000|0.922|5.4e-08|1.0e-02|3.2e+04| 1.440559e+04  9.959940e+01| 0:0:00| chol  1↙
1
 3|0.481|1.000|3.0e-08|2.5e-03|1.5e+04| 9.378796e+03 -4.246140e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|7.1e-09|1.2e-03|1.4e+03| 8.864852e+02 -2.418840e+01| 0:0:00| chol  1↙
1
 5|0.835|0.855|1.2e-09|5.0e-04|4.2e+02| 3.149504e+02 -7.097935e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.3e-10|1.1e-04|1.9e+02| 1.758267e+02 -7.054556e+00| 0:0:00| chol  1↙
1
 7|0.903|0.902|2.0e-11|2.1e-05|2.5e+01| 1.994829e+01 -4.795222e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|1.1e-10|1.1e-06|8.5e+00| 3.758282e+00 -4.734024e+00| 0:0:00| chol  2↙
1
 9|0.905|0.905|4.4e-12|2.1e-07|1.0e+00|-3.612713e+00 -4.626652e+00| 0:0:00| chol  2↙
2
10|0.927|0.934|9.5e-12|2.4e-08|4.7e-01|-4.117965e+00 -4.590970e+00| 0:0:00| chol  2↙
1
11|1.000|1.000|3.9e-10|1.1e-09|2.2e-01|-4.366574e+00 -4.583480e+00| 0:0:00| chol  2↙
1
12|0.908|0.918|2.3e-10|2.0e-10|3.7e-02|-4.538174e+00 -4.575273e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|4.5e-11|1.5e-11|1.1e-02|-4.563801e+00 -4.574420e+00| 0:0:00| chol  2↙
2
14|0.982|0.975|1.6e-11|6.5e-12|1.9e-04|-4.573724e+00 -4.573918e+00| 0:0:00| chol  2↙
2
15|0.988|0.989|1.1e-11|3.3e-12|2.3e-06|-4.573905e+00 -4.573907e+00| 0:0:00| chol  3↙
3
16|0.994|0.992|8.9e-11|6.2e-13|4.5e-08|-4.573907e+00 -4.573907e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.57390667e+00
```

```
 dual   objective value = -4.57390668e+00
 gap := trace(XZ)        = 4.55e-08
 relative gap            = 4.48e-09
 actual relative gap     = 5.55e-10
 rel. primal infeas      = 8.90e-11
 rel. dual   infeas      = 6.20e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs) = 0.08
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 1.3e-10  0.0e+00  8.7e-13  0.0e+00  5.6e-10  4.5e-09
-------------------------------------------------------------------


ans =

    4.5739


Epoch... 207
Epoch... 208


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.2e+06| 9.718824e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.983|2.1e-07|1.0e-01|2.6e+05| 8.888769e+04 -1.281629e+02| 0:0:00| chol  1✔
1
 2|1.000|0.922|5.2e-08|1.0e-02|3.2e+04| 1.419259e+04  1.019902e+02| 0:0:00| chol  1✔
1
 3|0.478|1.000|2.9e-08|2.5e-03|1.5e+04| 9.275591e+03 -4.124357e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.7e-09|1.2e-03|1.4e+03| 8.804918e+02 -2.416594e+01| 0:0:00| chol  1✔
1
 5|0.835|0.851|1.1e-09|5.0e-04|4.1e+02| 3.131304e+02 -6.950167e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.6e-10|1.1e-04|1.9e+02| 1.749723e+02 -7.001321e+00| 0:0:00| chol  1✔
1
 7|0.904|0.903|2.3e-11|2.1e-05|2.5e+01| 1.972980e+01 -4.721053e+00| 0:0:00| chol  2✔
1
 8|1.000|1.000|8.5e-11|1.1e-06|8.3e+00| 3.677546e+00 -4.652828e+00| 0:0:00| chol  1✔
1
 9|0.901|0.901|3.3e-11|2.1e-07|1.1e+00|-3.498688e+00 -4.547671e+00| 0:0:00| chol  2✔
2
10|0.971|0.981|1.9e-11|1.5e-08|4.6e-01|-4.053075e+00 -4.512730e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|2.7e-10|1.1e-09|2.1e-01|-4.299546e+00 -4.505766e+00| 0:0:00| chol  2✔
```

```
2
12|0.907|0.914|2.3e-10|2.0e-10|3.7e-02|-4.461410e+00 -4.498091e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|5.7e-11|2.0e-11|1.3e-02|-4.484232e+00 -4.497250e+00| 0:0:00| chol  2↙
2
14|0.980|0.965|2.1e-11|1.3e-11|2.9e-04|-4.496372e+00 -4.496657e+00| 0:0:00| chol  2↙
2
15|0.988|0.988|4.6e-12|4.4e-12|3.4e-06|-4.496635e+00 -4.496638e+00| 0:0:00| chol  3↙
3
16|0.993|0.991|2.6e-11|8.7e-13|6.4e-08|-4.496638e+00 -4.496638e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.49663818e+00
 dual   objective value = -4.49663821e+00
 gap := trace(XZ)        = 6.37e-08
 relative gap            = 6.38e-09
 actual relative gap     = 3.07e-09
 rel. primal infeas      = 2.56e-11
 rel. dual   infeas      = 8.70e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.7e-11  0.0e+00  1.2e-12  0.0e+00  3.1e-09  6.4e-09
-------------------------------------------------------------------


ans =

    4.4966


Epoch... 209
Epoch... 210

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.2e+06| 9.755814e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.983|2.0e-07|1.0e-01|2.6e+05| 8.921264e+04 -1.165186e+02| 0:0:00| chol  1↙
1
 2|1.000|0.923|5.1e-08|1.0e-02|3.2e+04| 1.425921e+04  1.024112e+02| 0:0:00| chol  1↙
1
 3|0.479|1.000|2.8e-08|2.5e-03|1.5e+04| 9.286624e+03 -4.074474e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.5e-09|1.2e-03|1.4e+03| 8.456839e+02 -2.372102e+01| 0:0:00| chol  1↙
```

```
1
 5|0.841|0.860|1.1e-09|4.9e-04|4.2e+02| 3.165073e+02 -6.846463e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|1.9e+02| 1.724278e+02 -7.079693e+00| 0:0:00| chol  1↙
1
 7|0.904|0.902|2.2e-11|2.1e-05|2.5e+01| 1.941967e+01 -4.772830e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|2.5e-11|1.1e-06|8.4e+00| 3.664570e+00 -4.683127e+00| 0:0:00| chol  1↙
1
 9|0.896|0.897|6.0e-12|2.2e-07|1.2e+00|-3.411806e+00 -4.575237e+00| 0:0:00| chol  2↙
1
10|1.000|1.000|1.4e-10|1.1e-08|4.8e-01|-4.055107e+00 -4.539094e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.1e-10|1.1e-09|1.8e-01|-4.345087e+00 -4.528144e+00| 0:0:00| chol  2↙
2
12|0.948|0.972|2.2e-10|1.4e-10|3.3e-02|-4.487936e+00 -4.520693e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|3.4e-11|1.5e-11|5.9e-03|-4.514106e+00 -4.520007e+00| 0:0:00| chol  2↙
2
14|0.986|0.984|1.2e-11|7.4e-12|8.7e-05|-4.519575e+00 -4.519662e+00| 0:0:00| chol  2↙
1
15|0.989|0.989|3.2e-11|2.5e-12|1.0e-06|-4.519656e+00 -4.519657e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -4.51965571e+00
 dual   objective value = -4.51965667e+00
 gap := trace(XZ)        = 9.97e-07
 relative gap            = 9.93e-08
 actual relative gap     = 9.59e-08
 rel. primal infeas      = 3.22e-11
 rel. dual   infeas      = 2.45e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.07
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 4.6e-11  0.0e+00  3.5e-12  0.0e+00  9.6e-08  9.9e-08
-------------------------------------------------------------------

ans =

    4.5197


Epoch... 211
Epoch... 212

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
```

```
    HKM      1      0.000   1         0
 it pstep dstep pinfeas dinfeas  gap       prim-obj        dual-obj      cputime
-------------------------------------------------------------------
  0|0.000|0.000|1.0e+00|5.8e+00|3.2e+06| 9.933452e+04  0.000000e+00| 0:0:00| chol 1↙
1
  1|1.000|0.983|1.9e-07|1.0e-01|2.7e+05| 9.066422e+04 -1.253603e+02| 0:0:00| chol 1↙
1
  2|1.000|0.923|4.8e-08|1.0e-02|3.2e+04| 1.443342e+04  1.031652e+02| 0:0:00| chol 1↙
1
  3|0.480|1.000|2.7e-08|2.5e-03|1.5e+04| 9.374192e+03 -3.948385e+01| 0:0:00| chol 1↙
1
  4|1.000|1.000|6.3e-09|1.2e-03|1.4e+03| 8.399472e+02 -2.300900e+01| 0:0:00| chol 1↙
1
  5|0.842|0.860|1.0e-09|5.0e-04|4.1e+02| 3.115763e+02 -6.534152e+00| 0:0:00| chol 1↙
1
  6|1.000|1.000|1.3e-10|1.1e-04|1.9e+02| 1.706835e+02 -6.773419e+00| 0:0:00| chol 1↙
1
  7|0.903|0.901|2.1e-11|2.1e-05|2.5e+01| 1.960880e+01 -4.515669e+00| 0:0:00| chol 1↙
1
  8|1.000|1.000|4.7e-11|1.1e-06|8.3e+00| 3.796374e+00 -4.453058e+00| 0:0:00| chol 1↙
1
  9|0.898|0.898|3.9e-11|2.1e-07|1.1e+00|-3.295513e+00 -4.345240e+00| 0:0:00| chol 2↙
2
 10|0.987|0.999|1.7e-11|1.1e-08|4.6e-01|-3.848303e+00 -4.309689e+00| 0:0:00| chol 2↙
2
 11|1.000|1.000|2.4e-10|1.1e-09|2.0e-01|-4.100787e+00 -4.303254e+00| 0:0:00| chol 2↙
2
 12|0.903|0.903|2.2e-10|2.1e-10|3.8e-02|-4.258062e+00 -4.296033e+00| 0:0:00| chol 2↙
2
 13|1.000|1.000|9.3e-11|1.9e-11|1.6e-02|-4.279279e+00 -4.295102e+00| 0:0:00| chol 2↙
2
 14|0.985|0.922|3.4e-11|1.4e-11|3.9e-04|-4.294024e+00 -4.294413e+00| 0:0:00| chol 2↙
1
 15|0.986|0.985|2.0e-11|7.1e-12|5.6e-06|-4.294361e+00 -4.294366e+00| 0:0:00| chol 2↙
2
 16|0.994|0.990|3.6e-12|1.8e-12|1.3e-07|-4.294365e+00 -4.294366e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.29436549e+00
 dual   objective value = -4.29436562e+00
 gap := trace(XZ)        = 1.34e-07
 relative gap            = 1.40e-08
 actual relative gap     = 1.28e-08
 rel. primal infeas      = 3.57e-12
 rel. dual   infeas      = 1.82e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs) = 0.08
 CPU time per iteration = 0.01
 termination code       = 0
 DIMACS errors: 5.0e-12  0.0e+00  2.6e-12  0.0e+00  1.3e-08  1.4e-08
-------------------------------------------------------------------
```

```
ans =

    4.2944


Epoch... 213
Epoch... 214


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.5e+06| 1.068201e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.983|1.8e-07|1.0e-01|2.8e+05| 9.687938e+04 -1.388062e+02| 0:0:00| chol  1✔
1
 2|1.000|0.929|4.6e-08|9.7e-03|3.4e+04| 1.522542e+04  9.695480e+01| 0:0:00| chol  1✔
1
 3|0.496|1.000|2.3e-08|2.5e-03|1.5e+04| 9.622340e+03 -4.044698e+01| 0:0:00| chol  1✔
1
 4|0.998|1.000|6.8e-09|1.2e-03|1.2e+03| 6.902546e+02 -2.114851e+01| 0:0:00| chol  1✔
1
 5|0.896|0.982|7.3e-10|3.9e-04|4.4e+02| 3.532577e+02 -6.317167e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|9.3e-11|1.1e-04|1.7e+02| 1.534458e+02 -7.206887e+00| 0:0:00| chol  1✔
1
 7|0.911|0.914|1.7e-11|2.0e-05|2.4e+01| 1.840308e+01 -4.833441e+00| 0:0:00| chol  2✔
1
 8|1.000|1.000|1.0e-10|1.1e-06|8.1e+00| 3.275429e+00 -4.763977e+00| 0:0:00| chol  1✔
1
 9|0.904|0.908|2.9e-12|2.0e-07|9.1e-01|-3.753283e+00 -4.661278e+00| 0:0:00| chol  2✔
2
10|0.955|0.885|1.3e-11|3.3e-08|4.6e-01|-4.168179e+00 -4.624012e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|3.4e-10|1.1e-09|2.2e-01|-4.397521e+00 -4.615032e+00| 0:0:00| chol  1✔
2
12|0.860|1.000|1.7e-10|1.1e-10|5.1e-02|-4.556241e+00 -4.607714e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|8.1e-11|1.5e-11|2.2e-02|-4.584436e+00 -4.606776e+00| 0:0:00| chol  2✔
2
14|0.966|0.904|4.5e-11|7.5e-12|1.2e-03|-4.604704e+00 -4.605874e+00| 0:0:00| chol  2✔
2
15|0.981|0.982|9.9e-12|7.8e-12|2.4e-05|-4.605766e+00 -4.605790e+00| 0:0:00| chol  2✔
2
16|1.000|0.993|1.3e-11|2.0e-12|7.4e-07|-4.605788e+00 -4.605788e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.60578752e+00
```

```
 dual    objective value = -4.60578826e+00
 gap := trace(XZ)        = 7.43e-07
 relative gap            = 7.28e-08
 actual relative gap     = 7.27e-08
 rel. primal infeas      = 1.33e-11
 rel. dual   infeas      = 2.04e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.3e+03, 3.9e+02
 Total CPU time (secs)   = 0.08
 CPU time per iteration = 0.01
 termination code        =   0
 DIMACS errors: 1.7e-11  0.0e+00  2.9e-12  0.0e+00  7.3e-08  7.3e-08
-------------------------------------------------------------------


ans =

    4.6058


Epoch... 215
Epoch... 216

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version   predcorr  gam  expon   scale_data
   HKM        1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.0e+00|3.6e+06| 1.126695e+05   0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.8e-07|1.1e-01|3.0e+05| 1.015010e+05  -1.226499e+02| 0:0:00| chol  1✔
1
 2|1.000|0.931|4.5e-08|9.7e-03|3.6e+04| 1.606596e+04   9.767724e+01| 0:0:00| chol  1✔
1
 3|0.504|1.000|2.2e-08|2.5e-03|1.6e+04| 1.003604e+04  -3.911498e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.1e-09|1.2e-03|1.2e+03| 7.247751e+02  -2.236401e+01| 0:0:00| chol  1✔
1
 5|0.879|0.920|7.7e-10|4.4e-04|4.4e+02| 3.448107e+02  -6.221096e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.2e-10|1.1e-04|1.8e+02| 1.649643e+02  -6.924314e+00| 0:0:00| chol  1✔
1
 7|0.903|0.904|2.1e-11|2.1e-05|2.5e+01| 2.023817e+01  -4.500410e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.1e-10|1.1e-06|8.5e+00| 3.989989e+00  -4.450516e+00| 0:0:00| chol  1✔
1
 9|0.902|0.904|2.7e-11|2.1e-07|9.5e-01|-3.379932e+00  -4.329222e+00| 0:0:00| chol  1✔
2
10|0.957|0.898|1.1e-11|3.1e-08|4.9e-01|-3.798334e+00  -4.284748e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|2.6e-10|1.1e-09|2.3e-01|-4.048681e+00  -4.274856e+00| 0:0:00| chol  2✔
```

```
2
12|0.878|0.968|1.7e-10|1.5e-10|5.3e-02|-4.213381e+00 -4.266563e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|1.1e-10|1.6e-11|2.5e-02|-4.240632e+00 -4.265383e+00| 0:0:00| chol  2↙
2
14|0.926|0.949|6.6e-11|9.1e-12|3.4e-03|-4.260743e+00 -4.264107e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|2.1e-11|1.1e-11|4.4e-04|-4.263544e+00 -4.263989e+00| 0:0:00| chol  2↙
2
16|0.974|0.975|1.4e-11|4.5e-12|1.3e-05|-4.263960e+00 -4.263972e+00| 0:0:00| chol  3↙
3
17|0.998|0.997|4.2e-11|2.7e-12|2.1e-07|-4.263972e+00 -4.263972e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.26397180e+00
 dual   objective value = -4.26397197e+00
 gap := trace(XZ)       = 2.09e-07
 relative gap           = 2.19e-08
 actual relative gap    = 1.79e-08
 rel. primal infeas     = 4.16e-11
 rel. dual   infeas     = 2.73e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.6e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 5.4e-11  0.0e+00  3.8e-12  0.0e+00  1.8e-08  2.2e-08
-------------------------------------------------------------------

ans =

    4.2640


Epoch... 217
Epoch... 218

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*******************************************************************
   SDPT3: Infeasible path-following algorithms
*******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.1e+00|3.8e+06| 1.179033e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.983|1.7e-07|1.1e-01|3.1e+05| 1.057891e+05 -1.411884e+02| 0:0:00| chol  1↙
1
 2|1.000|0.934|4.3e-08|9.5e-03|3.7e+04| 1.660676e+04  9.355606e+01| 0:0:00| chol  1↙
1
 3|0.513|1.000|2.1e-08|2.5e-03|1.6e+04| 1.026559e+04 -4.218600e+01| 0:0:00| chol  1↙
```

```
1
 4|0.993|1.000|6.7e-09|1.2e-03|1.2e+03| 7.243604e+02 -2.180544e+01| 0:0:00| chol  1↙
1
 5|0.909|1.000|6.5e-10|3.7e-04|4.7e+02| 3.847024e+02 -6.988767e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|6.7e-11|1.1e-04|1.8e+02| 1.584419e+02 -6.737431e+00| 0:0:00| chol  1↙
1
 7|0.906|0.920|1.7e-11|1.9e-05|2.3e+01| 1.827159e+01 -4.818134e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|1.1e-10|1.1e-06|7.8e+00| 2.964177e+00 -4.772914e+00| 0:0:00| chol  1↙
1
 9|0.900|0.914|3.5e-11|2.0e-07|9.2e-01|-3.742385e+00 -4.665499e+00| 0:0:00| chol  2↙
2
10|1.000|0.868|2.1e-11|3.6e-08|4.8e-01|-4.148592e+00 -4.624271e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.3e-10|1.1e-09|2.2e-01|-4.393555e+00 -4.614258e+00| 0:0:00| chol  2↙
2
12|0.913|1.000|1.4e-10|1.2e-10|5.9e-02|-4.547410e+00 -4.606164e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|1.1e-10|2.1e-11|2.4e-02|-4.580178e+00 -4.603933e+00| 0:0:00| chol  2↙
2
14|0.914|1.000|6.9e-11|1.5e-11|5.1e-03|-4.597799e+00 -4.602866e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|8.3e-11|1.4e-11|2.0e-03|-4.600701e+00 -4.602690e+00| 0:0:00| chol  2↙
2
16|0.939|0.925|1.8e-11|1.8e-11|2.3e-04|-4.602357e+00 -4.602587e+00| 0:0:00| chol  2↙
2
17|0.977|0.978|3.3e-11|3.9e-12|1.6e-05|-4.602563e+00 -4.602579e+00| 0:0:00| chol  2↙
3
18|1.000|1.000|1.3e-10|4.2e-12|3.2e-07|-4.602577e+00 -4.602578e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations  = 18
 primal objective value = -4.60257750e+00
 dual   objective value = -4.60257779e+00
 gap := trace(XZ)       = 3.23e-07
 relative gap           = 3.16e-08
 actual relative gap    = 2.81e-08
 rel. primal infeas     = 1.32e-10
 rel. dual   infeas     = 4.23e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.7e-10  0.0e+00  6.0e-12  0.0e+00  2.8e-08  3.2e-08
-----------------------------------------------------------------

ans =

    4.6026


Epoch... 219
Epoch... 220
```

```
 num. of constraints = 15
 dim. of socp   var = 16,    num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000  1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.1e+00|3.8e+06| 1.181019e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.7e-07|1.1e-01|3.1e+05| 1.059375e+05 -1.343796e+02| 0:0:00| chol  1✔
1
 2|1.000|0.934|4.2e-08|9.5e-03|3.7e+04| 1.666297e+04  9.436799e+01| 0:0:00| chol  1✔
1
 3|0.513|1.000|2.0e-08|2.5e-03|1.7e+04| 1.029125e+04 -4.129894e+01| 0:0:00| chol  1✔
1
 4|0.994|1.000|6.5e-09|1.2e-03|1.3e+03| 7.334831e+02 -2.206118e+01| 0:0:00| chol  1✔
1
 5|0.906|1.000|6.5e-10|3.7e-04|4.6e+02| 3.777731e+02 -6.410333e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.1e-10|1.1e-04|1.8e+02| 1.625246e+02 -7.217907e+00| 0:0:00| chol  1✔
1
 7|0.915|0.917|2.0e-11|2.0e-05|2.6e+01| 2.062103e+01 -4.589459e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.6e-11|1.1e-06|8.7e+00| 4.141235e+00 -4.533342e+00| 0:0:00| chol  1✔
1
 9|0.907|0.910|1.4e-11|2.0e-07|8.8e-01|-3.525598e+00 -4.407433e+00| 0:0:00| chol  1✔
1
10|1.000|0.882|3.0e-10|3.4e-08|4.5e-01|-3.917265e+00 -4.364440e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|2.5e-10|1.1e-09|2.0e-01|-4.150151e+00 -4.354750e+00| 0:0:00| chol  2✔
2
12|0.874|1.000|1.1e-10|1.2e-10|4.9e-02|-4.299541e+00 -4.348203e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|7.1e-11|2.0e-11|2.1e-02|-4.325909e+00 -4.347181e+00| 0:0:00| chol  2✔
2
14|0.906|0.971|4.7e-11|1.5e-11|3.5e-03|-4.342841e+00 -4.346364e+00| 0:0:00| chol  2✔
2
15|1.000|1.000|8.8e-11|9.4e-12|1.3e-03|-4.344965e+00 -4.346295e+00| 0:0:00| chol  2✔
2
16|0.941|0.950|9.3e-11|1.4e-11|1.3e-04|-4.346109e+00 -4.346240e+00| 0:0:00| chol  2✔
3
17|1.000|1.000|1.6e-10|1.9e-11|4.3e-06|-4.346231e+00 -4.346235e+00| 0:0:00| chol  2✔
2
18|0.998|0.991|6.0e-12|9.7e-13|6.1e-08|-4.346235e+00 -4.346235e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.34623503e+00
 dual   objective value = -4.34623508e+00
 gap := trace(XZ)       = 6.08e-08
```

```
 relative gap         = 6.28e-09
 actual relative gap  = 5.16e-09
 rel. primal infeas   = 6.02e-12
 rel. dual   infeas   = 9.69e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.9e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 7.5e-12  0.0e+00  1.4e-12  0.0e+00  5.2e-09  6.3e-09
-------------------------------------------------------------------


ans =

    4.3462


Epoch... 221
Epoch... 222

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.6e+06| 1.102275e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.983|1.5e-07|1.0e-01|2.9e+05| 9.967976e+04 -1.331709e+02| 0:0:00| chol  1✔
1
 2|1.000|0.932|4.1e-08|9.4e-03|3.5e+04| 1.565571e+04  9.506690e+01| 0:0:00| chol  1✔
1
 3|0.504|1.000|2.1e-08|2.5e-03|1.6e+04| 9.780780e+03 -4.012654e+01| 0:0:00| chol  1✔
1
 4|0.991|1.000|6.5e-09|1.2e-03|1.2e+03| 7.038635e+02 -2.156083e+01| 0:0:00| chol  1✔
1
 5|0.920|1.000|5.6e-10|3.7e-04|4.6e+02| 3.779794e+02 -6.978662e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|7.6e-11|1.1e-04|1.7e+02| 1.535367e+02 -6.517884e+00| 0:0:00| chol  1✔
1
 7|0.905|0.919|1.9e-11|1.9e-05|2.3e+01| 1.796892e+01 -4.705545e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.7e-11|1.1e-06|7.7e+00| 3.048731e+00 -4.666486e+00| 0:0:00| chol  1✔
1
 9|0.897|0.911|3.2e-12|2.0e-07|9.4e-01|-3.607499e+00 -4.550549e+00| 0:0:00| chol  2✔
1
10|1.000|0.934|4.7e-10|2.4e-08|4.8e-01|-4.032034e+00 -4.507355e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|1.7e-10|1.1e-09|1.8e-01|-4.320476e+00 -4.501268e+00| 0:0:00| chol  2✔
2
12|1.000|0.995|1.2e-10|1.2e-10|4.9e-02|-4.443634e+00 -4.492434e+00| 0:0:00| chol  2✔
```

```
2
13|0.885|1.000|5.1e-11|1.5e-11|1.4e-02|-4.477183e+00 -4.491233e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|5.8e-11|6.2e-12|4.4e-03|-4.486221e+00 -4.490625e+00| 0:0:00| chol  2↙
2
15|0.977|0.931|1.4e-11|8.1e-12|1.2e-04|-4.490333e+00 -4.490454e+00| 0:0:00| chol  2↙
2
16|0.986|0.986|9.2e-12|2.9e-12|1.7e-06|-4.490443e+00 -4.490444e+00| 0:0:00| chol  2↙
2
17|0.993|0.991|1.7e-11|4.4e-13|3.2e-08|-4.490444e+00 -4.490444e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.49044399e+00
 dual   objective value = -4.49044401e+00
 gap := trace(XZ)        = 3.21e-08
 relative gap            = 3.22e-09
 actual relative gap     = 2.16e-09
 rel. primal infeas      = 1.66e-11
 rel. dual   infeas      = 4.45e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.1e-11  0.0e+00  6.3e-13  0.0e+00  2.2e-09  3.2e-09
-------------------------------------------------------------------


ans =

    4.4904


Epoch... 223
Epoch... 224

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000    1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.5e+06| 1.086571e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.983|1.5e-07|1.0e-01|2.9e+05| 9.836752e+04 -1.288981e+02| 0:0:00| chol  1↙
1
 2|1.000|0.931|4.1e-08|9.5e-03|3.4e+04| 1.549227e+04  9.639938e+01| 0:0:00| chol  1↙
1
 3|0.501|1.000|2.1e-08|2.5e-03|1.6e+04| 9.713553e+03 -3.909079e+01| 0:0:00| chol  1↙
1
 4|0.993|1.000|6.3e-09|1.2e-03|1.2e+03| 7.089148e+02 -2.217360e+01| 0:0:00| chol  1↙
```

```
1
  5|0.911|0.983|5.9e-10|3.9e-04|4.5e+02| 3.654310e+02 -6.399989e+00| 0:0:00| chol  1↙
1
  6|1.000|1.000|1.1e-10|1.1e-04|1.8e+02| 1.590365e+02 -7.152529e+00| 0:0:00| chol  1↙
1
  7|0.912|0.913|1.9e-11|2.0e-05|2.5e+01| 2.018345e+01 -4.601149e+00| 0:0:00| chol  1↙
1
  8|1.000|1.000|4.3e-11|1.1e-06|8.5e+00| 3.890188e+00 -4.551554e+00| 0:0:00| chol  1↙
1
  9|0.902|0.905|1.6e-11|2.1e-07|9.1e-01|-3.508666e+00 -4.420832e+00| 0:0:00| chol  2↙
2
 10|1.000|0.929|3.6e-11|2.5e-08|4.6e-01|-3.919649e+00 -4.376281e+00| 0:0:00| chol  2↙
2
 11|1.000|1.000|1.4e-10|1.1e-09|1.8e-01|-4.188543e+00 -4.369157e+00| 0:0:00| chol  2↙
1
 12|1.000|0.947|1.0e-10|1.7e-10|2.8e-02|-4.333356e+00 -4.361809e+00| 0:0:00| chol  2↙
2
 13|1.000|1.000|5.4e-11|2.2e-11|1.1e-02|-4.349984e+00 -4.360740e+00| 0:0:00| chol  2↙
2
 14|0.959|0.960|3.6e-11|1.3e-11|9.2e-04|-4.359326e+00 -4.360248e+00| 0:0:00| chol  2↙
2
 15|0.976|0.980|5.0e-11|7.5e-12|2.5e-05|-4.360198e+00 -4.360223e+00| 0:0:00| chol  2↙
2
 16|0.996|1.000|4.3e-11|5.3e-12|4.1e-07|-4.360222e+00 -4.360222e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.36022166e+00
 dual   objective value = -4.36022201e+00
 gap := trace(XZ)       = 4.09e-07
 relative gap           = 4.21e-08
 actual relative gap    = 3.58e-08
 rel. primal infeas     = 4.25e-11
 rel. dual   infeas     = 5.33e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.6e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.3e-11  0.0e+00  7.5e-12  0.0e+00  3.6e-08  4.2e-08
-------------------------------------------------------------------

ans =

    4.3602


Epoch... 225
Epoch... 226


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
******************************************************************
   SDPT3: Infeasible path-following algorithms
```

```
 *********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj        dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.6e+06| 1.116376e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.4e-07|1.1e-01|3.0e+05| 1.008406e+05 -9.420683e+01| 0:0:00| chol  1↙
1
 2|1.000|0.933|4.0e-08|9.4e-03|3.6e+04| 1.602315e+04  9.647613e+01| 0:0:00| chol  1↙
1
 3|0.509|1.000|2.0e-08|2.5e-03|1.6e+04| 9.950010e+03 -3.937057e+01| 0:0:00| chol  1↙
1
 4|0.993|1.000|6.3e-09|1.2e-03|1.2e+03| 7.195343e+02 -2.198418e+01| 0:0:00| chol  1↙
1
 5|0.912|0.993|5.8e-10|3.8e-04|4.6e+02| 3.722199e+02 -6.229919e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.1e-10|1.1e-04|1.8e+02| 1.603978e+02 -6.998453e+00| 0:0:00| chol  1↙
1
 7|0.914|0.915|1.9e-11|2.0e-05|2.5e+01| 2.061791e+01 -4.402327e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|2.5e-11|1.1e-06|8.6e+00| 4.267730e+00 -4.349135e+00| 0:0:00| chol  1↙
1
 9|0.902|0.905|8.9e-12|2.1e-07|9.3e-01|-3.293619e+00 -4.220867e+00| 0:0:00| chol  2↙
1
10|1.000|0.944|2.6e-10|2.2e-08|4.5e-01|-3.729044e+00 -4.181722e+00| 0:0:00| chol  1↙
2
11|1.000|1.000|1.3e-10|1.1e-09|1.7e-01|-4.000393e+00 -4.175358e+00| 0:0:00| chol  1↙
2
12|1.000|0.944|7.8e-11|1.7e-10|2.8e-02|-4.140502e+00 -4.168656e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|4.0e-11|1.7e-11|9.4e-03|-4.158355e+00 -4.167795e+00| 0:0:00| chol  2↙
2
14|1.000|0.953|2.3e-11|9.9e-12|1.3e-03|-4.166142e+00 -4.167413e+00| 0:0:00| chol  2↙
2
15|0.982|1.000|2.2e-11|4.7e-12|2.6e-04|-4.167102e+00 -4.167366e+00| 0:0:00| chol  2↙
2
16|1.000|0.992|2.8e-11|4.5e-12|2.2e-05|-4.167333e+00 -4.167355e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|3.8e-10|5.5e-12|1.1e-06|-4.167353e+00 -4.167354e+00| 0:0:00| chol  3↙
3
18|0.998|0.991|3.7e-11|2.2e-13|1.3e-08|-4.167354e+00 -4.167354e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.16735393e+00
 dual   objective value = -4.16735393e+00
 gap := trace(XZ)        = 1.31e-08
 relative gap            = 1.41e-09
 actual relative gap     = 2.75e-10
 rel. primal infeas      = 3.73e-11
 rel. dual   infeas      = 2.24e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 9.0e+03, 3.9e+02
```

```
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.7e-11  0.0e+00  3.1e-13  0.0e+00  2.7e-10  1.4e-09
--------------------------------------------------------------------
```

ans =

    4.1674

Epoch... 227
Epoch... 228

```
 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj        dual-obj     cputime
--------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.5e+06| 1.094577e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.5e-07|1.1e-01|2.9e+05| 9.897043e+04 -6.950873e+01| 0:0:00| chol  1✓
1
 2|1.000|0.932|4.1e-08|9.6e-03|3.5e+04| 1.589578e+04  9.968138e+01| 0:0:00| chol  1✓
1
 3|0.506|1.000|2.1e-08|2.5e-03|1.6e+04| 9.909283e+03 -3.676694e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.0e-09|1.2e-03|1.2e+03| 7.259536e+02 -2.281959e+01| 0:0:00| chol  1✓
1
 5|0.880|0.901|7.4e-10|4.6e-04|4.3e+02| 3.361939e+02 -6.195169e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.4e-10|1.1e-04|1.8e+02| 1.655254e+02 -6.699042e+00| 0:0:00| chol  1✓
1
 7|0.900|0.899|2.3e-11|2.1e-05|2.6e+01| 2.130965e+01 -4.257992e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|5.9e-11|1.1e-06|8.9e+00| 4.648356e+00 -4.223535e+00| 0:0:00| chol  1✓
1
 9|0.899|0.899|2.1e-11|2.1e-07|1.0e+00|-3.076567e+00 -4.086538e+00| 0:0:00| chol  1✓
2
10|1.000|1.000|1.7e-11|1.1e-08|4.7e-01|-3.577063e+00 -4.046689e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|1.1e-10|1.1e-09|1.8e-01|-3.863084e+00 -4.041111e+00| 0:0:00| chol  2✓
2
12|0.976|0.916|1.2e-10|2.0e-10|2.8e-02|-4.007075e+00 -4.034854e+00| 0:0:00| chol  2✓
2
13|1.000|1.000|5.4e-11|1.9e-11|1.2e-02|-4.022456e+00 -4.034191e+00| 0:0:00| chol  2✓
2
14|0.940|0.945|3.0e-11|1.3e-11|9.7e-04|-4.032857e+00 -4.033829e+00| 0:0:00| chol  2✓
2
15|0.972|0.989|7.2e-12|6.3e-12|4.4e-05|-4.033765e+00 -4.033809e+00| 0:0:00| chol  2✓
```

```
3
16|1.000|1.000|1.5e-10|1.4e-12|1.4e-06|-4.033807e+00 -4.033808e+00| 0:0:00| chol  3✓
3
17|0.999|0.994|2.2e-11|2.4e-13|1.7e-08|-4.033808e+00 -4.033808e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.03380815e+00
 dual   objective value = -4.03380814e+00
 gap := trace(XZ)       = 1.75e-08
 relative gap           = 1.93e-09
 actual relative gap    = -1.67e-09
 rel. primal infeas     = 2.22e-11
 rel. dual   infeas     = 2.36e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.9e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.8e-11  0.0e+00  3.3e-13  0.0e+00  -1.7e-09  1.9e-09
-------------------------------------------------------------------

ans =

    4.0338

Epoch... 229
Epoch... 230

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.5e+06| 1.067295e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.6e-07|1.1e-01|2.9e+05| 9.670275e+04 -7.500271e+01| 0:0:00| chol  1✓
1
 2|1.000|0.930|4.3e-08|9.7e-03|3.5e+04| 1.554153e+04  1.014256e+02| 0:0:00| chol  1✓
1
 3|0.500|1.000|2.2e-08|2.5e-03|1.6e+04| 9.759929e+03 -3.567258e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|5.8e-09|1.2e-03|1.3e+03| 7.556127e+02 -2.336613e+01| 0:0:00| chol  1✓
1
 5|0.864|0.872|8.1e-10|4.9e-04|4.2e+02| 3.202419e+02 -6.585734e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.6e-10|1.1e-04|1.9e+02| 1.677422e+02 -6.915830e+00| 0:0:00| chol  1✓
1
 7|0.899|0.896|2.7e-11|2.2e-05|2.6e+01| 2.143157e+01 -4.478779e+00| 0:0:00| chol  2✓
```

```
1
 8|1.000|1.000|2.1e-11|1.1e-06|9.1e+00| 4.631816e+00 -4.439291e+00| 0:0:00| chol  1✔
1
 9|0.895|0.894|7.3e-12|2.2e-07|1.1e+00|-3.210157e+00 -4.294446e+00| 0:0:00| chol  1✔
2
10|1.000|1.000|9.1e-13|1.1e-08|5.0e-01|-3.755038e+00 -4.253359e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|1.2e-10|1.1e-09|1.8e-01|-4.065143e+00 -4.244467e+00| 0:0:00| chol  2✔
1
12|0.919|0.919|1.3e-10|2.0e-10|3.4e-02|-4.204195e+00 -4.238425e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|1.3e-10|1.3e-11|1.5e-02|-4.222667e+00 -4.237727e+00| 0:0:00| chol  2✔
2
14|0.920|0.921|3.4e-11|5.5e-12|2.0e-03|-4.235120e+00 -4.237129e+00| 0:0:00| chol  2✔
2
15|1.000|1.000|6.4e-11|5.2e-12|6.7e-04|-4.236404e+00 -4.237076e+00| 0:0:00| chol  2✔
2
16|0.937|0.936|4.4e-11|7.9e-12|6.1e-05|-4.236989e+00 -4.237050e+00| 0:0:00| chol  2✔
2
17|1.000|1.000|2.2e-11|8.9e-12|1.1e-05|-4.237037e+00 -4.237048e+00| 0:0:00| chol  3✔
2
18|1.000|0.995|1.1e-10|3.2e-12|2.4e-07|-4.237047e+00 -4.237048e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.23704734e+00
 dual   objective value = -4.23704755e+00
 gap := trace(XZ)        = 2.43e-07
 relative gap           = 2.57e-08
 actual relative gap    = 2.19e-08
 rel. primal infeas     = 1.06e-10
 rel. dual   infeas     = 3.22e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-10  0.0e+00  4.5e-12  0.0e+00  2.2e-08  2.6e-08
-------------------------------------------------------------------

ans =

    4.2370

Epoch... 231
Epoch... 232

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
```

```
    HKM        1      0.000    1         0
it pstep dstep pinfeas dinfeas  gap        prim-obj        dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.4e+06| 1.051739e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.7e-07|1.1e-01|2.8e+05| 9.521088e+04 -7.378300e+01| 0:0:00| chol  1↙
1
 2|1.000|0.928|4.8e-08|9.8e-03|3.4e+04| 1.542817e+04  1.027456e+02| 0:0:00| chol  1↙
1
 3|0.496|1.000|2.5e-08|2.5e-03|1.6e+04| 9.741980e+03 -3.451557e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|5.8e-09|1.2e-03|1.4e+03| 8.447958e+02 -2.425919e+01| 0:0:00| chol  1↙
1
 5|0.841|0.840|9.3e-10|5.1e-04|4.1e+02| 3.055505e+02 -6.843612e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|1.9e+02| 1.727310e+02 -6.974527e+00| 0:0:00| chol  1↙
1
 7|0.899|0.896|2.3e-11|2.2e-05|2.7e+01| 2.169135e+01 -4.505701e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|5.4e-11|1.1e-06|9.0e+00| 4.519459e+00 -4.484667e+00| 0:0:00| chol  1↙
1
 9|0.900|0.899|1.1e-11|2.1e-07|1.0e+00|-3.345016e+00 -4.346271e+00| 0:0:00| chol  1↙
2
10|1.000|1.000|9.9e-12|1.1e-08|4.6e-01|-3.849914e+00 -4.313186e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|1.2e-10|1.1e-09|1.8e-01|-4.127091e+00 -4.305923e+00| 0:0:00| chol  2↙
2
12|0.908|0.927|1.1e-10|1.9e-10|3.1e-02|-4.269656e+00 -4.300920e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|4.1e-11|1.6e-11|1.3e-02|-4.287752e+00 -4.300445e+00| 0:0:00| chol  2↙
2
14|0.927|0.930|3.3e-11|8.9e-12|1.4e-03|-4.298650e+00 -4.300044e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|9.4e-11|6.7e-12|2.2e-04|-4.299799e+00 -4.300018e+00| 0:0:00| chol  2↙
2
16|0.982|0.982|1.6e-10|1.0e-11|4.1e-06|-4.300008e+00 -4.300012e+00| 0:0:00| chol  3↙
2
17|0.998|0.993|2.1e-11|8.3e-13|5.8e-08|-4.300012e+00 -4.300012e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.30001193e+00
 dual   objective value = -4.30001197e+00
 gap := trace(XZ)       = 5.76e-08
 relative gap           = 6.00e-09
 actual relative gap    = 4.83e-09
 rel. primal infeas     = 2.05e-11
 rel. dual   infeas     = 8.32e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.4e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.7e-11  0.0e+00  1.2e-12  0.0e+00  4.8e-09  6.0e-09
```

```
-----------------------------------------------------------------

ans =

    4.3000

Epoch... 233
Epoch... 234

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-----------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.5e+06| 1.071092e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.8e-07|1.1e-01|2.9e+05| 9.675460e+04 -7.658499e+01| 0:0:00| chol  1✔
1
 2|1.000|0.929|4.8e-08|9.9e-03|3.5e+04| 1.566229e+04  1.036148e+02| 0:0:00| chol  1✔
1
 3|0.497|0.999|2.5e-08|2.5e-03|1.6e+04| 9.877116e+03 -3.460351e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|5.6e-09|1.2e-03|1.5e+03| 8.956700e+02 -2.555355e+01| 0:0:00| chol  1✔
1
 5|0.835|0.830|9.4e-10|5.2e-04|4.1e+02| 3.076692e+02 -7.190042e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.8e-10|1.1e-04|2.0e+02| 1.783180e+02 -7.181483e+00| 0:0:00| chol  1✔
1
 7|0.899|0.895|2.8e-11|2.2e-05|2.8e+01| 2.293509e+01 -4.530489e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.4e-11|1.1e-06|9.6e+00| 5.034422e+00 -4.508086e+00| 0:0:00| chol  1✔
1
 9|0.902|0.902|5.5e-12|2.1e-07|1.0e+00|-3.334488e+00 -4.358554e+00| 0:0:00| chol  1✔
1
10|1.000|1.000|2.7e-11|1.1e-08|4.7e-01|-3.852635e+00 -4.323774e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|8.6e-11|1.1e-09|1.7e-01|-4.146363e+00 -4.316084e+00| 0:0:00| chol  1✔
1
12|0.929|0.922|6.7e-11|1.9e-10|2.6e-02|-4.284706e+00 -4.310824e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|6.7e-11|1.5e-11|1.0e-02|-4.300308e+00 -4.310340e+00| 0:0:00| chol  2✔
2
14|0.918|0.921|1.3e-11|7.8e-12|1.2e-03|-4.308793e+00 -4.310001e+00| 0:0:00| chol  2✔
2
15|1.000|1.000|1.1e-10|2.7e-12|3.9e-04|-4.309587e+00 -4.309973e+00| 0:0:00| chol  2✔
2
16|0.916|0.915|3.6e-10|4.1e-12|4.7e-05|-4.309913e+00 -4.309961e+00| 0:0:00| chol  2✔
3
17|1.000|1.000|8.9e-10|5.9e-12|1.6e-05|-4.309944e+00 -4.309959e+00| 0:0:00| chol  3✔
```

```
2
18|1.000|1.000|2.6e-10|8.8e-12|1.9e-06|-4.309957e+00 -4.309959e+00| 0:0:00| chol  3↙
3
19|1.000|0.984|4.9e-10|1.5e-12|1.0e-07|-4.309959e+00 -4.309959e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.30995867e+00
 dual   objective value = -4.30995876e+00
 gap := trace(XZ)       = 1.03e-07
 relative gap           = 1.07e-08
 actual relative gap    = 9.48e-09
 rel. primal infeas     = 4.92e-10
 rel. dual   infeas     = 1.50e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.3e-10  0.0e+00  2.1e-12  0.0e+00  9.5e-09  1.1e-08
-------------------------------------------------------------------

ans =

    4.3100


Epoch... 235
Epoch... 236

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.3e+06| 1.027412e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|1.8e-07|1.1e-01|2.7e+05| 9.333240e+04 -1.063583e+02| 0:0:00| chol  1↙
1
 2|1.000|0.927|4.6e-08|9.9e-03|3.3e+04| 1.492550e+04  1.036811e+02| 0:0:00| chol  1↙
1
 3|0.487|1.000|2.5e-08|2.5e-03|1.5e+04| 9.545302e+03 -3.585172e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.0e-09|1.2e-03|1.4e+03| 8.383215e+02 -2.450781e+01| 0:0:00| chol  1↙
1
 5|0.843|0.843|9.6e-10|5.1e-04|4.0e+02| 3.017084e+02 -7.309866e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.8e-10|1.1e-04|1.9e+02| 1.702769e+02 -7.304042e+00| 0:0:00| chol  1↙
1
 7|0.898|0.894|2.8e-11|2.2e-05|2.7e+01| 2.178525e+01 -4.834328e+00| 0:0:00| chol  1↙
```

```
 1
  8|1.000|1.000|6.4e-11|1.1e-06|9.4e+00| 4.617231e+00 -4.808336e+00| 0:0:00| chol  1↙
 1
  9|0.900|0.899|1.5e-11|2.1e-07|1.1e+00|-3.604454e+00 -4.657172e+00| 0:0:00| chol  1↙
 1
 10|1.000|1.000|1.3e-10|1.1e-08|4.8e-01|-4.142963e+00 -4.621866e+00| 0:0:00| chol  1↙
 1
 11|1.000|1.000|7.3e-11|1.1e-09|1.7e-01|-4.447321e+00 -4.612363e+00| 0:0:00| chol  1↙
 2
 12|0.917|0.936|5.8e-11|1.8e-10|2.7e-02|-4.580620e+00 -4.607189e+00| 0:0:00| chol  2↙
 2
 13|1.000|1.000|2.7e-11|2.1e-11|9.7e-03|-4.596949e+00 -4.606652e+00| 0:0:00| chol  2↙
 2
 14|0.975|0.968|1.0e-11|7.1e-12|2.8e-04|-4.605973e+00 -4.606253e+00| 0:0:00| chol  2↙
 2
 15|0.988|0.988|7.9e-12|2.1e-12|3.4e-06|-4.606239e+00 -4.606242e+00| 0:0:00| chol  3↙
 3
 16|0.996|0.994|2.7e-11|7.3e-13|5.4e-08|-4.606242e+00 -4.606242e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.60624170e+00
 dual   objective value = -4.60624175e+00
 gap := trace(XZ)       = 5.43e-08
 relative gap           = 5.32e-09
 actual relative gap    = 4.74e-09
 rel. primal infeas     = 2.69e-11
 rel. dual   infeas     = 7.26e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.4e-11  0.0e+00  1.0e-12  0.0e+00  4.7e-09  5.3e-09
-------------------------------------------------------------------

ans =

    4.6062

Epoch... 237
Epoch... 238

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
  0|0.000|0.000|1.0e+00|5.9e+00|3.5e+06| 1.065418e+05  0.000000e+00| 0:0:00| chol  1↙
```

```
1
 1|1.000|0.982|1.7e-07|1.0e-01|2.8e+05| 9.652992e+04 -1.123177e+02| 0:0:00| chol 1↙
1
 2|1.000|0.928|4.5e-08|9.8e-03|3.4e+04| 1.535464e+04  1.020725e+02| 0:0:00| chol 1↙
1
 3|0.494|1.000|2.3e-08|2.5e-03|1.6e+04| 9.722662e+03 -3.705049e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|6.3e-09|1.2e-03|1.3e+03| 7.669962e+02 -2.300310e+01| 0:0:00| chol 1↙
1
 5|0.863|0.878|8.9e-10|4.8e-04|4.1e+02| 3.160731e+02 -6.768995e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.6e-10|1.1e-04|1.8e+02| 1.655051e+02 -7.090658e+00| 0:0:00| chol 1↙
1
 7|0.899|0.897|2.6e-11|2.2e-05|2.6e+01| 2.060246e+01 -4.744581e+00| 0:0:00| chol 1↙
1
 8|1.000|1.000|1.2e-11|1.1e-06|8.6e+00| 3.833091e+00 -4.751727e+00| 0:0:00| chol 1↙
1
 9|0.911|0.910|2.0e-11|2.0e-07|8.3e-01|-3.796119e+00 -4.622959e+00| 0:0:00| chol 1↙
1
10|1.000|1.000|1.6e-10|1.1e-08|3.9e-01|-4.207611e+00 -4.596978e+00| 0:0:00| chol 1↙
2
11|1.000|1.000|9.0e-11|1.1e-09|1.5e-01|-4.443724e+00 -4.592198e+00| 0:0:00| chol 2↙
2
12|0.909|0.911|6.6e-11|2.1e-10|2.7e-02|-4.561363e+00 -4.588401e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|9.2e-11|2.4e-11|1.1e-02|-4.576967e+00 -4.587992e+00| 0:0:00| chol 2↙
2
14|0.953|0.953|2.0e-11|2.0e-11|6.6e-04|-4.587015e+00 -4.587677e+00| 0:0:00| chol 2↙
2
15|0.982|0.981|4.4e-11|4.3e-12|1.3e-05|-4.587651e+00 -4.587664e+00| 0:0:00| chol 2↙
2
16|0.997|1.000|6.5e-11|2.8e-12|2.1e-07|-4.587664e+00 -4.587664e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.58766405e+00
 dual   objective value = -4.58766421e+00
 gap := trace(XZ)       = 2.08e-07
 relative gap           = 2.05e-08
 actual relative gap    = 1.62e-08
 rel. primal infeas     = 6.50e-11
 rel. dual   infeas     = 2.76e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.4e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 8.3e-11  0.0e+00  3.9e-12  0.0e+00  1.6e-08  2.0e-08
-------------------------------------------------------------------


ans =

    4.5877
```

```
Epoch... 239
Epoch... 240

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000    1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.7e+06| 1.152444e+05  0.000000e+00| 0:0:00| chol 1⤡
1
 1|1.000|0.982|1.7e-07|1.1e-01|3.0e+05| 1.036153e+05 -1.052062e+02| 0:0:00| chol 1⤡
1
 2|1.000|0.931|4.5e-08|9.6e-03|3.7e+04| 1.651142e+04  9.909623e+01| 0:0:00| chol 1⤡
1
 3|0.509|1.000|2.2e-08|2.5e-03|1.6e+04| 1.026246e+04 -4.002956e+01| 0:0:00| chol 1⤡
1
 4|0.998|1.000|6.8e-09|1.2e-03|1.3e+03| 7.376915e+02 -2.172696e+01| 0:0:00| chol 1⤡
1
 5|0.890|0.948|7.7e-10|4.2e-04|4.4e+02| 3.505494e+02 -6.151422e+00| 0:0:00| chol 1⤡
1
 6|1.000|1.000|1.0e-10|1.1e-04|1.8e+02| 1.628872e+02 -6.863990e+00| 0:0:00| chol 1⤡
1
 7|0.905|0.907|1.6e-11|2.1e-05|2.5e+01| 2.028266e+01 -4.456800e+00| 0:0:00| chol 1⤡
1
 8|1.000|1.000|1.8e-11|1.1e-06|7.8e+00| 3.381362e+00 -4.453887e+00| 0:0:00| chol 1⤡
1
 9|0.916|0.919|1.3e-11|1.9e-07|7.0e-01|-3.647783e+00 -4.347229e+00| 0:0:00| chol 2⤡
1
10|1.000|0.910|3.5e-10|2.8e-08|3.5e-01|-3.978205e+00 -4.324409e+00| 0:0:00| chol 2⤡
2
11|1.000|1.000|1.6e-10|1.1e-09|1.5e-01|-4.172623e+00 -4.319996e+00| 0:0:00| chol 2⤡
2
12|0.880|0.962|6.5e-11|1.6e-10|2.7e-02|-4.289894e+00 -4.316883e+00| 0:0:00| chol 2⤡
2
13|1.000|1.000|3.5e-11|2.0e-11|1.0e-02|-4.306583e+00 -4.316586e+00| 0:0:00| chol 2⤡
2
14|0.968|0.983|9.5e-12|8.5e-12|3.6e-04|-4.315991e+00 -4.316347e+00| 0:0:00| chol 2⤡
2
15|0.963|0.985|3.2e-11|2.0e-12|1.3e-05|-4.316328e+00 -4.316342e+00| 0:0:00| chol 3⤡
3
16|1.000|1.000|8.6e-10|2.9e-12|1.4e-06|-4.316340e+00 -4.316342e+00| 0:0:00| chol 3⤡
3
17|0.997|0.992|5.5e-12|2.6e-13|1.8e-08|-4.316342e+00 -4.316342e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.31634159e+00
 dual   objective value = -4.31634160e+00
 gap := trace(XZ)        = 1.80e-08
```

```
 relative gap          = 1.87e-09
 actual relative gap   = 1.22e-09
 rel. primal infeas    = 5.52e-12
 rel. dual   infeas    = 2.60e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 7.0e-12  0.0e+00  3.7e-13  0.0e+00  1.2e-09  1.9e-09
-------------------------------------------------------------------


ans =

    4.3163


Epoch... 241
Epoch... 242

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.9e+06| 1.206792e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|1.8e-07|1.1e-01|3.2e+05| 1.080084e+05 -9.421427e+01| 0:0:00| chol  1✓
1
 2|1.000|0.932|4.6e-08|9.5e-03|3.8e+04| 1.728707e+04  9.682449e+01| 0:0:00| chol  1✓
1
 3|0.519|1.000|2.3e-08|2.5e-03|1.7e+04| 1.061012e+04 -4.185794e+01| 0:0:00| chol  1✓
1
 4|0.994|1.000|7.1e-09|1.2e-03|1.3e+03| 7.445027e+02 -2.101036e+01| 0:0:00| chol  1✓
1
 5|0.903|1.000|6.9e-10|3.7e-04|4.6e+02| 3.718768e+02 -6.208715e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|4.4e-11|1.1e-04|1.8e+02| 1.603050e+02 -6.902639e+00| 0:0:00| chol  1✓
1
 7|0.911|0.919|5.3e-12|1.9e-05|2.5e+01| 1.956522e+01 -4.552766e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|1.0e-11|1.1e-06|7.7e+00| 3.167241e+00 -4.520147e+00| 0:0:00| chol  1✓
1
 9|0.912|0.918|4.1e-12|1.9e-07|7.4e-01|-3.685678e+00 -4.425171e+00| 0:0:00| chol  1✓
1
10|1.000|0.901|1.8e-10|2.9e-08|3.7e-01|-4.036479e+00 -4.402857e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|1.6e-10|1.1e-09|1.4e-01|-4.255801e+00 -4.399090e+00| 0:0:00| chol  2✓
1
12|0.961|0.945|5.0e-11|1.7e-10|2.2e-02|-4.373200e+00 -4.395121e+00| 0:0:00| chol  2✓
```

```
2
13|1.000|1.000|2.6e-11|1.5e-11|5.7e-03|-4.389062e+00 -4.394753e+00| 0:0:00| chol  2✔
2
14|0.983|0.981|1.5e-11|6.4e-12|9.9e-05|-4.394508e+00 -4.394607e+00| 0:0:00| chol  2✔
2
15|0.989|0.989|2.4e-12|3.1e-12|1.2e-06|-4.394603e+00 -4.394604e+00| 0:0:00| chol  3✔
3
16|0.996|0.992|1.3e-11|2.8e-13|1.9e-08|-4.394604e+00 -4.394604e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.39460386e+00
 dual   objective value = -4.39460395e+00
 gap := trace(XZ)       = 1.91e-08
 relative gap           = 1.96e-09
 actual relative gap    = 9.73e-09
 rel. primal infeas     = 1.29e-11
 rel. dual   infeas     = 2.77e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.4e+03, 3.9e+02
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.6e-11  0.0e+00  3.9e-13  0.0e+00  9.7e-09  2.0e-09
-------------------------------------------------------------------

ans =

    4.3946

Epoch... 243
Epoch... 244

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.8e+06| 1.187199e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.9e-07|1.1e-01|3.1e+05| 1.064227e+05 -8.225461e+01| 0:0:00| chol  1✔
1
 2|1.000|0.931|4.8e-08|9.5e-03|3.8e+04| 1.712266e+04  9.807256e+01| 0:0:00| chol  1✔
1
 3|0.517|1.000|2.5e-08|2.5e-03|1.7e+04| 1.054019e+04 -4.107637e+01| 0:0:00| chol  1✔
1
 4|0.996|1.000|7.1e-09|1.2e-03|1.3e+03| 7.459597e+02 -2.109525e+01| 0:0:00| chol  1✔
1
 5|0.893|0.970|7.6e-10|4.0e-04|4.5e+02| 3.585628e+02 -6.060168e+00| 0:0:00| chol  1✔
```

```
1
 6|1.000|1.000|5.4e-11|1.1e-04|1.8e+02| 1.623989e+02 -6.890009e+00| 0:0:00| chol  1✓
1
 7|0.908|0.913|6.0e-12|2.0e-05|2.5e+01| 2.000755e+01 -4.468520e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|1.5e-11|1.1e-06|8.1e+00| 3.682375e+00 -4.429994e+00| 0:0:00| chol  1✓
1
 9|0.912|0.916|7.4e-12|2.0e-07|8.0e-01|-3.534798e+00 -4.331892e+00| 0:0:00| chol  2✓
1
10|1.000|0.935|2.9e-10|2.3e-08|3.8e-01|-3.935272e+00 -4.310267e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|1.7e-10|1.1e-09|1.5e-01|-4.161787e+00 -4.306959e+00| 0:0:00| chol  2✓
2
12|0.934|0.939|6.9e-11|1.8e-10|2.1e-02|-4.282415e+00 -4.303390e+00| 0:0:00| chol  2✓
2
13|1.000|1.000|2.7e-11|1.6e-11|3.8e-03|-4.299191e+00 -4.303039e+00| 0:0:00| chol  2✓
2
14|0.986|0.986|1.3e-11|6.8e-12|5.6e-05|-4.302889e+00 -4.302945e+00| 0:0:00| chol  2✓
2
15|0.995|0.999|7.4e-11|2.7e-12|9.1e-07|-4.302942e+00 -4.302943e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -4.30294238e+00
 dual   objective value = -4.30294334e+00
 gap := trace(XZ)       = 9.12e-07
 relative gap           = 9.49e-08
 actual relative gap    = 9.97e-08
 rel. primal infeas     = 7.45e-11
 rel. dual   infeas     = 2.66e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.4e-11  0.0e+00  3.8e-12  0.0e+00  1.0e-07  9.5e-08
-------------------------------------------------------------------

ans =

    4.3029

Epoch... 245
Epoch... 246

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk =  1
 dim. of linear var  = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
    HKM      1       0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj      cputime
```

```
------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.7e+06| 1.168171e+05  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|1.8e-07|1.0e-01|3.1e+05| 1.047973e+05 -7.515753e+01| 0:0:00| chol 1↙
1
 2|1.000|0.930|4.9e-08|9.5e-03|3.8e+04| 1.694447e+04  9.863889e+01| 0:0:00| chol 1↙
1
 3|0.516|1.000|2.6e-08|2.5e-03|1.7e+04| 1.044714e+04 -4.014161e+01| 0:0:00| chol 1↙
1
 4|0.997|1.000|7.1e-09|1.2e-03|1.3e+03| 7.450278e+02 -2.175468e+01| 0:0:00| chol 1↙
1
 5|0.886|0.943|8.3e-10|4.2e-04|4.4e+02| 3.492510e+02 -6.343499e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.1e-10|1.1e-04|1.8e+02| 1.644519e+02 -7.093801e+00| 0:0:00| chol 1↙
1
 7|0.904|0.907|2.0e-11|2.1e-05|2.5e+01| 2.015636e+01 -4.672547e+00| 0:0:00| chol 1↙
1
 8|1.000|1.000|1.3e-11|1.1e-06|8.5e+00| 3.900286e+00 -4.628033e+00| 0:0:00| chol 1↙
1
 9|0.909|0.912|2.4e-11|2.0e-07|8.9e-01|-3.634463e+00 -4.521216e+00| 0:0:00| chol 2↙
2
10|1.000|0.934|4.2e-11|2.4e-08|4.1e-01|-4.083706e+00 -4.495287e+00| 0:0:00| chol 2↙
2
11|1.000|1.000|2.3e-10|1.1e-09|1.8e-01|-4.313996e+00 -4.490626e+00| 0:0:00| chol 2↙
2
12|0.898|0.951|1.1e-10|1.7e-10|3.0e-02|-4.456408e+00 -4.486570e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|6.3e-11|2.4e-11|1.0e-02|-4.476250e+00 -4.486244e+00| 0:0:00| chol 2↙
2
14|0.975|0.981|2.0e-11|1.4e-11|2.8e-04|-4.485710e+00 -4.485991e+00| 0:0:00| chol 2↙
2
15|0.979|0.987|4.8e-11|4.2e-12|5.9e-06|-4.485979e+00 -4.485985e+00| 0:0:00| chol 3↙
3
16|1.000|1.000|2.1e-10|4.5e-12|3.5e-07|-4.485985e+00 -4.485985e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.48598472e+00
 dual   objective value = -4.48598522e+00
 gap := trace(XZ)        = 3.45e-07
 relative gap           = 3.46e-08
 actual relative gap    = 4.99e-08
 rel. primal infeas     = 2.14e-10
 rel. dual   infeas     = 4.55e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 2.7e-10  0.0e+00  6.4e-12  0.0e+00  5.0e-08  3.5e-08
------------------------------------------------------------------


ans =
```

```
     4.4860


Epoch... 247
Epoch... 248

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.8e+06| 1.174776e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|1.9e-07|1.0e-01|3.1e+05| 1.053139e+05 -6.225146e+01| 0:0:00| chol  1✔
1
 2|1.000|0.930|5.1e-08|9.5e-03|3.8e+04| 1.713692e+04  9.854965e+01| 0:0:00| chol  1✔
1
 3|0.518|1.000|2.7e-08|2.5e-03|1.7e+04| 1.053221e+04 -4.039246e+01| 0:0:00| chol  1✔
1
 4|0.998|1.000|6.9e-09|1.2e-03|1.3e+03| 7.563563e+02 -2.247248e+01| 0:0:00| chol  1✔
1
 5|0.880|0.928|8.4e-10|4.4e-04|4.4e+02| 3.479814e+02 -6.516314e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.1e-10|1.1e-04|1.9e+02| 1.675194e+02 -7.148780e+00| 0:0:00| chol  1✔
1
 7|0.902|0.904|1.8e-11|2.1e-05|2.6e+01| 2.085821e+01 -4.678338e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.6e-11|1.1e-06|9.1e+00| 4.462055e+00 -4.605169e+00| 0:0:00| chol  1✔
1
 9|0.901|0.905|1.1e-11|2.1e-07|1.1e+00|-3.413824e+00 -4.486486e+00| 0:0:00| chol  1✔
2
10|1.000|0.972|6.9e-12|1.7e-08|4.9e-01|-3.969359e+00 -4.454293e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|2.6e-10|1.1e-09|2.1e-01|-4.241647e+00 -4.448618e+00| 0:0:00| chol  2✔
1
12|0.970|0.938|1.7e-10|1.8e-10|3.9e-02|-4.402721e+00 -4.442119e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|1.0e-10|1.4e-11|1.7e-02|-4.424171e+00 -4.441399e+00| 0:0:00| chol  2✔
2
14|0.947|0.954|4.9e-11|6.4e-12|1.3e-03|-4.439545e+00 -4.440887e+00| 0:0:00| chol  2✔
2
15|0.969|0.983|6.4e-11|7.2e-12|4.8e-05|-4.440810e+00 -4.440858e+00| 0:0:00| chol  2✔
3
16|1.000|1.000|3.0e-11|1.0e-11|1.6e-06|-4.440856e+00 -4.440857e+00| 0:0:00| chol  3✔
3
17|0.998|0.990|1.5e-11|3.5e-13|1.9e-08|-4.440857e+00 -4.440857e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.44085729e+00
```

```
 dual    objective value = -4.44085729e+00
 gap := trace(XZ)        = 1.92e-08
 relative gap            = 1.94e-09
 actual relative gap     = -5.00e-10
 rel. primal infeas      = 1.54e-11
 rel. dual   infeas      = 3.54e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs)   = 0.08
 CPU time per iteration = 0.00
 termination code        =   0
 DIMACS errors: 2.0e-11  0.0e+00  5.0e-13  0.0e+00  -5.0e-10  1.9e-09
-------------------------------------------------------------------
```

ans =

    4.4409

Epoch... 249
Epoch... 250

```
 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version   predcorr  gam  expon   scale_data
   HKM       1       0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.7e+06| 1.142376e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.0e-07|1.0e-01|3.0e+05| 1.025121e+05 -4.738674e+01| 0:0:00| chol  1✓
1
 2|1.000|0.928|5.8e-08|9.8e-03|3.8e+04| 1.689768e+04  1.008734e+02| 0:0:00| chol  1✓
1
 3|0.514|1.000|3.1e-08|2.5e-03|1.7e+04| 1.045520e+04 -3.793037e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.5e-09|1.2e-03|1.5e+03| 8.712018e+02 -2.453318e+01| 0:0:00| chol  1✓
1
 5|0.842|0.850|1.0e-09|5.0e-04|4.2e+02| 3.184486e+02 -6.993570e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.3e-10|1.1e-04|2.0e+02| 1.783630e+02 -7.038054e+00| 0:0:00| chol  1✓
1
 7|0.899|0.896|2.0e-11|2.2e-05|2.7e+01| 2.200103e+01 -4.594910e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|6.4e-11|1.1e-06|9.5e+00| 4.962876e+00 -4.524643e+00| 0:0:00| chol  1✓
1
 9|0.898|0.897|4.7e-11|2.2e-07|1.2e+00|-3.207897e+00 -4.394887e+00| 0:0:00| chol  2✓
1
10|1.000|1.000|3.0e-10|1.1e-08|5.1e-01|-3.846690e+00 -4.360629e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|2.8e-10|1.1e-09|2.3e-01|-4.125599e+00 -4.352684e+00| 0:0:00| chol  2✓
```

```
2
12|0.906|0.944|2.2e-10|1.9e-10|4.8e-02|-4.298011e+00 -4.346360e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|1.1e-10|4.1e-11|2.2e-02|-4.323529e+00 -4.345591e+00| 0:0:00| chol  2↙
2
14|0.928|0.933|7.9e-11|2.6e-11|2.9e-03|-4.341868e+00 -4.344809e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|8.7e-11|1.6e-11|8.1e-04|-4.343940e+00 -4.344746e+00| 0:0:00| chol  2↙
2
16|0.945|0.942|2.4e-11|1.8e-11|6.9e-05|-4.344654e+00 -4.344723e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|5.8e-11|4.9e-12|1.0e-05|-4.344711e+00 -4.344722e+00| 0:0:00| chol  3↙
3
18|1.000|0.998|2.4e-11|1.9e-12|1.4e-07|-4.344721e+00 -4.344721e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.34472118e+00
 dual   objective value = -4.34472130e+00
 gap := trace(XZ)       = 1.44e-07
 relative gap           = 1.48e-08
 actual relative gap    = 1.29e-08
 rel. primal infeas     = 2.44e-11
 rel. dual   infeas     = 1.91e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.2e-11  0.0e+00  2.7e-12  0.0e+00  1.3e-08  1.5e-08
-------------------------------------------------------------------

ans =

    4.3447

Epoch... 251
Epoch... 252

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.7e+06| 1.147867e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.1e-01|3.0e+05| 1.029160e+05 -4.131495e+01| 0:0:00| chol  1↙
1
 2|1.000|0.928|5.8e-08|9.8e-03|3.8e+04| 1.702127e+04  1.010197e+02| 0:0:00| chol  1↙
```

```
 1
  3|0.515|1.000|3.1e-08|2.5e-03|1.7e+04| 1.051663e+04 -3.748519e+01| 0:0:00| chol  1↙
 1
  4|1.000|1.000|6.4e-09|1.2e-03|1.5e+03| 9.157032e+02 -2.517679e+01| 0:0:00| chol  1↙
 1
  5|0.835|0.840|1.1e-09|5.1e-04|4.2e+02| 3.142014e+02 -7.199495e+00| 0:0:00| chol  1↙
 1
  6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.810022e+02 -7.103662e+00| 0:0:00| chol  1↙
 1
  7|0.899|0.896|2.2e-11|2.2e-05|2.8e+01| 2.251807e+01 -4.617737e+00| 0:0:00| chol  1↙
 1
  8|1.000|1.000|9.5e-11|1.1e-06|9.8e+00| 5.224516e+00 -4.542616e+00| 0:0:00| chol  1↙
 1
  9|0.898|0.898|1.6e-11|2.1e-07|1.2e+00|-3.183503e+00 -4.410346e+00| 0:0:00| chol  2↙
 2
 10|1.000|1.000|4.8e-12|1.1e-08|5.2e-01|-3.861141e+00 -4.378049e+00| 0:0:00| chol  2↙
 2
 11|1.000|1.000|3.0e-10|1.1e-09|2.1e-01|-4.157688e+00 -4.369603e+00| 0:0:00| chol  2↙
 2
 12|0.929|0.957|2.2e-10|1.6e-10|4.5e-02|-4.319000e+00 -4.363718e+00| 0:0:00| chol  2↙
 2
 13|1.000|1.000|1.2e-10|1.3e-11|2.0e-02|-4.342672e+00 -4.362988e+00| 0:0:00| chol  2↙
 2
 14|0.927|0.930|7.8e-11|5.4e-12|2.6e-03|-4.359662e+00 -4.362265e+00| 0:0:00| chol  2↙
 2
 15|1.000|1.000|7.1e-11|5.2e-12|7.0e-04|-4.361494e+00 -4.362198e+00| 0:0:00| chol  2↙
 2
 16|0.927|0.925|3.1e-11|8.0e-12|8.6e-05|-4.362089e+00 -4.362175e+00| 0:0:00| chol  3↙
 3
 17|1.000|1.000|4.4e-10|6.2e-12|2.5e-05|-4.362148e+00 -4.362173e+00| 0:0:00| chol  3↙
 3
 18|1.000|1.000|3.4e-10|9.3e-12|3.8e-06|-4.362168e+00 -4.362172e+00| 0:0:00| chol  3↙
 3
 19|1.000|0.985|1.3e-10|3.8e-12|2.7e-07|-4.362172e+00 -4.362172e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.36217182e+00
 dual   objective value = -4.36217196e+00
 gap := trace(XZ)       = 2.74e-07
 relative gap           = 2.82e-08
 actual relative gap    = 1.46e-08
 rel. primal infeas     = 1.33e-10
 rel. dual   infeas     = 3.75e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs) = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.7e-10  0.0e+00  5.3e-12  0.0e+00  1.5e-08  2.8e-08
-------------------------------------------------------------------


ans =
```

```
     4.3622


Epoch... 253
Epoch... 254

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
***********************************************************************
   SDPT3: Infeasible path-following algorithms
***********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.7e+06| 1.154898e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.0e-07|1.1e-01|3.1e+05| 1.034986e+05 -3.261529e+01| 0:0:00| chol  1✔
1
 2|1.000|0.928|5.7e-08|9.8e-03|3.8e+04| 1.716024e+04  1.017008e+02| 0:0:00| chol  1✔
1
 3|0.517|1.000|3.1e-08|2.5e-03|1.7e+04| 1.056875e+04 -3.701373e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.3e-09|1.2e-03|1.5e+03| 9.226259e+02 -2.531956e+01| 0:0:00| chol  1✔
1
 5|0.835|0.838|1.1e-09|5.1e-04|4.2e+02| 3.145844e+02 -7.177946e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.1e-10|1.1e-04|2.0e+02| 1.818127e+02 -7.091604e+00| 0:0:00| chol  1✔
1
 7|0.899|0.896|1.8e-11|2.2e-05|2.8e+01| 2.274281e+01 -4.573226e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|7.2e-11|1.1e-06|9.9e+00| 5.371243e+00 -4.494504e+00| 0:0:00| chol  1✔
1
 9|0.898|0.898|1.3e-11|2.1e-07|1.2e+00|-3.117695e+00 -4.362059e+00| 0:0:00| chol  2✔
2
10|1.000|1.000|5.0e-12|1.1e-08|5.1e-01|-3.817777e+00 -4.331469e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|3.1e-10|1.1e-09|2.0e-01|-4.124848e+00 -4.322737e+00| 0:0:00| chol  2✔
2
12|0.951|0.971|2.2e-10|1.4e-10|4.1e-02|-4.276665e+00 -4.317321e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|1.4e-10|1.3e-11|1.8e-02|-4.298465e+00 -4.316646e+00| 0:0:00| chol  2✔
2
14|0.927|0.928|7.5e-11|5.4e-12|2.3e-03|-4.313750e+00 -4.316011e+00| 0:0:00| chol  2✔
2
15|1.000|1.000|6.1e-11|5.2e-12|6.0e-04|-4.315351e+00 -4.315955e+00| 0:0:00| chol  2✔
2
16|0.925|0.924|4.7e-11|8.0e-12|7.7e-05|-4.315859e+00 -4.315936e+00| 0:0:00| chol  3✔
3
17|1.000|1.000|1.3e-10|9.5e-12|2.6e-05|-4.315909e+00 -4.315934e+00| 0:0:00| chol  3✔
3
18|1.000|1.000|2.7e-10|1.4e-11|4.1e-06|-4.315930e+00 -4.315933e+00| 0:0:00| chol  3✔
4
19|1.000|0.960|3.1e-10|1.0e-11|7.4e-07|-4.315933e+00 -4.315933e+00| 0:0:00|
```

```
  stop: max(relative gap, infeasibilities) < 1.00e-07
 --------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.31593267e+00
 dual   objective value = -4.31593335e+00
 gap := trace(XZ)       = 7.35e-07
 relative gap           = 7.63e-08
 actual relative gap    = 7.08e-08
 rel. primal infeas     = 3.09e-10
 rel. dual   infeas     = 1.03e-11
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.0e-10  0.0e+00  1.4e-11  0.0e+00  7.1e-08  7.6e-08
 --------------------------------------------------------------------


ans =

    4.3159


Epoch... 255
Epoch... 256


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
 **********************************************************************
    SDPT3: Infeasible path-following algorithms
 **********************************************************************
 version  predcorr  gam  expon  scale_data
    HKM       1      0.000   1       0
 it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
 --------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.7e+06| 1.161016e+05  0.000000e+00| 0:0:00| chol  1✓
 1
 1|1.000|0.982|2.0e-07|1.1e-01|3.1e+05| 1.039622e+05 -2.750752e+01| 0:0:00| chol  1✓
 1
 2|1.000|0.928|5.7e-08|9.9e-03|3.8e+04| 1.728583e+04  1.022333e+02| 0:0:00| chol  1✓
 1
 3|0.518|1.000|3.1e-08|2.5e-03|1.7e+04| 1.063144e+04 -3.672762e+01| 0:0:00| chol  1✓
 1
 4|1.000|1.000|6.2e-09|1.2e-03|1.6e+03| 9.493947e+02 -2.609362e+01| 0:0:00| chol  1✓
 1
 5|0.832|0.833|1.1e-09|5.2e-04|4.2e+02| 3.139930e+02 -7.473386e+00| 0:0:00| chol  1✓
 1
 6|1.000|1.000|1.2e-10|1.1e-04|2.0e+02| 1.837012e+02 -7.341410e+00| 0:0:00| chol  1✓
 1
 7|0.899|0.895|1.9e-11|2.2e-05|2.8e+01| 2.308589e+01 -4.738140e+00| 0:0:00| chol  1✓
 1
 8|1.000|1.000|9.8e-12|1.1e-06|1.0e+01| 5.535543e+00 -4.640993e+00| 0:0:00| chol  1✓
 1
 9|0.896|0.897|1.8e-11|2.2e-07|1.3e+00|-3.160228e+00 -4.503680e+00| 0:0:00| chol  2✓
```

```
2
10|1.000|1.000|1.1e-11|1.1e-08|5.4e-01|-3.934773e+00 -4.474609e+00| 0:0:00| chol  2↙
2
11|1.000|1.000|3.3e-10|1.1e-09|1.6e-01|-4.299694e+00 -4.463205e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|2.1e-10|1.2e-10|5.4e-02|-4.405694e+00 -4.459226e+00| 0:0:00| chol  2↙
2
13|0.984|1.000|1.3e-10|1.6e-11|8.9e-03|-4.448626e+00 -4.457547e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|5.9e-11|8.3e-12|3.2e-03|-4.454179e+00 -4.457336e+00| 0:0:00| chol  2↙
2
15|0.930|0.933|3.0e-11|1.1e-11|3.0e-04|-4.456924e+00 -4.457225e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|1.6e-10|6.0e-12|3.5e-05|-4.457179e+00 -4.457213e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|4.8e-11|9.1e-12|1.6e-06|-4.457210e+00 -4.457212e+00| 0:0:00| chol  3↙
3
18|0.998|0.990|9.6e-12|3.8e-13|2.2e-08|-4.457212e+00 -4.457212e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.45721187e+00
 dual   objective value = -4.45721189e+00
 gap := trace(XZ)       = 2.23e-08
 relative gap           = 2.25e-09
 actual relative gap    = 2.30e-09
 rel. primal infeas     = 9.57e-12
 rel. dual   infeas     = 3.81e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.2e-11  0.0e+00  5.4e-13  0.0e+00  2.3e-09  2.2e-09
-------------------------------------------------------------------

ans =

    4.4572

Epoch... 257
Epoch... 258

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.7e+06| 1.154587e+05  0.000000e+00| 0:0:00| chol  1↙
```

```
1
 1|1.000|0.982|2.1e-07|1.1e-01|3.1e+05| 1.034495e+05 -2.550370e+01| 0:0:00| chol  1↙
1
 2|1.000|0.928|5.7e-08|1.0e-02|3.8e+04| 1.722393e+04  1.039512e+02| 0:0:00| chol  1↙
1
 3|0.515|1.000|3.1e-08|2.5e-03|1.7e+04| 1.064010e+04 -3.634755e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.1e-09|1.2e-03|1.6e+03| 1.015711e+03 -2.720644e+01| 0:0:00| chol  1↙
1
 5|0.828|0.827|1.1e-09|5.2e-04|4.2e+02| 3.093779e+02 -7.851194e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.7e-10|1.1e-04|2.1e+02| 1.858147e+02 -7.586377e+00| 0:0:00| chol  1↙
1
 7|0.900|0.896|2.7e-11|2.2e-05|2.9e+01| 2.395961e+01 -4.817941e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|9.0e-11|1.1e-06|1.1e+01| 6.136388e+00 -4.681257e+00| 0:0:00| chol  1↙
1
 9|0.892|0.895|4.3e-11|2.2e-07|1.5e+00|-2.986112e+00 -4.528090e+00| 0:0:00| chol  2↙
2
10|1.000|1.000|3.7e-12|1.1e-08|6.2e-01|-3.869344e+00 -4.491074e+00| 0:0:00| chol  2↙
2
11|0.993|1.000|3.9e-10|1.1e-09|1.6e-01|-4.311141e+00 -4.472146e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.7e-10|1.1e-10|7.1e-02|-4.396235e+00 -4.466770e+00| 0:0:00| chol  2↙
2
13|0.973|0.857|8.7e-11|2.8e-11|4.3e-03|-4.460060e+00 -4.464314e+00| 0:0:00| chol  2↙
2
14|0.974|0.980|1.7e-11|5.0e-12|1.2e-04|-4.463824e+00 -4.463945e+00| 0:0:00| chol  2↙
2
15|0.983|0.986|2.9e-12|3.4e-12|2.1e-06|-4.463934e+00 -4.463936e+00| 0:0:00| chol  3↙
2
16|1.000|0.996|8.6e-11|1.0e-12|1.5e-07|-4.463936e+00 -4.463936e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.46393593e+00
 dual   objective value = -4.46393608e+00
 gap := trace(XZ)       = 1.49e-07
 relative gap           = 1.50e-08
 actual relative gap    = 1.55e-08
 rel. primal infeas     = 8.64e-11
 rel. dual   infeas     = 1.02e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 1.1e-10  0.0e+00  1.4e-12  0.0e+00  1.5e-08  1.5e-08
-------------------------------------------------------------------


ans =

    4.4639
```

```
Epoch... 259
Epoch... 260

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.6e+06| 1.139202e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.1e-07|1.1e-01|3.0e+05| 1.021923e+05 -2.476637e+01| 0:0:00| chol  1✓
1
 2|1.000|0.927|5.6e-08|1.0e-02|3.8e+04| 1.703178e+04  1.045805e+02| 0:0:00| chol  1✓
1
 3|0.513|1.000|3.1e-08|2.5e-03|1.7e+04| 1.055114e+04 -3.587794e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.0e-09|1.2e-03|1.6e+03| 1.001300e+03 -2.690647e+01| 0:0:00| chol  1✓
1
 5|0.830|0.828|1.0e-09|5.2e-04|4.2e+02| 3.068424e+02 -7.860493e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.830037e+02 -7.675134e+00| 0:0:00| chol  1✓
1
 7|0.900|0.895|2.3e-11|2.2e-05|2.9e+01| 2.345485e+01 -4.945544e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|7.2e-11|1.1e-06|1.1e+01| 6.022969e+00 -4.793063e+00| 0:0:00| chol  1✓
1
 9|0.891|0.894|3.4e-11|2.2e-07|1.6e+00|-3.024407e+00 -4.638265e+00| 0:0:00| chol  2✓
2
10|1.000|1.000|3.8e-12|1.1e-08|6.4e-01|-3.956814e+00 -4.601072e+00| 0:0:00| chol  2✓
2
11|0.925|0.954|3.8e-10|1.6e-09|1.6e-01|-4.414793e+00 -4.579026e+00| 0:0:00| chol  2✓
2
12|1.000|1.000|1.7e-10|1.1e-10|7.7e-02|-4.497177e+00 -4.574608e+00| 0:0:00| chol  2✓
1
13|0.971|0.823|9.7e-11|3.2e-11|4.3e-03|-4.566928e+00 -4.571251e+00| 0:0:00| chol  2✓
2
14|1.000|0.939|3.9e-11|6.4e-12|5.0e-04|-4.570308e+00 -4.570813e+00| 0:0:00| chol  2✓
2
15|0.976|0.986|1.1e-11|5.2e-12|1.1e-05|-4.570754e+00 -4.570765e+00| 0:0:00| chol  3✓
3
16|1.000|1.000|4.5e-11|2.1e-12|4.6e-07|-4.570764e+00 -4.570765e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.57076420e+00
 dual   objective value = -4.57076457e+00
 gap := trace(XZ)       = 4.58e-07
 relative gap           = 4.52e-08
 actual relative gap    = 3.72e-08
```

```
 rel. primal infeas     = 4.52e-11
 rel. dual   infeas     = 2.15e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs) = 0.08
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 5.9e-11  0.0e+00  3.0e-12  0.0e+00  3.7e-08  4.5e-08
-------------------------------------------------------------------


ans =

    4.5708


Epoch... 261
Epoch... 262


 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version   predcorr  gam   expon   scale_data
   HKM        1      0.000    1         0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.6e+06| 1.134447e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.981|2.2e-07|1.1e-01|3.0e+05| 1.017644e+05 -2.189182e+01| 0:0:00| chol  1✔
1
 2|1.000|0.926|5.8e-08|1.0e-02|3.8e+04| 1.702178e+04  1.061989e+02| 0:0:00| chol  1✔
1
 3|0.511|0.998|3.2e-08|2.5e-03|1.7e+04| 1.059011e+04 -3.507589e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.1e-09|1.2e-03|1.7e+03| 1.070773e+03 -2.768844e+01| 0:0:00| chol  1✔
1
 5|0.829|0.827|1.1e-09|5.2e-04|4.2e+02| 3.066456e+02 -7.959435e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.1e+02| 1.863978e+02 -7.718246e+00| 0:0:00| chol  1✔
1
 7|0.905|0.899|2.5e-11|2.1e-05|3.0e+01| 2.424050e+01 -4.820802e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|5.6e-11|1.1e-06|1.1e+01| 6.498774e+00 -4.638616e+00| 0:0:00| chol  1✔
1
 9|0.889|0.896|1.7e-11|2.2e-07|1.7e+00|-2.760404e+00 -4.478924e+00| 0:0:00| chol  2✔
1
10|1.000|1.000|2.3e-10|1.1e-08|6.9e-01|-3.754650e+00 -4.442004e+00| 0:0:00| chol  2✔
2
11|0.873|0.901|3.8e-10|2.1e-09|1.7e-01|-4.244672e+00 -4.417697e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|1.8e-10|1.2e-10|8.2e-02|-4.331008e+00 -4.412599e+00| 0:0:00| chol  2✔
2
13|0.958|0.912|8.8e-11|3.2e-11|4.7e-03|-4.403834e+00 -4.408522e+00| 0:0:00| chol  2✔
```

```
2
14|0.942|0.926|3.2e-11|2.0e-11|3.3e-04|-4.407893e+00 -4.408219e+00| 0:0:00| chol  2↙
2
15|1.000|0.894|1.1e-10|8.5e-12|6.0e-05|-4.408139e+00 -4.408199e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|6.4e-11|9.5e-12|1.3e-05|-4.408182e+00 -4.408194e+00| 0:0:00| chol  2↙
3
17|1.000|0.996|4.0e-11|2.1e-12|1.6e-07|-4.408193e+00 -4.408193e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.40819323e+00
 dual   objective value = -4.40819338e+00
 gap := trace(XZ)       = 1.62e-07
 relative gap           = 1.65e-08
 actual relative gap    = 1.46e-08
 rel. primal infeas     = 3.95e-11
 rel. dual   infeas     = 2.13e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.2e-11  0.0e+00  3.0e-12  0.0e+00  1.5e-08  1.7e-08
-------------------------------------------------------------------

ans =

    4.4082


Epoch... 263
Epoch... 264

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk =  1
 dim. of linear var = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.4e+06| 1.067331e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.2e-07|1.0e-01|2.8e+05| 9.632566e+04 -3.034664e+01| 0:0:00| chol  1↙
1
 2|1.000|0.923|5.9e-08|1.0e-02|3.6e+04| 1.610773e+04  1.081412e+02| 0:0:00| chol  1↙
1
 3|0.500|0.998|3.4e-08|2.5e-03|1.6e+04| 1.021276e+04 -3.480014e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.3e-09|1.2e-03|1.7e+03| 1.086189e+03 -2.749391e+01| 0:0:00| chol  1↙
1
 5|0.831|0.830|1.1e-09|5.2e-04|4.0e+02| 2.936367e+02 -8.125752e+00| 0:0:00| chol  1↙
```

```
 1
  6|1.000|1.000|1.2e-10|1.1e-04|2.0e+02| 1.802924e+02 -7.797960e+00| 0:0:00| chol  1↙
 1
  7|0.911|0.903|2.0e-11|2.1e-05|2.9e+01| 2.349575e+01 -4.962976e+00| 0:0:00| chol  1↙
 1
  8|1.000|1.000|1.2e-10|1.1e-06|1.1e+01| 6.250386e+00 -4.782002e+00| 0:0:00| chol  1↙
 1
  9|0.891|0.898|2.8e-11|2.1e-07|1.7e+00|-2.969480e+00 -4.623027e+00| 0:0:00| chol  2↙
 2
 10|1.000|1.000|3.4e-12|1.1e-08|6.5e-01|-3.936805e+00 -4.585941e+00| 0:0:00| chol  2↙
 2
 11|0.882|0.915|3.9e-10|2.0e-09|1.6e-01|-4.401811e+00 -4.562604e+00| 0:0:00| chol  2↙
 2
 12|1.000|1.000|1.7e-10|1.1e-10|7.4e-02|-4.483987e+00 -4.557947e+00| 0:0:00| chol  2↙
 2
 13|0.963|0.892|8.3e-11|2.5e-11|3.7e-03|-4.550630e+00 -4.554341e+00| 0:0:00| chol  2↙
 2
 14|0.922|0.896|4.0e-11|6.9e-12|4.2e-04|-4.553618e+00 -4.554040e+00| 0:0:00| chol  2↙
 2
 15|1.000|0.896|2.5e-10|5.8e-12|1.6e-04|-4.553859e+00 -4.554018e+00| 0:0:00| chol  3↙
 3
 16|1.000|1.000|2.7e-10|7.6e-12|5.7e-05|-4.553955e+00 -4.554011e+00| 0:0:00| chol  3↙
 3
 17|1.000|1.000|1.5e-10|1.1e-11|1.3e-05|-4.553996e+00 -4.554009e+00| 0:0:00| chol  3↙
 3
 18|1.000|0.993|7.4e-11|1.7e-11|1.8e-06|-4.554006e+00 -4.554008e+00| 0:0:00| chol  3↙
 3
 19|1.000|0.970|1.0e-10|5.1e-12|3.6e-07|-4.554008e+00 -4.554008e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.55400773e+00
 dual   objective value = -4.55400805e+00
 gap := trace(XZ)        = 3.56e-07
 relative gap            = 3.52e-08
 actual relative gap     = 3.19e-08
 rel. primal infeas      = 1.04e-10
 rel. dual   infeas      = 5.10e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.8e+03, 3.9e+02
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.4e-10  0.0e+00  7.2e-12  0.0e+00  3.2e-08  3.5e-08
-----------------------------------------------------------------


ans =

    4.5540

Epoch... 265
Epoch... 266

 num. of constraints = 15
```

```
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
******************************************************************
   SDPT3: Infeasible path-following algorithms
******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj       dual-obj     cputime
-----------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.5e+06| 1.084812e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.2e-07|1.0e-01|2.9e+05| 9.776607e+04 -3.026742e+01| 0:0:00| chol  1✓
1
 2|1.000|0.924|5.8e-08|1.0e-02|3.6e+04| 1.631797e+04  1.081517e+02| 0:0:00| chol  1✓
1
 3|0.502|0.998|3.3e-08|2.5e-03|1.6e+04| 1.030590e+04 -3.477674e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.072645e+03 -2.731287e+01| 0:0:00| chol  1✓
1
 5|0.831|0.829|1.1e-09|5.2e-04|4.0e+02| 2.958389e+02 -7.996491e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.0e+02| 1.810838e+02 -7.676798e+00| 0:0:00| chol  1✓
1
 7|0.908|0.901|2.3e-11|2.1e-05|2.9e+01| 2.374592e+01 -4.854220e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|2.6e-11|1.1e-06|1.1e+01| 6.300665e+00 -4.700491e+00| 0:0:00| chol  1✓
1
 9|0.892|0.897|3.0e-11|2.2e-07|1.6e+00|-2.981066e+00 -4.544374e+00| 0:0:00| chol  2✓
2
10|1.000|1.000|6.2e-12|1.1e-08|6.0e-01|-3.915857e+00 -4.511797e+00| 0:0:00| chol  2✓
2
11|0.888|0.920|4.0e-10|1.9e-09|1.5e-01|-4.338785e+00 -4.491956e+00| 0:0:00| chol  2✓
2
12|1.000|1.000|1.9e-10|1.1e-10|7.3e-02|-4.415120e+00 -4.487808e+00| 0:0:00| chol  2✓
2
13|0.960|0.867|1.0e-10|2.8e-11|4.4e-03|-4.480045e+00 -4.484494e+00| 0:0:00| chol  2✓
2
14|0.962|0.888|4.2e-11|8.3e-12|7.0e-04|-4.483483e+00 -4.484185e+00| 0:0:00| chol  2✓
2
15|1.000|1.000|1.3e-11|6.3e-12|1.2e-04|-4.484021e+00 -4.484138e+00| 0:0:00| chol  2✓
2
16|0.982|0.988|1.3e-11|2.6e-12|2.1e-06|-4.484131e+00 -4.484133e+00| 0:0:00| chol  3✓
3
17|1.000|1.000|2.6e-10|1.6e-12|1.2e-07|-4.484133e+00 -4.484133e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.48413332e+00
 dual   objective value = -4.48413327e+00
 gap := trace(XZ)       = 1.20e-07
 relative gap           = 1.21e-08
 actual relative gap    = -4.28e-09
 rel. primal infeas     = 2.59e-10
 rel. dual  infeas      = 1.57e-12
```

```
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.9e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.4e-10  0.0e+00  2.2e-12  0.0e+00  -4.3e-09  1.2e-08
-------------------------------------------------------------------
```

ans =

    4.4841

Epoch... 267
Epoch... 268

```
 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.5e+06| 1.071453e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.2e-07|1.0e-01|2.9e+05| 9.667371e+04 -3.263452e+01| 0:0:00| chol  1↙
1
 2|1.000|0.923|5.7e-08|1.0e-02|3.6e+04| 1.612156e+04  1.096719e+02| 0:0:00| chol  1↙
1
 3|0.498|0.995|3.3e-08|2.5e-03|1.6e+04| 1.023060e+04 -3.357188e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.3e-09|1.2e-03|1.7e+03| 1.060991e+03 -2.692611e+01| 0:0:00| chol  1↙
1
 5|0.832|0.829|1.1e-09|5.2e-04|4.0e+02| 2.944577e+02 -7.968998e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.3e-10|1.1e-04|2.0e+02| 1.800117e+02 -7.717092e+00| 0:0:00| chol  1↙
1
 7|0.907|0.898|2.2e-11|2.1e-05|2.9e+01| 2.363054e+01 -4.894617e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|8.7e-11|1.1e-06|1.1e+01| 6.189314e+00 -4.759360e+00| 0:0:00| chol  1↙
1
 9|0.893|0.897|2.1e-11|2.2e-07|1.5e+00|-3.110700e+00 -4.605060e+00| 0:0:00| chol  2↙
2
10|1.000|1.000|1.9e-12|1.1e-08|5.5e-01|-4.031055e+00 -4.577234e+00| 0:0:00| chol  2↙
2
11|0.877|0.893|3.9e-10|2.2e-09|1.4e-01|-4.418303e+00 -4.560042e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|2.1e-10|1.1e-10|6.9e-02|-4.487361e+00 -4.556291e+00| 0:0:00| chol  2↙
2
13|0.947|0.881|1.2e-10|2.6e-11|5.7e-03|-4.547563e+00 -4.553283e+00| 0:0:00| chol  1↙
2
14|1.000|0.941|3.4e-11|5.9e-12|7.0e-04|-4.552336e+00 -4.553035e+00| 0:0:00| chol  2↙
```

```
2
15|0.978|0.985|1.5e-11|5.2e-12|1.5e-05|-4.552971e+00 -4.552986e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|1.6e-10|3.0e-12|7.9e-07|-4.552984e+00 -4.552985e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.55298418e+00
 dual   objective value = -4.55298490e+00
 gap := trace(XZ)       = 7.92e-07
 relative gap           = 7.84e-08
 actual relative gap    = 7.06e-08
 rel. primal infeas     = 1.65e-10
 rel. dual   infeas     = 2.99e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.9e+03, 3.9e+02
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.1e-10  0.0e+00  4.2e-12  0.0e+00  7.1e-08  7.8e-08
-------------------------------------------------------------------

ans =

    4.5530


Epoch... 269
Epoch... 270

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1       0.000  1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.6e+00|3.4e+06| 1.063882e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.0e-01|2.8e+05| 9.608522e+04 -3.386969e+01| 0:0:00| chol  1↙
1
 2|1.000|0.923|5.7e-08|1.0e-02|3.6e+04| 1.600288e+04  1.105451e+02| 0:0:00| chol  1↙
1
 3|0.496|0.996|3.3e-08|2.5e-03|1.6e+04| 1.019043e+04 -3.387378e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.070705e+03 -2.714435e+01| 0:0:00| chol  1↙
1
 5|0.832|0.829|1.1e-09|5.2e-04|4.0e+02| 2.944524e+02 -8.019149e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.0e+02| 1.804056e+02 -7.717153e+00| 0:0:00| chol  1↙
1
 7|0.909|0.899|2.2e-11|2.1e-05|2.9e+01| 2.386677e+01 -4.856305e+00| 0:0:00| chol  1↙
```

```
1
  8|1.000|1.000|6.3e-11|1.1e-06|1.1e+01| 6.340343e+00 -4.719002e+00| 0:0:00| chol  1↙
1
  9|0.894|0.897|2.7e-12|2.2e-07|1.5e+00|-3.070156e+00 -4.561141e+00| 0:0:00| chol  2↙
2
 10|1.000|1.000|1.5e-12|1.1e-08|5.4e-01|-3.992908e+00 -4.531637e+00| 0:0:00| chol  1↙
1
 11|0.886|0.900|3.9e-10|2.1e-09|1.4e-01|-4.376003e+00 -4.513806e+00| 0:0:00| chol  2↙
2
 12|1.000|1.000|1.9e-10|1.1e-10|6.6e-02|-4.444363e+00 -4.509973e+00| 0:0:00| chol  2↙
2
 13|0.956|0.873|1.0e-10|2.6e-11|4.3e-03|-4.502687e+00 -4.507032e+00| 0:0:00| chol  2↙
2
 14|0.998|0.902|4.1e-11|7.0e-12|5.8e-04|-4.506198e+00 -4.506775e+00| 0:0:00| chol  2↙
2
 15|0.968|0.983|7.0e-12|5.2e-12|3.1e-05|-4.506699e+00 -4.506730e+00| 0:0:00| chol  2↙
3
 16|0.993|1.000|4.2e-11|1.4e-12|1.2e-06|-4.506727e+00 -4.506728e+00| 0:0:00| chol  4↙
4
 17|1.000|1.000|1.1e-10|9.9e-13|7.6e-08|-4.506728e+00 -4.506728e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.50672809e+00
 dual   objective value = -4.50672812e+00
 gap := trace(XZ)       = 7.60e-08
 relative gap           = 7.58e-09
 actual relative gap    = 3.27e-09
 rel. primal infeas     = 1.13e-10
 rel. dual   infeas     = 9.92e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 2.9e+03, 7.9e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 1.5e-10  0.0e+00  1.4e-12  0.0e+00  3.3e-09  7.6e-09
-------------------------------------------------------------------

ans =

    4.5067

Epoch... 271
Epoch... 272

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000  1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj       cputime
```

```
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.4e+06| 1.062895e+05  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|2.2e-07|1.0e-01|2.8e+05| 9.595881e+04 -4.171963e+01| 0:0:00| chol 1↙
1
 2|1.000|0.923|5.8e-08|1.0e-02|3.6e+04| 1.595308e+04  1.108814e+02| 0:0:00| chol 1↙
1
 3|0.494|0.993|3.3e-08|2.5e-03|1.6e+04| 1.018205e+04 -3.354032e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.082994e+03 -2.735677e+01| 0:0:00| chol 1↙
1
 5|0.832|0.829|1.1e-09|5.2e-04|4.1e+02| 2.975378e+02 -8.061995e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.821817e+02 -7.772699e+00| 0:0:00| chol 1↙
1
 7|0.910|0.900|2.3e-11|2.1e-05|2.9e+01| 2.401834e+01 -4.868902e+00| 0:0:00| chol 1↙
1
 8|1.000|1.000|9.4e-11|1.1e-06|1.1e+01| 6.280680e+00 -4.745082e+00| 0:0:00| chol 1↙
1
 9|0.898|0.900|1.8e-11|2.1e-07|1.4e+00|-3.194248e+00 -4.590692e+00| 0:0:00| chol 2↙
2
10|1.000|1.000|3.3e-12|1.1e-08|4.9e-01|-4.068468e+00 -4.559960e+00| 0:0:00| chol 2↙
2
11|0.984|0.991|4.2e-10|1.2e-09|1.2e-01|-4.423909e+00 -4.543427e+00| 0:0:00| chol 2↙
2
12|1.000|1.000|1.6e-10|1.1e-10|5.4e-02|-4.486167e+00 -4.540253e+00| 0:0:00| chol 2↙
2
13|0.982|0.846|8.6e-11|2.9e-11|2.3e-03|-4.535820e+00 -4.538165e+00| 0:0:00| chol 2↙
2
14|0.967|0.980|2.3e-11|5.0e-12|9.3e-05|-4.537780e+00 -4.537872e+00| 0:0:00| chol 2↙
2
15|0.983|0.986|3.5e-12|4.7e-12|1.6e-06|-4.537864e+00 -4.537865e+00| 0:0:00| chol 3↙
3
16|0.994|0.992|4.4e-11|1.0e-12|9.8e-08|-4.537865e+00 -4.537865e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.53786487e+00
 dual   objective value = -4.53786494e+00
 gap := trace(XZ)        = 9.81e-08
 relative gap           = 9.74e-09
 actual relative gap    = 7.28e-09
 rel. primal infeas     = 4.37e-11
 rel. dual   infeas     = 1.04e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.7e-11  0.0e+00  1.5e-12  0.0e+00  7.3e-09  9.7e-09
-------------------------------------------------------------------


ans =
```

```
    4.5379


Epoch... 273
Epoch... 274

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.3e+06| 1.034838e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.0e-01|2.8e+05| 9.363788e+04 -4.853884e+01| 0:0:00| chol  1↙
1
 2|1.000|0.921|5.8e-08|1.0e-02|3.5e+04| 1.554864e+04  1.138136e+02| 0:0:00| chol  1↙
1
 3|0.487|0.987|3.4e-08|2.5e-03|1.6e+04| 1.001962e+04 -3.085365e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.074184e+03 -2.682698e+01| 0:0:00| chol  1↙
1
 5|0.834|0.828|1.0e-09|5.2e-04|4.0e+02| 2.955649e+02 -8.085189e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.811736e+02 -7.930642e+00| 0:0:00| chol  1↙
1
 7|0.909|0.897|2.3e-11|2.2e-05|2.9e+01| 2.384824e+01 -4.974518e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|6.9e-11|1.1e-06|1.1e+01| 6.182813e+00 -4.853785e+00| 0:0:00| chol  1↙
1
 9|0.897|0.899|3.1e-11|2.1e-07|1.4e+00|-3.303231e+00 -4.698143e+00| 0:0:00| chol  2↙
1
10|1.000|1.000|6.5e-11|1.1e-08|4.8e-01|-4.191795e+00 -4.670835e+00| 0:0:00| chol  2↙
2
11|0.920|0.916|4.0e-10|2.0e-09|1.2e-01|-4.533150e+00 -4.655488e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.9e-10|1.3e-10|5.8e-02|-4.593812e+00 -4.652229e+00| 0:0:00| chol  2↙
2
13|0.955|0.860|1.1e-10|4.8e-11|4.4e-03|-4.645460e+00 -4.649825e+00| 0:0:00| chol  2↙
2
14|0.962|0.974|2.5e-11|2.4e-11|3.9e-04|-4.649176e+00 -4.649563e+00| 0:0:00| chol  2↙
2
15|0.980|0.986|1.2e-11|5.4e-12|7.7e-06|-4.649535e+00 -4.649542e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|8.4e-11|2.3e-12|5.3e-07|-4.649542e+00 -4.649542e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.64954159e+00
 dual   objective value = -4.64954211e+00
 gap := trace(XZ)       = 5.26e-07
```

```
 relative gap          = 5.10e-08
 actual relative gap   = 5.00e-08
 rel. primal infeas    = 8.39e-11
 rel. dual   infeas    = 2.34e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs) = 0.08
 CPU time per iteration = 0.01
 termination code      =   0
 DIMACS errors: 1.1e-10  0.0e+00  3.3e-12  0.0e+00  5.0e-08  5.1e-08
-------------------------------------------------------------------


ans =

    4.6495


Epoch... 275
Epoch... 276


 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj        dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.3e+06| 1.028928e+05  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.1e-07|1.0e-01|2.8e+05| 9.317227e+04 -5.273968e+01| 0:0:00| chol  1✔
1
 2|1.000|0.921|5.8e-08|1.0e-02|3.4e+04| 1.543091e+04  1.142946e+02| 0:0:00| chol  1✔
1
 3|0.486|0.987|3.3e-08|2.5e-03|1.6e+04| 9.960517e+03 -3.076186e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.047346e+03 -2.665073e+01| 0:0:00| chol  1✔
1
 5|0.833|0.828|1.0e-09|5.2e-04|4.0e+02| 2.940570e+02 -8.243426e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.793269e+02 -8.165262e+00| 0:0:00| chol  1✔
1
 7|0.906|0.896|2.3e-11|2.2e-05|2.9e+01| 2.322573e+01 -5.270573e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|6.7e-11|1.1e-06|1.1e+01| 5.681701e+00 -5.159315e+00| 0:0:00| chol  1✔
1
 9|0.898|0.899|7.9e-12|2.1e-07|1.4e+00|-3.645714e+00 -5.007634e+00| 0:0:00| chol  2✔
1
10|1.000|1.000|9.8e-11|1.1e-08|4.7e-01|-4.514324e+00 -4.980038e+00| 0:0:00| chol  2✔
2
11|0.955|0.940|4.1e-10|1.7e-09|1.2e-01|-4.848955e+00 -4.964714e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|1.8e-10|1.2e-10|5.4e-02|-4.907498e+00 -4.961489e+00| 0:0:00| chol  2✔
```

```
2
13|0.967|0.838|9.6e-11|3.3e-11|3.0e-03|-4.956348e+00 -4.959366e+00| 0:0:00| chol  2↙
2
14|0.960|0.976|2.7e-11|9.9e-12|2.2e-04|-4.958873e+00 -4.959089e+00| 0:0:00| chol  2↙
2
15|0.981|0.986|4.7e-12|5.5e-12|4.1e-06|-4.959072e+00 -4.959076e+00| 0:0:00| chol  3↙
3
16|1.000|1.000|3.5e-11|1.0e-12|2.4e-07|-4.959075e+00 -4.959076e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.95907550e+00
 dual   objective value = -4.95907571e+00
 gap := trace(XZ)       = 2.41e-07
 relative gap           = 2.21e-08
 actual relative gap    = 1.96e-08
 rel. primal infeas     = 3.51e-11
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.7e-11  0.0e+00  1.4e-12  0.0e+00  2.0e-08  2.2e-08
-------------------------------------------------------------------


ans =

    4.9591


Epoch... 277
Epoch... 278

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.7e+00|3.3e+06| 1.010702e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.0e-01|2.7e+05| 9.168994e+04 -5.524500e+01| 0:0:00| chol  1↙
1
 2|1.000|0.920|5.7e-08|1.0e-02|3.4e+04| 1.517700e+04  1.161227e+02| 0:0:00| chol  1↙
1
 3|0.481|0.984|3.3e-08|2.6e-03|1.6e+04| 9.860271e+03 -2.960995e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.059809e+03 -2.661132e+01| 0:0:00| chol  1↙
1
 5|0.834|0.828|1.0e-09|5.2e-04|4.0e+02| 2.930235e+02 -8.293600e+00| 0:0:00| chol  1↙
```

```
1
  6|1.000|1.000|1.6e-10|1.1e-04|2.0e+02| 1.793723e+02 -8.240743e+00| 0:0:00| chol  1↙
1
  7|0.909|0.896|2.4e-11|2.2e-05|2.9e+01| 2.325977e+01 -5.289664e+00| 0:0:00| chol  1↙
1
  8|1.000|1.000|3.6e-11|1.1e-06|1.1e+01| 5.706630e+00 -5.177308e+00| 0:0:00| chol  1↙
1
  9|0.897|0.898|5.5e-12|2.1e-07|1.4e+00|-3.658760e+00 -5.023558e+00| 0:0:00| chol  2↙
2
 10|1.000|1.000|2.5e-12|1.1e-08|4.6e-01|-4.538088e+00 -4.997865e+00| 0:0:00| chol  2↙
2
 11|0.913|0.897|4.0e-10|2.2e-09|1.2e-01|-4.865919e+00 -4.982840e+00| 0:0:00| chol  2↙
2
 12|1.000|1.000|1.9e-10|1.1e-10|5.6e-02|-4.923903e+00 -4.979542e+00| 0:0:00| chol  2↙
2
 13|0.953|0.869|1.1e-10|2.7e-11|4.2e-03|-4.973032e+00 -4.977195e+00| 0:0:00| chol  2↙
2
 14|0.988|0.957|3.0e-11|5.6e-12|4.6e-04|-4.976509e+00 -4.976972e+00| 0:0:00| chol  2↙
2
 15|0.979|0.985|1.1e-11|5.1e-12|9.8e-06|-4.976932e+00 -4.976942e+00| 0:0:00| chol  3↙
3
 16|1.000|1.000|6.1e-11|2.2e-12|7.5e-07|-4.976940e+00 -4.976941e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.97694045e+00
 dual   objective value = -4.97694105e+00
 gap := trace(XZ)        = 7.52e-07
 relative gap            = 6.87e-08
 actual relative gap     = 5.45e-08
 rel. primal infeas      = 6.08e-11
 rel. dual   infeas      = 2.21e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.0e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 8.1e-11  0.0e+00  3.1e-12  0.0e+00  5.4e-08  6.9e-08
-----------------------------------------------------------------

ans =

    4.9769


Epoch... 279
Epoch... 280

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
```

```
   HKM       1      0.000   1          0
it pstep dstep pinfeas dinfeas  gap        prim-obj         dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.3e+06| 1.027207e+05  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.7e+05| 9.301818e+04 -5.117219e+01| 0:0:00| chol  1↙
1
 2|1.000|0.921|5.7e-08|1.1e-02|3.4e+04| 1.540524e+04  1.170340e+02| 0:0:00| chol  1↙
1
 3|0.483|0.980|3.3e-08|2.6e-03|1.6e+04| 9.973298e+03 -2.793915e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.2e-09|1.2e-03|1.7e+03| 1.071609e+03 -2.651727e+01| 0:0:00| chol  1↙
1
 5|0.836|0.828|1.0e-09|5.2e-04|4.0e+02| 2.962810e+02 -8.290206e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.6e-10|1.1e-04|2.0e+02| 1.813615e+02 -8.305278e+00| 0:0:00| chol  1↙
1
 7|0.908|0.896|2.4e-11|2.2e-05|2.9e+01| 2.351604e+01 -5.295874e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|7.3e-11|1.1e-06|1.1e+01| 5.834166e+00 -5.176156e+00| 0:0:00| chol  1↙
1
 9|0.894|0.895|1.0e-11|2.2e-07|1.4e+00|-3.598924e+00 -5.018998e+00| 0:0:00| chol  1↙
2
10|1.000|1.000|2.6e-12|1.1e-08|4.9e-01|-4.501934e+00 -4.991910e+00| 0:0:00| chol  2↙
2
11|0.899|0.885|4.0e-10|2.3e-09|1.2e-01|-4.853548e+00 -4.974975e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.8e-10|1.1e-10|5.6e-02|-4.914882e+00 -4.971231e+00| 0:0:00| chol  2↙
2
13|0.961|0.902|9.1e-11|2.4e-11|3.1e-03|-4.965526e+00 -4.968608e+00| 0:0:00| chol  2↙
2
14|0.925|0.872|3.4e-11|7.4e-12|4.8e-04|-4.967934e+00 -4.968414e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|4.6e-11|5.1e-12|1.7e-04|-4.968218e+00 -4.968385e+00| 0:0:00| chol  3↙
3
16|0.940|1.000|2.7e-10|7.6e-12|4.2e-05|-4.968336e+00 -4.968379e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|5.8e-11|1.1e-11|1.2e-05|-4.968365e+00 -4.968377e+00| 0:0:00| chol  3↙
3
18|0.996|0.973|5.7e-11|1.2e-11|1.4e-06|-4.968376e+00 -4.968377e+00| 0:0:00| chol  4↙
3
19|1.000|0.959|2.7e-10|4.4e-12|3.0e-07|-4.968376e+00 -4.968377e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -4.96837650e+00
 dual   objective value = -4.96837670e+00
 gap := trace(XZ)       = 3.02e-07
 relative gap           = 2.76e-08
 actual relative gap    = 1.90e-08
 rel. primal infeas     = 2.70e-10
 rel. dual   infeas     = 4.45e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.0e+03, 8.1e+03, 3.9e+02
```

```
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.00
 termination code      =   0
 DIMACS errors: 3.6e-10  0.0e+00  6.3e-12  0.0e+00  1.9e-08  2.8e-08
-------------------------------------------------------------------


ans =

    4.9684


Epoch... 281
Epoch... 282


 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version   predcorr  gam   expon   scale_data
   HKM        1      0.000   1         0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.3e+06| 1.007274e+05  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.7e+05| 9.137662e+04 -4.844432e+01| 0:0:00| chol  1✓
1
 2|1.000|0.920|5.6e-08|1.1e-02|3.4e+04| 1.516489e+04  1.191861e+02| 0:0:00| chol  1✓
1
 3|0.478|0.974|3.2e-08|2.6e-03|1.6e+04| 9.880412e+03 -2.612259e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.1e-09|1.2e-03|1.8e+03| 1.113006e+03 -2.699148e+01| 0:0:00| chol  1✓
1
 5|0.837|0.829|1.0e-09|5.2e-04|4.1e+02| 2.978415e+02 -8.515120e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.0e+02| 1.833075e+02 -8.571906e+00| 0:0:00| chol  1✓
1
 7|0.916|0.898|2.3e-11|2.1e-05|2.9e+01| 2.357871e+01 -5.385626e+00| 0:0:00| chol  1✓
1
 8|1.000|1.000|8.5e-11|1.1e-06|1.1e+01| 5.946559e+00 -5.238537e+00| 0:0:00| chol  1✓
1
 9|0.890|0.890|3.0e-11|2.2e-07|1.5e+00|-3.563221e+00 -5.074296e+00| 0:0:00| chol  2✓
2
10|1.000|1.000|2.8e-12|1.1e-08|5.4e-01|-4.510508e+00 -5.046769e+00| 0:0:00| chol  2✓
2
11|0.862|0.856|3.9e-10|2.6e-09|1.2e-01|-4.904750e+00 -5.027258e+00| 0:0:00| chol  2✓
2
12|1.000|1.000|1.8e-10|1.1e-10|5.5e-02|-4.968340e+00 -5.023082e+00| 0:0:00| chol  2✓
2
13|0.970|0.874|7.1e-11|2.6e-11|2.5e-03|-5.018281e+00 -5.020806e+00| 0:0:00| chol  2✓
2
14|0.986|0.969|2.4e-11|5.3e-12|7.5e-05|-5.020523e+00 -5.020598e+00| 0:0:00| chol  2✓
2
15|0.991|0.997|1.3e-11|4.9e-12|2.4e-06|-5.020589e+00 -5.020591e+00| 0:0:00| chol  3✓
```

```
3
16|1.000|0.996|1.8e-10|1.1e-12|8.4e-08|-5.020591e+00 -5.020591e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -5.02059090e+00
 dual   objective value = -5.02059104e+00
 gap := trace(XZ)       = 8.38e-08
 relative gap           = 7.59e-09
 actual relative gap    = 1.26e-08
 rel. primal infeas     = 1.75e-10
 rel. dual   infeas     = 1.11e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.1e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.3e-10  0.0e+00  1.6e-12  0.0e+00  1.3e-08  7.6e-09
-------------------------------------------------------------------


ans =

    5.0206


Epoch... 283
Epoch... 284

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.2e+06| 9.947438e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.7e+05| 9.035326e+04 -5.039649e+01| 0:0:00| chol  1↙
1
 2|1.000|0.920|5.6e-08|1.1e-02|3.3e+04| 1.498551e+04  1.210190e+02| 0:0:00| chol  1↙
1
 3|0.475|0.971|3.2e-08|2.6e-03|1.6e+04| 9.809466e+03 -2.484153e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.1e-09|1.2e-03|1.8e+03| 1.169577e+03 -2.758177e+01| 0:0:00| chol  1↙
1
 5|0.840|0.831|9.9e-10|5.2e-04|4.1e+02| 2.963818e+02 -8.721458e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.5e-10|1.1e-04|2.1e+02| 1.842791e+02 -8.813059e+00| 0:0:00| chol  1↙
1
 7|0.936|0.904|2.1e-11|2.1e-05|2.9e+01| 2.266831e+01 -5.418607e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|3.8e-11|1.1e-06|1.1e+01| 5.778594e+00 -5.231586e+00| 0:0:00| chol  1↙
```

```
1
 9|0.888|0.889|8.7e-12|2.2e-07|1.5e+00|-3.553233e+00 -5.072295e+00| 0:0:00| chol  2↙
2
10|1.000|1.000|1.8e-12|1.1e-08|5.5e-01|-4.497393e+00 -5.044860e+00| 0:0:00| chol  2↙
2
11|0.863|0.857|3.8e-10|2.6e-09|1.2e-01|-4.908436e+00 -5.024656e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.6e-10|1.1e-10|5.0e-02|-4.970720e+00 -5.020610e+00| 0:0:00| chol  2↙
2
13|0.974|0.928|5.5e-11|2.1e-11|1.8e-03|-5.016814e+00 -5.018643e+00| 0:0:00| chol  2↙
2
14|0.985|0.986|1.2e-11|4.8e-12|2.8e-05|-5.018501e+00 -5.018529e+00| 0:0:00| chol  2↙
2
15|0.995|0.993|9.4e-12|2.4e-12|5.0e-07|-5.018527e+00 -5.018527e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -5.01852679e+00
 dual   objective value = -5.01852728e+00
 gap := trace(XZ)        = 5.03e-07
 relative gap            = 4.55e-08
 actual relative gap     = 4.43e-08
 rel. primal infeas      = 9.37e-12
 rel. dual   infeas      = 2.40e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 1.2e-11  0.0e+00  3.4e-12  0.0e+00  4.4e-08  4.6e-08
-------------------------------------------------------------------

ans =

    5.0185

Epoch... 285
Epoch... 286

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.2e+06| 9.786769e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.6e+05| 8.909086e+04 -5.111237e+01| 0:0:00| chol  1↙
1
 2|1.000|0.919|5.6e-08|1.1e-02|3.3e+04| 1.476385e+04  1.229339e+02| 0:0:00| chol  1↙
```

```
1
 3|0.471|0.970|3.3e-08|2.6e-03|1.6e+04| 9.719886e+03 -2.452266e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|6.1e-09|1.2e-03|1.9e+03| 1.187926e+03 -2.767776e+01| 0:0:00| chol  1↙
1
 5|0.841|0.832|9.8e-10|5.2e-04|4.0e+02| 2.962684e+02 -8.672727e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.4e-10|1.1e-04|2.1e+02| 1.845401e+02 -8.773933e+00| 0:0:00| chol  1↙
1
 7|0.945|0.907|1.9e-11|2.1e-05|2.8e+01| 2.222058e+01 -5.314114e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|7.7e-11|1.1e-06|1.1e+01| 5.724384e+00 -5.107249e+00| 0:0:00| chol  1↙
1
 9|0.886|0.888|1.8e-11|2.3e-07|1.5e+00|-3.417370e+00 -4.951880e+00| 0:0:00| chol  2↙
2
10|1.000|1.000|8.9e-13|1.1e-08|5.6e-01|-4.363838e+00 -4.926262e+00| 0:0:00| chol  2↙
2
11|0.856|0.855|3.7e-10|2.6e-09|1.1e-01|-4.792414e+00 -4.906292e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.7e-10|1.1e-10|4.9e-02|-4.852849e+00 -4.902267e+00| 0:0:00| chol  2↙
2
13|0.978|0.936|4.8e-11|2.0e-11|1.5e-03|-4.898851e+00 -4.900391e+00| 0:0:00| chol  1↙
2
14|0.987|0.987|5.7e-12|4.7e-12|2.1e-05|-4.900265e+00 -4.900286e+00| 0:0:00| chol  2↙
2
15|0.996|0.992|4.9e-11|1.2e-12|3.4e-07|-4.900284e+00 -4.900284e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -4.90028410e+00
 dual   objective value = -4.90028441e+00
 gap := trace(XZ)        = 3.38e-07
 relative gap            = 3.13e-08
 actual relative gap     = 2.87e-08
 rel. primal infeas      = 4.86e-11
 rel. dual   infeas      = 1.18e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.5e-11  0.0e+00  1.7e-12  0.0e+00  2.9e-08  3.1e-08
-------------------------------------------------------------------

ans =

    4.9003

Epoch... 287
Epoch... 288

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk =  1
 dim. of linear var  = 60
```

```
 *********************************************************************
    SDPT3: Infeasible path-following algorithms
 *********************************************************************
 version  predcorr  gam  expon  scale_data
    HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj        dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.8e+00|3.2e+06| 9.676170e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.2e-07|1.1e-01|2.6e+05| 8.818129e+04 -5.065092e+01| 0:0:00| chol  1✔
1
 2|1.000|0.918|5.6e-08|1.1e-02|3.3e+04| 1.463387e+04  1.250672e+02| 0:0:00| chol  1✔
1
 3|0.468|0.966|3.3e-08|2.6e-03|1.6e+04| 9.681758e+03 -2.316214e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.1e-09|1.2e-03|2.0e+03| 1.265874e+03 -2.869362e+01| 0:0:00| chol  1✔
1
 5|0.844|0.835|9.7e-10|5.2e-04|4.1e+02| 2.974155e+02 -8.994562e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|1.2e-10|1.1e-04|2.1e+02| 1.870070e+02 -9.179790e+00| 0:0:00| chol  1✔
1
 7|1.000|0.922|1.3e-11|1.9e-05|2.4e+01| 1.852594e+01 -5.401642e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|1.2e-11|1.1e-06|9.3e+00| 4.222568e+00 -5.086027e+00| 0:0:00| chol  1✔
1
 9|0.882|0.917|1.2e-11|2.0e-07|1.5e+00|-3.447836e+00 -4.969257e+00| 0:0:00| chol  2✔
2
10|1.000|1.000|8.5e-12|1.1e-08|6.1e-01|-4.335225e+00 -4.942324e+00| 0:0:00| chol  2✔
2
11|0.870|0.892|3.2e-10|2.2e-09|1.0e-01|-4.822213e+00 -4.922205e+00| 0:0:00| chol  2✔
2
12|1.000|1.000|1.6e-10|1.1e-10|4.1e-02|-4.877596e+00 -4.918740e+00| 0:0:00| chol  2✔
2
13|0.975|0.971|2.7e-11|1.8e-11|1.1e-03|-4.916182e+00 -4.917272e+00| 0:0:00| chol  2✔
2
14|0.972|0.987|6.1e-12|6.8e-12|3.0e-05|-4.917198e+00 -4.917228e+00| 0:0:00| chol  3✔
3
15|1.000|1.000|8.7e-11|1.2e-12|2.6e-06|-4.917225e+00 -4.917228e+00| 0:0:00| chol  3✔
3
16|1.000|0.999|4.5e-11|5.7e-13|4.4e-08|-4.917228e+00 -4.917228e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.91722755e+00
 dual   objective value = -4.91722755e+00
 gap := trace(XZ)       = 4.42e-08
 relative gap           = 4.08e-09
 actual relative gap    = -8.99e-11
 rel. primal infeas     = 4.46e-11
 rel. dual   infeas     = 5.72e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.2e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
```

```
 termination code      =  0
 DIMACS errors: 5.9e-11  0.0e+00  8.1e-13  0.0e+00  -9.0e-11  4.1e-09
-------------------------------------------------------------------


ans =

    4.9172


Epoch... 289
Epoch... 290


 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap       prim-obj      dual-obj     cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.1e+06| 9.570253e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.6e+05| 8.730561e+04 -4.755550e+01| 0:0:00| chol  1✓
1
 2|1.000|0.918|5.5e-08|1.1e-02|3.2e+04| 1.450429e+04  1.267524e+02| 0:0:00| chol  1✓
1
 3|0.465|0.961|3.3e-08|2.7e-03|1.6e+04| 9.623586e+03 -2.131592e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.0e-09|1.2e-03|2.1e+03| 1.354011e+03 -2.991048e+01| 0:0:00| chol  1✓
1
 5|0.850|0.842|9.1e-10|5.1e-04|4.1e+02| 2.974642e+02 -9.390120e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|1.2e-10|1.1e-04|2.1e+02| 1.889726e+02 -9.681572e+00| 0:0:00| chol  1✓
1
 7|1.000|0.951|1.3e-11|1.6e-05|3.6e+01| 3.016475e+01 -5.482446e+00| 0:0:00| chol  1✓
1
 8|0.908|1.000|2.6e-11|1.1e-06|8.0e+00| 2.848383e+00 -5.118978e+00| 0:0:00| chol  1✓
1
 9|1.000|1.000|4.0e-11|1.1e-07|3.2e+00|-1.747431e+00 -4.951610e+00| 0:0:00| chol  1✓
1
10|0.861|1.000|1.8e-12|1.1e-08|6.2e-01|-4.308122e+00 -4.929185e+00| 0:0:00| chol  2✓
2
11|1.000|1.000|5.0e-10|1.1e-09|2.3e-01|-4.671600e+00 -4.900418e+00| 0:0:00| chol  2✓
1
12|0.946|0.831|1.1e-10|2.8e-10|1.4e-02|-4.881929e+00 -4.895847e+00| 0:0:00| chol  2✓
2
13|0.962|0.982|4.9e-11|1.8e-11|7.0e-04|-4.894451e+00 -4.895148e+00| 0:0:00| chol  2✓
2
14|0.981|0.986|6.0e-12|3.6e-12|1.3e-05|-4.895113e+00 -4.895126e+00| 0:0:00| chol  3✓
3
15|1.000|1.000|3.7e-11|1.2e-12|6.1e-07|-4.895125e+00 -4.895126e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
```

```
 number of iterations   = 15
 primal objective value = -4.89512521e+00
 dual   objective value = -4.89512574e+00
 gap := trace(XZ)       = 6.06e-07
 relative gap           = 5.62e-08
 actual relative gap    = 4.90e-08
 rel. primal infeas     = 3.71e-11
 rel. dual   infeas     = 1.20e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.0e-11  0.0e+00  1.7e-12  0.0e+00  4.9e-08  5.6e-08
-------------------------------------------------------------------


ans =

    4.8951


Epoch... 291
Epoch... 292

 num. of constraints = 15
 dim. of socp   var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap        prim-obj       dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|5.9e+00|3.1e+06| 9.416775e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.2e-07|1.1e-01|2.5e+05| 8.611894e+04 -5.209214e+01| 0:0:00| chol  1✓
1
 2|1.000|0.917|5.5e-08|1.1e-02|3.2e+04| 1.426257e+04  1.285784e+02| 0:0:00| chol  1✓
1
 3|0.461|0.961|3.2e-08|2.7e-03|1.5e+04| 9.518745e+03 -2.109069e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.1e-09|1.2e-03|2.1e+03| 1.363445e+03 -2.979393e+01| 0:0:00| chol  1✓
1
 5|0.852|0.844|9.1e-10|5.1e-04|4.0e+02| 2.932124e+02 -9.469147e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|9.5e-11|1.1e-04|2.1e+02| 1.866892e+02 -9.741878e+00| 0:0:00| chol  1✓
1
 7|1.000|0.958|1.4e-11|1.5e-05|3.8e+01| 3.231667e+01 -5.570200e+00| 0:0:00| chol  1✓
1
 8|0.887|1.000|2.2e-11|1.1e-06|8.3e+00| 3.071801e+00 -5.207952e+00| 0:0:00| chol  1✓
2
 9|1.000|0.985|2.1e-11|1.3e-07|3.4e+00|-1.616014e+00 -5.029504e+00| 0:0:00| chol  2✓
2
10|0.853|1.000|1.2e-12|1.1e-08|7.1e-01|-4.298322e+00 -5.008898e+00| 0:0:00| chol  2✓
```

```
2
11|1.000|1.000|5.4e-10|1.1e-09|2.6e-01|-4.718285e+00 -4.978677e+00| 0:0:00| chol  2↙
1
12|0.936|0.843|1.3e-10|2.7e-10|1.9e-02|-4.954145e+00 -4.972751e+00| 0:0:00| chol  2↙
2
13|0.964|0.984|5.0e-11|1.8e-11|1.1e-03|-4.970889e+00 -4.971973e+00| 0:0:00| chol  2↙
2
14|0.977|0.985|1.3e-11|3.6e-12|2.5e-05|-4.971912e+00 -4.971937e+00| 0:0:00| chol  3↙
3
15|1.000|1.000|3.4e-11|2.6e-12|1.7e-06|-4.971935e+00 -4.971936e+00| 0:0:00| chol  2↙
2
16|1.000|0.998|1.5e-11|5.6e-13|4.3e-08|-4.971936e+00 -4.971936e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -4.97193620e+00
 dual   objective value = -4.97193623e+00
 gap := trace(XZ)        = 4.35e-08
 relative gap           = 3.97e-09
 actual relative gap    = 3.22e-09
 rel. primal infeas     = 1.52e-11
 rel. dual   infeas     = 5.64e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.3e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.0e-11  0.0e+00  7.9e-13  0.0e+00  3.2e-09  4.0e-09
-------------------------------------------------------------------

ans =

    4.9719


Epoch... 293
Epoch... 294

 num. of constraints = 15
 dim. of socp  var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
********************************************************************
   SDPT3: Infeasible path-following algorithms
********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj      cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.0e+00|3.1e+06| 9.552903e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.6e+05| 8.736736e+04 -5.834945e+01| 0:0:00| chol  1↙
1
 2|1.000|0.919|5.4e-08|1.1e-02|3.2e+04| 1.434993e+04  1.288073e+02| 0:0:00| chol  1↙
1
 3|0.462|0.966|3.1e-08|2.6e-03|1.5e+04| 9.559285e+03 -2.272674e+01| 0:0:00| chol  1↙
```

```
1
 4|1.000|1.000|6.0e-09|1.2e-03|2.0e+03| 1.285804e+03 -2.849754e+01| 0:0:00| chol  1↙
1
 5|0.849|0.841|9.2e-10|5.1e-04|4.0e+02| 2.891634e+02 -9.123401e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.3e-10|1.1e-04|2.0e+02| 1.829561e+02 -9.248699e+00| 0:0:00| chol  1↙
1
 7|1.000|0.928|1.3e-11|1.8e-05|2.7e+01| 2.096620e+01 -5.479351e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|5.7e-11|1.1e-06|8.2e+00| 3.049377e+00 -5.164656e+00| 0:0:00| chol  1↙
2
 9|0.908|0.899|1.5e-11|2.1e-07|1.6e+00|-3.439003e+00 -5.021323e+00| 0:0:00| chol  2↙
2
10|1.000|1.000|4.6e-12|1.1e-08|6.5e-01|-4.342008e+00 -4.996833e+00| 0:0:00| chol  2↙
2
11|0.898|0.898|3.0e-10|2.2e-09|9.1e-02|-4.883078e+00 -4.974121e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|1.2e-10|1.1e-10|3.1e-02|-4.939325e+00 -4.970332e+00| 0:0:00| chol  2↙
1
13|0.969|0.977|7.2e-11|1.6e-11|9.6e-04|-4.968286e+00 -4.969244e+00| 0:0:00| chol  1↙
2
14|0.988|0.988|2.2e-12|3.6e-12|1.1e-05|-4.969205e+00 -4.969216e+00| 0:0:00| chol  2↙
2
15|0.995|0.996|4.5e-11|1.0e-12|1.8e-07|-4.969215e+00 -4.969215e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -4.96921521e+00
 dual   objective value = -4.96921541e+00
 gap := trace(XZ)       = 1.77e-07
 relative gap           = 1.61e-08
 actual relative gap    = 1.88e-08
 rel. primal infeas     = 4.50e-11
 rel. dual   infeas     = 1.01e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs)  = 0.07
 CPU time per iteration = 0.00
 termination code       =  0
 DIMACS errors: 6.0e-11  0.0e+00  1.4e-12  0.0e+00  1.9e-08  1.6e-08
-------------------------------------------------------------------

ans =

    4.9692

Epoch... 295
Epoch... 296

 num. of constraints = 15
 dim. of socp   var  = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
*******************************************************************
   SDPT3: Infeasible path-following algorithms
```

```
 *******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1     0.000   1        0
 it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj     cputime
------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.1e+00|3.1e+06| 9.388546e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.982|2.1e-07|1.1e-01|2.5e+05| 8.602878e+04 -6.192022e+01| 0:0:00| chol 1↙
1
 2|1.000|0.918|5.5e-08|1.1e-02|3.2e+04| 1.412361e+04  1.311866e+02| 0:0:00| chol 1↙
1
 3|0.458|0.962|3.1e-08|2.7e-03|1.5e+04| 9.463946e+03 -2.096814e+01| 0:0:00| chol 1↙
1
 4|1.000|1.000|6.1e-09|1.2e-03|2.1e+03| 1.366521e+03 -2.893071e+01| 0:0:00| chol 1↙
1
 5|0.855|0.848|9.0e-10|5.1e-04|3.9e+02| 2.889023e+02 -9.029441e+00| 0:0:00| chol 1↙
1
 6|1.000|1.000|1.1e-10|1.1e-04|2.1e+02| 1.840368e+02 -9.228457e+00| 0:0:00| chol 1↙
1
 7|1.000|0.956|1.4e-11|1.6e-05|3.7e+01| 3.105399e+01 -5.250187e+00| 0:0:00| chol 1↙
1
 8|0.894|1.000|2.1e-11|1.1e-06|7.6e+00| 2.682895e+00 -4.933557e+00| 0:0:00| chol 2↙
2
 9|1.000|0.981|2.0e-11|1.3e-07|3.1e+00|-1.705578e+00 -4.777957e+00| 0:0:00| chol 2↙
1
10|0.846|1.000|1.2e-11|1.1e-08|6.5e-01|-4.111298e+00 -4.760554e+00| 0:0:00| chol 2↙
2
11|1.000|1.000|5.4e-10|1.1e-09|2.5e-01|-4.482094e+00 -4.736521e+00| 0:0:00| chol 2↙
1
12|0.840|1.000|1.9e-10|1.2e-10|5.2e-02|-4.679054e+00 -4.731270e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|6.1e-11|1.7e-11|1.4e-02|-4.716527e+00 -4.730418e+00| 0:0:00| chol 2↙
2
14|0.975|0.962|1.7e-11|9.7e-12|3.6e-04|-4.729495e+00 -4.729858e+00| 0:0:00| chol 2↙
2
15|0.956|0.978|4.4e-11|3.7e-12|1.7e-05|-4.729821e+00 -4.729837e+00| 0:0:00| chol 3↙
3
16|1.000|1.000|1.8e-10|5.2e-12|3.2e-06|-4.729834e+00 -4.729837e+00| 0:0:00| chol 3↙
3
17|1.000|0.998|6.7e-11|1.1e-12|8.3e-08|-4.729837e+00 -4.729837e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -4.72983680e+00
 dual   objective value = -4.72983682e+00
 gap := trace(XZ)       = 8.34e-08
 relative gap           = 7.97e-09
 actual relative gap    = 1.61e-09
 rel. primal infeas     = 6.68e-11
 rel. dual   infeas     = 1.09e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.1e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
```

```
 termination code      =  0
 DIMACS errors: 9.0e-11  0.0e+00  1.5e-12  0.0e+00  1.6e-09  8.0e-09
------------------------------------------------------------------


ans =

    4.7298


Epoch... 297
Epoch... 298

 num. of constraints = 15
 dim. of socp  var = 16,   num. of socp blk  =  1
 dim. of linear var  = 60
**********************************************************************
   SDPT3: Infeasible path-following algorithms
**********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap       prim-obj       dual-obj    cputime
---------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.1e+00|3.0e+06| 9.180788e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|2.2e-07|1.1e-01|2.5e+05| 8.420476e+04 -5.604619e+01| 0:0:00| chol  1✔
1
 2|1.000|0.916|5.5e-08|1.1e-02|3.1e+04| 1.392831e+04  1.334914e+02| 0:0:00| chol  1✔
1
 3|0.455|0.953|3.3e-08|2.7e-03|1.5e+04| 9.377378e+03 -1.669419e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|6.3e-09|1.2e-03|2.3e+03| 1.545664e+03 -3.040697e+01| 0:0:00| chol  1✔
1
 5|0.869|0.864|8.4e-10|4.9e-04|3.9e+02| 2.874033e+02 -9.277349e+00| 0:0:00| chol  1✔
1
 6|0.997|1.000|9.6e-11|1.1e-04|2.1e+02| 1.860812e+02 -9.794309e+00| 0:0:00| chol  1✔
1
 7|1.000|1.000|1.3e-11|1.1e-05|7.5e+01| 6.897184e+01 -5.498483e+00| 0:0:00| chol  1✔
1
 8|0.902|1.000|5.4e-12|1.1e-06|8.9e+00| 4.027065e+00 -4.830508e+00| 0:0:00| chol  2✔
2
 9|1.000|0.905|2.2e-11|2.1e-07|4.2e+00|-4.714680e-01 -4.665442e+00| 0:0:00| chol  2✔
2
10|0.829|1.000|3.6e-12|1.1e-08|1.3e+00|-3.380046e+00 -4.645417e+00| 0:0:00| chol  2✔
2
11|1.000|1.000|1.2e-12|1.1e-09|5.1e-01|-4.099223e+00 -4.606234e+00| 0:0:00| chol  2✔
2
12|0.762|1.000|1.2e-10|1.1e-10|1.6e-01|-4.438446e+00 -4.599465e+00| 0:0:00| chol  2✔
2
13|1.000|1.000|1.5e-10|1.3e-11|5.8e-02|-4.535533e+00 -4.593875e+00| 0:0:00| chol  2✔
2
14|0.957|0.968|4.2e-11|3.7e-12|2.9e-03|-4.589394e+00 -4.592255e+00| 0:0:00| chol  2✔
2
15|0.978|0.989|7.4e-12|3.5e-12|6.1e-05|-4.592127e+00 -4.592189e+00| 0:0:00| chol  3✔
3
16|0.954|1.000|4.9e-11|1.5e-12|1.2e-05|-4.592176e+00 -4.592188e+00| 0:0:00| chol  3✔
```

```
3
17|1.000|1.000|1.9e-10|2.2e-12|1.7e-06|-4.592186e+00 -4.592187e+00| 0:0:00| chol  3✓
3
18|0.997|0.996|7.1e-11|3.8e-13|2.8e-08|-4.592187e+00 -4.592187e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.59218739e+00
 dual   objective value = -4.59218740e+00
 gap := trace(XZ)       = 2.85e-08
 relative gap           = 2.80e-09
 actual relative gap    = 1.36e-09
 rel. primal infeas     = 7.10e-11
 rel. dual   infeas     = 3.79e-13
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.2e+03, 8.5e+03, 3.9e+02
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.8e-11  0.0e+00  5.3e-13  0.0e+00  1.4e-09  2.8e-09
-------------------------------------------------------------------

ans =

    4.5922


Epoch... 299
Epoch... 300

 num. of constraints = 15
 dim. of socp   var  = 16,    num. of socp blk  =  1
 dim. of linear var  = 60
*********************************************************************
   SDPT3: Infeasible path-following algorithms
*********************************************************************
 version  predcorr  gam  expon  scale_data
   HKM       1      0.000   1       0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|6.1e+00|3.0e+06| 9.150926e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.982|2.2e-07|1.1e-01|2.5e+05| 8.403377e+04 -6.599593e+01| 0:0:00| chol  1✓
1
 2|1.000|0.916|5.5e-08|1.2e-02|3.1e+04| 1.381708e+04  1.344687e+02| 0:0:00| chol  1✓
1
 3|0.453|0.953|3.2e-08|2.7e-03|1.5e+04| 9.317868e+03 -1.601612e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|6.3e-09|1.2e-03|2.3e+03| 1.544127e+03 -2.994221e+01| 0:0:00| chol  1✓
1
 5|0.873|0.869|8.0e-10|4.9e-04|3.8e+02| 2.785261e+02 -9.338172e+00| 0:0:00| chol  1✓
1
 6|0.981|1.000|1.1e-10|1.1e-04|2.0e+02| 1.829414e+02 -9.763078e+00| 0:0:00| chol  1✓
1
 7|1.000|1.000|1.3e-11|1.1e-05|7.5e+01| 6.847929e+01 -5.553835e+00| 0:0:00| chol  1✓
```

```
1
 8|0.898|1.000|2.1e-12|1.1e-06|9.2e+00| 4.256620e+00 -4.907726e+00| 0:0:00| chol  2↙
1
 9|1.000|0.867|2.3e-10|2.5e-07|4.3e+00|-4.428465e-01 -4.731216e+00| 0:0:00| chol  1↙
2
10|0.810|1.000|4.5e-11|1.1e-08|1.3e+00|-3.423152e+00 -4.709818e+00| 0:0:00| chol  2↙
2
11|1.000|0.979|3.8e-12|1.3e-09|5.4e-01|-4.132319e+00 -4.669375e+00| 0:0:00| chol  2↙
2
12|0.761|1.000|1.2e-10|1.1e-10|1.7e-01|-4.494085e+00 -4.662312e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|1.4e-10|1.3e-11|6.2e-02|-4.594337e+00 -4.656376e+00| 0:0:00| chol  2↙
2
14|0.944|0.963|3.6e-11|3.8e-12|3.8e-03|-4.650927e+00 -4.654724e+00| 0:0:00| chol  2↙
2
15|0.981|0.985|5.2e-12|3.5e-12|7.2e-05|-4.654562e+00 -4.654634e+00| 0:0:00| chol  2↙
3
16|0.944|1.000|6.7e-11|1.0e-12|1.2e-05|-4.654620e+00 -4.654632e+00| 0:0:00| chol  3↙
3
17|1.000|1.000|2.3e-10|1.6e-12|2.6e-06|-4.654630e+00 -4.654632e+00| 0:0:00| chol  3↙
3
18|0.992|1.000|3.7e-10|1.3e-12|1.0e-07|-4.654632e+00 -4.654632e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 18
 primal objective value = -4.65463189e+00
 dual   objective value = -4.65463192e+00
 gap := trace(XZ)       = 1.02e-07
 relative gap           = 9.90e-09
 actual relative gap    = 2.30e-09
 rel. primal infeas     = 3.68e-10
 rel. dual   infeas     = 1.33e-12
 norm(X), norm(y), norm(Z) = 1.9e+02, 5.5e+02, 3.9e+02
 norm(A), norm(b), norm(C) = 3.2e+03, 8.7e+03, 3.9e+02
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.1e-10  0.0e+00  1.9e-12  0.0e+00  2.3e-09  9.9e-09
-------------------------------------------------------------------

ans =

    4.6546


The total representation error of the testing signals is: 0.41994
>>
```