```
>> learn_from_data
    [1×7 double]    [1×7 double]    []


Epoch... 1
Epoch... 2


 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|3.2e+00|6.0e+05| 2.085618e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.971|4.2e-07|1.5e-01|5.6e+04| 1.723600e+04 -1.345139e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|5.8e-07|3.9e-02|8.8e+03| 4.328055e+03 -4.027980e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.2e-07|1.2e-02|1.0e+03| 5.985767e+02 -1.004087e+01| 0:0:00| chol  1↙
1
 4|0.928|0.928|1.2e-07|4.1e-03|1.3e+02| 8.163112e+01 -4.432081e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.6e-09|3.5e-04|6.1e+01| 5.590477e+01 -3.539236e+00| 0:0:00| chol  1↙
1
 6|0.823|0.831|2.5e-10|8.9e-05|1.2e+01| 9.055651e+00 -2.637264e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.2e-09|3.5e-06|6.8e+00| 4.329190e+00 -2.487882e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|6.6e-11|3.5e-07|1.8e+00|-4.834041e-01 -2.269714e+00| 0:0:00| chol  1↙
1
 9|0.975|1.000|1.6e-11|3.5e-08|3.5e-01|-1.864420e+00 -2.214408e+00| 0:0:00| chol  1↙
1
10|1.000|0.934|6.7e-13|5.6e-09|7.4e-02|-2.124297e+00 -2.198358e+00| 0:0:00| chol  1↙
1
11|0.978|0.979|1.1e-13|4.7e-10|1.6e-03|-2.193862e+00 -2.195509e+00| 0:0:00| chol  1↙
1
12|0.988|0.989|2.4e-12|4.1e-11|2.0e-05|-2.195421e+00 -2.195441e+00| 0:0:00| chol  2↙
2
13|0.990|1.000|1.9e-11|1.0e-12|6.5e-07|-2.195439e+00 -2.195440e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|3.2e-11|1.5e-12|5.1e-08|-2.195439e+00 -2.195440e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
----------------------------------------------------------------------
 number of iterations   = 14
 primal objective value = -2.19543931e+00
 dual   objective value = -2.19543972e+00
 gap := trace(XZ)       = 5.11e-08
 relative gap           = 9.48e-09
 actual relative gap    = 7.71e-08
 rel. primal infeas     = 3.24e-11
```

```
 rel. dual   infeas     = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.3e+01, 6.6e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 1.6e+02, 2.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.48
 CPU time per iteration = 0.03
 termination code       = 0
 DIMACS errors: 5.7e-11  0.0e+00  2.1e-12  0.0e+00  7.7e-08  9.5e-09
---------------------------------------------------------------------
```

ans =

    2.1954

Epoch... 3
Epoch... 4

```
 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|3.2e+00|5.0e+05| 1.740787e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.974|6.2e-07|1.4e-01|4.6e+04| 1.443263e+04 -5.715922e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|6.5e-07|3.9e-02|6.6e+03| 3.229562e+03 -2.731968e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.1e-07|1.2e-02|5.9e+02| 3.131568e+02 -6.992413e+00| 0:0:00| chol  1↙
1
 4|1.000|1.000|1.5e-07|3.5e-03|1.7e+02| 1.286454e+02 -3.917279e+00| 0:0:00| chol  1↙
1
 5|0.843|0.914|2.4e-08|6.3e-04|3.2e+01| 2.775883e+01 -2.688103e+00| 0:0:00| chol  1↙
1
 6|1.000|0.436|6.0e-09|3.7e-04|2.1e+01| 1.821041e+01 -2.116958e+00| 0:0:00| chol  1↙
1
 7|0.798|1.000|1.1e-09|3.5e-06|8.5e+00| 6.295931e+00 -2.220945e+00| 0:0:00| chol  1↙
1
 8|1.000|0.735|6.1e-11|1.2e-06|4.5e+00| 2.736312e+00 -1.735390e+00| 0:0:00| chol  1↙
1
 9|0.886|1.000|5.1e-12|3.5e-08|6.1e-01|-1.082710e+00 -1.689308e+00| 0:0:00| chol  1↙
1
10|1.000|0.867|6.2e-13|7.8e-09|2.9e-01|-1.372537e+00 -1.658303e+00| 0:0:00| chol  1↙
1
11|0.818|1.000|6.8e-14|3.6e-10|6.8e-02|-1.585425e+00 -1.653197e+00| 0:0:00| chol  1↙
1
12|1.000|1.000|1.5e-11|3.6e-11|2.3e-02|-1.628507e+00 -1.651767e+00| 0:0:00| chol  1↙
1
13|0.937|0.925|6.4e-12|7.5e-12|1.6e-03|-1.649367e+00 -1.650963e+00| 0:0:00| chol  2↙
2
```

```
14|0.980|1.000|8.7e-13|1.6e-12|2.7e-04|-1.650617e+00 -1.650887e+00| 0:0:00| chol  2↙
2
15|0.985|0.976|5.9e-11|1.0e-12|5.8e-06|-1.650870e+00 -1.650876e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|3.6e-12|1.5e-12|1.5e-07|-1.650876e+00 -1.650876e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -1.65087559e+00
 dual   objective value = -1.65087574e+00
 gap := trace(XZ)        = 1.48e-07
 relative gap            = 3.44e-08
 actual relative gap     = 3.41e-08
 rel. primal infeas      = 3.60e-12
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.7e+02, 2.0e+02, 5.0e+01
 Total CPU time (secs)  = 0.14
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.7e-12  0.0e+00  2.1e-12  0.0e+00  3.4e-08  3.4e-08
-------------------------------------------------------------------

ans =

    1.6509


Epoch... 5
Epoch... 6

 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|3.1e+00|4.7e+05| 1.606962e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.974|6.3e-07|1.4e-01|4.2e+04| 1.335086e+04 -2.766424e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|6.1e-07|3.9e-02|6.3e+03| 3.092080e+03 -2.724271e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.0e-07|1.2e-02|5.6e+02| 2.990109e+02 -5.847455e+00| 0:0:00| chol  1↙
1
 4|1.000|1.000|1.4e-07|3.5e-03|1.4e+02| 1.045357e+02 -3.141502e+00| 0:0:00| chol  1↙
1
 5|0.828|0.997|2.5e-08|3.6e-04|3.0e+01| 2.714505e+01 -2.226628e+00| 0:0:00| chol  1↙
1
 6|1.000|0.571|3.9e-09|1.8e-04|1.9e+01| 1.686217e+01 -1.730312e+00| 0:0:00| chol  1↙
1
```

```
  7|0.849|1.000|5.3e-10|3.5e-06|6.1e+00| 4.300541e+00 -1.814517e+00| 0:0:00| chol  1↙
1
  8|1.000|0.818|3.7e-11|9.4e-07|2.9e+00| 1.369974e+00 -1.498247e+00| 0:0:00| chol  1↙
1
  9|0.896|1.000|1.9e-12|3.5e-08|3.4e-01|-1.127336e+00 -1.468124e+00| 0:0:00| chol  1↙
1
 10|1.000|0.907|1.4e-12|6.5e-09|1.7e-01|-1.285109e+00 -1.452979e+00| 0:0:00| chol  1↙
1
 11|0.812|1.000|5.8e-13|3.6e-10|4.4e-02|-1.406850e+00 -1.451168e+00| 0:0:00| chol  1↙
1
 12|1.000|1.000|6.7e-12|3.6e-11|1.7e-02|-1.432953e+00 -1.449771e+00| 0:0:00| chol  1↙
1
 13|0.961|0.944|2.1e-12|6.8e-12|6.8e-04|-1.448710e+00 -1.449392e+00| 0:0:00| chol  1↙
1
 14|0.939|1.000|1.2e-11|1.4e-12|5.7e-05|-1.449304e+00 -1.449361e+00| 0:0:00| chol  2↙
2
 15|1.000|1.000|1.2e-11|1.5e-12|3.5e-06|-1.449356e+00 -1.449360e+00| 0:0:00| chol  2↙
2
 16|1.000|1.000|6.6e-12|2.2e-12|9.6e-08|-1.449359e+00 -1.449360e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -1.44935946e+00
 dual   objective value = -1.44935956e+00
 gap := trace(XZ)        = 9.56e-08
 relative gap            = 2.45e-08
 actual relative gap     = 2.34e-08
 rel. primal infeas      = 6.62e-12
 rel. dual   infeas      = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.6e+02, 1.9e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 1.3e-11  0.0e+00  3.1e-12  0.0e+00  2.3e-08  2.5e-08
-------------------------------------------------------------------


ans =

    1.4494


Epoch... 7
Epoch... 8

 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|3.2e+00|5.1e+05| 1.766808e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.974|6.5e-07|1.4e-01|4.6e+04| 1.464706e+04 -3.749142e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|6.6e-07|3.9e-02|6.8e+03| 3.349161e+03 -2.808622e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.1e-07|1.2e-02|6.4e+02| 3.494280e+02 -6.119850e+00| 0:0:00| chol  1↙
1
 4|1.000|0.947|1.3e-07|4.0e-03|1.0e+02| 7.077028e+01 -2.733095e+00| 0:0:00| chol  1↙
1
 5|0.928|1.000|9.5e-09|3.5e-04|4.4e+01| 3.990118e+01 -2.506738e+00| 0:0:00| chol  1↙
1
 6|1.000|0.897|4.1e-11|6.8e-05|9.2e+00| 7.588011e+00 -1.552606e+00| 0:0:00| chol  1↙
1
 7|0.960|1.000|4.1e-11|3.5e-06|3.1e+00| 1.556571e+00 -1.508812e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|7.7e-12|3.5e-07|1.1e+00|-2.872703e-01 -1.399445e+00| 0:0:00| chol  1↙
1
 9|0.890|0.946|8.0e-12|5.3e-08|1.3e-01|-1.256188e+00 -1.386045e+00| 0:0:00| chol  1↙
1
10|1.000|0.749|1.2e-11|1.6e-08|7.3e-02|-1.308285e+00 -1.381278e+00| 0:0:00| chol  1↙
1
11|0.814|1.000|2.4e-12|3.6e-10|2.2e-02|-1.358412e+00 -1.380814e+00| 0:0:00| chol  1↙
1
12|1.000|1.000|1.0e-11|3.6e-11|6.3e-03|-1.373994e+00 -1.380329e+00| 0:0:00| chol  1↙
1
13|0.967|0.977|7.9e-12|5.8e-12|2.2e-04|-1.379929e+00 -1.380152e+00| 0:0:00| chol  1↙
1
14|0.985|0.987|4.1e-11|1.7e-12|3.4e-06|-1.380144e+00 -1.380148e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|6.8e-12|2.4e-12|7.9e-08|-1.380148e+00 -1.380148e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 15
 primal objective value = -1.38014755e+00
 dual   objective value = -1.38014759e+00
 gap := trace(XZ)       = 7.95e-08
 relative gap           = 2.11e-08
 actual relative gap    = 1.29e-08
 rel. primal infeas     = 6.78e-12
 rel. dual   infeas     = 2.38e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.7e+02, 2.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-11  0.0e+00  3.3e-12  0.0e+00  1.3e-08  2.1e-08
-------------------------------------------------------------------


ans =

    1.3801


Epoch... 9
```

Epoch... 10

```
 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|3.3e+00|5.2e+05| 1.800665e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.975|7.1e-07|1.4e-01|4.7e+04| 1.492226e+04 -3.430217e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|7.5e-07|3.9e-02|7.0e+03| 3.453274e+03 -2.892550e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.2e-07|1.2e-02|6.9e+02| 3.857397e+02 -6.114691e+00| 0:0:00| chol  1↙
1
 4|0.963|0.912|1.1e-07|4.3e-03|9.6e+01| 6.269051e+01 -2.520654e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|5.6e-10|3.5e-04|4.8e+01| 4.516444e+01 -1.984787e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|7.2e-11|3.5e-05|7.5e+00| 5.993359e+00 -1.433504e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|2.4e-11|3.5e-06|2.7e+00| 1.350168e+00 -1.350835e+00| 0:0:00| chol  1↙
1
 8|0.933|0.948|1.1e-11|5.2e-07|2.9e-01|-1.018944e+00 -1.304292e+00| 0:0:00| chol  1↙
1
 9|0.939|1.000|6.0e-11|3.5e-08|1.2e-01|-1.180165e+00 -1.296418e+00| 0:0:00| chol  1↙
1
10|1.000|1.000|1.2e-12|3.5e-09|3.8e-02|-1.255905e+00 -1.294284e+00| 0:0:00| chol  1↙
1
11|0.954|0.937|2.5e-12|5.6e-10|1.8e-03|-1.291748e+00 -1.293535e+00| 0:0:00| chol  1↙
1
12|0.980|0.988|8.8e-13|4.3e-11|3.6e-05|-1.293466e+00 -1.293502e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|6.0e-11|1.0e-12|1.7e-06|-1.293500e+00 -1.293502e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|1.2e-11|1.5e-12|6.1e-08|-1.293502e+00 -1.293502e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
------------------------------------------------------------------
 number of iterations   = 14
 primal objective value = -1.29350161e+00
 dual   objective value = -1.29350165e+00
 gap := trace(XZ)       = 6.08e-08
 relative gap           = 1.69e-08
 actual relative gap    = 9.80e-09
 rel. primal infeas     = 1.21e-11
 rel. dual   infeas     = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.8e+02, 2.2e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
```

```
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 2.3e-11  0.0e+00  2.1e-12  0.0e+00  9.8e-09  1.7e-08
-------------------------------------------------------------------
```

ans =

    1.2935

Epoch... 11
Epoch... 12

```
 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|3.3e+00|5.1e+05| 1.774786e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.974|7.1e-07|1.4e-01|4.6e+04| 1.471600e+04 -1.471087e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|7.6e-07|3.9e-02|7.2e+03| 3.552946e+03 -3.088363e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.3e-07|1.2e-02|7.5e+02| 4.302720e+02 -6.119110e+00| 0:0:00| chol  1↙
1
 4|0.932|0.916|1.0e-07|4.2e-03|1.0e+02| 6.695353e+01 -2.293968e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|8.5e-10|3.5e-04|5.0e+01| 4.717665e+01 -1.957405e+00| 0:0:00| chol  1↙
1
 6|0.916|0.940|4.5e-11|5.4e-05|7.6e+00| 6.251114e+00 -1.349268e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.5e-10|3.5e-06|3.7e+00| 2.407636e+00 -1.313217e+00| 0:0:00| chol  1↙
1
 8|0.921|0.957|9.2e-12|4.9e-07|3.3e-01|-9.214229e-01 -1.255019e+00| 0:0:00| chol  1↙
1
 9|0.889|1.000|2.3e-11|3.5e-08|1.4e-01|-1.104919e+00 -1.246962e+00| 0:0:00| chol  1↙
1
10|1.000|1.000|8.0e-13|3.5e-09|4.4e-02|-1.200047e+00 -1.243799e+00| 0:0:00| chol  1↙
1
11|0.956|0.929|1.1e-12|5.8e-10|2.0e-03|-1.241050e+00 -1.243044e+00| 0:0:00| chol  1↙
1
12|0.957|0.987|2.6e-11|4.3e-11|9.3e-05|-1.242909e+00 -1.243002e+00| 0:0:00| chol  2↙
2
13|0.976|0.987|4.8e-11|2.1e-12|2.2e-06|-1.242999e+00 -1.243002e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|2.4e-11|2.3e-12|6.8e-08|-1.243001e+00 -1.243002e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 14
```

```
 primal objective value = -1.24300142e+00
 dual   objective value = -1.24300154e+00
 gap := trace(XZ)         = 6.77e-08
 relative gap             = 1.94e-08
 actual relative gap      = 3.40e-08
 rel. primal infeas       = 2.39e-11
 rel. dual   infeas       = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.8e+02, 2.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.6e-11  0.0e+00  3.1e-12  0.0e+00  3.4e-08  1.9e-08
-------------------------------------------------------------------


ans =

    1.2430


Epoch... 13
Epoch... 14

 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|3.2e+00|5.1e+05| 1.772233e+04  0.000000e+00| 0:0:00| chol  1⤸
1
 1|1.000|0.978|6.9e-07|1.3e-01|4.5e+04| 1.471421e+04 -1.877057e+00| 0:0:00| chol  1⤸
1
 2|1.000|1.000|7.1e-07|3.9e-02|6.7e+03| 3.295092e+03 -2.859048e+01| 0:0:00| chol  1⤸
1
 3|1.000|1.000|1.0e-07|1.2e-02|6.0e+02| 3.241309e+02 -4.289378e+00| 0:0:00| chol  1⤸
1
 4|1.000|0.977|1.1e-07|3.7e-03|9.2e+01| 6.501566e+01 -1.907460e+00| 0:0:00| chol  1⤸
1
 5|0.912|1.000|9.7e-09|3.5e-04|3.5e+01| 3.226196e+01 -2.076379e+00| 0:0:00| chol  1⤸
1
 6|1.000|0.899|4.0e-11|6.8e-05|6.0e+00| 4.646746e+00 -1.357673e+00| 0:0:00| chol  1⤸
1
 7|0.946|1.000|3.2e-11|3.5e-06|1.7e+00| 4.034120e-01 -1.323580e+00| 0:0:00| chol  1⤸
1
 8|1.000|0.990|1.0e-11|3.8e-07|5.0e-01|-7.763842e-01 -1.274269e+00| 0:0:00| chol  1⤸
1
 9|0.834|1.000|1.4e-11|3.5e-08|9.7e-02|-1.171164e+00 -1.268308e+00| 0:0:00| chol  1⤸
1
10|1.000|0.859|1.1e-10|8.1e-09|5.0e-02|-1.215344e+00 -1.265390e+00| 0:0:00| chol  1⤸
1
```

```
11|0.941|0.997|7.5e-12|3.8e-10|3.1e-03|-1.261985e+00 -1.265073e+00| 0:0:00| chol  2↙
2
12|1.000|1.000|6.1e-12|3.7e-11|1.4e-03|-1.263660e+00 -1.265032e+00| 0:0:00| chol  1↙
1
13|0.985|0.986|4.5e-11|5.3e-12|2.0e-05|-1.264979e+00 -1.264999e+00| 0:0:00| chol  1↙
2
14|1.000|1.000|8.0e-12|1.8e-12|9.8e-07|-1.264998e+00 -1.264999e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|2.0e-12|1.6e-12|5.3e-08|-1.264999e+00 -1.264999e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -1.26499871e+00
 dual   objective value = -1.26499876e+00
 gap := trace(XZ)        = 5.35e-08
 relative gap           = 1.51e-08
 actual relative gap    = 1.43e-08
 rel. primal infeas     = 2.03e-12
 rel. dual   infeas     = 1.60e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.7e+02, 2.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.9e-12  0.0e+00  2.2e-12  0.0e+00  1.4e-08  1.5e-08
-------------------------------------------------------------------


ans =

    1.2650


Epoch... 15
Epoch... 16

 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|3.1e+00|5.3e+05| 1.824876e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|5.7e-07|1.3e-01|4.6e+04| 1.515731e+04  1.063284e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|5.9e-07|3.9e-02|7.1e+03| 3.487980e+03 -3.176984e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|8.3e-08|1.2e-02|6.3e+02| 3.415845e+02 -3.547185e+00| 0:0:00| chol  1↙
1
 4|1.000|0.945|9.7e-08|4.0e-03|7.1e+01| 4.475226e+01 -1.497793e+00| 0:0:00| chol  1↙
1
```

```
 5|1.000|1.000|5.6e-10|3.5e-04|3.2e+01| 2.915423e+01 -1.692456e+00| 0:0:00| chol  1↙
1
 6|1.000|0.956|3.8e-11|4.9e-05|2.4e+00| 1.141703e+00 -1.260447e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.1e-10|3.5e-06|1.0e+00|-1.775788e-01 -1.210976e+00| 0:0:00| chol  1↙
1
 8|0.882|0.882|2.6e-11|7.3e-07|1.3e-01|-1.059121e+00 -1.192925e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|1.1e-10|3.5e-08|6.2e-02|-1.127288e+00 -1.188827e+00| 0:0:00| chol  1↙
1
10|0.932|0.946|1.1e-11|5.3e-09|6.5e-03|-1.180671e+00 -1.187199e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|1.1e-12|3.6e-10|6.5e-04|-1.186347e+00 -1.187000e+00| 0:0:00| chol  1↙
1
12|0.988|0.988|7.2e-11|4.0e-11|8.2e-06|-1.186966e+00 -1.186974e+00| 0:0:00| chol  1↙
2
13|0.998|0.997|2.7e-12|1.6e-12|9.6e-08|-1.186974e+00 -1.186974e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 13
 primal objective value = -1.18697354e+00
 dual   objective value = -1.18697361e+00
 gap := trace(XZ)        = 9.58e-08
 relative gap            = 2.84e-08
 actual relative gap     = 2.08e-08
 rel. primal infeas      = 2.67e-12
 rel. dual   infeas      = 1.61e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.6e+02, 2.2e+02, 5.0e+01
 Total CPU time (secs) = 0.06
 CPU time per iteration = 0.00
 termination code        =  0
 DIMACS errors: 5.0e-12  0.0e+00  2.2e-12  0.0e+00  2.1e-08  2.8e-08
-------------------------------------------------------------------

ans =

    1.1870


Epoch... 17
Epoch... 18

 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|3.4e+00|5.1e+05| 1.745514e+04  0.000000e+00| 0:0:00| chol  1↙
1
```

```
 1|1.000|0.975|7.7e-07|1.4e-01|4.5e+04| 1.449677e+04  8.442531e-01| 0:0:00| chol  1↙
1
 2|1.000|1.000|8.9e-07|3.9e-02|7.2e+03| 3.568222e+03 -3.110268e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.5e-07|1.2e-02|7.3e+02| 4.176373e+02 -4.453553e+00| 0:0:00| chol  1↙
1
 4|0.951|0.939|8.1e-08|4.1e-03|8.4e+01| 5.368320e+01 -1.470456e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.2e-09|3.5e-04|4.2e+01| 3.891924e+01 -1.606870e+00| 0:0:00| chol  1↙
1
 6|0.915|0.997|4.5e-11|3.6e-05|5.3e+00| 4.037424e+00 -1.200435e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|3.1e-10|3.5e-06|2.1e+00| 9.387043e-01 -1.177276e+00| 0:0:00| chol  1↙
1
 8|0.875|0.959|2.6e-11|4.9e-07|2.9e-01|-8.579747e-01 -1.148686e+00| 0:0:00| chol  1↙
1
 9|1.000|0.697|3.0e-10|1.7e-07|1.6e-01|-9.855278e-01 -1.142898e+00| 0:0:00| chol  1↙
1
10|0.768|1.000|4.8e-11|3.6e-09|8.1e-02|-1.060750e+00 -1.141797e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|5.7e-13|3.6e-10|3.0e-02|-1.109075e+00 -1.138809e+00| 0:0:00| chol  1↙
1
12|0.908|0.946|1.3e-12|5.4e-11|3.0e-03|-1.135232e+00 -1.138257e+00| 0:0:00| chol  1↙
2
13|1.000|1.000|3.2e-12|4.5e-12|1.2e-03|-1.136997e+00 -1.138203e+00| 0:0:00| chol  2↙
1
14|0.944|0.955|1.1e-10|1.5e-12|7.0e-05|-1.138096e+00 -1.138166e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|6.5e-11|1.5e-12|1.0e-05|-1.138154e+00 -1.138164e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|9.5e-12|2.3e-12|1.8e-07|-1.138164e+00 -1.138164e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -1.13816358e+00
 dual   objective value = -1.13816375e+00
 gap := trace(XZ)       = 1.78e-07
 relative gap           = 5.42e-08
 actual relative gap    = 5.36e-08
 rel. primal infeas     = 9.47e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.9e+02, 2.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-11  0.0e+00  3.1e-12  0.0e+00  5.4e-08  5.4e-08
-------------------------------------------------------------------


ans =

    1.1382


Epoch... 19
```

Epoch... 20

```
 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|5.4e+05| 1.853725e+04   0.000000e+00| 0:0:00| chol  1 1
 1|1.000|0.974|7.6e-07|1.5e-01|4.8e+04| 1.537419e+04   2.046188e+00| 0:0:00| chol  1 1
 2|1.000|1.000|9.3e-07|3.9e-02|7.9e+03| 3.924808e+03  -3.457874e+01| 0:0:00| chol  1 1
 3|1.000|1.000|1.9e-07|1.2e-02|9.3e+02| 5.523980e+02  -5.522182e+00| 0:0:00| chol  1 1
 4|0.962|0.962|6.7e-08|3.9e-03|8.7e+01| 5.619571e+01  -1.367051e+00| 0:0:00| chol  1 1
 5|1.000|1.000|1.4e-09|3.5e-04|4.2e+01| 3.925979e+01  -1.396500e+00| 0:0:00| chol  1 1
 6|0.911|0.923|9.0e-11|6.0e-05|3.8e+00| 2.668119e+00  -1.089793e+00| 0:0:00| chol  1 1
 7|1.000|1.000|8.4e-10|3.5e-06|1.7e+00| 5.744301e-01  -1.077154e+00| 0:0:00| chol  1 1
 8|0.861|0.958|3.9e-11|4.9e-07|2.8e-01|-7.662334e-01  -1.050137e+00| 0:0:00| chol  1 1
 9|1.000|0.967|6.4e-10|5.0e-08|1.4e-01|-9.078342e-01  -1.044406e+00| 0:0:00| chol  1 1
10|0.889|1.000|5.9e-11|3.6e-09|5.7e-02|-9.863459e-01  -1.043524e+00| 0:0:00| chol  1 1
11|1.000|1.000|2.6e-12|3.7e-10|1.6e-02|-1.026007e+00  -1.041729e+00| 0:0:00| chol  1 1
12|0.900|0.953|1.1e-11|5.2e-11|1.8e-03|-1.039492e+00  -1.041337e+00| 0:0:00| chol  2 2
13|1.000|1.000|4.0e-12|5.0e-12|7.1e-04|-1.040597e+00  -1.041311e+00| 0:0:00| chol  2 2
14|0.897|0.932|1.6e-10|1.7e-12|8.8e-05|-1.041205e+00  -1.041292e+00| 0:0:00| chol  2 2
15|1.000|1.000|1.7e-10|1.5e-12|3.4e-05|-1.041257e+00  -1.041291e+00| 0:0:00| chol  2 2
16|1.000|1.000|2.5e-11|2.3e-12|5.5e-06|-1.041285e+00  -1.041290e+00| 0:0:00| chol  2 2
17|1.000|1.000|2.5e-11|3.4e-12|1.4e-06|-1.041289e+00  -1.041290e+00| 0:0:00| chol  2 2
18|0.980|1.000|9.1e-11|5.0e-12|2.0e-07|-1.041290e+00  -1.041290e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.04128972e+00
 dual   objective value = -1.04128992e+00
```

```
 gap := trace(XZ)         = 2.03e-07
 relative gap             = 6.59e-08
 actual relative gap      = 6.45e-08
 rel. primal infeas       = 9.12e-11
 rel. dual   infeas       = 5.05e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.0e+02, 2.2e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 1.7e-10  0.0e+00  6.9e-12  0.0e+00  6.5e-08  6.6e-08
-------------------------------------------------------------------


ans =

    1.0413

Epoch... 21
Epoch... 22

 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|3.2e+00|5.7e+05| 1.978299e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|5.6e-07|1.3e-01|5.0e+04| 1.640768e+04  2.274767e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|6.5e-07|3.9e-02|8.0e+03| 3.937517e+03 -3.643512e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.0e-07|1.2e-02|7.7e+02| 4.313037e+02 -3.961085e+00| 0:0:00| chol  1↙
1
 4|0.959|0.945|7.5e-08|4.0e-03|8.4e+01| 5.321145e+01 -1.171092e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.2e-09|3.5e-04|4.1e+01| 3.817331e+01 -1.565704e+00| 0:0:00| chol  1↙
1
 6|0.926|1.000|5.8e-11|3.5e-05|5.8e+00| 4.594268e+00 -1.188585e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.0e-10|3.5e-06|1.8e+00| 6.458456e-01 -1.115717e+00| 0:0:00| chol  1↙
1
 8|0.805|0.978|3.0e-11|4.3e-07|3.8e-01|-7.121510e-01 -1.094350e+00| 0:0:00| chol  1↙
1
 9|1.000|0.503|3.3e-10|2.3e-07|2.4e-01|-8.431898e-01 -1.086645e+00| 0:0:00| chol  1↙
1
10|0.649|1.000|1.1e-10|3.6e-09|1.1e-01|-9.750943e-01 -1.088489e+00| 0:0:00| chol  1↙
1
11|1.000|0.796|8.6e-12|1.0e-09|4.8e-02|-1.035748e+00 -1.083712e+00| 0:0:00| chol  1↙
1
```

```
12|0.970|0.987|7.2e-13|5.0e-11|1.5e-03|-1.080333e+00 -1.081794e+00| 0:0:00| chol  1↙
1
13|0.962|0.976|7.5e-11|5.7e-12|5.7e-05|-1.081694e+00 -1.081752e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|5.4e-11|1.5e-12|8.3e-06|-1.081742e+00 -1.081750e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|8.6e-12|2.3e-12|3.7e-07|-1.081750e+00 -1.081750e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|7.2e-12|1.7e-12|1.5e-08|-1.081750e+00 -1.081750e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -1.08175002e+00
 dual   objective value = -1.08175003e+00
 gap := trace(XZ)        = 1.47e-08
 relative gap            = 4.65e-09
 actual relative gap     = 2.16e-09
 rel. primal infeas      = 7.18e-12
 rel. dual   infeas      = 1.73e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 1.8e+02, 2.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-11  0.0e+00  2.4e-12  0.0e+00  2.2e-09  4.6e-09
-------------------------------------------------------------------

ans =

    1.0818


Epoch... 23
Epoch... 24

 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|3.3e+00|5.9e+05| 2.026829e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|5.5e-07|1.4e-01|5.2e+04| 1.679807e+04  3.152802e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|6.7e-07|3.9e-02|8.5e+03| 4.193421e+03 -3.971395e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.2e-07|1.2e-02|9.0e+02| 5.236027e+02 -4.869356e+00| 0:0:00| chol  1↙
1
 4|0.963|0.959|6.7e-08|3.9e-03|8.8e+01| 5.617892e+01 -1.140861e+00| 0:0:00| chol  1↙
1
```

```
  5|1.000|1.000|4.8e-10|3.5e-04|4.0e+01| 3.756577e+01 -1.495013e+00| 0:0:00| chol  1↙
1
  6|0.923|0.955|5.9e-11|5.0e-05|3.2e+00| 2.016262e+00 -1.131974e+00| 0:0:00| chol  1↙
1
  7|1.000|1.000|6.9e-10|3.5e-06|1.4e+00| 2.511951e-01 -1.101537e+00| 0:0:00| chol  1↙
1
  8|0.890|1.000|7.6e-11|3.5e-07|3.9e-01|-6.958829e-01 -1.081074e+00| 0:0:00| chol  1↙
1
  9|1.000|1.000|2.4e-11|3.5e-08|9.9e-02|-9.716729e-01 -1.070498e+00| 0:0:00| chol  1↙
1
 10|0.904|0.999|2.2e-12|3.6e-09|1.3e-02|-1.055519e+00 -1.068113e+00| 0:0:00| chol  1↙
1
 11|1.000|1.000|7.3e-12|3.6e-10|1.2e-03|-1.066689e+00 -1.067890e+00| 0:0:00| chol  1↙
1
 12|0.986|0.988|8.2e-11|4.1e-11|1.7e-05|-1.067829e+00 -1.067846e+00| 0:0:00| chol  2↙
2
 13|1.000|1.000|2.0e-11|2.2e-12|4.3e-07|-1.067845e+00 -1.067845e+00| 0:0:00| chol  2↙
2
 14|1.000|1.000|1.4e-11|3.3e-12|1.8e-08|-1.067845e+00 -1.067845e+00| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 14
 primal objective value = -1.06784548e+00
 dual   objective value = -1.06784536e+00
 gap := trace(XZ)        = 1.83e-08
 relative gap            = 5.84e-09
 actual relative gap     = -3.86e-08
 rel. primal infeas      = 1.37e-11
 rel. dual   infeas      = 3.27e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 1.8e+02, 2.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.07
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.6e-11  0.0e+00  4.5e-12  0.0e+00  -3.9e-08  5.8e-09
-------------------------------------------------------------------


ans =

    1.0678


Epoch... 25
Epoch... 26

 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|3.3e+00|6.3e+05| 2.173637e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|5.2e-07|1.3e-01|5.5e+04| 1.799828e+04  2.389960e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|6.4e-07|3.9e-02|8.8e+03| 4.341931e+03 -4.042251e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.1e-07|1.2e-02|9.0e+02| 5.177701e+02 -4.610413e+00| 0:0:00| chol  1↙
1
 4|0.961|0.955|6.8e-08|3.9e-03|9.2e+01| 5.844845e+01 -1.028085e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|6.8e-10|3.5e-04|4.2e+01| 3.883772e+01 -1.487998e+00| 0:0:00| chol  1↙
1
 6|0.917|0.977|4.7e-11|4.3e-05|3.6e+00| 2.519561e+00 -1.092136e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|6.7e-10|3.5e-06|1.5e+00| 4.029788e-01 -1.060791e+00| 0:0:00| chol  1↙
1
 8|0.877|1.000|6.6e-11|3.5e-07|5.2e-01|-5.217187e-01 -1.046429e+00| 0:0:00| chol  1↙
1
 9|1.000|0.977|1.6e-11|4.3e-08|1.1e-01|-9.183312e-01 -1.030840e+00| 0:0:00| chol  1↙
1
10|0.854|1.000|3.5e-12|3.5e-09|2.9e-02|-9.994988e-01 -1.028874e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|2.7e-12|3.6e-10|2.3e-03|-1.025709e+00 -1.027986e+00| 0:0:00| chol  1↙
1
12|0.988|0.988|5.4e-13|4.0e-11|2.6e-05|-1.027879e+00 -1.027906e+00| 0:0:00| chol  1↙
1
13|0.995|0.995|3.4e-12|1.2e-12|4.0e-07|-1.027904e+00 -1.027905e+00| 0:0:00| chol  2↙
2
14|0.999|1.000|3.9e-12|1.0e-12|6.7e-09|-1.027905e+00 -1.027905e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 14
 primal objective value = -1.02790453e+00
 dual   objective value = -1.02790456e+00
 gap := trace(XZ)        = 6.66e-09
 relative gap            = 2.18e-09
 actual relative gap     = 9.83e-09
 rel. primal infeas      = 3.87e-12
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 1.8e+02, 2.5e+02, 5.0e+01
 Total CPU time (secs)  = 0.07
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.0e-12  0.0e+00  1.4e-12  0.0e+00  9.8e-09  2.2e-09
-------------------------------------------------------------------

ans =

    1.0279

Epoch... 27
Epoch... 28
```

```
 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|3.4e+00|6.9e+05| 2.385424e+04  0.000000e+00| 0:0:00| chol  1 1
 1|1.000|0.979|4.8e-07|1.3e-01|6.0e+04| 1.971954e+04  3.813301e-01| 0:0:00| chol  1 1
 2|1.000|1.000|6.2e-07|3.9e-02|9.3e+03| 4.577863e+03 -4.055811e+01| 0:0:00| chol  1 1
 3|1.000|1.000|1.1e-07|1.2e-02|9.8e+02| 5.631519e+02 -5.131512e+00| 0:0:00| chol  1 1
 4|0.959|0.953|6.9e-08|3.9e-03|1.0e+02| 6.437296e+01 -1.102401e+00| 0:0:00| chol  1 1
 5|1.000|1.000|5.4e-10|3.5e-04|4.4e+01| 4.111665e+01 -1.620711e+00| 0:0:00| chol  1 1
 6|0.929|0.970|3.6e-11|4.5e-05|3.2e+00| 2.000846e+00 -1.189533e+00| 0:0:00| chol  1 1
 7|1.000|1.000|7.0e-10|3.5e-06|1.3e+00| 1.698882e-01 -1.155464e+00| 0:0:00| chol  1 1
 8|0.898|1.000|5.3e-11|3.5e-07|4.4e-01|-7.007634e-01 -1.138602e+00| 0:0:00| chol  1 1
 9|1.000|0.987|2.0e-11|4.0e-08|9.1e-02|-1.034210e+00 -1.125441e+00| 0:0:00| chol  1 1
10|0.859|1.000|3.4e-12|3.5e-09|2.3e-02|-1.101196e+00 -1.123883e+00| 0:0:00| chol  1 1
11|1.000|0.980|9.0e-13|4.2e-10|1.3e-03|-1.121899e+00 -1.123209e+00| 0:0:00| chol  1 1
12|0.987|0.984|1.6e-12|4.2e-11|1.7e-05|-1.123134e+00 -1.123151e+00| 0:0:00| chol  1 1
13|0.999|0.995|2.8e-12|1.2e-12|4.4e-07|-1.123149e+00 -1.123150e+00| 0:0:00| chol  2 2
14|1.000|1.000|5.1e-13|1.0e-12|3.2e-08|-1.123150e+00 -1.123150e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 14
 primal objective value = -1.12314963e+00
 dual   objective value = -1.12314966e+00
 gap := trace(XZ)        = 3.16e-08
 relative gap            = 9.72e-09
 actual relative gap     = 8.26e-09
 rel. primal infeas      = 5.06e-13
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.7e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 1.9e+02, 2.7e+02, 5.0e+01
 Total CPU time (secs) = 0.07
 CPU time per iteration = 0.01
 termination code       =  0
```

```
 DIMACS errors: 9.0e-13  0.0e+00  1.4e-12  0.0e+00  8.3e-09  9.7e-09
------------------------------------------------------------------------
```

ans =

    1.1231

Epoch... 29
Epoch... 30

```
 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|7.5e+05| 2.586161e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.978|5.0e-07|1.4e-01|6.5e+04| 2.134297e+04  1.289759e+00| 0:0:00| chol 1↙
1
 2|1.000|1.000|7.1e-07|3.9e-02|1.0e+04| 5.161300e+03 -4.638548e+01| 0:0:00| chol 1↙
1
 3|1.000|1.000|1.6e-07|1.2e-02|1.4e+03| 8.520828e+02 -7.641636e+00| 0:0:00| chol 1↙
1
 4|0.969|0.980|5.3e-08|3.7e-03|1.2e+02| 7.582742e+01 -1.065532e+00| 0:0:00| chol 1↙
1
 5|1.000|1.000|2.0e-09|3.5e-04|4.3e+01| 4.001445e+01 -1.395024e+00| 0:0:00| chol 1↙
1
 6|0.931|0.970|9.4e-11|4.5e-05|3.0e+00| 1.924619e+00 -1.073692e+00| 0:0:00| chol 1↙
1
 7|1.000|0.919|8.2e-10|6.9e-06|1.4e+00| 3.464053e-01 -1.043526e+00| 0:0:00| chol 1↙
1
 8|0.916|1.000|6.5e-10|3.5e-07|6.1e-01|-4.247733e-01 -1.034300e+00| 0:0:00| chol 1↙
1
 9|1.000|1.000|3.9e-11|3.5e-08|1.6e-01|-8.538644e-01 -1.016031e+00| 0:0:00| chol 1↙
1
10|0.880|1.000|4.9e-12|3.6e-09|3.1e-02|-9.826322e-01 -1.013359e+00| 0:0:00| chol 1↙
1
11|1.000|1.000|7.5e-12|3.6e-10|6.7e-03|-1.006104e+00 -1.012783e+00| 0:0:00| chol 1↙
1
12|0.916|0.928|2.2e-12|6.0e-11|6.5e-04|-1.011943e+00 -1.012590e+00| 0:0:00| chol 1↙
2
13|1.000|1.000|1.8e-10|4.5e-12|1.3e-04|-1.012437e+00 -1.012569e+00| 0:0:00| chol 1↙
1
14|0.988|0.988|5.8e-11|1.6e-12|1.6e-06|-1.012562e+00 -1.012564e+00| 0:0:00| chol 2↙
1
15|0.996|0.996|9.5e-12|2.3e-12|2.3e-08|-1.012564e+00 -1.012564e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
------------------------------------------------------------------------
 number of iterations   = 15
```

```
 primal objective value = -1.01256397e+00
 dual   objective value = -1.01256399e+00
 gap := trace(XZ)        = 2.29e-08
 relative gap            = 7.58e-09
 actual relative gap     = 5.21e-09
 rel. primal infeas      = 9.51e-12
 rel. dual   infeas      = 2.26e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.0e+02, 2.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.6e-11  0.0e+00  3.1e-12  0.0e+00  5.2e-09  7.6e-09
-------------------------------------------------------------------
```

ans =

    1.0126

Epoch... 31
Epoch... 32

```
 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|7.6e+05| 2.628729e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|5.2e-07|1.4e-01|6.7e+04| 2.168615e+04  2.285534e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|7.8e-07|3.9e-02|1.1e+04| 5.397070e+03 -4.982386e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|2.0e-07|1.2e-02|1.6e+03| 1.037962e+03 -8.893766e+00| 0:0:00| chol  1↙
1
 4|0.971|0.995|4.5e-08|3.6e-03|1.3e+02| 8.487031e+01 -1.071016e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|5.6e-09|3.5e-04|4.9e+01| 4.664720e+01 -1.285342e+00| 0:0:00| chol  1↙
1
 6|0.837|1.000|5.0e-10|3.5e-05|1.4e+01| 1.241252e+01 -1.224979e+00| 0:0:00| chol  1↙
1
 7|1.000|0.937|1.8e-10|5.5e-06|4.5e+00| 3.435748e+00 -1.034190e+00| 0:0:00| chol  1↙
1
 8|0.851|1.000|3.9e-11|3.5e-07|7.0e-01|-3.065168e-01 -1.009841e+00| 0:0:00| chol  1↙
1
 9|1.000|0.558|7.5e-10|1.8e-07|4.2e-01|-5.733469e-01 -9.903935e-01| 0:0:00| chol  1↙
1
10|0.786|1.000|1.6e-10|3.6e-09|1.5e-01|-8.406059e-01 -9.886164e-01| 0:0:00| chol  1↙
1
```

```
11|1.000|0.875|6.5e-13|7.7e-10|6.2e-02|-9.207157e-01 -9.826100e-01| 0:0:00| chol  1↙
1
12|0.933|0.947|4.4e-13|7.5e-11|4.4e-03|-9.766117e-01 -9.809693e-01| 0:0:00| chol  1↙
2
13|1.000|1.000|2.1e-12|4.5e-12|1.3e-03|-9.795347e-01 -9.808767e-01| 0:0:00| chol  2↙
2
14|1.000|1.000|1.3e-10|1.4e-12|3.1e-04|-9.805294e-01 -9.808353e-01| 0:0:00| chol  2↙
2
15|0.912|0.941|7.3e-11|1.6e-12|3.5e-05|-9.807910e-01 -9.808256e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|4.4e-11|2.3e-12|8.2e-06|-9.808165e-01 -9.808247e-01| 0:0:00| chol  2↙
2
17|0.999|0.998|3.1e-12|3.4e-12|1.2e-07|-9.808242e-01 -9.808244e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -9.80824236e-01
 dual   objective value = -9.80824360e-01
 gap := trace(XZ)        = 1.25e-07
 relative gap            = 4.21e-08
 actual relative gap     = 4.18e-08
 rel. primal infeas      = 3.11e-12
 rel. dual   infeas      = 3.38e-12
 norm(X), norm(y), norm(Z) = 2.4e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.0e+02, 2.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.3e-12  0.0e+00  4.6e-12  0.0e+00  4.2e-08  4.2e-08
-------------------------------------------------------------------

ans =

    0.9808


Epoch... 33
Epoch... 34

 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|7.6e+05| 2.622722e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|5.8e-07|1.4e-01|6.7e+04| 2.163545e+04  3.295847e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|8.8e-07|3.9e-02|1.1e+04| 5.536895e+03 -5.232705e+01| 0:0:00| chol  1↙
1
```

```
 3|1.000|1.000|2.6e-07|1.2e-02|1.9e+03| 1.206736e+03 -9.705488e+00| 0:0:00| chol  1↙
1
 4|0.961|1.000|3.9e-08|3.5e-03|1.5e+02| 1.077444e+02 -1.271472e+00| 0:0:00| chol  1↙
1
 5|1.000|0.921|3.8e-09|6.1e-04|5.6e+01| 5.188833e+01 -1.164202e+00| 0:0:00| chol  1↙
1
 6|0.821|1.000|4.2e-10|3.5e-05|1.3e+01| 1.150520e+01 -1.153283e+00| 0:0:00| chol  1↙
1
 7|1.000|0.728|5.3e-10|1.2e-05|5.9e+00| 4.908155e+00 -9.895790e-01| 0:0:00| chol  1↙
1
 8|0.889|1.000|1.5e-11|3.5e-07|6.8e-01|-2.823450e-01 -9.657016e-01| 0:0:00| chol  1↙
1
 9|1.000|0.550|8.8e-10|1.8e-07|4.2e-01|-5.216419e-01 -9.418863e-01| 0:0:00| chol  1↙
1
10|0.815|1.000|1.6e-10|3.5e-09|1.2e-01|-8.221183e-01 -9.387555e-01| 0:0:00| chol  1↙
1
11|1.000|0.785|4.1e-12|1.0e-09|4.9e-02|-8.851911e-01 -9.342301e-01| 0:0:00| chol  1↙
1
12|0.927|0.973|3.8e-13|6.4e-11|4.1e-03|-9.286468e-01 -9.327238e-01| 0:0:00| chol  1↙
2
13|1.000|1.000|7.6e-13|4.5e-12|5.5e-04|-9.321100e-01 -9.326649e-01| 0:0:00| chol  2↙
2
14|0.984|0.983|5.2e-11|1.4e-12|9.2e-06|-9.326439e-01 -9.326531e-01| 0:0:00| chol  1↙
1
15|0.999|1.000|6.9e-12|1.5e-12|1.5e-07|-9.326528e-01 -9.326529e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -9.32652767e-01
 dual   objective value = -9.32652919e-01
 gap := trace(XZ)        = 1.52e-07
 relative gap            = 5.32e-08
 actual relative gap     = 5.33e-08
 rel. primal infeas      = 6.92e-12
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.0e+02, 2.8e+02, 5.0e+01
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 1.2e-11  0.0e+00  2.1e-12  0.0e+00  5.3e-08  5.3e-08
-------------------------------------------------------------------


ans =

    0.9327


Epoch... 35
Epoch... 36

 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|7.6e+05| 2.649827e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.976|6.4e-07|1.4e-01|6.8e+04| 2.185491e+04  3.727567e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.4e-07|3.9e-02|1.1e+04| 5.665396e+03 -5.389676e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|3.0e-07|1.2e-02|2.1e+03| 1.346527e+03 -1.021090e+01| 0:0:00| chol  1↙
1
 4|0.948|1.000|3.5e-08|3.5e-03|1.9e+02| 1.356227e+02 -1.653000e+00| 0:0:00| chol  1↙
1
 5|1.000|0.893|3.1e-09|6.9e-04|6.6e+01| 6.110709e+01 -1.137268e+00| 0:0:00| chol  1↙
1
 6|0.850|1.000|3.1e-10|3.5e-05|1.1e+01| 1.010261e+01 -1.097285e+00| 0:0:00| chol  1↙
1
 7|1.000|0.633|8.6e-10|1.5e-05|5.7e+00| 4.768186e+00 -9.542083e-01| 0:0:00| chol  1↙
1
 8|0.905|1.000|4.3e-11|3.5e-07|5.6e-01|-3.699465e-01 -9.339407e-01| 0:0:00| chol  1↙
1
 9|1.000|0.592|1.0e-09|1.7e-07|3.5e-01|-5.654063e-01 -9.123263e-01| 0:0:00| chol  1↙
1
10|0.827|1.000|1.8e-10|3.6e-09|8.9e-02|-8.202421e-01 -9.089358e-01| 0:0:00| chol  1↙
1
11|1.000|0.779|2.0e-12|1.1e-09|3.6e-02|-8.698202e-01 -9.059952e-01| 0:0:00| chol  1↙
1
12|0.944|0.993|3.8e-12|4.3e-11|2.3e-03|-9.027873e-01 -9.050468e-01| 0:0:00| chol  2↙
2
13|0.936|1.000|1.8e-12|4.5e-12|2.4e-04|-9.047771e-01 -9.050154e-01| 0:0:00| chol  2↙
2
14|0.989|1.000|7.7e-11|1.0e-12|7.0e-06|-9.050050e-01 -9.050120e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|6.4e-12|1.5e-12|3.5e-07|-9.050116e-01 -9.050119e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|1.9e-11|1.3e-12|7.9e-09|-9.050119e-01 -9.050119e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.05011908e-01
 dual   objective value = -9.05011910e-01
 gap := trace(XZ)        = 7.88e-09
 relative gap            = 2.80e-09
 actual relative gap     = 5.60e-10
 rel. primal infeas      = 1.85e-11
 rel. dual   infeas      = 1.28e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.1e+02, 2.8e+02, 5.0e+01
 Total CPU time (secs) = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
```

```
  DIMACS errors: 3.1e-11  0.0e+00  1.8e-12  0.0e+00  5.6e-10  2.8e-09
  ----------------------------------------------------------------------
```

ans =

    0.9050

Epoch... 37
Epoch... 38

```
 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|7.7e+05| 2.680937e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.975|7.0e-07|1.5e-01|6.9e+04| 2.210129e+04  3.638354e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.2e+04| 5.836981e+03 -5.499489e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|4.1e-07|1.2e-02|2.5e+03| 1.704672e+03 -1.086580e+01| 0:0:00| chol  1↙
1
 4|0.889|1.000|3.3e-08|3.5e-03|3.5e+02| 2.776828e+02 -4.574533e+00| 0:0:00| chol  1↙
1
 5|1.000|0.748|5.3e-09|1.7e-03|1.4e+02| 1.288525e+02 -1.349540e+00| 0:0:00| chol  1↙
1
 6|0.925|1.000|3.3e-10|1.1e-04|1.3e+01| 1.159309e+01 -1.135719e+00| 0:0:00| chol  1↙
1
 7|1.000|0.735|8.0e-10|3.6e-05|6.3e+00| 5.305689e+00 -9.519026e-01| 0:0:00| chol  1↙
1
 8|0.910|1.000|2.9e-11|1.1e-06|5.9e-01|-3.444767e-01 -9.304492e-01| 0:0:00| chol  1↙
1
 9|1.000|0.614|9.1e-10|4.8e-07|3.4e-01|-5.720071e-01 -9.119840e-01| 0:0:00| chol  1↙
1
10|0.769|1.000|2.1e-10|1.1e-08|1.1e-01|-7.994864e-01 -9.076271e-01| 0:0:00| chol  1↙
1
11|1.000|0.792|1.3e-12|3.1e-09|4.7e-02|-8.573323e-01 -9.041839e-01| 0:0:00| chol  1↙
1
12|0.954|0.980|1.2e-12|1.7e-10|2.7e-03|-9.005206e-01 -9.032341e-01| 0:0:00| chol  1↙
1
13|0.930|1.000|5.9e-11|1.2e-11|2.3e-04|-9.029550e-01 -9.031842e-01| 0:0:00| chol  2↙
2
14|1.000|1.000|1.3e-10|1.5e-12|4.2e-05|-9.031405e-01 -9.031825e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|3.2e-11|2.3e-12|2.1e-06|-9.031792e-01 -9.031813e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|7.8e-12|3.4e-12|3.5e-08|-9.031813e-01 -9.031813e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
```

```
---------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.03181255e-01
 dual   objective value = -9.03181286e-01
 gap := trace(XZ)       = 3.50e-08
 relative gap           = 1.25e-08
 actual relative gap    = 1.10e-08
 rel. primal infeas     = 7.85e-12
 rel. dual   infeas     = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 2.9e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-11  0.0e+00  4.6e-12  0.0e+00  1.1e-08  1.2e-08
---------------------------------------------------------------------


ans =

    0.9032


Epoch... 39
Epoch... 40

 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|7.7e+05| 2.681346e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|6.6e-07|1.4e-01|6.8e+04| 2.211488e+04  3.395355e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.6e-07|3.9e-02|1.1e+04| 5.664215e+03 -5.373664e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|3.0e-07|1.2e-02|1.9e+03| 1.264148e+03 -9.798871e+00| 0:0:00| chol  1↙
1
 4|0.958|1.000|3.4e-08|3.5e-03|1.6e+02| 1.152451e+02 -1.192090e+00| 0:0:00| chol  1↙
1
 5|1.000|0.966|3.2e-09|4.6e-04|5.4e+01| 5.071832e+01 -1.057150e+00| 0:0:00| chol  1↙
1
 6|0.826|1.000|3.4e-10|3.5e-05|1.1e+01| 1.003488e+01 -1.028945e+00| 0:0:00| chol  1↙
1
 7|1.000|0.655|7.8e-10|1.5e-05|5.5e+00| 4.608619e+00 -8.968420e-01| 0:0:00| chol  1↙
1
 8|0.922|1.000|2.0e-11|3.5e-07|4.5e-01|-4.338186e-01 -8.801002e-01| 0:0:00| chol  1↙
1
 9|1.000|0.664|1.0e-09|1.4e-07|2.6e-01|-6.096644e-01 -8.648602e-01| 0:0:00| chol  1↙
1
```

```
10|0.742|1.000|2.6e-10|3.6e-09|8.1e-02|-7.795330e-01 -8.601317e-01| 0:0:00| chol  1↙
1
11|1.000|0.833|4.6e-13|9.0e-10|3.4e-02|-8.232112e-01 -8.574714e-01| 0:0:00| chol  1↙
1
12|0.939|0.974|3.0e-12|5.9e-11|2.6e-03|-8.541542e-01 -8.567753e-01| 0:0:00| chol  1↙
1
13|0.933|1.000|5.6e-12|4.5e-12|2.1e-04|-8.565221e-01 -8.567318e-01| 0:0:00| chol  2↙
2
14|1.000|1.000|7.0e-11|1.1e-12|2.0e-05|-8.567109e-01 -8.567304e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|1.1e-11|1.7e-12|5.1e-07|-8.567294e-01 -8.567299e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|3.2e-12|2.3e-12|7.7e-09|-8.567299e-01 -8.567299e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.56729857e-01
 dual   objective value = -8.56729862e-01
 gap := trace(XZ)        = 7.74e-09
 relative gap            = 2.85e-09
 actual relative gap     = 1.61e-09
 rel. primal infeas      = 3.19e-12
 rel. dual   infeas      = 2.28e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.1e+02, 2.9e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.4e-12  0.0e+00  3.1e-12  0.0e+00  1.6e-09  2.9e-09
-------------------------------------------------------------------

ans =

    0.8567


Epoch... 41
Epoch... 42

 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|7.6e+05| 2.653045e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.976|7.5e-07|1.4e-01|6.8e+04| 2.187523e+04  3.834574e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|1.1e-06|3.9e-02|1.2e+04| 5.800225e+03 -5.536546e+01| 0:0:00| chol  1↙
1
```

```
 3|1.000|1.000|4.4e-07|1.2e-02|2.5e+03| 1.704376e+03 -1.066911e+01| 0:0:00| chol  1↙
1
 4|0.890|1.000|3.0e-08|3.5e-03|3.5e+02| 2.757784e+02 -4.451905e+00| 0:0:00| chol  1↙
1
 5|1.000|0.749|5.3e-09|1.7e-03|1.4e+02| 1.279260e+02 -1.278179e+00| 0:0:00| chol  1↙
1
 6|0.927|1.000|3.2e-10|1.1e-04|1.2e+01| 1.129948e+01 -1.070485e+00| 0:0:00| chol  1↙
1
 7|1.000|0.744|8.0e-10|3.5e-05|6.1e+00| 5.149402e+00 -8.957727e-01| 0:0:00| chol  1↙
1
 8|0.921|1.000|2.3e-11|1.1e-06|5.0e-01|-3.802944e-01 -8.777370e-01| 0:0:00| chol  1↙
1
 9|1.000|0.727|7.4e-10|3.7e-07|2.6e-01|-6.024722e-01 -8.637518e-01| 0:0:00| chol  1↙
1
10|0.710|1.000|2.1e-10|1.1e-08|9.7e-02|-7.616944e-01 -8.589230e-01| 0:0:00| chol  1↙
1
11|1.000|0.854|1.3e-12|2.5e-09|4.1e-02|-8.145698e-01 -8.554278e-01| 0:0:00| chol  1↙
1
12|0.933|0.983|3.8e-12|1.5e-10|5.2e-03|-8.494335e-01 -8.546432e-01| 0:0:00| chol  1↙
1
13|0.925|0.998|1.9e-11|1.2e-11|4.8e-04|-8.540291e-01 -8.545068e-01| 0:0:00| chol  1↙
2
14|1.000|1.000|9.9e-11|2.6e-12|3.0e-05|-8.544731e-01 -8.545032e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|1.1e-11|2.3e-12|6.4e-07|-8.545018e-01 -8.545024e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|6.5e-12|2.3e-12|9.0e-09|-8.545024e-01 -8.545024e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.54502422e-01
 dual   objective value = -8.54502433e-01
 gap := trace(XZ)        = 9.01e-09
 relative gap            = 3.32e-09
 actual relative gap     = 4.35e-09
 rel. primal infeas      = 6.50e-12
 rel. dual   infeas      = 2.27e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 2.9e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-11  0.0e+00  3.1e-12  0.0e+00  4.3e-09  3.3e-09
-----------------------------------------------------------------


ans =

    0.8545


Epoch... 43
Epoch... 44

 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|8.1e+05| 2.826320e+04  0.000000e+00| 0:0:00| chol  1∠
1
 1|1.000|0.977|6.3e-07|1.4e-01|7.1e+04| 2.329289e+04  1.926583e+00| 0:0:00| chol  1∠
1
 2|1.000|1.000|9.1e-07|3.9e-02|1.2e+04| 5.853612e+03 -5.379829e+01| 0:0:00| chol  1∠
1
 3|1.000|1.000|2.9e-07|1.2e-02|2.1e+03| 1.365660e+03 -1.036379e+01| 0:0:00| chol  1∠
1
 4|0.952|1.000|2.9e-08|3.5e-03|1.9e+02| 1.333321e+02 -1.480675e+00| 0:0:00| chol  1∠
1
 5|1.000|0.959|2.8e-09|4.9e-04|5.8e+01| 5.502338e+01 -1.116076e+00| 0:0:00| chol  1∠
1
 6|0.843|1.000|2.6e-10|3.5e-05|1.0e+01| 9.169249e+00 -1.071938e+00| 0:0:00| chol  1∠
1
 7|1.000|0.608|9.8e-10|1.6e-05|5.3e+00| 4.367712e+00 -9.497608e-01| 0:0:00| chol  1∠
1
 8|0.933|1.000|2.5e-11|3.5e-07|3.7e-01|-5.690791e-01 -9.352228e-01| 0:0:00| chol  1∠
1
 9|1.000|0.785|1.0e-09|1.0e-07|2.0e-01|-7.212114e-01 -9.202426e-01| 0:0:00| chol  1∠
1
10|0.708|1.000|3.1e-10|3.6e-09|7.2e-02|-8.422290e-01 -9.145097e-01| 0:0:00| chol  1∠
1
11|1.000|1.000|5.2e-12|3.7e-10|2.7e-02|-8.858123e-01 -9.127769e-01| 0:0:00| chol  1∠
1
12|1.000|0.997|1.3e-11|3.8e-11|3.8e-03|-9.080847e-01 -9.119253e-01| 0:0:00| chol  1∠
1
13|0.965|0.981|2.3e-11|5.7e-12|1.5e-04|-9.116667e-01 -9.118206e-01| 0:0:00| chol  2∠
2
14|0.961|0.985|3.4e-11|2.4e-12|6.1e-06|-9.118118e-01 -9.118179e-01| 0:0:00| chol  2∠
2
15|1.000|1.000|1.3e-11|3.5e-12|5.1e-07|-9.118173e-01 -9.118179e-01| 0:0:00| chol  2∠
2
16|0.997|0.997|1.4e-12|2.6e-12|6.0e-09|-9.118178e-01 -9.118178e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------------
 number of iterations  = 16
 primal objective value = -9.11817835e-01
 dual   objective value = -9.11817840e-01
 gap := trace(XZ)       = 6.00e-09
 relative gap           = 2.12e-09
 actual relative gap    = 1.61e-09
 rel. primal infeas     = 1.40e-12
 rel. dual   infeas     = 2.63e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
```

```
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 2.4e-12  0.0e+00  3.6e-12  0.0e+00  1.6e-09  2.1e-09
 ---------------------------------------------------------------------
```

ans =

    0.9118

Epoch... 45
Epoch... 46

```
 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|8.1e+05| 2.794690e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|6.5e-07|1.4e-01|7.1e+04| 2.303804e+04  2.647820e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.4e-07|3.9e-02|1.2e+04| 5.847622e+03 -5.540277e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|2.9e-07|1.2e-02|2.0e+03| 1.328844e+03 -1.024385e+01| 0:0:00| chol  1↙
1
 4|0.957|1.000|3.0e-08|3.5e-03|1.7e+02| 1.229689e+02 -1.310755e+00| 0:0:00| chol  1↙
1
 5|1.000|0.994|2.9e-09|3.7e-04|5.2e+01| 4.925432e+01 -1.112408e+00| 0:0:00| chol  1↙
1
 6|0.829|1.000|2.9e-10|3.5e-05|1.0e+01| 9.082205e+00 -1.070195e+00| 0:0:00| chol  1↙
1
 7|1.000|0.621|9.3e-10|1.6e-05|5.2e+00| 4.261368e+00 -9.495336e-01| 0:0:00| chol  1↙
1
 8|0.929|1.000|2.2e-11|3.5e-07|3.8e-01|-5.505905e-01 -9.349130e-01| 0:0:00| chol  1↙
1
 9|1.000|0.750|1.0e-09|1.2e-07|2.1e-01|-7.077192e-01 -9.189744e-01| 0:0:00| chol  1↙
1
10|0.705|1.000|3.1e-10|3.6e-09|7.8e-02|-8.348722e-01 -9.128227e-01| 0:0:00| chol  1↙
1
11|0.986|1.000|1.7e-12|3.6e-10|3.0e-02|-8.813778e-01 -9.111559e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|3.2e-12|3.6e-11|7.8e-03|-9.024587e-01 -9.102195e-01| 0:0:00| chol  1↙
1
13|0.976|0.979|4.8e-12|5.2e-12|2.0e-04|-9.097758e-01 -9.099786e-01| 0:0:00| chol  1↙
1
14|0.982|0.987|8.6e-11|1.1e-12|3.5e-06|-9.099701e-01 -9.099736e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|8.9e-12|1.5e-12|2.7e-07|-9.099732e-01 -9.099735e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
```

```
 ----------------------------------------------------------------
  number of iterations   = 15
  primal objective value = -9.09973235e-01
  dual   objective value = -9.09973547e-01
  gap := trace(XZ)       = 2.71e-07
  relative gap           = 9.62e-08
  actual relative gap    = 1.11e-07
  rel. primal infeas     = 8.87e-12
  rel. dual   infeas     = 1.50e-12
  norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
  norm(A), norm(b), norm(C) = 2.2e+02, 3.0e+02, 5.0e+01
  Total CPU time (secs)  = 0.10
  CPU time per iteration = 0.01
  termination code       = 0
  DIMACS errors: 1.5e-11  0.0e+00  2.1e-12  0.0e+00  1.1e-07  9.6e-08
 ----------------------------------------------------------------


ans =

    0.9100


Epoch... 47
Epoch... 48

 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|8.1e+05| 2.816591e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|6.5e-07|1.4e-01|7.1e+04| 2.321536e+04  3.082123e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.5e-07|3.9e-02|1.2e+04| 5.963856e+03 -5.707516e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|3.1e-07|1.2e-02|2.2e+03| 1.451478e+03 -1.072578e+01| 0:0:00| chol  1↙
1
 4|0.945|1.000|2.9e-08|3.5e-03|2.1e+02| 1.499429e+02 -1.745336e+00| 0:0:00| chol  1↙
1
 5|1.000|0.928|2.9e-09|1.2e-03|6.8e+01| 6.114251e+01 -1.073735e+00| 0:0:00| chol  1↙
1
 6|0.857|1.000|2.8e-10|1.1e-04|1.1e+01| 9.814367e+00 -1.081312e+00| 0:0:00| chol  1↙
1
 7|1.000|0.616|9.3e-10|4.7e-05|5.7e+00| 4.716644e+00 -9.429290e-01| 0:0:00| chol  1↙
1
 8|0.928|1.000|2.6e-11|1.1e-06|4.2e-01|-5.055401e-01 -9.292572e-01| 0:0:00| chol  1↙
1
 9|1.000|0.787|9.2e-10|3.1e-07|2.3e-01|-6.822598e-01 -9.114159e-01| 0:0:00| chol  1↙
1
```

```
10|0.733|1.000|2.5e-10|1.1e-08|8.0e-02|-8.249904e-01 -9.051979e-01| 0:0:00| chol  1↙
1
11|0.927|1.000|2.6e-11|1.1e-09|3.3e-02|-8.704171e-01 -9.038861e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|2.4e-12|1.1e-10|1.0e-02|-8.925175e-01 -9.029282e-01| 0:0:00| chol  1↙
1
13|0.970|0.973|2.5e-12|1.4e-11|3.5e-04|-9.022369e-01 -9.025856e-01| 0:0:00| chol  1↙
1
14|0.982|0.987|8.6e-11|2.2e-12|6.4e-06|-9.025710e-01 -9.025774e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|8.0e-12|1.5e-12|4.6e-07|-9.025768e-01 -9.025773e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|7.4e-12|1.6e-12|1.6e-08|-9.025772e-01 -9.025773e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.02577233e-01
 dual   objective value = -9.02577267e-01
 gap := trace(XZ)        = 1.57e-08
 relative gap            = 5.58e-09
 actual relative gap     = 1.24e-08
 rel. primal infeas      = 7.43e-12
 rel. dual   infeas      = 1.60e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-11  0.0e+00  2.2e-12  0.0e+00  1.2e-08  5.6e-09
-------------------------------------------------------------------

ans =

    0.9026


Epoch... 49
Epoch... 50

 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|7.9e+05| 2.745938e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|6.5e-07|1.4e-01|6.9e+04| 2.264388e+04  3.860682e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.7e-07|3.9e-02|1.2e+04| 5.894045e+03 -5.786610e+01| 0:0:00| chol  1↙
1
```

```
 3|1.000|1.000|3.0e-07|1.2e-02|2.1e+03| 1.377871e+03 -1.042060e+01| 0:0:00| chol  1↙
1
 4|0.953|1.000|3.0e-08|3.5e-03|1.9e+02| 1.326024e+02 -1.485401e+00| 0:0:00| chol  1↙
1
 5|1.000|0.967|2.9e-09|4.6e-04|5.7e+01| 5.380413e+01 -1.138821e+00| 0:0:00| chol  1↙
1
 6|0.840|1.000|3.0e-10|3.5e-05|1.0e+01| 9.089409e+00 -1.091161e+00| 0:0:00| chol  1↙
1
 7|1.000|0.599|1.0e-09|1.6e-05|5.4e+00| 4.379741e+00 -9.660002e-01| 0:0:00| chol  1↙
1
 8|0.930|1.000|2.9e-11|3.5e-07|3.9e-01|-5.646623e-01 -9.511020e-01| 0:0:00| chol  1↙
1
 9|1.000|0.793|1.0e-09|1.0e-07|2.1e-01|-7.253402e-01 -9.342380e-01| 0:0:00| chol  1↙
1
10|0.714|1.000|2.8e-10|3.6e-09|7.5e-02|-8.526770e-01 -9.277384e-01| 0:0:00| chol  1↙
1
11|0.932|1.000|2.6e-11|3.7e-10|3.2e-02|-8.943478e-01 -9.265429e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|2.2e-12|4.1e-11|9.7e-03|-9.157671e-01 -9.254967e-01| 0:0:00| chol  1↙
1
13|0.965|0.966|9.6e-12|5.8e-12|4.2e-04|-9.247363e-01 -9.251598e-01| 0:0:00| chol  1↙
1
14|0.983|0.986|2.0e-11|1.9e-12|7.0e-06|-9.251419e-01 -9.251489e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|3.8e-12|2.3e-12|3.0e-07|-9.251484e-01 -9.251488e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|2.8e-11|1.0e-12|1.1e-08|-9.251487e-01 -9.251488e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.25148725e-01
 dual   objective value = -9.25148751e-01
 gap := trace(XZ)        = 1.06e-08
 relative gap            = 3.73e-09
 actual relative gap     = 8.85e-09
 rel. primal infeas      = 2.82e-11
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.0e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.9e-11  0.0e+00  1.4e-12  0.0e+00  8.9e-09  3.7e-09
-------------------------------------------------------------------


ans =

    0.9251


Epoch... 51
Epoch... 52

 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|7.9e+05| 2.754124e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.976|6.7e-07|1.4e-01|7.0e+04| 2.270378e+04  5.390558e+00| 0:0:00| chol  1✓
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.2e+04| 6.176828e+03 -6.240771e+01| 0:0:00| chol  1✓
1
 3|1.000|1.000|4.2e-07|1.2e-02|2.8e+03| 1.888151e+03 -1.113954e+01| 0:0:00| chol  1✓
1
 4|0.876|1.000|3.0e-08|3.5e-03|4.2e+02| 3.351791e+02 -5.784025e+00| 0:0:00| chol  1✓
1
 5|1.000|0.694|7.0e-09|1.8e-03|1.8e+02| 1.632346e+02 -1.447120e+00| 0:0:00| chol  1✓
1
 6|0.941|1.000|3.6e-10|1.1e-04|1.4e+01| 1.227968e+01 -1.118735e+00| 0:0:00| chol  1✓
1
 7|1.000|0.835|7.8e-10|2.6e-05|6.4e+00| 5.453437e+00 -9.233181e-01| 0:0:00| chol  1✓
1
 8|0.895|1.000|2.8e-11|1.1e-06|7.1e-01|-1.892477e-01 -9.011379e-01| 0:0:00| chol  1✓
1
 9|1.000|0.722|5.0e-10|3.7e-07|3.5e-01|-5.403685e-01 -8.856526e-01| 0:0:00| chol  1✓
1
10|0.674|1.000|1.6e-10|1.1e-08|1.3e-01|-7.450784e-01 -8.776599e-01| 0:0:00| chol  1✓
1
11|1.000|0.946|2.9e-13|1.6e-09|5.6e-02|-8.153390e-01 -8.715613e-01| 0:0:00| chol  1✓
1
12|0.936|1.000|3.6e-12|1.1e-10|1.3e-02|-8.575640e-01 -8.705321e-01| 0:0:00| chol  1✓
1
13|1.000|1.000|6.0e-12|1.2e-11|3.2e-03|-8.668471e-01 -8.699975e-01| 0:0:00| chol  1✓
1
14|0.926|0.971|5.5e-11|2.6e-12|3.3e-04|-8.695634e-01 -8.698936e-01| 0:0:00| chol  1✓
2
15|1.000|1.000|7.2e-11|1.9e-12|4.6e-05|-8.698431e-01 -8.698889e-01| 0:0:00| chol  2✓
2
16|1.000|1.000|1.8e-11|2.7e-12|4.4e-06|-8.698834e-01 -8.698878e-01| 0:0:00| chol  1✓
1
17|0.998|0.998|3.3e-13|3.7e-12|5.1e-08|-8.698876e-01 -8.698877e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 17
 primal objective value = -8.69887644e-01
 dual   objective value = -8.69887695e-01
 gap := trace(XZ)       = 5.11e-08
 relative gap           = 1.87e-08
 actual relative gap    = 1.86e-08
 rel. primal infeas     = 3.30e-13
 rel. dual   infeas     = 3.68e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
```

```
 norm(A), norm(b), norm(C) = 2.2e+02, 3.0e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.7e-13  0.0e+00  5.1e-12  0.0e+00  1.9e-08  1.9e-08
----------------------------------------------------------------------
```

ans =

    0.8699

Epoch... 53
Epoch... 54

```
 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|8.0e+05| 2.773040e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.976|6.6e-07|1.4e-01|7.1e+04| 2.285492e+04  5.708063e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.3e+04| 6.296434e+03 -6.399916e+01| 0:0:00| chol  1↙
1
 3|1.000|0.961|4.6e-07|1.3e-02|3.2e+03| 2.129090e+03 -1.278636e+01| 0:0:00| chol  1↙
1
 4|0.870|1.000|3.4e-08|3.5e-03|5.1e+02| 4.017774e+02 -7.311722e+00| 0:0:00| chol  1↙
1
 5|1.000|0.665|8.9e-09|1.9e-03|2.3e+02| 2.020449e+02 -1.624335e+00| 0:0:00| chol  1↙
1
 6|0.949|1.000|4.1e-10|1.1e-04|1.5e+01| 1.396804e+01 -1.149518e+00| 0:0:00| chol  1↙
1
 7|1.000|0.929|6.7e-10|1.7e-05|7.0e+00| 6.038536e+00 -9.275049e-01| 0:0:00| chol  1↙
1
 8|0.867|1.000|2.5e-11|1.1e-06|1.0e+00| 1.125577e-01 -8.992700e-01| 0:0:00| chol  1↙
1
 9|1.000|0.741|3.3e-10|3.5e-07|4.6e-01|-4.247908e-01 -8.839252e-01| 0:0:00| chol  1↙
1
10|0.727|1.000|9.0e-11|1.1e-08|1.4e-01|-7.323159e-01 -8.765690e-01| 0:0:00| chol  1↙
1
11|1.000|0.893|2.1e-13|2.1e-09|6.7e-02|-8.022294e-01 -8.694001e-01| 0:0:00| chol  1↙
1
12|0.914|1.000|1.1e-12|1.1e-10|1.6e-02|-8.520913e-01 -8.683012e-01| 0:0:00| chol  1↙
1
13|1.000|1.000|1.3e-11|1.2e-11|4.1e-03|-8.635301e-01 -8.676439e-01| 0:0:00| chol  1↙
1
14|0.929|0.989|3.9e-12|2.7e-12|3.9e-04|-8.671187e-01 -8.675119e-01| 0:0:00| chol  2↙
2
```

```
15|1.000|1.000|6.2e-11|1.1e-12|4.2e-05|-8.674659e-01 -8.675079e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|2.1e-11|1.5e-12|4.8e-06|-8.675021e-01 -8.675069e-01| 0:0:00| chol  1↙
1
17|0.997|0.998|6.7e-11|2.3e-12|6.0e-08|-8.675067e-01 -8.675068e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -8.67506746e-01
 dual   objective value = -8.67506806e-01
 gap := trace(XZ)        = 6.03e-08
 relative gap           = 2.20e-08
 actual relative gap    = 2.18e-08
 rel. primal infeas     = 6.65e-11
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.0e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.2e-10  0.0e+00  3.1e-12  0.0e+00  2.2e-08  2.2e-08
-------------------------------------------------------------------

ans =

    0.8675


Epoch... 55
Epoch... 56

 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|3.4e+00|8.0e+05| 2.777705e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|5.4e-07|1.3e-01|6.9e+04| 2.291662e+04  5.570982e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|8.1e-07|3.9e-02|1.2e+04| 5.916110e+03 -6.165151e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|2.1e-07|1.2e-02|1.7e+03| 1.049220e+03 -8.627701e+00| 0:0:00| chol  1↙
1
 4|0.981|0.992|3.0e-08|3.6e-03|1.2e+02| 7.746154e+01 -7.792631e-01| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.8e-09|3.5e-04|2.5e+01| 2.331576e+01 -1.089709e+00| 0:0:00| chol  1↙
1
 6|0.916|0.938|1.4e-10|5.5e-05|2.2e+00| 1.196569e+00 -9.392928e-01| 0:0:00| chol  1↙
1
```

```
  7|1.000|0.754|1.7e-09|1.6e-05|1.1e+00| 2.019884e-01 -9.267177e-01| 0:0:00| chol  1↙
1
  8|1.000|1.000|1.1e-09|3.5e-07|4.3e-01|-4.907387e-01 -9.195900e-01| 0:0:00| chol  1↙
1
  9|0.893|0.879|1.6e-10|7.4e-08|7.7e-02|-8.281606e-01 -9.049120e-01| 0:0:00| chol  1↙
1
 10|0.778|1.000|3.7e-11|3.6e-09|4.1e-02|-8.599521e-01 -9.011273e-01| 0:0:00| chol  1↙
1
 11|1.000|1.000|5.3e-12|3.6e-10|1.4e-02|-8.860170e-01 -9.003449e-01| 0:0:00| chol  1↙
1
 12|0.917|0.949|2.8e-12|5.3e-11|1.5e-03|-8.983094e-01 -8.997998e-01| 0:0:00| chol  2↙
2
 13|1.000|1.000|9.9e-13|4.5e-12|3.0e-04|-8.994745e-01 -8.997736e-01| 0:0:00| chol  1↙
2
 14|0.974|0.974|7.1e-11|1.5e-12|9.4e-06|-8.997566e-01 -8.997659e-01| 0:0:00| chol  2↙
1
 15|0.999|1.000|3.0e-11|1.5e-12|1.5e-07|-8.997656e-01 -8.997657e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.99765564e-01
 dual   objective value = -8.99765712e-01
 gap := trace(XZ)        = 1.46e-07
 relative gap           = 5.23e-08
 actual relative gap    = 5.29e-08
 rel. primal infeas     = 3.03e-11
 rel. dual   infeas     = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.0e+02, 3.0e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.2e-11  0.0e+00  2.1e-12  0.0e+00  5.3e-08  5.2e-08
-------------------------------------------------------------------


ans =

    0.8998


Epoch... 57
Epoch... 58

 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|7.5e+05| 2.622240e+04  0.000000e+00| 0:0:00| chol  1↙
1
```

```
 1|1.000|0.971|8.1e-07|1.6e-01|7.0e+04| 2.160546e+04  9.307438e+00| 0:0:00| chol  1↙
1
 2|1.000|0.993|1.4e-06|4.0e-02|1.3e+04| 6.737148e+03 -7.058856e+01| 0:0:00| chol  1↙
1
 3|1.000|0.582|1.1e-06|2.4e-02|5.6e+03| 3.083101e+03 -1.305953e+01| 0:0:00| chol  1↙
1
 4|0.942|1.000|6.0e-08|3.5e-03|7.6e+02| 5.889748e+02 -8.078755e+00| 0:0:00| chol  1↙
1
 5|1.000|1.000|7.6e-09|1.1e-03|2.5e+02| 2.304588e+02 -2.316137e+00| 0:0:00| chol  1↙
1
 6|0.957|0.999|2.5e-10|1.1e-04|1.2e+01| 1.130909e+01 -9.931102e-01| 0:0:00| chol  1↙
1
 7|0.891|1.000|3.6e-10|1.1e-05|5.0e+00| 3.978786e+00 -9.792844e-01| 0:0:00| chol  1↙
1
 8|1.000|1.000|5.1e-11|1.1e-06|1.4e+00| 4.761515e-01 -9.069324e-01| 0:0:00| chol  1↙
1
 9|0.927|0.983|1.6e-11|1.2e-07|1.0e-01|-7.932791e-01 -8.952263e-01| 0:0:00| chol  1↙
1
10|1.000|0.769|4.2e-10|3.7e-08|6.4e-02|-8.212768e-01 -8.849529e-01| 0:0:00| chol  1↙
1
11|0.909|0.961|3.9e-11|2.4e-09|1.5e-02|-8.677919e-01 -8.827371e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|1.4e-11|1.1e-10|2.2e-03|-8.801794e-01 -8.823493e-01| 0:0:00| chol  1↙
1
13|0.984|0.983|6.4e-11|1.5e-11|3.5e-05|-8.822542e-01 -8.822896e-01| 0:0:00| chol  2↙
2
14|0.998|0.998|1.0e-11|4.2e-12|5.4e-07|-8.822881e-01 -8.822886e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|4.0e-11|2.0e-12|1.9e-08|-8.822886e-01 -8.822886e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.82288648e-01
 dual   objective value = -8.82288597e-01
 gap := trace(XZ)        = 1.86e-08
 relative gap            = 6.74e-09
 actual relative gap     = -1.85e-08
 rel. primal infeas      = 3.98e-11
 rel. dual   infeas      = 2.01e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.4e+02, 3.0e+02, 5.0e+01
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 7.1e-11  0.0e+00  2.8e-12  0.0e+00  -1.8e-08  6.7e-09
-------------------------------------------------------------------


ans =

    0.8823


Epoch... 59
Epoch... 60
```

```
 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|3.4e+00|8.0e+05| 2.762812e+04  0.000000e+00| 0:0:00| chol  1✓
 1
  1|1.000|0.975|6.0e-07|1.4e-01|7.1e+04| 2.277195e+04  8.301595e+00| 0:0:00| chol  1✓
 1
  2|1.000|1.000|1.1e-06|3.9e-02|1.3e+04| 6.608093e+03 -7.334307e+01| 0:0:00| chol  1✓
 1
  3|1.000|0.925|5.1e-07|1.4e-02|3.7e+03| 2.455003e+03 -1.496026e+01| 0:0:00| chol  1✓
 1
  4|0.877|1.000|3.0e-08|3.5e-03|5.7e+02| 4.500413e+02 -8.338194e+00| 0:0:00| chol  1✓
 1
  5|1.000|0.651|8.5e-09|1.9e-03|2.6e+02| 2.302845e+02 -1.850159e+00| 0:0:00| chol  1✓
 1
  6|0.950|1.000|3.8e-10|1.1e-04|1.7e+01| 1.571796e+01 -1.275571e+00| 0:0:00| chol  1✓
 1
  7|1.000|0.977|5.1e-10|1.3e-05|7.8e+00| 6.814326e+00 -1.017941e+00| 0:0:00| chol  1✓
 1
  8|0.850|1.000|1.8e-11|1.1e-06|1.8e+00| 8.006256e-01 -9.775734e-01| 0:0:00| chol  1✓
 1
  9|1.000|0.936|6.7e-11|1.7e-07|6.3e-01|-3.212338e-01 -9.510028e-01| 0:0:00| chol  1✓
 1
 10|0.791|1.000|1.5e-11|1.1e-08|1.4e-01|-7.997269e-01 -9.426195e-01| 0:0:00| chol  1✓
 1
 11|1.000|0.847|4.0e-12|2.5e-09|7.0e-02|-8.671238e-01 -9.368187e-01| 0:0:00| chol  1✓
 1
 12|0.930|1.000|2.1e-12|1.1e-10|1.1e-02|-9.250868e-01 -9.359470e-01| 0:0:00| chol  1✓
 1
 13|1.000|1.000|5.9e-11|1.2e-11|2.0e-03|-9.336505e-01 -9.356752e-01| 0:0:00| chol  1✓
 1
 14|0.984|0.986|2.3e-11|2.7e-12|3.2e-05|-9.355892e-01 -9.356209e-01| 0:0:00| chol  1✓
 1
 15|1.000|1.000|9.0e-12|2.3e-12|7.8e-07|-9.356193e-01 -9.356201e-01| 0:0:00| chol  2✓
 2
 16|1.000|1.000|4.5e-14|1.8e-12|2.9e-08|-9.356200e-01 -9.356201e-01| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.35620046e-01
 dual   objective value = -9.35620074e-01
 gap := trace(XZ)       = 2.86e-08
 relative gap           = 9.94e-09
 actual relative gap    = 9.86e-09
 rel. primal infeas     = 4.45e-14
 rel. dual   infeas     = 1.80e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
```

```
 norm(A), norm(b), norm(C) = 2.1e+02, 3.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =   0
 DIMACS errors: 7.8e-14  0.0e+00  2.5e-12  0.0e+00  9.9e-09  9.9e-09
 -----------------------------------------------------------------------
```

ans =

    0.9356

Epoch... 61
Epoch... 62

```
 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|8.1e+05| 2.824906e+04  0.000000e+00| 0:0:00| chol  1↙
 1
  1|1.000|0.971|7.6e-07|1.6e-01|7.5e+04| 2.325253e+04  9.264578e+00| 0:0:00| chol  1↙
 1
  2|1.000|0.982|1.3e-06|4.1e-02|1.5e+04| 7.225880e+03 -7.517870e+01| 0:0:00| chol  1↙
 1
  3|1.000|0.588|1.0e-06|2.4e-02|6.0e+03| 3.311984e+03 -1.407344e+01| 0:0:00| chol  1↙
 1
  4|0.941|1.000|6.4e-08|3.5e-03|9.2e+02| 7.191208e+02 -9.886926e+00| 0:0:00| chol  1↙
 1
  5|1.000|1.000|7.2e-09|1.1e-03|2.3e+02| 2.133760e+02 -2.595909e+00| 0:0:00| chol  1↙
 1
  6|0.976|0.983|1.6e-10|1.2e-04|7.2e+00| 6.141405e+00 -9.629672e-01| 0:0:00| chol  1↙
 1
  7|0.841|1.000|8.7e-11|1.1e-05|3.3e+00| 2.357779e+00 -9.062775e-01| 0:0:00| chol  1↙
 1
  8|1.000|1.000|1.2e-10|1.1e-06|8.2e-01|-5.397450e-02 -8.735268e-01| 0:0:00| chol  1↙
 1
  9|0.866|1.000|4.2e-11|1.1e-07|1.1e-01|-7.524177e-01 -8.647960e-01| 0:0:00| chol  1↙
 2
 10|0.610|0.551|1.6e-11|5.4e-08|8.7e-02|-7.698656e-01 -8.571001e-01| 0:0:00| chol  1↙
 1
 11|0.851|1.000|4.0e-12|1.1e-09|5.1e-02|-8.070104e-01 -8.581055e-01| 0:0:00| chol  1↙
 1
 12|1.000|1.000|4.7e-12|1.1e-10|1.0e-02|-8.454952e-01 -8.557678e-01| 0:0:00| chol  1↙
 1
 13|1.000|0.969|3.4e-11|1.5e-11|5.1e-04|-8.549746e-01 -8.554834e-01| 0:0:00| chol  1↙
 1
 14|0.987|0.988|1.7e-11|2.7e-12|6.8e-06|-8.554579e-01 -8.554648e-01| 0:0:00| chol  2↙
 2
```

```
15|1.000|1.000|2.3e-11|2.3e-12|4.4e-07|-8.554641e-01 -8.554645e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|6.9e-11|3.4e-12|2.4e-08|-8.554645e-01 -8.554645e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.55464508e-01
 dual   objective value = -8.55464508e-01
 gap := trace(XZ)       = 2.40e-08
 relative gap           = 8.84e-09
 actual relative gap    = -1.30e-10
 rel. primal infeas     = 6.87e-11
 rel. dual   infeas     = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.4e+02, 3.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.2e-10  0.0e+00  4.6e-12  0.0e+00  -1.3e-10  8.8e-09
-------------------------------------------------------------------


ans =

    0.8555


Epoch... 63
Epoch... 64

 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|8.3e+05| 2.892395e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.976|5.6e-07|1.4e-01|7.4e+04| 2.382988e+04  8.149363e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.9e-07|3.9e-02|1.4e+04| 6.815909e+03 -7.561534e+01| 0:0:00| chol  1↙
1
 3|1.000|0.960|4.3e-07|1.3e-02|3.5e+03| 2.359214e+03 -1.421232e+01| 0:0:00| chol  1↙
1
 4|0.876|1.000|2.7e-08|3.5e-03|5.4e+02| 4.265902e+02 -7.747071e+00| 0:0:00| chol  1↙
1
 5|1.000|0.663|7.7e-09|1.9e-03|2.4e+02| 2.150008e+02 -1.781029e+00| 0:0:00| chol  1↙
1
 6|0.947|1.000|3.7e-10|1.1e-04|1.7e+01| 1.530335e+01 -1.257922e+00| 0:0:00| chol  1↙
1
 7|1.000|0.882|6.1e-10|2.2e-05|8.0e+00| 6.985274e+00 -9.872047e-01| 0:0:00| chol  1↙
1
```

```
 8|0.833|1.000|5.0e-11|1.1e-06|1.7e+00| 7.915950e-01 -9.467440e-01| 0:0:00| chol  1↙
1
 9|1.000|0.824|1.1e-10|2.7e-07|7.4e-01|-1.739218e-01 -9.170612e-01| 0:0:00| chol  1↙
1
10|0.825|1.000|2.0e-11|1.1e-08|1.4e-01|-7.713300e-01 -9.083091e-01| 0:0:00| chol  1↙
1
11|1.000|0.766|6.9e-12|3.3e-09|7.3e-02|-8.291379e-01 -9.021293e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|3.8e-13|1.1e-10|2.4e-02|-8.778488e-01 -9.016140e-01| 0:0:00| chol  1↙
1
13|0.937|0.953|1.3e-11|1.6e-11|1.9e-03|-8.987840e-01 -9.006777e-01| 0:0:00| chol  1↙
1
14|0.983|0.981|2.6e-11|2.8e-12|3.7e-05|-9.006049e-01 -9.006419e-01| 0:0:00| chol  1↙
1
15|1.000|1.000|2.1e-11|2.3e-12|1.5e-06|-9.006396e-01 -9.006412e-01| 0:0:00| chol  1↙
2
16|1.000|1.000|1.8e-12|3.4e-12|3.9e-08|-9.006411e-01 -9.006411e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.00641102e-01
 dual   objective value = -9.00641139e-01
 gap := trace(XZ)        = 3.87e-08
 relative gap            = 1.38e-08
 actual relative gap     = 1.34e-08
 rel. primal infeas      = 1.78e-12
 rel. dual   infeas      = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.1e+02, 3.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 3.0e-12  0.0e+00  4.6e-12  0.0e+00  1.3e-08  1.4e-08
-------------------------------------------------------------------

 ans =

    0.9006


Epoch... 65
Epoch... 66

 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|8.8e+05| 3.053935e+04  0.000000e+00| 0:0:00| chol  1↙
1
```

```
 1|1.000|0.975|5.5e-07|1.4e-01|7.9e+04| 2.513639e+04  7.923846e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.4e+04| 7.219177e+03 -7.874485e+01| 0:0:00| chol  1↙
1
 3|1.000|0.849|5.4e-07|1.6e-02|4.5e+03| 2.843031e+03 -1.675831e+01| 0:0:00| chol  1↙
1
 4|0.890|1.000|3.4e-08|3.5e-03|6.4e+02| 5.031406e+02 -9.106749e+00| 0:0:00| chol  1↙
1
 5|1.000|0.632|9.2e-09|2.0e-03|3.0e+02| 2.654814e+02 -1.947343e+00| 0:0:00| chol  1↙
1
 6|0.952|1.000|4.1e-10|3.2e-04|1.9e+01| 1.694761e+01 -1.256383e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|4.8e-10|3.2e-05|8.4e+00| 7.405195e+00 -1.010669e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|6.2e-11|3.2e-06|1.6e+00| 6.773892e-01 -9.252576e-01| 0:0:00| chol  1↙
1
 9|0.949|0.945|2.8e-11|4.8e-07|1.6e-01|-7.467751e-01 -9.027856e-01| 0:0:00| chol  1↙
1
10|0.901|0.963|5.8e-12|4.8e-08|6.3e-02|-8.283161e-01 -8.910412e-01| 0:0:00| chol  1↙
1
11|1.000|0.984|6.0e-12|3.9e-09|4.3e-03|-8.858783e-01 -8.901802e-01| 0:0:00| chol  1↙
1
12|0.977|0.983|2.2e-12|3.8e-10|9.9e-05|-8.900115e-01 -8.901107e-01| 0:0:00| chol  2↙
2
13|0.926|0.988|4.2e-11|5.7e-12|7.8e-06|-8.901013e-01 -8.901091e-01| 0:0:00| chol  2↙
2
14|1.000|1.000|3.3e-11|1.5e-12|1.4e-06|-8.901078e-01 -8.901090e-01| 0:0:00| chol  2↙
2
15|0.994|1.000|7.4e-12|2.3e-12|4.8e-08|-8.901089e-01 -8.901090e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.90108934e-01
 dual   objective value = -8.90109009e-01
 gap := trace(XZ)        = 4.80e-08
 relative gap           = 1.73e-08
 actual relative gap    = 2.70e-08
 rel. primal infeas     = 7.43e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-11  0.0e+00  3.1e-12  0.0e+00  2.7e-08  1.7e-08
-----------------------------------------------------------------


ans =

    0.8901


Epoch... 67
Epoch... 68
```

```
 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|3.9e+00|8.6e+05| 2.997614e+04  0.000000e+00| 0:0:00| chol 1✓
1
 1|1.000|0.970|7.0e-07|1.7e-01|8.0e+04| 2.465357e+04  9.575917e+00| 0:0:00| chol 1✓
1
 2|1.000|0.960|1.3e-06|4.3e-02|1.6e+04| 7.736201e+03 -7.854954e+01| 0:0:00| chol 1✓
1
 3|1.000|0.599|9.5e-07|2.4e-02|6.5e+03| 3.540684e+03 -1.518617e+01| 0:0:00| chol 1✓
1
 4|0.929|1.000|7.3e-08|3.5e-03|1.2e+03| 9.444520e+02 -1.290970e+01| 0:0:00| chol 1✓
1
 5|1.000|1.000|6.9e-09|1.1e-03|2.3e+02| 2.066142e+02 -3.159832e+00| 0:0:00| chol 1✓
1
 6|0.974|0.979|2.5e-10|1.3e-04|7.5e+00| 6.370076e+00 -1.003010e+00| 0:0:00| chol 1✓
1
 7|0.938|0.899|4.0e-10|2.2e-05|3.3e+00| 2.436953e+00 -8.946752e-01| 0:0:00| chol 1✓
1
 8|1.000|1.000|1.0e-10|1.1e-06|1.1e+00| 2.448285e-01 -8.857242e-01| 0:0:00| chol 1✓
1
 9|0.924|0.999|3.7e-11|1.1e-07|1.1e-01|-7.662104e-01 -8.718870e-01| 0:0:00| chol 1✓
1
10|1.000|0.761|2.9e-11|3.4e-08|5.9e-02|-8.042927e-01 -8.631070e-01| 0:0:00| chol 1✓
1
11|0.921|0.893|3.3e-12|4.6e-09|5.7e-03|-8.564566e-01 -8.621615e-01| 0:0:00| chol 1✓
2
12|1.000|1.000|1.9e-12|1.1e-10|2.1e-03|-8.599464e-01 -8.620726e-01| 0:0:00| chol 1✓
1
13|0.981|0.990|4.0e-11|1.3e-11|9.3e-05|-8.619137e-01 -8.620067e-01| 0:0:00| chol 1✓
1
14|0.987|1.000|9.7e-12|1.5e-12|4.7e-06|-8.620001e-01 -8.620047e-01| 0:0:00| chol 1✓
2
15|1.000|1.000|1.9e-12|1.9e-12|8.4e-07|-8.620039e-01 -8.620047e-01| 0:0:00| chol 2✓
2
16|1.000|1.000|2.8e-12|1.0e-12|1.7e-08|-8.620046e-01 -8.620047e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 16
 primal objective value = -8.62004644e-01
 dual   objective value = -8.62004659e-01
 gap := trace(XZ)       = 1.70e-08
 relative gap           = 6.23e-09
 actual relative gap    = 5.55e-09
 rel. primal infeas     = 2.81e-12
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
```

```
 norm(A), norm(b), norm(C) = 2.5e+02, 3.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.9e-12  0.0e+00  1.4e-12  0.0e+00  5.5e-09  6.2e-09
 ----------------------------------------------------------------------
```

ans =

    0.8620

Epoch... 69
Epoch... 70

```
 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|3.9e+00|8.6e+05| 3.000074e+04  0.000000e+00| 0:0:00| chol  1
1
 1|1.000|0.971|7.0e-07|1.7e-01|8.0e+04| 2.467472e+04  9.506115e+00| 0:0:00| chol  1
1
 2|1.000|0.963|1.3e-06|4.3e-02|1.6e+04| 7.737028e+03 -7.915965e+01| 0:0:00| chol  1
1
 3|1.000|0.597|9.6e-07|2.4e-02|6.5e+03| 3.545105e+03 -1.528366e+01| 0:0:00| chol  1
1
 4|0.930|1.000|7.3e-08|3.5e-03|1.2e+03| 9.433116e+02 -1.296919e+01| 0:0:00| chol  1
1
 5|1.000|1.000|6.8e-09|1.1e-03|2.3e+02| 2.054757e+02 -3.150772e+00| 0:0:00| chol  1
1
 6|0.974|0.979|2.6e-10|1.3e-04|7.6e+00| 6.443579e+00 -9.950701e-01| 0:0:00| chol  1
1
 7|0.951|0.898|4.0e-10|2.2e-05|3.4e+00| 2.488642e+00 -8.851764e-01| 0:0:00| chol  1
1
 8|1.000|1.000|1.2e-10|1.1e-06|1.1e+00| 2.257454e-01 -8.766450e-01| 0:0:00| chol  1
1
 9|0.925|1.000|3.6e-11|1.1e-07|9.7e-02|-7.672397e-01 -8.638254e-01| 0:0:00| chol  1
1
10|1.000|0.760|6.6e-11|3.4e-08|5.1e-02|-8.029983e-01 -8.538853e-01| 0:0:00| chol  1
1
11|0.905|0.898|6.2e-12|4.4e-09|6.3e-03|-8.465413e-01 -8.528089e-01| 0:0:00| chol  1
1
12|1.000|0.999|3.9e-11|1.1e-10|1.8e-03|-8.508771e-01 -8.526835e-01| 0:0:00| chol  1
1
13|0.981|0.983|2.8e-11|1.4e-11|3.5e-05|-8.526026e-01 -8.526378e-01| 0:0:00| chol  2
2
14|1.000|1.000|3.1e-11|2.8e-12|3.5e-06|-8.526335e-01 -8.526371e-01| 0:0:00| chol  2
2
```

```
15|1.000|1.000|7.4e-11|4.2e-12|2.7e-07|-8.526367e-01 -8.526370e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.52636654e-01
 dual   objective value = -8.52636985e-01
 gap := trace(XZ)       = 2.69e-07
 relative gap           = 9.93e-08
 actual relative gap    = 1.22e-07
 rel. primal infeas     = 7.44e-11
 rel. dual   infeas     = 4.21e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.5e+02, 3.3e+02, 5.0e+01
 Total CPU time (secs) = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-10  0.0e+00  5.8e-12  0.0e+00  1.2e-07  9.9e-08
-------------------------------------------------------------------


ans =

    0.8526


Epoch... 71
Epoch... 72


 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|9.0e+05| 3.133707e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.975|5.4e-07|1.4e-01|8.0e+04| 2.578335e+04  7.982052e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.5e+04| 7.470170e+03 -8.232159e+01| 0:0:00| chol  1↙
1
 3|1.000|0.801|6.0e-07|1.7e-02|4.9e+03| 3.034727e+03 -1.740994e+01| 0:0:00| chol  1↙
1
 4|0.900|1.000|3.6e-08|3.5e-03|6.7e+02| 5.215115e+02 -9.230553e+00| 0:0:00| chol  1↙
1
 5|1.000|0.635|1.0e-08|2.0e-03|3.2e+02| 2.782665e+02 -1.988704e+00| 0:0:00| chol  1↙
1
 6|0.950|1.000|4.8e-10|3.2e-04|2.1e+01| 1.866808e+01 -1.274253e+00| 0:0:00| chol  1↙
1
 7|0.861|1.000|3.7e-10|3.2e-05|1.1e+01| 9.585127e+00 -1.048904e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|3.3e-11|3.2e-06|3.7e+00| 2.796489e+00 -9.450567e-01| 0:0:00| chol  1↙
1
```

```
  9|0.938|0.933|1.1e-11|5.1e-07|2.5e-01|-6.563733e-01 -9.090527e-01| 0:0:00| chol  1↙
1
 10|0.707|0.832|1.5e-12|1.1e-07|1.3e-01|-7.683751e-01 -8.938065e-01| 0:0:00| chol  1↙
1
 11|1.000|1.000|7.0e-11|3.2e-09|5.7e-02|-8.344467e-01 -8.910028e-01| 0:0:00| chol  1↙
1
 12|0.886|0.863|1.0e-11|7.1e-10|7.7e-03|-8.811610e-01 -8.889091e-01| 0:0:00| chol  2↙
1
 13|1.000|1.000|4.2e-11|3.4e-11|2.8e-03|-8.860698e-01 -8.888565e-01| 0:0:00| chol  1↙
1
 14|0.915|0.918|6.7e-11|8.8e-12|3.0e-04|-8.884693e-01 -8.887657e-01| 0:0:00| chol  2↙
2
 15|1.000|1.000|1.1e-10|4.9e-12|8.1e-05|-8.886778e-01 -8.887591e-01| 0:0:00| chol  2↙
2
 16|0.958|0.954|3.3e-11|7.2e-12|4.6e-06|-8.887524e-01 -8.887570e-01| 0:0:00| chol  2↙
2
 17|1.000|1.000|1.1e-11|6.6e-12|2.5e-07|-8.887567e-01 -8.887570e-01| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -8.88756694e-01
 dual   objective value = -8.88756952e-01
 gap := trace(XZ)        = 2.55e-07
 relative gap            = 9.18e-08
 actual relative gap     = 9.29e-08
 rel. primal infeas      = 1.07e-11
 rel. dual   infeas      = 6.56e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 1.8e-11  0.0e+00  9.0e-12  0.0e+00  9.3e-08  9.2e-08
-------------------------------------------------------------------


ans =

    0.8888


Epoch... 73
Epoch... 74

 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|9.1e+05| 3.164701e+04  0.000000e+00| 0:0:00| chol  1↙
1
```

```
 1|1.000|0.975|5.4e-07|1.4e-01|8.1e+04| 2.603620e+04  8.067591e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.5e+04| 7.544075e+03 -8.348102e+01| 0:0:00| chol  1↙
1
 3|1.000|0.806|5.9e-07|1.7e-02|5.0e+03| 3.056961e+03 -1.765086e+01| 0:0:00| chol  1↙
1
 4|0.899|1.000|3.6e-08|3.5e-03|6.8e+02| 5.271708e+02 -9.354823e+00| 0:0:00| chol  1↙
1
 5|1.000|0.635|9.9e-09|2.0e-03|3.2e+02| 2.809642e+02 -1.995508e+00| 0:0:00| chol  1↙
1
 6|0.950|1.000|4.6e-10|3.2e-04|2.1e+01| 1.886128e+01 -1.267550e+00| 0:0:00| chol  1↙
1
 7|0.872|1.000|3.7e-10|3.2e-05|1.1e+01| 9.628702e+00 -1.027878e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|3.9e-11|3.2e-06|3.8e+00| 2.877040e+00 -9.289656e-01| 0:0:00| chol  1↙
1
 9|0.935|0.930|1.1e-11|5.2e-07|2.7e-01|-6.195151e-01 -8.910275e-01| 0:0:00| chol  1↙
1
10|0.703|0.819|2.5e-12|1.2e-07|1.3e-01|-7.412002e-01 -8.753234e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|1.2e-10|3.2e-09|6.2e-02|-8.099353e-01 -8.719868e-01| 0:0:00| chol  1↙
1
12|0.895|0.878|1.1e-11|6.7e-10|8.0e-03|-8.616163e-01 -8.696475e-01| 0:0:00| chol  1↙
1
13|1.000|1.000|2.4e-13|3.4e-11|1.7e-03|-8.678544e-01 -8.695056e-01| 0:0:00| chol  1↙
1
14|0.963|0.959|5.3e-11|5.4e-12|6.6e-05|-8.693709e-01 -8.694364e-01| 0:0:00| chol  1↙
2
15|1.000|1.000|1.2e-11|1.5e-12|1.9e-06|-8.694312e-01 -8.694331e-01| 0:0:00| chol  2↙
2
16|0.998|0.999|2.3e-12|2.3e-12|2.3e-08|-8.694330e-01 -8.694330e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 16
 primal objective value = -8.69433007e-01
 dual   objective value = -8.69433030e-01
 gap := trace(XZ)       = 2.31e-08
 relative gap           = 8.42e-09
 actual relative gap    = 8.44e-09
 rel. primal infeas     = 2.28e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.8e-12  0.0e+00  3.1e-12  0.0e+00  8.4e-09  8.4e-09
-------------------------------------------------------------------


ans =

    0.8694


Epoch... 75
```

Epoch... 76

```
 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|9.3e+05| 3.234716e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.977|5.4e-07|1.4e-01|8.2e+04| 2.661351e+04  6.746388e+00| 0:0:00| chol  1✔
1
 2|1.000|1.000|9.6e-07|3.9e-02|1.5e+04| 7.375630e+03 -7.948111e+01| 0:0:00| chol  1✔
1
 3|1.000|0.911|4.7e-07|1.4e-02|4.3e+03| 2.796397e+03 -1.717739e+01| 0:0:00| chol  1✔
1
 4|0.875|1.000|3.1e-08|3.5e-03|6.6e+02| 5.241529e+02 -9.709884e+00| 0:0:00| chol  1✔
1
 5|1.000|0.648|8.2e-09|1.9e-03|3.1e+02| 2.696286e+02 -1.991002e+00| 0:0:00| chol  1✔
1
 6|0.949|1.000|3.8e-10|3.2e-04|1.9e+01| 1.762045e+01 -1.241443e+00| 0:0:00| chol  1✔
1
 7|1.000|0.929|5.0e-10|5.2e-05|9.1e+00| 8.139764e+00 -9.228339e-01| 0:0:00| chol  1✔
1
 8|0.838|1.000|2.9e-11|3.2e-06|2.0e+00| 1.119011e+00 -8.755072e-01| 0:0:00| chol  1✔
1
 9|1.000|0.881|9.0e-11|6.6e-07|8.0e-01|-5.039229e-02 -8.457428e-01| 0:0:00| chol  1✔
1
10|0.827|1.000|1.6e-11|3.2e-08|1.4e-01|-6.963283e-01 -8.367288e-01| 0:0:00| chol  1✔
1
11|0.503|0.557|1.1e-11|1.6e-08|1.1e-01|-7.154494e-01 -8.277691e-01| 0:0:00| chol  1✔
1
12|1.000|1.000|4.8e-13|3.2e-10|5.5e-02|-7.740993e-01 -8.287355e-01| 0:0:00| chol  1✔
1
13|1.000|0.948|1.4e-12|4.8e-11|3.7e-03|-8.215581e-01 -8.252833e-01| 0:0:00| chol  1✔
1
14|0.981|0.978|8.8e-13|5.2e-12|7.5e-05|-8.250103e-01 -8.250853e-01| 0:0:00| chol  1✔
1
15|1.000|0.995|1.2e-11|1.0e-12|3.1e-06|-8.250774e-01 -8.250805e-01| 0:0:00| chol  1✔
2
16|1.000|1.000|1.1e-12|1.5e-12|1.9e-07|-8.250801e-01 -8.250803e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.25080125e-01
 dual   objective value = -8.25080316e-01
 gap := trace(XZ)        = 1.91e-07
 relative gap            = 7.19e-08
 actual relative gap     = 7.20e-08
 rel. primal infeas      = 1.13e-12
```

```
 rel. dual   infeas    = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       = 0
 DIMACS errors: 1.9e-12  0.0e+00  2.1e-12  0.0e+00  7.2e-08  7.2e-08
---------------------------------------------------------------------
```

ans =

    0.8251

Epoch... 77
Epoch... 78

```
 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|9.4e+05| 3.273300e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|5.4e-07|1.4e-01|8.3e+04| 2.692541e+04  6.813123e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.7e-07|3.9e-02|1.5e+04| 7.506680e+03 -8.115645e+01| 0:0:00| chol  1↙
1
 3|1.000|0.885|4.9e-07|1.5e-02|4.5e+03| 2.895707e+03 -1.765501e+01| 0:0:00| chol  1↙
1
 4|0.880|1.000|3.2e-08|3.5e-03|6.8e+02| 5.337984e+02 -9.851423e+00| 0:0:00| chol  1↙
1
 5|1.000|0.642|8.6e-09|2.0e-03|3.1e+02| 2.775213e+02 -2.015526e+00| 0:0:00| chol  1↙
1
 6|0.950|1.000|3.9e-10|3.2e-04|2.0e+01| 1.805284e+01 -1.250118e+00| 0:0:00| chol  1↙
1
 7|1.000|0.958|5.0e-10|4.4e-05|9.3e+00| 8.305226e+00 -9.279494e-01| 0:0:00| chol  1↙
1
 8|0.858|1.000|1.7e-11|3.2e-06|2.2e+00| 1.287083e+00 -8.761373e-01| 0:0:00| chol  1↙
1
 9|1.000|0.946|5.9e-11|4.7e-07|7.7e-01|-6.870491e-02 -8.429087e-01| 0:0:00| chol  1↙
1
10|0.827|1.000|1.0e-11|3.2e-08|1.4e-01|-6.961738e-01 -8.331820e-01| 0:0:00| chol  1↙
1
11|0.537|0.604|5.0e-11|1.5e-08|1.1e-01|-7.176364e-01 -8.248027e-01| 0:0:00| chol  1↙
1
12|0.988|1.000|1.1e-12|3.2e-10|5.4e-02|-7.717894e-01 -8.258768e-01| 0:0:00| chol  1↙
1
13|1.000|0.981|2.7e-12|3.8e-11|5.8e-03|-8.168878e-01 -8.226552e-01| 0:0:00| chol  1↙
1
```

```
14|0.984|0.978|1.8e-11|5.0e-12|9.8e-05|-8.223514e-01 -8.224490e-01| 0:0:00| chol  1↙
1
15|0.980|0.986|2.7e-11|1.6e-12|2.0e-06|-8.224424e-01 -8.224444e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|2.5e-12|2.3e-12|1.9e-07|-8.224442e-01 -8.224444e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.22444180e-01
 dual   objective value = -8.22444369e-01
 gap := trace(XZ)        = 1.88e-07
 relative gap            = 7.12e-08
 actual relative gap     = 7.14e-08
 rel. primal infeas      = 2.52e-12
 rel. dual   infeas      = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.2e+02, 3.5e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.2e-12  0.0e+00  3.1e-12  0.0e+00  7.1e-08  7.1e-08
-------------------------------------------------------------------

ans =

    0.8224

Epoch... 79
Epoch... 80

 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|9.7e+05| 3.360993e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|5.4e-07|1.4e-01|8.4e+04| 2.764284e+04  4.836439e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.1e-07|3.9e-02|1.5e+04| 7.356759e+03 -7.713668e+01| 0:0:00| chol  1↙
1
 3|1.000|0.969|4.0e-07|1.3e-02|3.7e+03| 2.503670e+03 -1.528834e+01| 0:0:00| chol  1↙
1
 4|0.870|1.000|2.8e-08|3.5e-03|5.9e+02| 4.689656e+02 -8.575432e+00| 0:0:00| chol  1↙
1
 5|1.000|0.667|6.4e-09|1.9e-03|2.7e+02| 2.353888e+02 -1.902048e+00| 0:0:00| chol  1↙
1
 6|0.944|1.000|3.2e-10|1.1e-04|1.9e+01| 1.743203e+01 -1.292665e+00| 0:0:00| chol  1↙
1
```

```
 7|1.000|0.820|5.6e-10|2.8e-05|9.3e+00| 8.367482e+00 -9.586990e-01| 0:0:00| chol  1↙
1
 8|0.834|1.000|5.2e-11|1.1e-06|1.9e+00| 9.578547e-01 -9.120343e-01| 0:0:00| chol  1↙
1
 9|1.000|0.746|1.5e-10|3.5e-07|8.9e-01| 9.245616e-03 -8.771338e-01| 0:0:00| chol  1↙
1
10|0.878|1.000|1.7e-11|1.1e-08|1.1e-01|-7.563500e-01 -8.682312e-01| 0:0:00| chol  1↙
1
11|0.204|0.281|1.2e-10|8.0e-09|1.0e-01|-7.581891e-01 -8.600756e-01| 0:0:00| chol  1↙
1
12|0.941|1.000|6.8e-12|1.1e-10|5.3e-02|-8.077429e-01 -8.603299e-01| 0:0:00| chol  1↙
1
13|1.000|0.962|2.7e-12|1.6e-11|4.4e-03|-8.524780e-01 -8.568844e-01| 0:0:00| chol  1↙
1
14|0.983|0.982|1.5e-11|2.3e-12|7.8e-05|-8.566366e-01 -8.567141e-01| 0:0:00| chol  1↙
1
15|0.988|0.988|5.1e-11|1.5e-12|9.6e-07|-8.567099e-01 -8.567108e-01| 0:0:00| chol  2↙
2
16|1.000|0.997|6.4e-12|2.3e-12|2.1e-08|-8.567108e-01 -8.567108e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.56710756e-01
 dual   objective value = -8.56710778e-01
 gap := trace(XZ)        = 2.14e-08
 relative gap            = 7.89e-09
 actual relative gap     = 8.02e-09
 rel. primal infeas      = 6.39e-12
 rel. dual   infeas      = 2.26e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.3e+02, 3.5e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-11  0.0e+00  3.1e-12  0.0e+00  8.0e-09  7.9e-09
-------------------------------------------------------------------


ans =

    0.8567


Epoch... 81
Epoch... 82

 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|9.9e+05| 3.434839e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|5.7e-07|1.4e-01|8.6e+04| 2.823384e+04  4.136419e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.8e-07|3.9e-02|1.5e+04| 7.527337e+03 -7.824282e+01| 0:0:00| chol  1↙
1
 3|1.000|0.881|5.2e-07|1.5e-02|4.6e+03| 2.920950e+03 -1.803756e+01| 0:0:00| chol  1↙
1
 4|0.879|1.000|3.3e-08|3.5e-03|6.9e+02| 5.466894e+02 -1.033060e+01| 0:0:00| chol  1↙
1
 5|1.000|0.639|7.0e-09|2.0e-03|3.2e+02| 2.851374e+02 -2.240260e+00| 0:0:00| chol  1↙
1
 6|0.950|1.000|3.1e-10|3.2e-04|2.1e+01| 1.843582e+01 -1.445034e+00| 0:0:00| chol  1↙
1
 7|1.000|0.975|4.7e-10|3.9e-05|9.5e+00| 8.358210e+00 -1.106049e+00| 0:0:00| chol  1↙
1
 8|0.894|1.000|9.0e-12|3.2e-06|2.5e+00| 1.432019e+00 -1.043691e+00| 0:0:00| chol  1↙
1
 9|1.000|0.994|1.9e-11|3.4e-07|8.5e-01|-1.536957e-01 -1.002153e+00| 0:0:00| chol  1↙
1
10|0.870|1.000|2.9e-12|3.2e-08|1.1e-01|-8.803144e-01 -9.937323e-01| 0:0:00| chol  1↙
1
11|0.949|0.756|4.8e-11|1.0e-08|6.3e-02|-9.265918e-01 -9.893293e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|1.5e-13|3.2e-10|2.7e-02|-9.624034e-01 -9.890937e-01| 0:0:00| chol  1↙
1
13|0.942|0.969|6.2e-13|4.2e-11|1.6e-03|-9.866824e-01 -9.882872e-01| 0:0:00| chol  1↙
2
14|0.977|0.984|2.2e-12|4.8e-12|3.8e-05|-9.882304e-01 -9.882684e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|5.1e-12|1.0e-12|7.8e-07|-9.882673e-01 -9.882681e-01| 0:0:00| chol  2↙
2
16|0.999|1.000|1.0e-11|1.0e-12|9.7e-09|-9.882680e-01 -9.882681e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.88268049e-01
 dual   objective value = -9.88268063e-01
 gap := trace(XZ)        = 9.72e-09
 relative gap            = 3.26e-09
 actual relative gap     = 4.87e-09
 rel. primal infeas      = 1.05e-11
 rel. dual   infeas      = 1.01e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.4e+02, 3.5e+02, 5.0e+01
 Total CPU time (secs) = 0.08
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 1.7e-11  0.0e+00  1.4e-12  0.0e+00  4.9e-09  3.3e-09
-------------------------------------------------------------------


ans =

    0.9883
```

```
Epoch... 83
Epoch... 84

 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|1.0e+06| 3.598769e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.976|5.7e-07|1.5e-01|9.2e+04| 2.954767e+04  4.424197e+00| 0:0:00| chol  1✓
1
 2|1.000|1.000|1.0e-06|3.9e-02|1.7e+04| 8.220290e+03 -8.497751e+01| 0:0:00| chol  1✓
1
 3|1.000|0.602|8.2e-07|2.3e-02|6.8e+03| 3.784286e+03 -1.703463e+01| 0:0:00| chol  1✓
1
 4|0.894|1.000|7.7e-08|3.5e-03|1.8e+03| 1.452219e+03 -1.942827e+01| 0:0:00| chol  1✓
1
 5|1.000|1.000|3.4e-09|1.1e-03|2.7e+02| 2.467793e+02 -4.565200e+00| 0:0:00| chol  1✓
1
 6|0.940|0.955|2.9e-10|3.5e-04|1.8e+01| 1.667673e+01 -1.084917e+00| 0:0:00| chol  1✓
1
 7|1.000|1.000|4.7e-11|3.2e-05|5.3e+00| 4.293422e+00 -9.572283e-01| 0:0:00| chol  1✓
1
 8|0.878|1.000|7.2e-12|3.2e-06|9.8e-01| 6.196783e-02 -9.201788e-01| 0:0:00| chol  1✓
1
 9|1.000|1.000|2.3e-11|3.2e-07|3.6e-01|-5.424301e-01 -9.072980e-01| 0:0:00| chol  1✓
1
10|0.897|1.000|2.5e-12|3.2e-08|4.3e-02|-8.587437e-01 -9.013074e-01| 0:0:00| chol  1✓
2
11|1.000|1.000|5.6e-13|3.2e-09|3.7e-03|-8.971273e-01 -9.007940e-01| 0:0:00| chol  1✓
1
12|0.986|0.989|1.4e-12|3.5e-10|4.9e-05|-9.006402e-01 -9.006896e-01| 0:0:00| chol  2✓
2
13|1.000|1.000|2.2e-11|1.0e-12|1.6e-06|-9.006868e-01 -9.006884e-01| 0:0:00| chol  2✓
2
14|1.000|1.000|1.9e-11|1.5e-12|5.8e-08|-9.006882e-01 -9.006884e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 14
 primal objective value = -9.00688236e-01
 dual   objective value = -9.00688374e-01
 gap := trace(XZ)      = 5.75e-08
 relative gap          = 2.05e-08
 actual relative gap   = 4.94e-08
 rel. primal infeas    = 1.88e-11
 rel. dual   infeas    = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
```

```
 norm(A), norm(b), norm(C) = 2.6e+02, 3.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.9e-11  0.0e+00  2.1e-12  0.0e+00  4.9e-08  2.1e-08
---------------------------------------------------------------------
```

ans =

    0.9007

Epoch... 85
Epoch... 86

```
 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|1.0e+06| 3.593420e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.975|5.8e-07|1.5e-01|9.2e+04| 2.950168e+04  4.391393e+00| 0:0:00| chol  1↙
1
 2|1.000|0.991|1.1e-06|4.0e-02|1.7e+04| 8.294029e+03 -8.479510e+01| 0:0:00| chol  1↙
1
 3|1.000|0.592|8.3e-07|2.3e-02|7.0e+03| 3.846730e+03 -1.711048e+01| 0:0:00| chol  1↙
1
 4|0.757|1.000|1.7e-07|3.5e-03|2.7e+03| 2.341159e+03 -2.974616e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|3.2e-09|1.1e-03|4.1e+02| 3.756588e+02 -6.410559e+00| 0:0:00| chol  1↙
1
 6|0.943|0.964|3.5e-10|3.5e-04|3.2e+01| 3.036940e+01 -1.146521e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.6e-11|3.2e-05|7.5e+00| 6.513360e+00 -1.002297e+00| 0:0:00| chol  1↙
1
 8|0.856|0.857|4.2e-12|7.3e-06|1.3e+00| 3.392007e-01 -9.142361e-01| 0:0:00| chol  1↙
1
 9|1.000|1.000|4.5e-11|3.2e-07|5.2e-01|-3.768800e-01 -8.991638e-01| 0:0:00| chol  1↙
1
10|0.884|0.899|6.6e-12|6.1e-08|7.8e-02|-8.109390e-01 -8.888686e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|1.3e-11|3.2e-09|2.7e-02|-8.608238e-01 -8.879078e-01| 0:0:00| chol  1↙
1
12|0.980|0.982|2.7e-12|3.7e-10|5.6e-04|-8.866905e-01 -8.872538e-01| 0:0:00| chol  1↙
1
13|0.970|0.985|1.7e-11|3.8e-11|1.7e-05|-8.872251e-01 -8.872417e-01| 0:0:00| chol  2↙
2
14|1.000|1.000|1.7e-11|1.5e-12|1.3e-06|-8.872402e-01 -8.872415e-01| 0:0:00| chol  2↙
2
```

```
15|1.000|1.000|1.4e-12|2.3e-12|1.7e-08|-8.872414e-01 -8.872415e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.87241443e-01
 dual   objective value = -8.87241461e-01
 gap := trace(XZ)       = 1.66e-08
 relative gap           = 5.99e-09
 actual relative gap    = 6.53e-09
 rel. primal infeas     = 1.41e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.7e+02, 3.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.2e-12  0.0e+00  3.1e-12  0.0e+00  6.5e-09  6.0e-09
-------------------------------------------------------------------


ans =

    0.8872


Epoch... 87
Epoch... 88

 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|3.9e+00|1.0e+06| 3.649262e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.976|5.5e-07|1.5e-01|9.3e+04| 2.995721e+04  3.082963e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|9.8e-07|3.9e-02|1.6e+04| 8.199220e+03 -8.305227e+01| 0:0:00| chol  1↙
1
 3|1.000|0.597|8.0e-07|2.3e-02|6.8e+03| 3.781335e+03 -1.708326e+01| 0:0:00| chol  1↙
1
 4|0.919|1.000|6.3e-08|3.5e-03|1.5e+03| 1.223454e+03 -1.698783e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|3.6e-09|1.1e-03|2.4e+02| 2.198069e+02 -4.048068e+00| 0:0:00| chol  1↙
1
 6|0.944|0.953|2.5e-10|3.5e-04|1.5e+01| 1.330684e+01 -1.105901e+00| 0:0:00| chol  1↙
1
 7|1.000|0.997|5.2e-11|3.3e-05|5.6e+00| 4.604135e+00 -9.574808e-01| 0:0:00| chol  1↙
1
 8|0.857|1.000|4.2e-11|3.2e-06|1.4e+00| 4.534921e-01 -9.404180e-01| 0:0:00| chol  1↙
1
```

```
 9|1.000|1.000|1.2e-11|3.2e-07|5.0e-01|-4.122194e-01 -9.129046e-01| 0:0:00| chol  1↵
1
10|0.817|1.000|2.2e-12|3.2e-08|1.2e-01|-7.927159e-01 -9.083268e-01| 0:0:00| chol  1↵
1
11|1.000|1.000|5.0e-12|3.2e-09|4.3e-02|-8.626014e-01 -9.060671e-01| 0:0:00| chol  1↵
1
12|0.949|0.999|1.8e-12|3.2e-10|2.3e-03|-9.030449e-01 -9.053883e-01| 0:0:00| chol  2↵
2
13|0.940|1.000|2.2e-12|3.3e-11|4.8e-04|-9.048890e-01 -9.053644e-01| 0:0:00| chol  2↵
2
14|0.990|0.983|1.0e-10|4.7e-12|1.2e-05|-9.053411e-01 -9.053527e-01| 0:0:00| chol  2↵
1
15|1.000|0.996|2.8e-11|1.5e-12|1.4e-07|-9.053522e-01 -9.053523e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -9.05352160e-01
 dual   objective value = -9.05352298e-01
 gap := trace(XZ)        = 1.38e-07
 relative gap           = 4.92e-08
 actual relative gap    = 4.91e-08
 rel. primal infeas     = 2.85e-11
 rel. dual   infeas     = 1.52e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.7e+02, 3.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.4e-11  0.0e+00  2.1e-12  0.0e+00  4.9e-08  4.9e-08
-------------------------------------------------------------------


ans =

    0.9054


Epoch... 89
Epoch... 90

 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|3.9e+00|1.1e+06| 3.728465e+04  0.000000e+00| 0:0:00| chol  1↵
1
 1|1.000|0.976|5.5e-07|1.5e-01|9.5e+04| 3.059973e+04  2.734334e+00| 0:0:00| chol  1↵
1
 2|1.000|0.994|9.7e-07|4.0e-02|1.7e+04| 8.354668e+03 -8.331948e+01| 0:0:00| chol  1↵
1
```

```
 3|1.000|0.597|7.7e-07|2.3e-02|7.0e+03| 3.856375e+03 -1.735407e+01| 0:0:00| chol  1↙
1
 4|0.911|1.000|6.4e-08|3.5e-03|1.6e+03| 1.307728e+03 -1.785828e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|3.6e-09|1.1e-03|2.6e+02| 2.377159e+02 -4.376655e+00| 0:0:00| chol  1↙
1
 6|0.941|0.952|2.7e-10|3.5e-04|1.7e+01| 1.513803e+01 -1.125806e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|4.2e-11|3.2e-05|6.2e+00| 5.218055e+00 -9.654349e-01| 0:0:00| chol  1↙
1
 8|0.852|1.000|3.7e-11|3.2e-06|1.5e+00| 5.324124e-01 -9.370218e-01| 0:0:00| chol  1↙
1
 9|1.000|1.000|1.9e-11|3.2e-07|5.4e-01|-3.721255e-01 -9.105524e-01| 0:0:00| chol  1↙
1
10|0.820|1.000|3.4e-12|3.2e-08|1.2e-01|-7.838955e-01 -9.048257e-01| 0:0:00| chol  1↙
1
11|1.000|0.995|1.1e-12|3.3e-09|4.7e-02|-8.555882e-01 -9.025927e-01| 0:0:00| chol  1↙
1
12|0.915|1.000|9.6e-12|3.2e-10|4.4e-03|-8.974914e-01 -9.019269e-01| 0:0:00| chol  1↙
2
13|1.000|1.000|4.5e-12|3.3e-11|1.4e-03|-9.004600e-01 -9.018858e-01| 0:0:00| chol  1↙
1
14|0.965|0.980|3.6e-11|4.8e-12|6.0e-05|-9.017912e-01 -9.018507e-01| 0:0:00| chol  1↙
2
15|1.000|1.000|5.3e-12|1.5e-12|9.8e-06|-9.018402e-01 -9.018500e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|3.1e-12|1.1e-12|1.4e-07|-9.018496e-01 -9.018497e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.01849597e-01
 dual   objective value = -9.01849741e-01
 gap := trace(XZ)        = 1.45e-07
 relative gap            = 5.17e-08
 actual relative gap     = 5.13e-08
 rel. primal infeas      = 3.10e-12
 rel. dual   infeas      = 1.06e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.8e+02, 3.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.8e-12  0.0e+00  1.5e-12  0.0e+00  5.1e-08  5.2e-08
-------------------------------------------------------------------


ans =

    0.9018


Epoch... 91
Epoch... 92

 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|3.9e+00|1.1e+06| 3.736739e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.975|5.5e-07|1.5e-01|9.6e+04| 3.066393e+04  3.390116e+00| 0:0:00| chol  1↙
1
 2|1.000|0.979|9.9e-07|4.1e-02|1.8e+04| 8.543515e+03 -8.481593e+01| 0:0:00| chol  1↙
1
 3|1.000|0.603|7.5e-07|2.3e-02|7.2e+03| 3.945429e+03 -1.786733e+01| 0:0:00| chol  1↙
1
 4|0.763|1.000|1.4e-07|3.5e-03|2.8e+03| 2.357539e+03 -2.998521e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|3.5e-09|1.1e-03|4.5e+02| 4.141166e+02 -6.909146e+00| 0:0:00| chol  1↙
1
 6|0.936|0.963|3.9e-10|3.5e-04|3.4e+01| 3.203277e+01 -1.183837e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|1.8e-11|3.2e-05|9.8e+00| 8.778142e+00 -1.029109e+00| 0:0:00| chol  1↙
1
 8|0.854|0.861|8.5e-12|7.2e-06|1.6e+00| 6.554261e-01 -9.172229e-01| 0:0:00| chol  1↙
1
 9|1.000|1.000|8.8e-11|3.2e-07|7.2e-01|-1.872969e-01 -9.032295e-01| 0:0:00| chol  1↙
1
10|0.899|0.942|1.1e-11|4.9e-08|1.0e-01|-7.865070e-01 -8.885405e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|4.0e-11|3.2e-09|4.4e-02|-8.426131e-01 -8.869920e-01| 0:0:00| chol  1↙
1
12|0.947|0.987|4.6e-12|3.6e-10|2.8e-03|-8.832804e-01 -8.860915e-01| 0:0:00| chol  1↙
1
13|0.992|1.000|5.3e-11|3.3e-11|1.0e-04|-8.859474e-01 -8.860515e-01| 0:0:00| chol  2↙
2
14|0.980|0.986|1.8e-11|1.9e-12|2.0e-06|-8.860472e-01 -8.860492e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|1.1e-11|2.3e-12|9.9e-08|-8.860491e-01 -8.860492e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
---------------------------------------------------------------------
 number of iterations  = 15
 primal objective value = -8.86049090e-01
 dual   objective value = -8.86049192e-01
 gap := trace(XZ)      = 9.94e-08
 relative gap          = 3.59e-08
 actual relative gap   = 3.67e-08
 rel. primal infeas    = 1.06e-11
 rel. dual   infeas    = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.8e+02, 3.8e+02, 5.0e+01
 Total CPU time (secs) = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
```

```
 DIMACS errors: 1.6e-11  0.0e+00  3.1e-12  0.0e+00  3.7e-08  3.6e-08
 --------------------------------------------------------------------


ans =

    0.8860


Epoch... 93
Epoch... 94

 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|1.1e+06| 3.715653e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.976|5.8e-07|1.5e-01|9.4e+04| 3.048953e+04  9.492734e-01| 0:0:00| chol  1↙
1
 2|1.000|0.981|9.9e-07|4.1e-02|1.7e+04| 8.272747e+03 -8.022840e+01| 0:0:00| chol  1↙
1
 3|1.000|0.609|7.5e-07|2.3e-02|6.9e+03| 3.803951e+03 -1.776818e+01| 0:0:00| chol  1↙
1
 4|0.878|1.000|7.6e-08|3.5e-03|1.8e+03| 1.507918e+03 -2.027217e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|3.4e-09|1.1e-03|3.2e+02| 2.902827e+02 -5.355477e+00| 0:0:00| chol  1↙
1
 6|0.938|0.954|2.9e-10|3.5e-04|2.2e+01| 1.958368e+01 -1.266999e+00| 0:0:00| chol  1↙
1
 7|1.000|1.000|2.9e-11|3.2e-05|7.5e+00| 6.431773e+00 -1.093670e+00| 0:0:00| chol  1↙
1
 8|0.845|1.000|2.4e-11|3.2e-06|1.5e+00| 4.823835e-01 -1.033938e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|1.8e-10|3.2e-07|7.3e-01|-2.886456e-01 -1.018442e+00| 0:0:00| chol  1↙
1
10|0.779|1.000|3.9e-11|3.2e-08|2.6e-01|-7.601193e-01 -1.015330e+00| 0:0:00| chol  1↙
1
11|1.000|0.990|1.4e-11|3.5e-09|9.8e-02|-9.105418e-01 -1.008863e+00| 0:0:00| chol  1↙
1
12|0.882|1.000|1.0e-13|3.2e-10|1.4e-02|-9.937650e-01 -1.007634e+00| 0:0:00| chol  1↙
2
13|1.000|0.940|1.0e-12|5.0e-11|5.3e-03|-1.002156e+00 -1.007419e+00| 0:0:00| chol  1↙
1
14|0.952|0.987|1.1e-11|4.8e-12|2.5e-04|-1.007074e+00 -1.007323e+00| 0:0:00| chol  2↙
2
15|1.000|0.988|1.9e-10|1.6e-12|9.8e-05|-1.007223e+00 -1.007321e+00| 0:0:00| chol  2↙
2
16|0.924|0.983|4.7e-12|2.3e-12|7.5e-06|-1.007312e+00 -1.007319e+00| 0:0:00| chol  2↙
2
```

```
17|1.000|0.834|1.8e-10|1.4e-12|3.2e-06|-1.007316e+00 -1.007319e+00| 0:0:00| chol  2↙
2
18|0.969|1.000|2.3e-11|1.5e-12|3.7e-07|-1.007319e+00 -1.007319e+00| 0:0:00| chol  3↙
3
19|1.000|0.999|3.4e-10|2.3e-12|9.9e-08|-1.007319e+00 -1.007319e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.00731886e+00
 dual   objective value = -1.00731896e+00
 gap := trace(XZ)        = 9.86e-08
 relative gap            = 3.27e-08
 actual relative gap     = 3.31e-08
 rel. primal infeas      = 3.36e-10
 rel. dual   infeas      = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.9e+02, 3.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.3e-10  0.0e+00  3.1e-12  0.0e+00  3.3e-08  3.3e-08
-------------------------------------------------------------------

ans =

    1.0073


Epoch... 95
Epoch... 96

 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|1.1e+06| 3.697276e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.977|5.9e-07|1.5e-01|9.3e+04| 3.034256e+04 -8.236246e-02| 0:0:00| chol  1↙
1
 2|1.000|0.994|9.5e-07|4.0e-02|1.6e+04| 8.061984e+03 -7.832570e+01| 0:0:00| chol  1↙
1
 3|1.000|0.605|7.7e-07|2.3e-02|6.7e+03| 3.700825e+03 -1.725948e+01| 0:0:00| chol  1↙
1
 4|0.933|1.000|5.0e-08|3.5e-03|1.2e+03| 9.804651e+02 -1.455850e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|3.9e-09|1.1e-03|2.6e+02| 2.356772e+02 -3.660742e+00| 0:0:00| chol  1↙
1
 6|0.964|0.968|1.3e-10|3.4e-04|1.0e+01| 8.590499e+00 -1.299327e+00| 0:0:00| chol  1↙
1
```

```
 7|0.886|0.807|1.6e-10|9.2e-05|5.4e+00| 4.193221e+00 -1.112084e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|3.1e-11|3.2e-06|2.3e+00| 1.177178e+00 -1.090831e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|3.7e-12|3.2e-07|8.2e-01|-2.457451e-01 -1.069375e+00| 0:0:00| chol  1↙
1
10|0.901|0.908|2.6e-13|5.8e-08|9.2e-02|-9.625607e-01 -1.054713e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|1.8e-11|3.2e-09|4.0e-02|-1.013279e+00 -1.052999e+00| 0:0:00| chol  1↙
1
12|0.972|0.975|1.6e-12|3.9e-10|1.2e-03|-1.050896e+00 -1.052088e+00| 0:0:00| chol  1↙
1
13|0.986|0.987|8.3e-12|3.8e-11|1.7e-05|-1.052045e+00 -1.052062e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|9.5e-12|1.5e-12|7.0e-07|-1.052061e+00 -1.052061e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|1.4e-11|1.9e-12|2.9e-08|-1.052061e+00 -1.052061e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -1.05206140e+00
 dual   objective value = -1.05206140e+00
 gap := trace(XZ)        = 2.87e-08
 relative gap            = 9.25e-09
 actual relative gap     = 7.63e-10
 rel. primal infeas      = 1.41e-11
 rel. dual   infeas      = 1.91e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.9e+02, 3.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 2.2e-11  0.0e+00  2.6e-12  0.0e+00  7.6e-10  9.3e-09
-------------------------------------------------------------------

ans =

    1.0521

Epoch... 97
Epoch... 98

 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|1.1e+06| 3.794727e+04  0.000000e+00| 0:0:00| chol  1↙
1
```

```
 1|1.000|0.978|5.7e-07|1.5e-01|9.5e+04| 3.113385e+04 -7.161565e-01| 0:0:00| chol  1↙
1
 2|1.000|0.991|9.0e-07|4.0e-02|1.7e+04| 8.223541e+03 -7.910757e+01| 0:0:00| chol  1↙
1
 3|1.000|0.609|7.1e-07|2.3e-02|6.8e+03| 3.766944e+03 -1.775507e+01| 0:0:00| chol  1↙
1
 4|0.932|1.000|4.7e-08|3.5e-03|1.2e+03| 9.632783e+02 -1.446739e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|4.1e-09|1.1e-03|2.8e+02| 2.524322e+02 -3.687472e+00| 0:0:00| chol  1↙
1
 6|0.966|0.971|1.2e-10|3.4e-04|1.1e+01| 8.861119e+00 -1.358586e+00| 0:0:00| chol  1↙
1
 7|0.829|0.771|2.3e-10|1.0e-04|5.9e+00| 4.721739e+00 -1.150684e+00| 0:0:00| chol  1↙
1
 8|0.896|1.000|1.6e-11|3.2e-06|3.0e+00| 1.890145e+00 -1.125262e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|7.7e-12|3.2e-07|1.3e+00| 2.203462e-01 -1.103591e+00| 0:0:00| chol  1↙
1
10|0.897|0.935|2.9e-13|5.1e-08|1.5e-01|-9.329913e-01 -1.080870e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|4.4e-11|3.2e-09|5.4e-02|-1.023869e+00 -1.078137e+00| 0:0:00| chol  1↙
1
12|1.000|0.972|2.8e-11|4.0e-10|6.0e-03|-1.070772e+00 -1.076787e+00| 0:0:00| chol  1↙
1
13|0.983|0.984|8.3e-12|4.0e-11|1.0e-04|-1.076554e+00 -1.076656e+00| 0:0:00| chol  1↙
1
14|0.979|0.987|3.9e-11|2.2e-12|2.1e-06|-1.076652e+00 -1.076654e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|6.0e-11|2.5e-12|2.8e-07|-1.076653e+00 -1.076654e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -1.07665342e+00
 dual   objective value = -1.07665381e+00
 gap := trace(XZ)        = 2.81e-07
 relative gap            = 8.90e-08
 actual relative gap     = 1.21e-07
 rel. primal infeas      = 5.99e-11
 rel. dual   infeas      = 2.48e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.0e+02, 4.0e+02, 5.0e+01
 Total CPU time (secs)   = 0.08
 CPU time per iteration  = 0.01
 termination code        =  0
 DIMACS errors: 9.5e-11  0.0e+00  3.4e-12  0.0e+00  1.2e-07  8.9e-08
-------------------------------------------------------------------

ans =

    1.0767

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|4.1e+00|1.1e+06| 3.833624e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.978|5.6e-07|1.5e-01|9.6e+04| 3.145093e+04 -8.318469e-01| 0:0:00| chol  1✓
1
 2|1.000|0.991|8.7e-07|4.0e-02|1.7e+04| 8.294699e+03 -7.986682e+01| 0:0:00| chol  1✓
1
 3|1.000|0.609|6.9e-07|2.3e-02|6.9e+03| 3.798093e+03 -1.795175e+01| 0:0:00| chol  1✓
1
 4|0.933|1.000|4.6e-08|3.5e-03|1.2e+03| 9.451191e+02 -1.428827e+01| 0:0:00| chol  1✓
1
 5|1.000|1.000|4.1e-09|1.1e-03|2.8e+02| 2.602141e+02 -3.648771e+00| 0:0:00| chol  1✓
1
 6|0.965|0.972|1.1e-10|3.4e-04|1.1e+01| 9.385049e+00 -1.377966e+00| 0:0:00| chol  1✓
1
 7|0.808|0.748|3.1e-10|1.1e-04|6.5e+00| 5.225461e+00 -1.156497e+00| 0:0:00| chol  1✓
1
 8|0.803|1.000|1.8e-11|3.2e-06|3.7e+00| 2.581079e+00 -1.125387e+00| 0:0:00| chol  1✓
1
 9|1.000|1.000|9.8e-12|3.2e-07|1.6e+00| 5.296260e-01 -1.102927e+00| 0:0:00| chol  1✓
1
10|0.912|0.935|8.0e-13|5.1e-08|1.6e-01|-9.124981e-01 -1.075331e+00| 0:0:00| chol  1✓
1
11|1.000|1.000|4.1e-11|3.2e-09|6.5e-02|-1.006626e+00 -1.071450e+00| 0:0:00| chol  1✓
1
12|1.000|1.000|2.4e-12|3.2e-10|4.8e-03|-1.065385e+00 -1.070145e+00| 0:0:00| chol  1✓
1
13|0.983|0.984|6.2e-11|3.8e-11|8.6e-05|-1.069966e+00 -1.070051e+00| 0:0:00| chol  1✓
1
14|0.987|0.988|1.5e-11|1.9e-12|1.1e-06|-1.070048e+00 -1.070050e+00| 0:0:00| chol  2✓
2
15|1.000|1.000|1.2e-11|2.3e-12|2.6e-08|-1.070049e+00 -1.070050e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
---------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -1.07004950e+00
 dual   objective value = -1.07004951e+00
 gap := trace(XZ)       = 2.59e-08
 relative gap           = 8.24e-09
 actual relative gap    = 4.31e-09
 rel. primal infeas     = 1.20e-11
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.0e+02, 4.0e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
```

```
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 1.9e-11  0.0e+00  3.1e-12  0.0e+00  4.3e-09  8.2e-09
 -------------------------------------------------------------------
```

ans =

    1.0700

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|4.2e+00|1.1e+06| 3.833687e+04  0.000000e+00| 0:0:00| chol  1↙
 1
  1|1.000|0.978|5.6e-07|1.4e-01|9.6e+04| 3.145703e+04 -1.714599e+00| 0:0:00| chol  1↙
 1
  2|1.000|1.000|8.2e-07|3.9e-02|1.6e+04| 8.144000e+03 -7.842424e+01| 0:0:00| chol  1↙
 1
  3|1.000|0.639|6.1e-07|2.2e-02|6.5e+03| 3.640369e+03 -1.821403e+01| 0:0:00| chol  1↙
 1
  4|0.926|1.000|3.4e-08|3.5e-03|8.7e+02| 6.687319e+02 -1.102729e+01| 0:0:00| chol  1↙
 1
  5|1.000|0.842|5.7e-09|1.5e-03|3.5e+02| 3.162799e+02 -2.683339e+00| 0:0:00| chol  1↙
 1
  6|0.923|1.000|3.8e-10|3.2e-04|3.0e+01| 2.709667e+01 -1.796329e+00| 0:0:00| chol  1↙
 1
  7|1.000|0.658|5.8e-10|1.3e-04|1.6e+01| 1.432969e+01 -1.298649e+00| 0:0:00| chol  1↙
 1
  8|0.820|1.000|9.9e-11|3.2e-06|3.8e+00| 2.595594e+00 -1.228789e+00| 0:0:00| chol  1↙
 1
  9|1.000|0.823|1.2e-11|8.3e-07|1.8e+00| 7.001822e-01 -1.107027e+00| 0:0:00| chol  1↙
 1
 10|0.908|1.000|1.4e-12|3.2e-08|1.8e-01|-9.127357e-01 -1.094905e+00| 0:0:00| chol  1↙
 1
 11|1.000|0.973|2.9e-11|4.0e-09|8.6e-02|-1.002189e+00 -1.088261e+00| 0:0:00| chol  1↙
 1
 12|0.926|0.986|5.8e-13|3.7e-10|8.4e-03|-1.078846e+00 -1.087252e+00| 0:0:00| chol  1↙
 2
 13|0.896|1.000|1.8e-12|3.3e-11|2.3e-03|-1.084909e+00 -1.087201e+00| 0:0:00| chol  1↙
 1
 14|1.000|1.000|1.4e-10|4.2e-12|4.8e-04|-1.086675e+00 -1.087159e+00| 0:0:00| chol  1↙
 1
 15|0.979|0.988|3.8e-11|1.9e-12|9.9e-06|-1.087139e+00 -1.087149e+00| 0:0:00| chol  2↙
 2
```

```
16|1.000|1.000|2.3e-11|2.2e-12|1.6e-06|-1.087147e+00 -1.087149e+00| 0:0:00| chol  2↙
1
17|1.000|1.000|3.6e-11|3.4e-12|2.3e-08|-1.087149e+00 -1.087149e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.08714895e+00
 dual   objective value = -1.08714898e+00
 gap := trace(XZ)        = 2.34e-08
 relative gap            = 7.37e-09
 actual relative gap     = 7.60e-09
 rel. primal infeas      = 3.62e-11
 rel. dual   infeas      = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.0e+02, 4.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 5.8e-11  0.0e+00  4.6e-12  0.0e+00  7.6e-09  7.4e-09
-------------------------------------------------------------------


ans =

    1.0871


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|4.3e+00|1.1e+06| 3.845162e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.978|5.6e-07|1.5e-01|9.6e+04| 3.154961e+04 -2.930718e+00| 0:0:00| chol 1↙
1
 2|1.000|1.000|8.0e-07|3.9e-02|1.6e+04| 8.074641e+03 -7.592458e+01| 0:0:00| chol 1↙
1
 3|1.000|0.636|5.7e-07|2.2e-02|6.4e+03| 3.608450e+03 -1.793422e+01| 0:0:00| chol 1↙
1
 4|0.925|1.000|3.5e-08|3.5e-03|8.5e+02| 6.470693e+02 -1.078339e+01| 0:0:00| chol 1↙
1
 5|1.000|0.805|5.9e-09|1.5e-03|3.5e+02| 3.160220e+02 -2.697702e+00| 0:0:00| chol 1↙
1
 6|0.927|1.000|3.7e-10|3.2e-04|2.9e+01| 2.620483e+01 -1.832963e+00| 0:0:00| chol 1↙
1
 7|1.000|0.670|5.8e-10|1.3e-04|1.5e+01| 1.393571e+01 -1.316299e+00| 0:0:00| chol 1↙
1
```

```
 8|0.821|1.000|9.9e-11|3.2e-06|3.7e+00| 2.429001e+00 -1.243820e+00| 0:0:00| chol  1↙
1
 9|1.000|0.822|1.4e-11|8.3e-07|1.7e+00| 6.203617e-01 -1.124805e+00| 0:0:00| chol  1↙
1
10|0.901|1.000|5.1e-13|3.2e-08|1.9e-01|-9.191592e-01 -1.112801e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|8.1e-12|3.2e-09|9.1e-02|-1.014311e+00 -1.105466e+00| 0:0:00| chol  1↙
1
12|0.917|1.000|2.0e-12|3.2e-10|1.1e-02|-1.093826e+00 -1.104549e+00| 0:0:00| chol  1↙
2
13|1.000|1.000|1.3e-12|3.3e-11|3.2e-03|-1.101192e+00 -1.104422e+00| 0:0:00| chol  2↙
2
14|0.992|0.991|8.8e-11|4.4e-12|8.7e-05|-1.104258e+00 -1.104345e+00| 0:0:00| chol  1↙
1
15|0.966|0.983|3.8e-11|1.6e-12|3.1e-06|-1.104340e+00 -1.104343e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|7.4e-13|2.3e-12|5.3e-07|-1.104342e+00 -1.104343e+00| 0:0:00| chol  1↙
2
17|1.000|1.000|1.1e-12|1.0e-12|8.2e-09|-1.104343e+00 -1.104343e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.10434261e+00
 dual   objective value = -1.10434261e+00
 gap := trace(XZ)        = 8.23e-09
 relative gap            = 2.57e-09
 actual relative gap     = 2.65e-09
 rel. primal infeas      = 1.10e-12
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.1e+02, 4.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-12  0.0e+00  1.4e-12  0.0e+00  2.6e-09  2.6e-09
-------------------------------------------------------------------


ans =

    1.1043


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|4.3e+00|1.1e+06| 3.949745e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|5.2e-07|1.4e-01|9.8e+04| 3.240417e+04 -3.457531e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|7.2e-07|3.9e-02|1.6e+04| 8.144051e+03 -7.672919e+01| 0:0:00| chol  1↙
1
 3|1.000|0.698|4.9e-07|2.0e-02|6.1e+03| 3.505000e+03 -1.897505e+01| 0:0:00| chol  1↙
1
 4|0.911|1.000|3.3e-08|3.5e-03|8.0e+02| 6.071504e+02 -1.104215e+01| 0:0:00| chol  1↙
1
 5|1.000|0.627|7.7e-09|2.0e-03|3.8e+02| 3.309391e+02 -2.674707e+00| 0:0:00| chol  1↙
1
 6|0.946|1.000|3.7e-10|3.2e-04|2.6e+01| 2.310157e+01 -1.789149e+00| 0:0:00| chol  1↙
1
 7|1.000|0.893|6.7e-10|6.3e-05|1.3e+01| 1.191420e+01 -1.281658e+00| 0:0:00| chol  1↙
1
 8|0.973|1.000|5.4e-12|3.2e-06|3.1e+00| 1.913492e+00 -1.181031e+00| 0:0:00| chol  1↙
1
 9|1.000|0.914|2.0e-12|5.7e-07|1.1e+00| 4.562681e-02 -1.086981e+00| 0:0:00| chol  1↙
1
10|0.871|1.000|1.9e-12|3.2e-08|2.1e-01|-8.654527e-01 -1.075654e+00| 0:0:00| chol  1↙
1
11|1.000|0.972|1.9e-11|4.0e-09|8.2e-02|-9.889474e-01 -1.070456e+00| 0:0:00| chol  1↙
1
12|0.883|1.000|6.4e-13|3.2e-10|1.4e-02|-1.055320e+00 -1.069597e+00| 0:0:00| chol  1↙
1
13|1.000|0.985|2.1e-11|3.7e-11|5.2e-03|-1.064128e+00 -1.069310e+00| 0:0:00| chol  1↙
1
14|0.969|0.986|3.2e-11|5.2e-12|1.6e-04|-1.069058e+00 -1.069217e+00| 0:0:00| chol  2↙
2
15|0.973|1.000|9.2e-11|2.3e-12|3.7e-05|-1.069178e+00 -1.069215e+00| 0:0:00| chol  2↙
2
16|1.000|1.000|3.1e-11|3.4e-12|3.8e-06|-1.069210e+00 -1.069214e+00| 0:0:00| chol  2↙
2
17|0.997|1.000|2.4e-12|5.1e-12|5.4e-08|-1.069214e+00 -1.069214e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.06921353e+00
 dual   objective value = -1.06921359e+00
 gap := trace(XZ)        = 5.41e-08
 relative gap            = 1.72e-08
 actual relative gap     = 1.70e-08
 rel. primal infeas      = 2.37e-12
 rel. dual   infeas      = 5.06e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.1e+02, 4.2e+02, 5.0e+01
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.7e-12  0.0e+00  7.0e-12  0.0e+00  1.7e-08  1.7e-08
-------------------------------------------------------------------


ans =
```

```
     1.0692

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|4.3e+00|1.1e+06| 3.982970e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.979|5.1e-07|1.4e-01|9.9e+04| 3.267375e+04 -4.190291e+00| 0:0:00| chol  1✔
1
 2|1.000|1.000|6.8e-07|3.9e-02|1.7e+04| 8.169085e+03 -7.612203e+01| 0:0:00| chol  1✔
1
 3|1.000|0.683|4.8e-07|2.1e-02|6.2e+03| 3.541840e+03 -1.883160e+01| 0:0:00| chol  1✔
1
 4|0.914|1.000|3.5e-08|3.5e-03|8.0e+02| 6.085259e+02 -1.100381e+01| 0:0:00| chol  1✔
1
 5|1.000|0.627|7.7e-09|2.0e-03|3.8e+02| 3.324292e+02 -2.718349e+00| 0:0:00| chol  1✔
1
 6|0.945|1.000|3.8e-10|3.2e-04|2.6e+01| 2.365962e+01 -1.836954e+00| 0:0:00| chol  1✔
1
 7|1.000|0.863|6.9e-10|7.1e-05|1.4e+01| 1.242873e+01 -1.299688e+00| 0:0:00| chol  1✔
1
 8|0.907|1.000|5.0e-11|3.2e-06|4.0e+00| 2.754935e+00 -1.203544e+00| 0:0:00| chol  1✔
1
 9|1.000|0.955|4.8e-12|4.5e-07|1.4e+00| 3.098827e-01 -1.097233e+00| 0:0:00| chol  1✔
1
10|0.855|1.000|5.3e-13|3.2e-08|3.0e-01|-7.883885e-01 -1.085391e+00| 0:0:00| chol  1✔
1
11|1.000|0.982|9.4e-13|3.7e-09|1.1e-01|-9.654039e-01 -1.077330e+00| 0:0:00| chol  1✔
1
12|0.850|1.000|9.8e-13|3.2e-10|2.7e-02|-1.049595e+00 -1.076195e+00| 0:0:00| chol  1✔
2
13|1.000|0.932|3.9e-13|5.2e-11|1.1e-02|-1.064851e+00 -1.075480e+00| 0:0:00| chol  1✔
1
14|0.960|0.984|2.1e-11|5.0e-12|4.5e-04|-1.074841e+00 -1.075287e+00| 0:0:00| chol  1✔
2
15|0.862|1.000|3.9e-12|1.8e-12|8.9e-05|-1.075191e+00 -1.075281e+00| 0:0:00| chol  2✔
2
16|1.000|0.997|9.8e-11|1.0e-12|1.1e-05|-1.075268e+00 -1.075279e+00| 0:0:00| chol  2✔
2
17|0.988|1.000|8.9e-12|1.5e-12|4.3e-07|-1.075279e+00 -1.075279e+00| 0:0:00| chol  3✔
3
18|1.000|1.000|4.9e-11|1.8e-12|6.8e-08|-1.075279e+00 -1.075279e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
```

```
 -------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.07527898e+00
 dual   objective value = -1.07527904e+00
 gap := trace(XZ)       = 6.76e-08
 relative gap           = 2.15e-08
 actual relative gap    = 2.14e-08
 rel. primal infeas     = 4.91e-11
 rel. dual   infeas     = 1.78e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.1e+02, 4.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.6e-11  0.0e+00  2.5e-12  0.0e+00  2.1e-08  2.1e-08
 -------------------------------------------------------------------


ans =

    1.0753


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|4.8e+00|1.2e+06| 4.169964e+04  0.000000e+00| 0:0:00| chol  1↙
 1
 1|1.000|0.977|4.8e-07|1.6e-01|1.0e+05| 3.417573e+04 -8.026916e+00| 0:0:00| chol  1↙
 1
 2|1.000|0.960|6.4e-07|4.3e-02|1.8e+04| 8.515539e+03 -6.827107e+01| 0:0:00| chol  1↙
 1
 3|1.000|0.665|3.9e-07|2.2e-02|6.7e+03| 3.735859e+03 -1.857415e+01| 0:0:00| chol  1↙
 1
 4|0.903|1.000|4.4e-08|3.5e-03|9.4e+02| 7.194199e+02 -1.217030e+01| 0:0:00| chol  1↙
 1
 5|1.000|0.775|5.5e-09|1.6e-03|4.1e+02| 3.630825e+02 -3.100454e+00| 0:0:00| chol  1↙
 1
 6|0.920|1.000|3.9e-10|3.2e-04|4.3e+01| 3.995134e+01 -2.165194e+00| 0:0:00| chol  1↙
 1
 7|1.000|0.862|1.9e-10|7.2e-05|2.0e+01| 1.860514e+01 -1.331909e+00| 0:0:00| chol  1↙
 1
 8|0.874|1.000|1.6e-11|3.2e-06|4.0e+00| 2.761594e+00 -1.233986e+00| 0:0:00| chol  1↙
 1
 9|1.000|0.901|3.6e-11|6.0e-07|1.7e+00| 6.159031e-01 -1.127188e+00| 0:0:00| chol  1↙
 1
```

10|0.826|1.000|6.3e-12|3.2e-08|4.1e-01|-7.067035e-01 -1.115124e+00| 0:0:00| chol 1↙
1
11|1.000|0.948|3.9e-12|4.7e-09|1.8e-01|-9.217284e-01 -1.100196e+00| 0:0:00| chol 1↙
1
12|0.826|1.000|6.1e-12|3.2e-10|5.1e-02|-1.047644e+00 -1.098520e+00| 0:0:00| chol 1↙
1
13|1.000|0.933|1.5e-11|5.2e-11|2.1e-02|-1.075024e+00 -1.096232e+00| 0:0:00| chol 2↙
1
14|0.900|1.000|1.2e-11|5.0e-12|3.0e-03|-1.092886e+00 -1.095841e+00| 0:0:00| chol 2↙
2
15|1.000|0.968|2.3e-12|2.9e-12|1.1e-03|-1.094709e+00 -1.095761e+00| 0:0:00| chol 1↙
1
16|0.975|0.982|5.5e-11|1.1e-12|2.7e-05|-1.095714e+00 -1.095741e+00| 0:0:00| chol 2↙
2
17|0.956|1.000|1.2e-11|1.5e-12|4.1e-06|-1.095736e+00 -1.095740e+00| 0:0:00| chol 2↙
2
18|1.000|1.000|9.4e-12|2.3e-12|7.4e-07|-1.095739e+00 -1.095740e+00| 0:0:00| chol 2↙
2
19|0.993|1.000|4.4e-11|1.9e-12|2.2e-08|-1.095740e+00 -1.095740e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
----
 number of iterations   = 19
 primal objective value = -1.09573998e+00
 dual   objective value = -1.09574000e+00
 gap := trace(XZ)   = 2.24e-08
 relative gap   = 7.02e-09
 actual relative gap   = 7.30e-09
 rel. primal infeas   = 4.39e-11
 rel. dual   infeas   = 1.88e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.4e+02, 4.7e+02, 5.0e+01
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code   = 0
 DIMACS errors: 7.0e-11 0.0e+00 2.6e-12 0.0e+00 7.3e-09 7.0e-09
----

ans =

    1.0957

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|4.7e+00|1.2e+06| 4.128978e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.978|4.6e-07|1.5e-01|1.0e+05| 3.384992e+04 -9.052408e+00| 0:0:00| chol 1↙
1
 2|1.000|0.981|5.9e-07|4.1e-02|1.7e+04| 8.235212e+03 -6.740005e+01| 0:0:00| chol 1↙
1
 3|1.000|0.664|3.8e-07|2.2e-02|6.4e+03| 3.602919e+03 -1.815591e+01| 0:0:00| chol 1↙
1
 4|0.908|1.000|4.2e-08|3.5e-03|8.6e+02| 6.521779e+02 -1.158648e+01| 0:0:00| chol 1↙
1
 5|1.000|0.710|5.9e-09|1.8e-03|3.9e+02| 3.429200e+02 -3.110329e+00| 0:0:00| chol 1↙
1
 6|0.923|1.000|4.1e-10|3.2e-04|4.0e+01| 3.712880e+01 -2.234953e+00| 0:0:00| chol 1↙
1
 7|1.000|0.873|2.1e-10|6.8e-05|1.9e+01| 1.771701e+01 -1.396341e+00| 0:0:00| chol 1↙
1
 8|0.907|1.000|9.7e-12|3.2e-06|4.8e+00| 3.502815e+00 -1.319145e+00| 0:0:00| chol 1↙
1
 9|1.000|1.000|1.6e-11|3.2e-07|1.5e+00| 3.113827e-01 -1.190644e+00| 0:0:00| chol 1↙
1
10|0.809|1.000|3.0e-12|3.2e-08|4.3e-01|-7.479553e-01 -1.174718e+00| 0:0:00| chol 1↙
1
11|1.000|0.975|1.7e-12|3.9e-09|1.7e-01|-9.883998e-01 -1.157566e+00| 0:0:00| chol 1↙
1
12|0.794|1.000|2.0e-11|3.2e-10|6.9e-02|-1.087174e+00 -1.155698e+00| 0:0:00| chol 1↙
1
13|1.000|1.000|8.2e-12|3.3e-11|2.5e-02|-1.126467e+00 -1.151706e+00| 0:0:00| chol 1↙
1
14|0.880|1.000|4.2e-12|4.8e-12|6.3e-03|-1.144572e+00 -1.150908e+00| 0:0:00| chol 2↙
2
15|1.000|1.000|4.1e-13|1.3e-12|2.1e-03|-1.148525e+00 -1.150589e+00| 0:0:00| chol 1↙
2
16|0.952|0.872|3.6e-11|1.2e-12|1.5e-04|-1.150331e+00 -1.150477e+00| 0:0:00| chol 1↙
1
17|0.874|0.959|1.1e-11|1.5e-12|2.5e-05|-1.150443e+00 -1.150468e+00| 0:0:00| chol 1↙
1
18|1.000|1.000|4.4e-11|2.3e-12|8.9e-07|-1.150465e+00 -1.150466e+00| 0:0:00| chol 2↙
2
19|1.000|1.000|1.3e-11|3.4e-12|3.0e-08|-1.150466e+00 -1.150466e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.15046613e+00
 dual   objective value = -1.15046616e+00
 gap := trace(XZ)        = 2.97e-08
 relative gap            = 8.98e-09
 actual relative gap     = 8.55e-09
 rel. primal infeas      = 1.31e-11
 rel. dual   infeas      = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.4e+02, 4.6e+02, 5.0e+01
 Total CPU time (secs) = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
```

```
 DIMACS errors: 2.1e-11  0.0e+00  4.6e-12  0.0e+00  8.6e-09  9.0e-09
 -------------------------------------------------------------------


 ans =

     1.1505


 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|4.9e+00|1.2e+06| 4.066820e+04  0.000000e+00| 0:0:00| chol 1↙
 1
  1|1.000|0.978|4.7e-07|1.6e-01|1.0e+05| 3.334481e+04 -1.118141e+01| 0:0:00| chol 1↙
 1
  2|1.000|0.978|5.8e-07|4.1e-02|1.7e+04| 8.029248e+03 -6.247231e+01| 0:0:00| chol 1↙
 1
  3|1.000|0.684|3.5e-07|2.1e-02|6.1e+03| 3.455374e+03 -1.794567e+01| 0:0:00| chol 1↙
 1
  4|0.897|1.000|4.6e-08|3.5e-03|8.8e+02| 6.784129e+02 -1.237474e+01| 0:0:00| chol 1↙
 1
  5|1.000|0.810|4.5e-09|1.5e-03|3.7e+02| 3.340539e+02 -3.292354e+00| 0:0:00| chol 1↙
 1
  6|0.909|1.000|3.7e-10|3.2e-04|4.3e+01| 3.980537e+01 -2.320030e+00| 0:0:00| chol 1↙
 1
  7|1.000|0.791|1.9e-10|9.2e-05|2.1e+01| 1.904486e+01 -1.435696e+00| 0:0:00| chol 1↙
 1
  8|0.860|1.000|1.9e-11|3.2e-06|3.6e+00| 2.264007e+00 -1.321551e+00| 0:0:00| chol 1↙
 1
  9|1.000|0.839|7.4e-11|7.8e-07|1.9e+00| 6.616128e-01 -1.205469e+00| 0:0:00| chol 1↙
 1
 10|0.823|1.000|1.4e-11|3.2e-08|5.8e-01|-6.114223e-01 -1.196300e+00| 0:0:00| chol 1↙
 1
 11|1.000|1.000|6.3e-12|3.2e-09|2.2e-01|-9.495539e-01 -1.171711e+00| 0:0:00| chol 1↙
 1
 12|0.839|0.912|5.9e-14|5.7e-10|5.2e-02|-1.111312e+00 -1.163232e+00| 0:0:00| chol 2↙
 2
 13|1.000|1.000|9.4e-13|3.3e-11|2.6e-02|-1.134986e+00 -1.160878e+00| 0:0:00| chol 1↙
 1
 14|0.938|0.851|2.0e-12|8.6e-12|2.3e-03|-1.157375e+00 -1.159671e+00| 0:0:00| chol 1↙
 1
 15|0.866|0.974|1.6e-11|1.5e-12|4.4e-04|-1.159132e+00 -1.159567e+00| 0:0:00| chol 2↙
 1
 16|0.982|0.981|9.4e-11|1.6e-12|8.1e-06|-1.159532e+00 -1.159540e+00| 0:0:00| chol 2↙
 1
```

```
17|1.000|1.000|4.7e-11|2.3e-12|4.7e-07|-1.159539e+00 -1.159540e+00| 0:0:00| chol  2↙
3
18|1.000|1.000|4.2e-11|3.4e-12|3.5e-08|-1.159540e+00 -1.159540e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.15953988e+00
 dual   objective value = -1.15953991e+00
 gap := trace(XZ)        = 3.47e-08
 relative gap            = 1.05e-08
 actual relative gap     = 9.32e-09
 rel. primal infeas      = 4.18e-11
 rel. dual   infeas      = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.5e+02, 4.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.5e-11  0.0e+00  4.6e-12  0.0e+00  9.3e-09  1.0e-08
-------------------------------------------------------------------


ans =

    1.1595


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|4.7e+00|1.2e+06| 4.193523e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|4.2e-07|1.5e-01|1.0e+05| 3.438179e+04 -9.851867e+00| 0:0:00| chol  1↙
1
 2|1.000|0.996|5.3e-07|4.0e-02|1.7e+04| 8.251127e+03 -7.007190e+01| 0:0:00| chol  1↙
1
 3|1.000|0.658|3.6e-07|2.1e-02|6.4e+03| 3.618970e+03 -1.861560e+01| 0:0:00| chol  1↙
1
 4|0.912|1.000|4.0e-08|3.5e-03|8.4e+02| 6.370168e+02 -1.168561e+01| 0:0:00| chol  1↙
1
 5|1.000|0.683|6.0e-09|1.9e-03|3.8e+02| 3.394372e+02 -3.149578e+00| 0:0:00| chol  1↙
1
 6|0.921|1.000|4.3e-10|3.2e-04|3.9e+01| 3.581329e+01 -2.254018e+00| 0:0:00| chol  1↙
1
 7|1.000|0.818|2.5e-10|8.4e-05|2.0e+01| 1.810073e+01 -1.364208e+00| 0:0:00| chol  1↙
1
```

```
  8|0.916|1.000|1.1e-11|3.2e-06|5.4e+00| 4.089930e+00 -1.295248e+00| 0:0:00| chol  1↙
1
  9|1.000|1.000|1.3e-11|3.2e-07|1.4e+00| 2.289704e-01 -1.154605e+00| 0:0:00| chol  1↙
1
 10|0.819|1.000|8.0e-13|3.2e-08|4.2e-01|-7.059515e-01 -1.128315e+00| 0:0:00| chol  1↙
1
 11|1.000|1.000|2.4e-12|3.2e-09|1.7e-01|-9.418883e-01 -1.114331e+00| 0:0:00| chol  1↙
1
 12|0.807|1.000|4.1e-12|3.2e-10|6.0e-02|-1.051231e+00 -1.111030e+00| 0:0:00| chol  1↙
2
 13|1.000|1.000|3.1e-13|3.3e-11|2.1e-02|-1.086665e+00 -1.108088e+00| 0:0:00| chol  2↙
2
 14|0.896|1.000|5.4e-13|4.2e-12|4.5e-03|-1.102713e+00 -1.107215e+00| 0:0:00| chol  1↙
2
 15|1.000|0.976|5.9e-13|1.4e-12|4.0e-04|-1.106603e+00 -1.107007e+00| 0:0:00| chol  1↙
1
 16|0.971|0.885|4.3e-11|1.2e-12|1.4e-05|-1.106974e+00 -1.106988e+00| 0:0:00| chol  2↙
2
 17|0.969|0.938|2.4e-11|1.6e-12|2.0e-06|-1.106984e+00 -1.106986e+00| 0:0:00| chol  2↙
2
 18|1.000|1.000|3.5e-11|2.3e-12|5.0e-07|-1.106985e+00 -1.106985e+00| 0:0:00| chol  3↙
2
 19|0.997|1.000|2.3e-11|3.4e-12|1.4e-08|-1.106985e+00 -1.106985e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.10698546e+00
 dual   objective value = -1.10698547e+00
 gap := trace(XZ)        = 1.42e-08
 relative gap            = 4.41e-09
 actual relative gap     = 4.31e-09
 rel. primal infeas      = 2.32e-11
 rel. dual   infeas      = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.5e+02, 4.9e+02, 5.0e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 3.6e-11  0.0e+00  4.6e-12  0.0e+00  4.3e-09  4.4e-09
-------------------------------------------------------------------


ans =

    1.1070


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|4.7e+00|1.2e+06| 4.014650e+04   0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.980|4.6e-07|1.4e-01|9.9e+04| 3.293680e+04  -8.733729e+00| 0:0:00| chol  1↙
1
 2|1.000|1.000|5.6e-07|3.9e-02|1.6e+04| 7.996190e+03  -7.162318e+01| 0:0:00| chol  1↙
1
 3|1.000|0.717|3.5e-07|2.0e-02|5.8e+03| 3.373932e+03  -1.943000e+01| 0:0:00| chol  1↙
1
 4|0.898|1.000|4.3e-08|3.5e-03|8.1e+02| 6.186774e+02  -1.225679e+01| 0:0:00| chol  1↙
1
 5|1.000|0.639|7.1e-09|2.0e-03|3.8e+02| 3.324535e+02  -3.239326e+00| 0:0:00| chol  1↙
1
 6|0.928|1.000|4.6e-10|3.2e-04|3.3e+01| 2.996810e+01  -2.273674e+00| 0:0:00| chol  1↙
1
 7|1.000|0.715|4.9e-10|1.1e-04|1.8e+01| 1.634649e+01  -1.404239e+00| 0:0:00| chol  1↙
1
 8|0.882|1.000|5.7e-11|3.2e-06|4.0e+00| 2.652565e+00  -1.314045e+00| 0:0:00| chol  1↙
1
 9|1.000|0.997|1.3e-11|3.3e-07|1.7e+00| 4.768245e-01  -1.180721e+00| 0:0:00| chol  1↙
1
10|0.826|1.000|3.6e-12|3.2e-08|4.6e-01|-7.098024e-01  -1.169275e+00| 0:0:00| chol  1↙
1
11|1.000|0.976|2.2e-12|3.9e-09|1.9e-01|-9.636051e-01  -1.150773e+00| 0:0:00| chol  1↙
1
12|0.816|1.000|3.8e-12|3.2e-10|5.1e-02|-1.097294e+00  -1.148066e+00| 0:0:00| chol  2↙
2
13|1.000|1.000|5.2e-13|3.3e-11|2.0e-02|-1.124908e+00  -1.145362e+00| 0:0:00| chol  1↙
1
14|0.860|1.000|1.4e-11|4.2e-12|5.0e-03|-1.139869e+00  -1.144896e+00| 0:0:00| chol  2↙
2
15|1.000|0.999|1.1e-12|1.8e-12|1.7e-03|-1.142998e+00  -1.144660e+00| 0:0:00| chol  1↙
1
16|0.918|0.973|9.0e-12|1.1e-12|1.7e-04|-1.144430e+00  -1.144600e+00| 0:0:00| chol  1↙
2
17|0.985|0.983|5.0e-12|1.5e-12|2.5e-06|-1.144592e+00  -1.144594e+00| 0:0:00| chol  2↙
2
18|0.986|1.000|2.1e-12|1.0e-12|8.1e-08|-1.144594e+00  -1.144594e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.14459395e+00
 dual   objective value = -1.14459404e+00
 gap := trace(XZ)        = 8.10e-08
 relative gap            = 2.46e-08
 actual relative gap     = 2.45e-08
 rel. primal infeas      = 2.06e-12
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.3e+02, 4.7e+02, 5.0e+01
 Total CPU time (secs)   = 0.10
```

```
 CPU time per iteration = 0.01
 termination code      =   0
 DIMACS errors: 3.2e-12  0.0e+00  1.4e-12  0.0e+00  2.5e-08  2.5e-08
---------------------------------------------------------------------
```

ans =

    1.1446

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|4.7e+00|1.1e+06| 4.010721e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|4.6e-07|1.5e-01|1.0e+05| 3.289324e+04 -8.923088e+00| 0:0:00| chol  1↙
1
 2|1.000|0.981|5.8e-07|4.1e-02|1.7e+04| 8.166086e+03 -7.055288e+01| 0:0:00| chol  1↙
1
 3|1.000|0.657|3.8e-07|2.2e-02|6.4e+03| 3.583081e+03 -1.884138e+01| 0:0:00| chol  1↙
1
 4|0.909|1.000|4.4e-08|3.5e-03|8.5e+02| 6.435723e+02 -1.207560e+01| 0:0:00| chol  1↙
1
 5|1.000|0.666|6.4e-09|1.9e-03|3.9e+02| 3.460867e+02 -3.304445e+00| 0:0:00| chol  1↙
1
 6|0.921|1.000|4.6e-10|3.2e-04|4.0e+01| 3.656959e+01 -2.389725e+00| 0:0:00| chol  1↙
1
 7|1.000|0.785|3.1e-10|9.4e-05|2.0e+01| 1.878719e+01 -1.384025e+00| 0:0:00| chol  1↙
1
 8|0.887|1.000|3.4e-11|3.2e-06|3.8e+00| 2.483668e+00 -1.276541e+00| 0:0:00| chol  1↙
1
 9|1.000|0.976|2.0e-11|3.9e-07|1.7e+00| 5.190066e-01 -1.154184e+00| 0:0:00| chol  1↙
1
10|0.831|1.000|2.6e-12|3.2e-08|4.9e-01|-6.526265e-01 -1.143829e+00| 0:0:00| chol  1↙
1
11|1.000|0.989|1.5e-11|3.5e-09|1.9e-01|-9.295760e-01 -1.124203e+00| 0:0:00| chol  1↙
1
12|0.806|1.000|1.8e-12|3.2e-10|5.6e-02|-1.064984e+00 -1.121349e+00| 0:0:00| chol  1↙
2
13|1.000|1.000|6.9e-13|3.3e-11|2.2e-02|-1.095967e+00 -1.118447e+00| 0:0:00| chol  1↙
1
14|0.865|1.000|1.0e-12|4.2e-12|5.4e-03|-1.112490e+00 -1.117850e+00| 0:0:00| chol  2↙
2
15|1.000|0.991|9.1e-13|1.4e-12|1.6e-03|-1.116058e+00 -1.117609e+00| 0:0:00| chol  1↙
1
```

```
16|0.920|0.968|7.3e-12|1.1e-12|1.5e-04|-1.117403e+00 -1.117551e+00| 0:0:00| chol  1↙
1
17|0.986|0.985|7.0e-11|1.5e-12|2.0e-06|-1.117544e+00 -1.117546e+00| 0:0:00| chol  2↙
2
18|0.988|1.000|4.7e-12|2.2e-12|5.5e-08|-1.117546e+00 -1.117546e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.11754614e+00
 dual   objective value = -1.11754619e+00
 gap := trace(XZ)       = 5.46e-08
 relative gap           = 1.69e-08
 actual relative gap    = 1.67e-08
 rel. primal infeas     = 4.74e-12
 rel. dual   infeas     = 2.20e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.5e+02, 4.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.3e-12  0.0e+00  3.0e-12  0.0e+00  1.7e-08  1.7e-08
-------------------------------------------------------------------

ans =

    1.1175


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|4.8e+00|1.1e+06| 3.985432e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|4.6e-07|1.5e-01|9.9e+04| 3.269119e+04 -8.979032e+00| 0:0:00| chol  1↙
1
 2|1.000|0.986|5.8e-07|4.1e-02|1.7e+04| 8.098032e+03 -7.036731e+01| 0:0:00| chol  1↙
1
 3|1.000|0.657|3.8e-07|2.2e-02|6.3e+03| 3.547533e+03 -1.875269e+01| 0:0:00| chol  1↙
1
 4|0.909|1.000|4.4e-08|3.5e-03|8.4e+02| 6.362531e+02 -1.205180e+01| 0:0:00| chol  1↙
1
 5|1.000|0.682|6.2e-09|1.9e-03|3.8e+02| 3.395605e+02 -3.333481e+00| 0:0:00| chol  1↙
1
 6|0.918|1.000|4.5e-10|3.2e-04|4.1e+01| 3.706322e+01 -2.428150e+00| 0:0:00| chol  1↙
1
```

```
 7|1.000|0.774|3.0e-10|9.7e-05|2.0e+01| 1.893192e+01 -1.383108e+00| 0:0:00| chol  1↙
1
 8|0.880|1.000|3.6e-11|3.2e-06|3.5e+00| 2.188092e+00 -1.268815e+00| 0:0:00| chol  1↙
1
 9|1.000|0.951|2.7e-11|4.6e-07|1.7e+00| 5.041129e-01 -1.149092e+00| 0:0:00| chol  1↙
1
10|0.849|1.000|2.4e-12|3.2e-08|5.3e-01|-6.132082e-01 -1.140929e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|1.1e-11|3.2e-09|2.0e-01|-9.225203e-01 -1.119503e+00| 0:0:00| chol  1↙
1
12|0.825|1.000|2.4e-12|3.2e-10|5.2e-02|-1.063523e+00 -1.115106e+00| 0:0:00| chol  1↙
2
13|1.000|1.000|3.7e-13|3.3e-11|2.1e-02|-1.091516e+00 -1.112502e+00| 0:0:00| chol  1↙
1
14|0.899|1.000|5.7e-12|4.2e-12|3.4e-03|-1.108328e+00 -1.111726e+00| 0:0:00| chol  1↙
1
15|0.926|1.000|5.3e-11|1.5e-12|5.7e-04|-1.111110e+00 -1.111677e+00| 0:0:00| chol  2↙
2
16|0.978|0.972|2.3e-11|1.8e-12|1.5e-05|-1.111634e+00 -1.111649e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|8.4e-12|2.6e-12|1.3e-06|-1.111647e+00 -1.111649e+00| 0:0:00| chol  2↙
2
18|1.000|1.000|2.3e-11|1.7e-12|4.5e-08|-1.111648e+00 -1.111649e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 18
 primal objective value = -1.11164850e+00
 dual   objective value = -1.11164854e+00
 gap := trace(XZ)       = 4.45e-08
 relative gap           = 1.38e-08
 actual relative gap    = 1.35e-08
 rel. primal infeas     = 2.33e-11
 rel. dual   infeas     = 1.69e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.4e+02, 4.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.6e-11  0.0e+00  2.3e-12  0.0e+00  1.3e-08  1.4e-08
-------------------------------------------------------------------


ans =

    1.1116


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|4.7e+00|1.1e+06| 3.931290e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|4.6e-07|1.5e-01|9.7e+04| 3.225454e+04 -8.878655e+00| 0:0:00| chol  1↙
1
 2|1.000|0.993|5.7e-07|4.0e-02|1.6e+04| 7.969407e+03 -6.994168e+01| 0:0:00| chol  1↙
1
 3|1.000|0.654|3.8e-07|2.2e-02|6.2e+03| 3.491244e+03 -1.851655e+01| 0:0:00| chol  1↙
1
 4|0.911|1.000|4.3e-08|3.5e-03|8.2e+02| 6.197826e+02 -1.186436e+01| 0:0:00| chol  1↙
1
 5|1.000|0.687|6.0e-09|1.8e-03|3.7e+02| 3.298951e+02 -3.341919e+00| 0:0:00| chol  1↙
1
 6|0.915|1.000|4.5e-10|3.2e-04|4.0e+01| 3.695382e+01 -2.449936e+00| 0:0:00| chol  1↙
1
 7|1.000|0.759|3.0e-10|1.0e-04|2.1e+01| 1.901561e+01 -1.384022e+00| 0:0:00| chol  1↙
1
 8|0.881|1.000|3.5e-11|3.2e-06|3.3e+00| 2.058859e+00 -1.270340e+00| 0:0:00| chol  1↙
1
 9|1.000|0.944|2.7e-11|4.8e-07|1.6e+00| 4.647322e-01 -1.152514e+00| 0:0:00| chol  1↙
1
10|0.857|1.000|2.5e-12|3.2e-08|5.2e-01|-6.202190e-01 -1.145024e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|5.3e-12|3.2e-09|1.9e-01|-9.306449e-01 -1.124163e+00| 0:0:00| chol  1↙
1
12|0.836|1.000|1.3e-12|3.2e-10|4.8e-02|-1.072143e+00 -1.120126e+00| 0:0:00| chol  1↙
2
13|1.000|1.000|2.6e-13|3.3e-11|2.0e-02|-1.097954e+00 -1.117799e+00| 0:0:00| chol  1↙
1
14|0.873|1.000|1.4e-11|4.2e-12|4.8e-03|-1.112498e+00 -1.117274e+00| 0:0:00| chol  2↙
2
15|1.000|0.909|2.8e-12|2.2e-12|7.7e-04|-1.116304e+00 -1.117074e+00| 0:0:00| chol  1↙
1
16|0.958|0.969|9.0e-12|1.1e-12|3.4e-05|-1.116999e+00 -1.117033e+00| 0:0:00| chol  1↙
1
17|0.993|0.995|6.0e-12|1.5e-12|7.8e-07|-1.117031e+00 -1.117032e+00| 0:0:00| chol  2↙
2
18|1.000|1.000|3.5e-12|1.2e-12|2.2e-08|-1.117031e+00 -1.117031e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.11703147e+00
 dual   objective value = -1.11703149e+00
 gap := trace(XZ)        = 2.19e-08
 relative gap            = 6.76e-09
 actual relative gap     = 6.71e-09
 rel. primal infeas      = 3.54e-12
 rel. dual   infeas      = 1.20e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.4e+02, 4.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
```

```
 CPU time per iteration = 0.01
 termination code      =   0
 DIMACS errors: 5.4e-12  0.0e+00  1.6e-12  0.0e+00  6.7e-09  6.8e-09
 ------------------------------------------------------------------
```

ans =

    1.1170

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|4.9e+00|1.1e+06| 3.845263e+04  0.000000e+00| 0:0:00| chol 1↙
 1
 1|1.000|0.978|4.9e-07|1.6e-01|9.6e+04| 3.154775e+04 -9.927843e+00| 0:0:00| chol 1↙
 1
 2|1.000|0.972|6.0e-07|4.2e-02|1.6e+04| 7.872431e+03 -6.443889e+01| 0:0:00| chol 1↙
 1
 3|1.000|0.677|3.6e-07|2.2e-02|6.0e+03| 3.397429e+03 -1.834051e+01| 0:0:00| chol 1↙
 1
 4|0.896|1.000|5.1e-08|3.5e-03|8.6e+02| 6.630289e+02 -1.269670e+01| 0:0:00| chol 1↙
 1
 5|1.000|0.784|4.6e-09|1.6e-03|3.7e+02| 3.336998e+02 -3.636700e+00| 0:0:00| chol 1↙
 1
 6|0.908|1.000|3.6e-10|3.2e-04|4.7e+01| 4.292159e+01 -2.659089e+00| 0:0:00| chol 1↙
 1
 7|1.000|0.777|1.9e-10|9.6e-05|2.2e+01| 2.044244e+01 -1.485263e+00| 0:0:00| chol 1↙
 1
 8|0.863|1.000|2.6e-11|3.2e-06|3.6e+00| 2.235126e+00 -1.351753e+00| 0:0:00| chol 1↙
 1
 9|1.000|0.772|3.7e-11|9.7e-07|1.9e+00| 6.519025e-01 -1.228415e+00| 0:0:00| chol 1↙
 1
10|0.811|1.000|8.0e-12|3.2e-08|6.0e-01|-6.180369e-01 -1.215669e+00| 0:0:00| chol 1↙
 1
11|1.000|1.000|3.6e-12|3.2e-09|2.4e-01|-9.440406e-01 -1.186638e+00| 0:0:00| chol 1↙
 1
12|0.819|1.000|6.0e-13|3.2e-10|6.4e-02|-1.115647e+00 -1.179483e+00| 0:0:00| chol 1↙
 1
13|1.000|1.000|1.2e-11|3.3e-11|2.7e-02|-1.149884e+00 -1.176441e+00| 0:0:00| chol 1↙
 1
14|0.951|1.000|1.2e-12|4.7e-12|2.7e-03|-1.172845e+00 -1.175591e+00| 0:0:00| chol 1↙
 1
15|0.971|0.971|4.5e-11|1.4e-12|8.2e-05|-1.175387e+00 -1.175469e+00| 0:0:00| chol 2↙
 2
```

```
16|0.878|0.988|2.0e-11|1.5e-12|1.1e-05|-1.175455e+00 -1.175465e+00| 0:0:00| chol  2↙
2
17|1.000|0.922|6.2e-11|2.4e-12|3.9e-06|-1.175461e+00 -1.175465e+00| 0:0:00| chol  2↙
2
18|0.970|1.000|1.8e-11|3.4e-12|3.3e-07|-1.175465e+00 -1.175465e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.17546489e+00
 dual   objective value = -1.17546522e+00
 gap := trace(XZ)        = 3.27e-07
 relative gap            = 9.75e-08
 actual relative gap     = 9.79e-08
 rel. primal infeas      = 1.80e-11
 rel. dual   infeas      = 3.37e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.6e+02, 4.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.7e-11  0.0e+00  4.6e-12  0.0e+00  9.8e-08  9.7e-08
-------------------------------------------------------------------

ans =

    1.1755


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|5.0e+00|1.1e+06| 3.902902e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|4.9e-07|1.6e-01|9.8e+04| 3.201604e+04 -1.032106e+01| 0:0:00| chol  1↙
1
 2|1.000|0.968|6.0e-07|4.2e-02|1.7e+04| 7.985536e+03 -6.449978e+01| 0:0:00| chol  1↙
1
 3|1.000|0.681|3.5e-07|2.1e-02|6.1e+03| 3.435224e+03 -1.863946e+01| 0:0:00| chol  1↙
1
 4|0.894|1.000|5.2e-08|3.5e-03|8.9e+02| 6.847842e+02 -1.316622e+01| 0:0:00| chol  1↙
1
 5|1.000|0.811|4.4e-09|1.5e-03|3.8e+02| 3.382958e+02 -3.786895e+00| 0:0:00| chol  1↙
1
 6|0.902|1.000|3.6e-10|3.2e-04|4.9e+01| 4.477997e+01 -2.740770e+00| 0:0:00| chol  1↙
1
```

```
 7|1.000|0.762|1.9e-10|1.0e-04|2.3e+01| 2.149925e+01 -1.506430e+00| 0:0:00| chol  1↙
1
 8|0.860|1.000|2.6e-11|3.2e-06|3.8e+00| 2.463335e+00 -1.365805e+00| 0:0:00| chol  1↙
1
 9|1.000|0.758|3.6e-11|1.0e-06|2.0e+00| 7.791426e-01 -1.231134e+00| 0:0:00| chol  1↙
1
10|0.805|1.000|6.6e-12|3.2e-08|6.3e-01|-5.848525e-01 -1.215629e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|1.3e-12|3.2e-09|2.6e-01|-9.223444e-01 -1.183222e+00| 0:0:00| chol  1↙
1
12|0.821|1.000|4.4e-13|3.2e-10|6.7e-02|-1.107932e+00 -1.175223e+00| 0:0:00| chol  1↙
1
13|1.000|0.964|1.0e-12|4.3e-11|2.6e-02|-1.145959e+00 -1.172277e+00| 0:0:00| chol  1↙
1
14|0.934|0.980|9.1e-13|5.0e-12|3.1e-03|-1.168368e+00 -1.171441e+00| 0:0:00| chol  1↙
1
15|0.976|0.966|7.3e-12|1.5e-12|7.7e-05|-1.171210e+00 -1.171287e+00| 0:0:00| chol  2↙
2
16|0.939|0.984|1.4e-11|1.5e-12|4.5e-06|-1.171277e+00 -1.171281e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|3.6e-11|2.2e-12|1.4e-06|-1.171280e+00 -1.171281e+00| 0:0:00| chol  2↙
2
18|1.000|1.000|1.4e-11|3.3e-12|4.5e-08|-1.171281e+00 -1.171281e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.17128111e+00
 dual   objective value = -1.17128116e+00
 gap := trace(XZ)        = 4.46e-08
 relative gap            = 1.33e-08
 actual relative gap     = 1.36e-08
 rel. primal infeas      = 1.36e-11
 rel. dual   infeas      = 3.28e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.6e+02, 4.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.0e-11  0.0e+00  4.5e-12  0.0e+00  1.4e-08  1.3e-08
-------------------------------------------------------------------


ans =

    1.1713


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|5.1e+00|1.1e+06| 3.966911e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.978|4.8e-07|1.6e-01|1.0e+05| 3.253606e+04 -1.072869e+01| 0:0:00| chol  1↙
1
 2|1.000|0.964|5.9e-07|4.3e-02|1.7e+04| 8.107188e+03 -6.461997e+01| 0:0:00| chol  1↙
1
 3|1.000|0.685|3.4e-07|2.1e-02|6.2e+03| 3.477300e+03 -1.894716e+01| 0:0:00| chol  1↙
1
 4|0.893|1.000|5.3e-08|3.5e-03|9.2e+02| 7.072495e+02 -1.365022e+01| 0:0:00| chol  1↙
1
 5|1.000|0.835|4.2e-09|1.5e-03|3.8e+02| 3.430318e+02 -3.920252e+00| 0:0:00| chol  1↙
1
 6|0.897|1.000|3.6e-10|3.2e-04|5.0e+01| 4.632030e+01 -2.803307e+00| 0:0:00| chol  1↙
1
 7|1.000|0.748|1.9e-10|1.0e-04|2.4e+01| 2.249649e+01 -1.526410e+00| 0:0:00| chol  1↙
1
 8|0.857|1.000|2.7e-11|3.2e-06|4.1e+00| 2.699243e+00 -1.380157e+00| 0:0:00| chol  1↙
1
 9|1.000|0.751|3.5e-11|1.0e-06|2.1e+00| 9.108126e-01 -1.233636e+00| 0:0:00| chol  1↙
1
10|0.803|1.000|7.2e-12|3.2e-08|6.6e-01|-5.511906e-01 -1.215998e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|7.1e-12|3.2e-09|2.8e-01|-9.027881e-01 -1.180685e+00| 0:0:00| chol  1↙
1
12|0.823|1.000|1.3e-12|3.2e-10|7.1e-02|-1.101613e+00 -1.172460e+00| 0:0:00| chol  1↙
1
13|1.000|0.948|1.3e-12|4.8e-11|2.6e-02|-1.143192e+00 -1.169470e+00| 0:0:00| chol  1↙
1
14|0.920|0.975|3.4e-12|5.3e-12|3.3e-03|-1.165366e+00 -1.168620e+00| 0:0:00| chol  1↙
1
15|0.980|0.974|1.0e-11|1.5e-12|6.6e-05|-1.168407e+00 -1.168473e+00| 0:0:00| chol  2↙
2
16|0.976|1.000|1.2e-11|1.5e-12|4.5e-06|-1.168465e+00 -1.168470e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|1.2e-10|2.3e-12|9.3e-07|-1.168469e+00 -1.168469e+00| 0:0:00| chol  2↙
2
18|0.996|1.000|1.4e-11|3.4e-12|1.6e-08|-1.168469e+00 -1.168469e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.16846940e+00
 dual   objective value = -1.16846942e+00
 gap := trace(XZ)       = 1.58e-08
 relative gap           = 4.75e-09
 actual relative gap    = 4.86e-09
 rel. primal infeas     = 1.41e-11
 rel. dual   infeas     = 3.38e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.7e+02, 4.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
```

```
 CPU time per iteration = 0.01
 termination code      =  0
 DIMACS errors: 2.1e-11  0.0e+00  4.6e-12  0.0e+00  4.9e-09  4.7e-09
 -------------------------------------------------------------------
```

ans =

    1.1685

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|5.0e+00|1.2e+06| 4.198281e+04  0.000000e+00| 0:0:00| chol  1✔
 1
 1|1.000|0.979|3.8e-07|1.5e-01|1.0e+05| 3.442520e+04 -1.228193e+01| 0:0:00| chol  1✔
 1
 2|1.000|0.992|4.9e-07|4.0e-02|1.7e+04| 8.149926e+03 -6.515225e+01| 0:0:00| chol  1✔
 1
 3|1.000|0.685|3.1e-07|2.1e-02|6.2e+03| 3.500394e+03 -1.884742e+01| 0:0:00| chol  1✔
 1
 4|0.902|1.000|4.3e-08|3.5e-03|8.8e+02| 6.807312e+02 -1.319575e+01| 0:0:00| chol  1✔
 1
 5|1.000|0.814|4.3e-09|1.5e-03|3.7e+02| 3.313200e+02 -3.797596e+00| 0:0:00| chol  1✔
 1
 6|0.899|1.000|3.8e-10|3.2e-04|4.6e+01| 4.170999e+01 -2.736897e+00| 0:0:00| chol  1✔
 1
 7|1.000|0.729|2.2e-10|1.1e-04|2.3e+01| 2.089760e+01 -1.579169e+00| 0:0:00| chol  1✔
 1
 8|0.857|1.000|2.8e-11|3.2e-06|3.9e+00| 2.496532e+00 -1.444749e+00| 0:0:00| chol  1✔
 1
 9|1.000|0.792|4.7e-11|9.2e-07|2.0e+00| 7.509995e-01 -1.294445e+00| 0:0:00| chol  1✔
 1
 10|0.811|1.000|1.0e-11|3.2e-08|6.4e-01|-6.379074e-01 -1.277798e+00| 0:0:00| chol  1✔
 1
 11|1.000|1.000|6.0e-12|3.2e-09|2.6e-01|-9.849690e-01 -1.244330e+00| 0:0:00| chol  1✔
 1
 12|0.840|1.000|6.9e-13|3.2e-10|5.9e-02|-1.176503e+00 -1.235550e+00| 0:0:00| chol  1✔
 1
 13|1.000|0.983|4.8e-12|3.8e-11|2.2e-02|-1.211916e+00 -1.233504e+00| 0:0:00| chol  1✔
 1
 14|0.948|0.965|1.8e-12|5.4e-12|1.5e-03|-1.231271e+00 -1.232800e+00| 0:0:00| chol  1✔
 1
 15|0.976|0.976|5.9e-12|1.4e-12|3.8e-05|-1.232696e+00 -1.232734e+00| 0:0:00| chol  2✔
 2
```

```
16|0.996|1.000|1.0e-11|1.2e-12|4.6e-06|-1.232728e+00 -1.232732e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|4.4e-11|1.8e-12|6.9e-07|-1.232731e+00 -1.232732e+00| 0:0:00| chol  2↙
2
18|0.997|0.998|3.6e-12|2.7e-12|8.7e-09|-1.232732e+00 -1.232732e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.23273203e+00
 dual   objective value = -1.23273204e+00
 gap := trace(XZ)        = 8.71e-09
 relative gap            = 2.51e-09
 actual relative gap     = 2.43e-09
 rel. primal infeas      = 3.64e-12
 rel. dual   infeas      = 2.68e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.7e+02, 5.1e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.4e-12  0.0e+00  3.7e-12  0.0e+00  2.4e-09  2.5e-09
-------------------------------------------------------------------

ans =

    1.2327

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|5.2e+00|1.3e+06| 4.444847e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.980|3.6e-07|1.5e-01|1.1e+05| 3.643583e+04 -1.526429e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|4.6e-07|3.9e-02|1.7e+04| 8.285716e+03 -6.346551e+01| 0:0:00| chol  1↙
1
 3|1.000|0.737|2.8e-07|1.9e-02|5.9e+03| 3.453425e+03 -1.963656e+01| 0:0:00| chol  1↙
1
 4|0.896|1.000|4.0e-08|3.5e-03|9.1e+02| 7.111793e+02 -1.425262e+01| 0:0:00| chol  1↙
1
 5|1.000|0.807|4.3e-09|1.5e-03|3.7e+02| 3.343243e+02 -3.740443e+00| 0:0:00| chol  1↙
1
 6|0.900|1.000|3.7e-10|3.2e-04|4.2e+01| 3.833313e+01 -2.559332e+00| 0:0:00| chol  1↙
1
```

```
 7|1.000|0.647|3.3e-10|1.3e-04|2.2e+01| 2.053157e+01 -1.491900e+00| 0:0:00| chol  1↙
1
 8|0.859|1.000|4.3e-11|3.2e-06|3.7e+00| 2.355422e+00 -1.365951e+00| 0:0:00| chol  1↙
1
 9|1.000|0.772|5.5e-11|9.7e-07|2.0e+00| 8.258030e-01 -1.203052e+00| 0:0:00| chol  1↙
1
10|0.836|1.000|8.7e-12|3.2e-08|5.9e-01|-6.006112e-01 -1.189750e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|7.4e-12|3.2e-09|2.3e-01|-9.230485e-01 -1.158022e+00| 0:0:00| chol  1↙
1
12|0.865|1.000|1.9e-12|3.2e-10|5.0e-02|-1.102410e+00 -1.152633e+00| 0:0:00| chol  1↙
1
13|1.000|0.960|6.8e-13|4.4e-11|1.8e-02|-1.131711e+00 -1.149973e+00| 0:0:00| chol  1↙
1
14|0.921|1.000|7.8e-12|4.2e-12|2.2e-03|-1.147209e+00 -1.149450e+00| 0:0:00| chol  2↙
1
15|0.981|0.982|1.6e-12|1.9e-12|4.3e-05|-1.149330e+00 -1.149372e+00| 0:0:00| chol  2↙
2
16|0.965|1.000|1.4e-11|1.0e-12|3.9e-06|-1.149367e+00 -1.149371e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|2.1e-11|1.5e-12|6.8e-07|-1.149370e+00 -1.149371e+00| 0:0:00| chol  2↙
2
18|0.995|1.000|5.4e-11|2.2e-12|1.2e-08|-1.149371e+00 -1.149371e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.14937088e+00
 dual   objective value = -1.14937090e+00
 gap := trace(XZ)        = 1.25e-08
 relative gap            = 3.79e-09
 actual relative gap     = 4.20e-09
 rel. primal infeas      = 5.37e-11
 rel. dual   infeas      = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.7e+02, 5.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 8.0e-11  0.0e+00  3.1e-12  0.0e+00  4.2e-09  3.8e-09
-------------------------------------------------------------------


ans =

    1.1494


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|5.3e+00|1.3e+06| 4.555231e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.980|3.6e-07|1.6e-01|1.1e+05| 3.733093e+04 -1.638478e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|4.5e-07|3.9e-02|1.7e+04| 8.425740e+03 -6.287028e+01| 0:0:00| chol  1↙
1
 3|1.000|0.688|3.0e-07|2.6e-02|6.5e+03| 3.552871e+03 -1.984635e+01| 0:0:00| chol  1↙
1
 4|0.913|1.000|3.8e-08|5.9e-03|1.0e+03| 7.314412e+02 -1.607057e+01| 0:0:00| chol  1↙
1
 5|1.000|0.894|2.7e-09|2.2e-03|3.7e+02| 3.170900e+02 -3.569499e+00| 0:0:00| chol  1↙
1
 6|0.901|1.000|2.1e-10|5.3e-04|4.1e+01| 3.684622e+01 -2.356990e+00| 0:0:00| chol  1↙
1
 7|1.000|0.613|3.8e-10|2.4e-04|2.1e+01| 1.958843e+01 -1.468681e+00| 0:0:00| chol  1↙
1
 8|0.840|1.000|5.5e-11|5.3e-06|3.9e+00| 2.564631e+00 -1.363226e+00| 0:0:00| chol  1↙
1
 9|1.000|0.674|7.1e-11|2.1e-06|2.3e+00| 1.070645e+00 -1.195689e+00| 0:0:00| chol  1↙
1
10|0.837|1.000|1.1e-11|5.3e-08|6.3e-01|-5.556921e-01 -1.182893e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|9.6e-14|5.3e-09|2.5e-01|-8.934662e-01 -1.147215e+00| 0:0:00| chol  1↙
1
12|0.866|1.000|5.4e-12|5.3e-10|4.9e-02|-1.091453e+00 -1.140831e+00| 0:0:00| chol  2↙
1
13|1.000|1.000|2.8e-11|5.4e-11|2.1e-02|-1.117869e+00 -1.139009e+00| 0:0:00| chol  2↙
2
14|0.910|1.000|1.7e-12|6.9e-12|3.0e-03|-1.135358e+00 -1.138355e+00| 0:0:00| chol  1↙
2
15|1.000|1.000|3.4e-13|1.5e-12|2.4e-04|-1.138027e+00 -1.138271e+00| 0:0:00| chol  2↙
2
16|0.987|0.983|9.2e-12|1.0e-12|3.3e-06|-1.138254e+00 -1.138257e+00| 0:0:00| chol  2↙
2
17|0.996|0.996|1.7e-12|1.5e-12|1.3e-07|-1.138257e+00 -1.138257e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------------
 number of iterations  = 17
 primal objective value = -1.13825694e+00
 dual   objective value = -1.13825707e+00
 gap := trace(XZ)        = 1.28e-07
 relative gap            = 3.91e-08
 actual relative gap     = 3.88e-08
 rel. primal infeas      = 1.67e-12
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.7e+02, 5.6e+02, 5.0e+01
 Total CPU time (secs) = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
```

```
 DIMACS errors: 2.5e-12  0.0e+00  2.1e-12  0.0e+00  3.9e-08  3.9e-08
 -------------------------------------------------------------------
```

ans =

    1.1383

```
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|5.4e+00|1.3e+06| 4.642611e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.980|3.5e-07|1.6e-01|1.1e+05| 3.803971e+04 -1.723663e+01| 0:0:00| chol 1↙
1
 2|1.000|0.998|4.5e-07|4.0e-02|1.8e+04| 8.558048e+03 -6.302193e+01| 0:0:00| chol 1↙
1
 3|1.000|0.686|3.0e-07|2.6e-02|6.6e+03| 3.611176e+03 -2.015105e+01| 0:0:00| chol 1↙
1
 4|0.921|1.000|3.8e-08|5.9e-03|1.0e+03| 7.516164e+02 -1.689338e+01| 0:0:00| chol 1↙
1
 5|1.000|0.910|2.5e-09|2.1e-03|3.6e+02| 3.137781e+02 -3.599473e+00| 0:0:00| chol 1↙
1
 6|0.899|1.000|2.0e-10|5.3e-04|4.0e+01| 3.639536e+01 -2.359985e+00| 0:0:00| chol 1↙
1
 7|1.000|0.591|4.2e-10|2.5e-04|2.1e+01| 1.950233e+01 -1.515387e+00| 0:0:00| chol 1↙
1
 8|0.831|1.000|6.6e-11|5.3e-06|4.1e+00| 2.692980e+00 -1.411392e+00| 0:0:00| chol 1↙
1
 9|1.000|0.660|7.2e-11|2.2e-06|2.4e+00| 1.170327e+00 -1.230376e+00| 0:0:00| chol 1↙
1
10|0.837|1.000|1.2e-11|5.3e-08|6.4e-01|-5.727662e-01 -1.216382e+00| 0:0:00| chol 1↙
1
11|1.000|1.000|6.5e-12|5.3e-09|2.6e-01|-9.191282e-01 -1.178890e+00| 0:0:00| chol 1↙
1
12|0.865|0.966|2.4e-12|6.9e-10|4.9e-02|-1.121713e+00 -1.170834e+00| 0:0:00| chol 2↙
2
13|1.000|1.000|1.4e-12|5.4e-11|2.3e-02|-1.146608e+00 -1.169171e+00| 0:0:00| chol 1↙
2
14|0.948|0.983|4.0e-13|7.1e-12|2.3e-03|-1.166029e+00 -1.168377e+00| 0:0:00| chol 1↙
1
15|0.964|0.971|7.8e-11|1.7e-12|9.1e-05|-1.168223e+00 -1.168314e+00| 0:0:00| chol 2↙
2
16|0.976|0.983|1.1e-11|1.5e-12|2.2e-06|-1.168309e+00 -1.168311e+00| 0:0:00| chol 2↙
2
```

```
17|1.000|1.000|6.1e-12|2.2e-12|2.2e-07|-1.168311e+00 -1.168311e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.16831097e+00
 dual   objective value = -1.16831119e+00
 gap := trace(XZ)       = 2.19e-07
 relative gap           = 6.57e-08
 actual relative gap    = 6.58e-08
 rel. primal infeas     = 6.15e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.8e+02, 5.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.2e-12  0.0e+00  3.1e-12  0.0e+00  6.6e-08  6.6e-08
-------------------------------------------------------------------

ans =

    1.1683


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|5.4e+00|1.3e+06| 4.674329e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|3.5e-07|1.6e-01|1.2e+05| 3.829278e+04 -1.718110e+01| 0:0:00| chol  1↙
1
 2|1.000|0.989|4.6e-07|4.0e-02|1.8e+04| 8.677321e+03 -6.297760e+01| 0:0:00| chol  1↙
1
 3|1.000|0.686|3.0e-07|2.6e-02|6.7e+03| 3.644515e+03 -2.029942e+01| 0:0:00| chol  1↙
1
 4|0.920|1.000|3.9e-08|5.9e-03|1.1e+03| 7.673655e+02 -1.721839e+01| 0:0:00| chol  1↙
1
 5|1.000|0.917|2.5e-09|2.1e-03|3.7e+02| 3.184832e+02 -3.693515e+00| 0:0:00| chol  1↙
1
 6|0.898|1.000|1.9e-10|5.3e-04|4.2e+01| 3.732385e+01 -2.423011e+00| 0:0:00| chol  1↙
1
 7|1.000|0.591|4.1e-10|2.5e-04|2.2e+01| 2.000398e+01 -1.551757e+00| 0:0:00| chol  1↙
1
 8|0.826|1.000|6.6e-11|5.3e-06|4.3e+00| 2.898695e+00 -1.442299e+00| 0:0:00| chol  1↙
1
```

```
  9|1.000|0.665|6.6e-11|2.1e-06|2.5e+00| 1.279035e+00 -1.248666e+00| 0:0:00| chol  1↙
1
10|0.829|1.000|8.6e-12|5.3e-08|7.0e-01|-5.340491e-01 -1.232803e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|1.6e-12|5.3e-09|2.8e-01|-9.073079e-01 -1.190940e+00| 0:0:00| chol  1↙
1
12|0.866|0.956|6.5e-12|7.5e-10|5.3e-02|-1.128759e+00 -1.181362e+00| 0:0:00| chol  2↙
2
13|1.000|0.953|1.3e-12|8.7e-11|2.4e-02|-1.155539e+00 -1.179404e+00| 0:0:00| chol  1↙
1
14|0.944|0.970|3.4e-11|8.8e-12|2.2e-03|-1.176480e+00 -1.178675e+00| 0:0:00| chol  2↙
2
15|0.938|0.986|1.2e-12|2.1e-12|1.4e-04|-1.178448e+00 -1.178590e+00| 0:0:00| chol  2↙
2
16|0.900|1.000|5.2e-11|1.0e-12|2.8e-05|-1.178560e+00 -1.178588e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|2.2e-11|1.5e-12|4.4e-06|-1.178583e+00 -1.178587e+00| 0:0:00| chol  2↙
2
18|0.996|1.000|4.2e-12|2.3e-12|9.1e-08|-1.178587e+00 -1.178587e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.17858715e+00
 dual   objective value = -1.17858724e+00
 gap := trace(XZ)        = 9.10e-08
 relative gap            = 2.71e-08
 actual relative gap     = 2.68e-08
 rel. primal infeas      = 4.22e-12
 rel. dual   infeas      = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.8e+02, 5.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.3e-12  0.0e+00  3.1e-12  0.0e+00  2.7e-08  2.7e-08
-------------------------------------------------------------------


ans =

    1.1786


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|5.4e+00|1.3e+06| 4.657483e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.979|3.6e-07|1.6e-01|1.2e+05| 3.815290e+04 -1.632656e+01| 0:0:00| chol 1↙
1
 2|1.000|0.983|4.7e-07|4.1e-02|1.8e+04| 8.759095e+03 -6.427255e+01| 0:0:00| chol 1↙
1
 3|1.000|0.680|3.1e-07|2.6e-02|6.8e+03| 3.687534e+03 -2.045120e+01| 0:0:00| chol 1↙
1
 4|0.911|1.000|4.1e-08|5.9e-03|1.1e+03| 7.726679e+02 -1.688592e+01| 0:0:00| chol 1↙
1
 5|1.000|0.915|2.8e-09|2.1e-03|3.8e+02| 3.323939e+02 -3.889017e+00| 0:0:00| chol 1↙
1
 6|0.894|1.000|2.3e-10|5.3e-04|4.5e+01| 4.088349e+01 -2.573452e+00| 0:0:00| chol 1↙
1
 7|1.000|0.616|3.8e-10|2.4e-04|2.4e+01| 2.171882e+01 -1.576641e+00| 0:0:00| chol 1↙
1
 8|0.835|1.000|5.8e-11|5.3e-06|4.5e+00| 3.075846e+00 -1.454819e+00| 0:0:00| chol 1↙
1
 9|1.000|0.691|6.1e-11|2.0e-06|2.6e+00| 1.324755e+00 -1.255612e+00| 0:0:00| chol 1↙
1
10|0.818|1.000|1.0e-11|5.3e-08|7.7e-01|-4.727046e-01 -1.238403e+00| 0:0:00| chol 1↙
1
11|1.000|1.000|2.1e-12|5.3e-09|3.1e-01|-8.795252e-01 -1.191876e+00| 0:0:00| chol 1↙
1
12|0.868|0.974|2.4e-13|6.6e-10|5.7e-02|-1.124054e+00 -1.181356e+00| 0:0:00| chol 2↙
2
13|1.000|0.856|2.4e-12|1.4e-10|2.5e-02|-1.154244e+00 -1.179592e+00| 0:0:00| chol 1↙
1
14|0.945|0.936|4.6e-11|1.5e-11|2.0e-03|-1.176718e+00 -1.178722e+00| 0:0:00| chol 2↙
2
15|0.869|0.972|3.5e-12|2.4e-12|3.7e-04|-1.178257e+00 -1.178629e+00| 0:0:00| chol 2↙
2
16|1.000|1.000|1.2e-10|1.1e-12|1.4e-04|-1.178484e+00 -1.178624e+00| 0:0:00| chol 2↙
2
17|0.978|0.982|1.6e-11|1.5e-12|3.3e-06|-1.178615e+00 -1.178618e+00| 0:0:00| chol 2↙
2
18|1.000|1.000|2.2e-11|2.3e-12|1.3e-07|-1.178618e+00 -1.178618e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.17861826e+00
 dual   objective value = -1.17861840e+00
 gap := trace(XZ)        = 1.33e-07
 relative gap           = 3.96e-08
 actual relative gap    = 3.96e-08
 rel. primal infeas     = 2.24e-11
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.6e+02, 5.6e+02, 5.0e+01
 Total CPU time (secs) = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.3e-11  0.0e+00  3.1e-12  0.0e+00  4.0e-08  4.0e-08
-------------------------------------------------------------------
```

ans =

    1.1786

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|5.5e+00|1.4e+06| 4.728124e+04 0.000000e+00| 0:0:00| chol 1⤶
1
 1|1.000|0.979|3.6e-07|1.6e-01|1.2e+05| 3.872831e+04 -1.802726e+01| 0:0:00| chol 1⤶
1
 2|1.000|0.986|4.7e-07|4.1e-02|1.8e+04| 8.761074e+03 -6.303573e+01| 0:0:00| chol 1⤶
1
 3|1.000|0.691|3.0e-07|2.6e-02|6.7e+03| 3.662562e+03 -2.067924e+01| 0:0:00| chol 1⤶
1
 4|0.921|1.000|3.9e-08|5.9e-03|1.1e+03| 7.772005e+02 -1.777276e+01| 0:0:00| chol 1⤶
1
 5|1.000|0.920|2.5e-09|2.1e-03|3.7e+02| 3.183336e+02 -3.866884e+00| 0:0:00| chol 1⤶
1
 6|0.891|1.000|2.2e-10|5.3e-04|4.4e+01| 3.966101e+01 -2.520914e+00| 0:0:00| chol 1⤶
1
 7|1.000|0.574|4.3e-10|2.6e-04|2.4e+01| 2.162034e+01 -1.586284e+00| 0:0:00| chol 1⤶
1
 8|0.832|1.000|6.8e-11|5.3e-06|4.5e+00| 3.060134e+00 -1.474281e+00| 0:0:00| chol 1⤶
1
 9|1.000|0.667|6.5e-11|2.1e-06|2.6e+00| 1.381957e+00 -1.265511e+00| 0:0:00| chol 1⤶
1
10|0.829|1.000|9.8e-12|5.3e-08|7.3e-01|-5.206039e-01 -1.248396e+00| 0:0:00| chol 1⤶
1
11|1.000|1.000|1.4e-11|5.3e-09|3.0e-01|-9.072684e-01 -1.203705e+00| 0:0:00| chol 1⤶
1
12|0.868|0.942|7.4e-12|8.1e-10|5.3e-02|-1.140464e+00 -1.193366e+00| 0:0:00| chol 2⤶
1
13|1.000|0.891|2.1e-10|1.4e-10|2.4e-02|-1.167562e+00 -1.191505e+00| 0:0:00| chol 1⤶
1
14|0.949|0.942|2.1e-11|1.5e-11|1.9e-03|-1.188803e+00 -1.190659e+00| 0:0:00| chol 2⤶
2
15|0.857|0.968|5.9e-12|4.3e-12|3.9e-04|-1.190160e+00 -1.190552e+00| 0:0:00| chol 2⤶
2
16|1.000|1.000|1.1e-10|1.2e-12|1.6e-04|-1.190384e+00 -1.190540e+00| 0:0:00| chol 2⤶
2
17|0.971|0.959|1.6e-11|1.8e-12|4.7e-06|-1.190528e+00 -1.190533e+00| 0:0:00| chol 2⤶
2

```
18|1.000|1.000|1.5e-11|2.6e-12|1.5e-07|-1.190532e+00 -1.190532e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.19053220e+00
 dual   objective value = -1.19053235e+00
 gap := trace(XZ)       = 1.50e-07
 relative gap           = 4.44e-08
 actual relative gap    = 4.45e-08
 rel. primal infeas     = 1.46e-11
 rel. dual   infeas     = 2.64e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.7e+02, 5.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.1e-11  0.0e+00  3.6e-12  0.0e+00  4.4e-08  4.4e-08
-------------------------------------------------------------------

ans =

    1.1905

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|5.5e+00|1.4e+06| 4.759658e+04  0.000000e+00| 0:0:00| chol 1↙
1
 1|1.000|0.979|3.6e-07|1.6e-01|1.2e+05| 3.898181e+04 -1.727553e+01| 0:0:00| chol 1↙
1
 2|1.000|0.979|4.7e-07|4.1e-02|1.9e+04| 8.916313e+03 -6.409734e+01| 0:0:00| chol 1↙
1
 3|1.000|0.686|3.0e-07|2.6e-02|6.9e+03| 3.729081e+03 -2.082705e+01| 0:0:00| chol 1↙
1
 4|0.917|1.000|4.1e-08|5.9e-03|1.1e+03| 7.929690e+02 -1.778503e+01| 0:0:00| chol 1↙
1
 5|1.000|0.924|2.6e-09|2.1e-03|3.8e+02| 3.292664e+02 -3.968939e+00| 0:0:00| chol 1↙
1
 6|0.890|1.000|2.3e-10|5.3e-04|4.6e+01| 4.129812e+01 -2.593610e+00| 0:0:00| chol 1↙
1
 7|1.000|0.586|4.1e-10|2.5e-04|2.4e+01| 2.237710e+01 -1.600150e+00| 0:0:00| chol 1↙
1
 8|0.831|1.000|6.4e-11|5.3e-06|4.8e+00| 3.285633e+00 -1.478903e+00| 0:0:00| chol 1↙
1
```

```
 9|1.000|0.681|6.2e-11|2.1e-06|2.7e+00| 1.487887e+00 -1.259763e+00| 0:0:00| chol  1↙
1
10|0.820|1.000|1.2e-11|5.3e-08|7.9e-01|-4.525093e-01 -1.240788e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|1.8e-12|5.3e-09|3.2e-01|-8.702906e-01 -1.191933e+00| 0:0:00| chol  1↙
1
12|0.872|0.932|2.8e-12|8.6e-10|5.4e-02|-1.125710e+00 -1.180085e+00| 0:0:00| chol  2↙
2
13|1.000|0.882|1.3e-12|1.5e-10|2.3e-02|-1.155078e+00 -1.178341e+00| 0:0:00| chol  1↙
1
14|0.953|0.937|4.9e-12|1.5e-11|1.3e-03|-1.176056e+00 -1.177389e+00| 0:0:00| chol  1↙
2
15|0.948|0.976|1.1e-12|1.9e-12|8.1e-05|-1.177208e+00 -1.177289e+00| 0:0:00| chol  2↙
2
16|0.974|0.980|7.6e-12|1.0e-12|2.1e-06|-1.177283e+00 -1.177285e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|9.3e-12|1.5e-12|2.4e-07|-1.177284e+00 -1.177285e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.17728445e+00
 dual   objective value = -1.17728469e+00
 gap := trace(XZ)        = 2.35e-07
 relative gap            = 7.01e-08
 actual relative gap     = 7.00e-08
 rel. primal infeas      = 9.27e-12
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.7e+02, 5.7e+02, 5.0e+01
 Total CPU time (secs) = 0.12
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 1.4e-11  0.0e+00  2.1e-12  0.0e+00  7.0e-08  7.0e-08
-------------------------------------------------------------------


ans =

    1.1773


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|5.6e+00|1.4e+06| 4.861382e+04  0.000000e+00| 0:0:00| chol  1↙
1
```

```
 1|1.000|0.979|3.6e-07|1.6e-01|1.2e+05| 3.981048e+04 -1.911806e+01| 0:0:00| chol  1↙
1
 2|1.000|0.984|4.6e-07|4.1e-02|1.9e+04| 8.954457e+03 -6.319567e+01| 0:0:00| chol  1↙
1
 3|1.000|0.697|3.0e-07|2.6e-02|6.8e+03| 3.721372e+03 -2.117192e+01| 0:0:00| chol  1↙
1
 4|0.930|1.000|3.8e-08|5.9e-03|1.1e+03| 8.017679e+02 -1.884515e+01| 0:0:00| chol  1↙
1
 5|1.000|0.933|2.4e-09|2.1e-03|3.6e+02| 3.139782e+02 -3.897328e+00| 0:0:00| chol  1↙
1
 6|0.887|1.000|2.1e-10|5.3e-04|4.4e+01| 3.988402e+01 -2.504073e+00| 0:0:00| chol  1↙
1
 7|1.000|0.547|4.8e-10|2.7e-04|2.4e+01| 2.209530e+01 -1.602230e+00| 0:0:00| chol  1↙
1
 8|0.826|1.000|7.8e-11|5.3e-06|4.8e+00| 3.270043e+00 -1.494641e+00| 0:0:00| chol  1↙
1
 9|1.000|0.661|7.5e-11|2.2e-06|2.8e+00| 1.541619e+00 -1.268992e+00| 0:0:00| chol  1↙
1
10|0.834|1.000|1.1e-11|5.3e-08|7.4e-01|-5.088719e-01 -1.250641e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|4.1e-12|5.3e-09|3.0e-01|-9.059322e-01 -1.205571e+00| 0:0:00| chol  1↙
1
12|0.870|0.913|4.3e-12|9.5e-10|5.1e-02|-1.142782e+00 -1.194014e+00| 0:0:00| chol  2↙
2
13|1.000|0.913|2.8e-12|1.3e-10|2.2e-02|-1.169628e+00 -1.192112e+00| 0:0:00| chol  1↙
1
14|0.952|0.950|9.0e-12|1.3e-11|1.5e-03|-1.189730e+00 -1.191202e+00| 0:0:00| chol  2↙
2
15|0.958|0.984|5.1e-13|2.2e-12|6.6e-05|-1.191034e+00 -1.191100e+00| 0:0:00| chol  1↙
2
16|1.000|1.000|6.1e-12|1.0e-12|2.4e-06|-1.191095e+00 -1.191097e+00| 0:0:00| chol  2↙
2
17|1.000|1.000|9.1e-12|1.2e-12|1.4e-07|-1.191097e+00 -1.191097e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.19109723e+00
 dual   objective value = -1.19109737e+00
 gap := trace(XZ)        = 1.39e-07
 relative gap           = 4.12e-08
 actual relative gap    = 4.06e-08
 rel. primal infeas     = 9.14e-12
 rel. dual   infeas     = 1.23e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.8e+02, 5.8e+02, 5.0e+01
 Total CPU time (secs) = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-11  0.0e+00  1.7e-12  0.0e+00  4.1e-08  4.1e-08
-------------------------------------------------------------------

ans =

    1.1911
```

```
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|5.7e+00|1.4e+06| 4.798449e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.979|4.1e-07|1.7e-01|1.2e+05| 3.928718e+04 -2.139410e+01| 0:0:00| chol  1✔
1
 2|1.000|0.976|5.1e-07|4.2e-02|1.8e+04| 8.747323e+03 -5.812210e+01| 0:0:00| chol  1✔
1
 3|1.000|0.716|3.1e-07|2.6e-02|6.6e+03| 3.581420e+03 -2.082431e+01| 0:0:00| chol  1✔
1
 4|0.941|1.000|3.8e-08|5.9e-03|1.1e+03| 8.083184e+02 -1.976058e+01| 0:0:00| chol  1✔
1
 5|1.000|0.957|2.1e-09|1.9e-03|3.0e+02| 2.610657e+02 -3.642416e+00| 0:0:00| chol  1✔
1
 6|0.885|1.000|1.9e-10|5.3e-04|3.7e+01| 3.308114e+01 -2.278399e+00| 0:0:00| chol  1✔
1
 7|1.000|0.489|7.2e-10|3.0e-04|2.1e+01| 1.881767e+01 -1.609741e+00| 0:0:00| chol  1✔
1
 8|0.802|1.000|1.4e-10|5.3e-06|4.9e+00| 3.333353e+00 -1.538903e+00| 0:0:00| chol  1✔
1
 9|1.000|0.697|4.9e-11|2.0e-06|2.8e+00| 1.510512e+00 -1.313831e+00| 0:0:00| chol  1✔
1
10|0.847|1.000|6.0e-12|5.3e-08|7.0e-01|-5.997945e-01 -1.295456e+00| 0:0:00| chol  1✔
1
11|1.000|1.000|1.9e-12|5.3e-09|2.8e-01|-9.788851e-01 -1.256151e+00| 0:0:00| chol  1✔
1
12|0.873|0.929|3.3e-12|8.7e-10|4.9e-02|-1.196570e+00 -1.245493e+00| 0:0:00| chol  2✔
2
13|1.000|0.931|1.1e-12|1.1e-10|2.0e-02|-1.224274e+00 -1.243790e+00| 0:0:00| chol  1✔
1
14|0.951|0.959|1.6e-11|1.1e-11|1.2e-03|-1.241880e+00 -1.243128e+00| 0:0:00| chol  2✔
2
15|0.985|0.985|9.4e-13|2.2e-12|1.8e-05|-1.243062e+00 -1.243080e+00| 0:0:00| chol  2✔
2
16|0.991|1.000|3.4e-12|1.0e-12|3.9e-07|-1.243079e+00 -1.243079e+00| 0:0:00| chol  3✔
3
17|0.991|1.000|1.3e-10|1.0e-12|2.4e-08|-1.243079e+00 -1.243079e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.24307921e+00
 dual   objective value = -1.24307921e+00
```

```
 gap := trace(XZ)          = 2.37e-08
 relative gap              = 6.79e-09
 actual relative gap       = 1.54e-09
 rel. primal infeas        = 1.25e-10
 rel. dual   infeas        = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.9e+02, 5.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-10  0.0e+00  1.4e-12  0.0e+00  1.5e-09  6.8e-09
-------------------------------------------------------------------


ans =

    1.2431

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|5.8e+00|1.4e+06| 4.948240e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|4.1e-07|1.7e-01|1.2e+05| 4.050232e+04 -2.254527e+01| 0:0:00| chol  1↙
1
 2|1.000|0.975|5.0e-07|4.2e-02|1.9e+04| 8.912824e+03 -5.726630e+01| 0:0:00| chol  1↙
1
 3|1.000|0.720|3.1e-07|2.6e-02|6.7e+03| 3.631664e+03 -2.103469e+01| 0:0:00| chol  1↙
1
 4|0.949|1.000|3.7e-08|5.9e-03|1.2e+03| 8.523538e+02 -2.079470e+01| 0:0:00| chol  1↙
1
 5|1.000|0.977|2.1e-09|1.9e-03|2.9e+02| 2.522067e+02 -3.507175e+00| 0:0:00| chol  1↙
1
 6|0.888|1.000|1.8e-10|5.3e-04|3.5e+01| 3.099302e+01 -2.107582e+00| 0:0:00| chol  1↙
1
 7|1.000|0.443|1.1e-09|3.2e-04|2.0e+01| 1.805963e+01 -1.561689e+00| 0:0:00| chol  1↙
1
 8|0.783|1.000|2.4e-10|5.3e-06|5.5e+00| 3.953905e+00 -1.514257e+00| 0:0:00| chol  1↙
1
 9|1.000|0.743|3.7e-11|1.8e-06|3.1e+00| 1.788368e+00 -1.276867e+00| 0:0:00| chol  1↙
1
10|0.851|1.000|5.4e-12|5.3e-08|7.4e-01|-5.206725e-01 -1.256339e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|2.4e-12|5.3e-09|2.9e-01|-9.238582e-01 -1.218400e+00| 0:0:00| chol  1↙
1
```

```
12|0.869|0.954|6.9e-12|7.5e-10|5.6e-02|-1.152201e+00 -1.208109e+00| 0:0:00| chol  2↙
1
13|1.000|0.966|2.0e-10|7.8e-11|2.4e-02|-1.182019e+00 -1.206078e+00| 0:0:00| chol  1↙
1
14|0.936|0.979|4.3e-13|8.9e-12|2.2e-03|-1.203186e+00 -1.205341e+00| 0:0:00| chol  1↙
1
15|0.982|0.985|2.3e-11|1.7e-12|3.9e-05|-1.205233e+00 -1.205272e+00| 0:0:00| chol  2↙
2
16|0.975|1.000|7.7e-12|1.5e-12|2.2e-06|-1.205268e+00 -1.205270e+00| 0:0:00| chol  2↙
3
17|1.000|1.000|7.0e-11|1.5e-12|4.8e-07|-1.205270e+00 -1.205270e+00| 0:0:00| chol  2↙
2
18|0.996|0.999|1.2e-11|2.3e-12|7.0e-09|-1.205270e+00 -1.205270e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.20527036e+00
 dual   objective value = -1.20527037e+00
 gap := trace(XZ)        = 7.04e-09
 relative gap           = 2.07e-09
 actual relative gap    = 2.09e-09
 rel. primal infeas     = 1.25e-11
 rel. dual   infeas     = 2.32e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 3.9e+02, 5.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.14
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-11  0.0e+00  3.2e-12  0.0e+00  2.1e-09  2.1e-09
-------------------------------------------------------------------


ans =

    1.2053

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|6.0e+00|1.5e+06| 5.126516e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.979|4.0e-07|1.7e-01|1.3e+05| 4.195138e+04 -2.514585e+01| 0:0:00| chol  1↙
1
 2|1.000|0.979|4.8e-07|4.1e-02|1.9e+04| 9.056859e+03 -5.645037e+01| 0:0:00| chol  1↙
1
```

```
 3|1.000|0.734|3.0e-07|2.5e-02|6.7e+03| 3.657851e+03 -2.163361e+01| 0:0:00| chol  1↙
1
 4|0.943|1.000|3.4e-08|5.9e-03|1.3e+03| 9.854306e+02 -2.287342e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.9e-09|1.8e-03|3.4e+02| 2.990726e+02 -4.283420e+00| 0:0:00| chol  1↙
1
 6|0.927|0.958|9.8e-11|5.8e-04|2.7e+01| 2.376485e+01 -1.941895e+00| 0:0:00| chol  1↙
1
 7|1.000|0.537|1.4e-09|3.0e-04|1.5e+01| 1.334238e+01 -1.569462e+00| 0:0:00| chol  1↙
1
 8|0.472|1.000|6.6e-10|5.3e-06|1.1e+01| 9.966827e+00 -1.439689e+00| 0:0:00| chol  1↙
1
 9|1.000|1.000|7.9e-13|5.3e-07|4.7e+00| 3.330824e+00 -1.335586e+00| 0:0:00| chol  1↙
1
10|0.870|0.875|7.9e-13|1.1e-07|6.9e-01|-5.450233e-01 -1.230259e+00| 0:0:00| chol  1↙
1
11|1.000|1.000|3.9e-10|5.3e-09|3.6e-01|-8.468669e-01 -1.203596e+00| 0:0:00| chol  1↙
1
12|1.000|1.000|4.7e-13|5.3e-10|1.4e-01|-1.049670e+00 -1.194344e+00| 0:0:00| chol  1↙
1
13|0.927|0.953|1.1e-11|7.7e-11|2.5e-02|-1.163042e+00 -1.188291e+00| 0:0:00| chol  2↙
1
14|1.000|1.000|1.2e-11|6.8e-12|7.6e-03|-1.179844e+00 -1.187479e+00| 0:0:00| chol  1↙
1
15|0.969|0.973|4.1e-11|3.0e-12|2.5e-04|-1.186911e+00 -1.187166e+00| 0:0:00| chol  1↙
1
16|0.987|0.988|8.3e-12|3.4e-12|3.2e-06|-1.187153e+00 -1.187156e+00| 0:0:00| chol  2↙
2
17|0.991|0.996|3.0e-12|1.7e-12|7.0e-08|-1.187156e+00 -1.187156e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -1.18715557e+00
 dual   objective value = -1.18715564e+00
 gap := trace(XZ)        = 7.01e-08
 relative gap            = 2.08e-08
 actual relative gap     = 2.05e-08
 rel. primal infeas      = 3.02e-12
 rel. dual   infeas      = 1.67e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 3.9e+02, 6.1e+02, 5.0e+01
 Total CPU time (secs) = 0.13
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 4.4e-12  0.0e+00  2.3e-12  0.0e+00  2.0e-08  2.1e-08
-------------------------------------------------------------------


ans =

    1.1872


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|6.1e+00|1.5e+06| 5.238089e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.980|3.9e-07|1.7e-01|1.3e+05| 4.286159e+04 -2.595267e+01| 0:0:00| chol  1✔
1
 2|1.000|0.983|4.5e-07|4.1e-02|1.9e+04| 9.166278e+03 -5.669292e+01| 0:0:00| chol  1✔
1
 3|1.000|0.741|2.9e-07|2.5e-02|6.7e+03| 3.696688e+03 -2.167257e+01| 0:0:00| chol  1✔
1
 4|0.933|1.000|3.1e-08|5.9e-03|1.4e+03| 1.060399e+03 -2.335956e+01| 0:0:00| chol  1✔
1
 5|1.000|1.000|1.8e-09|1.8e-03|3.7e+02| 3.304688e+02 -4.603291e+00| 0:0:00| chol  1✔
1
 6|0.945|0.953|7.4e-11|5.9e-04|2.3e+01| 2.031183e+01 -1.677995e+00| 0:0:00| chol  1✔
1
 7|0.859|0.787|5.7e-10|1.7e-04|1.4e+01| 1.218386e+01 -1.295574e+00| 0:0:00| chol  1✔
1
 8|0.575|0.938|4.3e-11|1.5e-05|9.9e+00| 8.734850e+00 -1.135566e+00| 0:0:00| chol  1✔
1
 9|0.598|1.000|3.6e-11|5.3e-07|6.9e+00| 5.755263e+00 -1.166208e+00| 0:0:00| chol  1✔
1
10|1.000|1.000|6.3e-14|5.3e-08|2.6e+00| 1.482340e+00 -1.079832e+00| 0:0:00| chol  1✔
1
11|0.852|0.854|6.8e-13|1.2e-08|4.6e-01|-5.624407e-01 -1.017461e+00| 0:0:00| chol  2✔
1
12|1.000|1.000|3.4e-10|5.3e-10|2.3e-01|-7.738244e-01 -1.005616e+00| 0:0:00| chol  1✔
1
13|0.956|0.965|1.3e-11|7.1e-11|4.3e-02|-9.553896e-01 -9.983779e-01| 0:0:00| chol  2✔
2
14|1.000|1.000|1.7e-12|7.6e-12|1.8e-02|-9.796260e-01 -9.975120e-01| 0:0:00| chol  2✔
2
15|0.904|0.905|4.6e-13|2.2e-12|2.6e-03|-9.941791e-01 -9.968178e-01| 0:0:00| chol  2✔
2
16|1.000|1.000|9.7e-12|1.1e-12|1.0e-03|-9.957370e-01 -9.967511e-01| 0:0:00| chol  2✔
2
17|0.929|0.927|5.4e-11|1.6e-12|1.4e-04|-9.965749e-01 -9.967156e-01| 0:0:00| chol  2✔
2
18|1.000|1.000|4.9e-11|2.3e-12|4.9e-05|-9.966637e-01 -9.967127e-01| 0:0:00| chol  2✔
2
19|1.000|1.000|1.4e-11|3.4e-12|7.6e-06|-9.967038e-01 -9.967114e-01| 0:0:00| chol  2✔
2
20|1.000|1.000|5.5e-11|2.9e-12|1.0e-06|-9.967102e-01 -9.967112e-01| 0:0:00| chol  3✔
3
21|1.000|1.000|2.3e-11|4.3e-12|3.5e-08|-9.967111e-01 -9.967112e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
```

```
------------------------------------------------------------------
 number of iterations   = 21
 primal objective value = -9.96711147e-01
 dual   objective value = -9.96711183e-01
 gap := trace(XZ)       = 3.54e-08
 relative gap           = 1.18e-08
 actual relative gap    = 1.21e-08
 rel. primal infeas     = 2.27e-11
 rel. dual   infeas     = 4.29e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 4.1e+02, 6.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.15
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.3e-11  0.0e+00  5.9e-12  0.0e+00  1.2e-08  1.2e-08
------------------------------------------------------------------


ans =

    0.9967


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|6.2e+00|1.5e+06| 5.361644e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.979|3.8e-07|1.7e-01|1.3e+05| 4.385846e+04 -2.744322e+01| 0:0:00| chol  1✔
1
 2|1.000|0.976|4.3e-07|4.2e-02|2.0e+04| 9.338138e+03 -5.511706e+01| 0:0:00| chol  1✔
1
 3|1.000|0.745|2.8e-07|2.5e-02|6.8e+03| 3.732932e+03 -2.187140e+01| 0:0:00| chol  1✔
1
 4|0.912|1.000|3.1e-08|5.9e-03|1.6e+03| 1.227205e+03 -2.498001e+01| 0:0:00| chol  1✔
1
 5|1.000|1.000|1.6e-09|1.8e-03|4.4e+02| 3.930989e+02 -5.700531e+00| 0:0:00| chol  1✔
1
 6|0.962|0.961|6.2e-11|5.8e-04|2.0e+01| 1.754121e+01 -1.638893e+00| 0:0:00| chol  1✔
1
 7|0.857|1.000|6.4e-11|5.3e-05|1.1e+01| 1.015659e+01 -1.251719e+00| 0:0:00| chol  1✔
1
 8|1.000|1.000|6.7e-12|5.3e-06|2.5e+00| 1.399893e+00 -1.091693e+00| 0:0:00| chol  1✔
1
 9|0.824|0.948|1.9e-12|7.8e-07|7.1e-01|-3.228622e-01 -1.036299e+00| 0:0:00| chol  2✔
1
```

```
10|1.000|1.000|1.1e-10|5.3e-08|3.6e-01|-6.681880e-01 -1.023980e+00| 0:0:00| chol  1↙
1
11|0.901|0.994|1.3e-11|5.6e-09|6.6e-02|-9.508943e-01 -1.016427e+00| 0:0:00| chol  2↙
1
12|1.000|1.000|1.4e-10|5.3e-10|2.4e-02|-9.919622e-01 -1.015675e+00| 0:0:00| chol  2↙
2
13|0.959|0.964|5.7e-12|7.4e-11|1.5e-03|-1.013584e+00 -1.015072e+00| 0:0:00| chol  2↙
2
14|0.974|0.981|2.9e-12|7.8e-12|4.4e-05|-1.014997e+00 -1.015041e+00| 0:0:00| chol  2↙
2
15|1.000|1.000|5.4e-12|1.0e-12|9.0e-07|-1.015039e+00 -1.015040e+00| 0:0:00| chol  2↙
3
16|1.000|1.000|1.5e-11|1.1e-12|1.3e-08|-1.015040e+00 -1.015040e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -1.01504023e+00
 dual   objective value = -1.01504023e+00
 gap := trace(XZ)        = 1.35e-08
 relative gap            = 4.45e-09
 actual relative gap     = 3.28e-10
 rel. primal infeas      = 1.45e-11
 rel. dual   infeas      = 1.09e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 4.2e+02, 6.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.1e-11  0.0e+00  1.5e-12  0.0e+00  3.3e-10  4.5e-09
-------------------------------------------------------------------

ans =

    1.0150

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|6.4e+00|1.6e+06| 5.590783e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.980|3.8e-07|1.7e-01|1.4e+05| 4.572511e+04 -3.099512e+01| 0:0:00| chol  1↙
1
 2|1.000|0.986|4.1e-07|4.1e-02|2.0e+04| 9.447611e+03 -5.382975e+01| 0:0:00| chol  1↙
1
```

```
 3|1.000|0.767|2.8e-07|2.5e-02|6.8e+03| 3.747027e+03 -2.264966e+01| 0:0:00| chol  1↙
1
 4|0.824|1.000|3.3e-08|5.9e-03|2.1e+03| 1.647843e+03 -2.865114e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.5e-09|1.8e-03|6.2e+02| 5.498382e+02 -8.437158e+00| 0:0:00| chol  1↙
1
 6|0.965|0.974|1.1e-10|5.6e-04|2.6e+01| 2.310397e+01 -1.766720e+00| 0:0:00| chol  1↙
1
 7|0.910|0.960|1.3e-10|7.3e-05|1.4e+01| 1.259903e+01 -1.210239e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|1.8e-10|5.3e-06|4.7e+00| 3.587045e+00 -1.113845e+00| 0:0:00| chol  1↙
1
 9|0.829|1.000|8.8e-12|5.3e-07|1.3e+00| 2.526338e-01 -1.056301e+00| 0:0:00| chol  1↙
1
10|1.000|0.995|1.4e-13|5.5e-08|5.0e-01|-5.228632e-01 -1.024749e+00| 0:0:00| chol  1↙
1
11|0.857|1.000|1.1e-11|5.3e-09|1.3e-01|-8.944076e-01 -1.021516e+00| 0:0:00| chol  2↙
2
12|1.000|0.990|4.3e-13|5.8e-10|4.9e-02|-9.683200e-01 -1.017573e+00| 0:0:00| chol  1↙
1
13|0.925|0.997|1.7e-11|5.6e-11|3.8e-03|-1.012912e+00 -1.016752e+00| 0:0:00| chol  2↙
2
14|1.000|1.000|1.3e-11|6.8e-12|1.7e-03|-1.014983e+00 -1.016683e+00| 0:0:00| chol  1↙
2
15|0.895|0.989|1.3e-11|2.9e-12|2.0e-04|-1.016451e+00 -1.016649e+00| 0:0:00| chol  2↙
2
16|1.000|0.970|6.6e-11|2.6e-12|9.3e-05|-1.016554e+00 -1.016647e+00| 0:0:00| chol  2↙
2
17|0.917|1.000|7.3e-12|3.8e-12|1.1e-05|-1.016634e+00 -1.016645e+00| 0:0:00| chol  2↙
2
18|1.000|0.960|5.1e-11|1.6e-12|4.5e-06|-1.016640e+00 -1.016645e+00| 0:0:00| chol  2↙
2
19|0.984|1.000|6.6e-12|2.2e-12|5.0e-07|-1.016644e+00 -1.016645e+00| 0:0:00| chol  3↙
3
20|1.000|1.000|1.3e-10|1.3e-12|1.2e-07|-1.016645e+00 -1.016645e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -1.01664470e+00
 dual   objective value = -1.01664482e+00
 gap := trace(XZ)       = 1.21e-07
 relative gap           = 3.98e-08
 actual relative gap    = 3.85e-08
 rel. primal infeas     = 1.26e-10
 rel. dual   infeas     = 1.33e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 4.4e+02, 6.4e+02, 5.0e+01
 Total CPU time (secs) = 0.14
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.8e-10  0.0e+00  1.8e-12  0.0e+00  3.9e-08  4.0e-08
-------------------------------------------------------------------


ans =
```

     1.0166

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|6.6e+00|1.6e+06| 5.687720e+04 0.000000e+00| 0:0:00| chol 1✔
1
 1|1.000|0.980|4.0e-07|1.7e-01|1.4e+05| 4.651486e+04 -3.511277e+01| 0:0:00| chol 1✔
1
 2|1.000|0.996|4.1e-07|4.0e-02|1.9e+04| 9.291927e+03 -4.989870e+01| 0:0:00| chol 1✔
1
 3|1.000|0.804|2.9e-07|2.4e-02|6.5e+03| 3.648380e+03 -2.313186e+01| 0:0:00| chol 1✔
1
 4|0.690|1.000|5.7e-08|5.9e-03|2.7e+03| 2.122777e+03 -3.260648e+01| 0:0:00| chol 1✔
1
 5|1.000|1.000|1.4e-09|1.8e-03|7.7e+02| 6.820815e+02 -1.034770e+01| 0:0:00| chol 1✔
1
 6|0.965|0.980|1.5e-10|5.6e-04|3.3e+01| 2.915434e+01 -1.751168e+00| 0:0:00| chol 1✔
1
 7|0.966|0.773|1.4e-10|1.7e-04|1.6e+01| 1.488219e+01 -1.129409e+00| 0:0:00| chol 1✔
1
 8|1.000|0.962|2.0e-10|1.2e-05|6.3e+00| 5.289846e+00 -1.025030e+00| 0:0:00| chol 1✔
1
 9|0.834|1.000|1.0e-11|5.3e-07|2.2e+00| 1.180732e+00 -1.005994e+00| 0:0:00| chol 1✔
1
10|1.000|0.998|3.9e-12|5.4e-08|8.1e-01|-1.415462e-01 -9.485656e-01| 0:0:00| chol 1✔
1
11|0.860|1.000|1.9e-12|5.3e-09|1.5e-01|-7.960989e-01 -9.420547e-01| 0:0:00| chol 1✔
1
12|1.000|1.000|5.5e-12|5.3e-10|5.1e-02|-8.864696e-01 -9.374738e-01| 0:0:00| chol 1✔
1
13|0.973|0.987|1.3e-12|6.0e-11|1.4e-03|-9.349078e-01 -9.362886e-01| 0:0:00| chol 2✔
2
14|0.864|1.000|2.4e-12|6.3e-12|2.7e-04|-9.359830e-01 -9.362547e-01| 0:0:00| chol 2✔
2
15|1.000|0.995|6.6e-11|1.0e-12|2.8e-05|-9.362207e-01 -9.362489e-01| 0:0:00| chol 2✔
2
16|0.990|1.000|5.1e-12|1.5e-12|9.4e-07|-9.362469e-01 -9.362479e-01| 0:0:00| chol 3✔
3
17|1.000|1.000|5.7e-11|1.0e-12|1.2e-07|-9.362477e-01 -9.362478e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
----
 number of iterations   = 17

```
 primal objective value = -9.36247726e-01
 dual   objective value = -9.36247846e-01
 gap := trace(XZ)        = 1.22e-07
 relative gap            = 4.26e-08
 actual relative gap     = 4.18e-08
 rel. primal infeas      = 5.71e-11
 rel. dual  infeas       = 1.02e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 4.5e+02, 6.5e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 8.0e-11  0.0e+00  1.4e-12  0.0e+00  4.2e-08  4.3e-08
-------------------------------------------------------------------


ans =

    0.9362


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|6.9e+00|1.7e+06| 5.928217e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.980|3.9e-07|1.8e-01|1.4e+05| 4.846468e+04 -3.994112e+01| 0:0:00| chol  1↙
1
 2|1.000|0.996|3.9e-07|4.0e-02|2.0e+04| 9.490197e+03 -4.777391e+01| 0:0:00| chol  1↙
1
 3|1.000|0.831|2.8e-07|2.3e-02|6.5e+03| 3.671900e+03 -2.429616e+01| 0:0:00| chol  1↙
1
 4|0.604|1.000|7.3e-08|5.9e-03|3.0e+03| 2.416816e+03 -3.575193e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.2e-09|1.8e-03|8.0e+02| 7.145667e+02 -1.072710e+01| 0:0:00| chol  1↙
1
 6|0.963|0.982|1.6e-10|5.5e-04|3.6e+01| 3.214279e+01 -1.699039e+00| 0:0:00| chol  1↙
1
 7|0.993|0.744|1.0e-10|1.8e-04|1.7e+01| 1.559035e+01 -1.072799e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|1.7e-10|5.3e-06|6.4e+00| 5.439244e+00 -9.931489e-01| 0:0:00| chol  1↙
1
 9|0.931|1.000|5.9e-12|5.3e-07|1.2e+00| 2.941849e-01 -9.540097e-01| 0:0:00| chol  1↙
1
10|1.000|0.943|9.1e-13|8.0e-08|4.4e-01|-4.829910e-01 -9.189031e-01| 0:0:00| chol  1↙
1
```

```
11|0.857|1.000|2.7e-12|5.3e-09|7.3e-02|-8.399379e-01 -9.125445e-01| 0:0:00| chol  1✔
1
12|1.000|1.000|9.5e-12|5.3e-10|2.4e-02|-8.857588e-01 -9.095536e-01| 0:0:00| chol  1✔
1
13|0.975|0.978|7.6e-12|6.5e-11|6.1e-04|-9.084053e-01 -9.090113e-01| 0:0:00| chol  2✔
2
14|0.929|1.000|1.6e-12|6.8e-12|4.9e-05|-9.089495e-01 -9.089986e-01| 0:0:00| chol  2✔
2
15|1.000|1.000|4.3e-11|1.0e-12|1.3e-05|-9.089859e-01 -9.089985e-01| 0:0:00| chol  2✔
2
16|1.000|1.000|2.7e-12|1.5e-12|2.6e-07|-9.089977e-01 -9.089980e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
---------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.08997728e-01
 dual   objective value = -9.08997989e-01
 gap := trace(XZ)        = 2.61e-07
 relative gap            = 9.26e-08
 actual relative gap     = 9.25e-08
 rel. primal infeas      = 2.69e-12
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 4.7e+02, 6.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.8e-12  0.0e+00  2.1e-12  0.0e+00  9.3e-08  9.3e-08
---------------------------------------------------------------------


ans =

    0.9090


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|7.5e+00|1.9e+06| 6.523063e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.981|3.7e-07|1.8e-01|1.6e+05| 5.329774e+04 -5.027182e+01| 0:0:00| chol  1✔
1
 2|1.000|1.000|3.5e-07|3.9e-02|2.1e+04| 9.892361e+03 -4.313216e+01| 0:0:00| chol  1✔
1
 3|1.000|0.968|2.3e-07|2.0e-02|5.9e+03| 3.470650e+03 -2.704165e+01| 0:0:00| chol  1✔
1
```

```
 4|0.579|1.000|5.4e-08|5.9e-03|2.9e+03| 2.301878e+03 -3.497678e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|1.2e-09|1.8e-03|8.7e+02| 7.748600e+02 -1.114168e+01| 0:0:00| chol  1↙
1
 6|0.970|0.983|1.3e-10|5.5e-04|3.3e+01| 2.941478e+01 -1.631860e+00| 0:0:00| chol  1↙
1
 7|0.946|0.782|1.2e-10|1.6e-04|1.6e+01| 1.470042e+01 -1.043502e+00| 0:0:00| chol  1↙
1
 8|1.000|1.000|2.0e-10|5.3e-06|5.7e+00| 4.720203e+00 -9.723056e-01| 0:0:00| chol  1↙
1
 9|0.821|1.000|1.2e-11|5.3e-07|1.4e+00| 4.575317e-01 -9.444574e-01| 0:0:00| chol  1↙
1
10|1.000|0.913|4.0e-12|9.5e-08|5.7e-01|-3.504350e-01 -9.158098e-01| 0:0:00| chol  1↙
1
11|0.831|1.000|1.5e-12|5.3e-09|1.0e-01|-8.070043e-01 -9.103442e-01| 0:0:00| chol  1↙
1
12|1.000|0.953|1.8e-12|7.6e-10|4.8e-02|-8.575790e-01 -9.057869e-01| 0:0:00| chol  1↙
1
13|0.936|0.999|4.7e-11|5.5e-11|4.1e-03|-9.010319e-01 -9.050821e-01| 0:0:00| chol  2↙
2
14|0.920|1.000|3.4e-12|6.8e-12|1.0e-03|-9.040453e-01 -9.050571e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|1.2e-10|1.5e-12|1.6e-04|-9.048690e-01 -9.050243e-01| 0:0:00| chol  2↙
2
16|0.976|0.988|3.5e-12|1.5e-12|3.6e-06|-9.050150e-01 -9.050186e-01| 0:0:00| chol  3↙
3
17|1.000|1.000|4.1e-11|1.0e-12|6.1e-07|-9.050179e-01 -9.050185e-01| 0:0:00| chol  3↙
2
18|1.000|1.000|3.5e-11|1.5e-12|8.5e-09|-9.050185e-01 -9.050185e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -9.05018471e-01
 dual   objective value = -9.05018480e-01
 gap := trace(XZ)        = 8.49e-09
 relative gap            = 3.02e-09
 actual relative gap     = 3.07e-09
 rel. primal infeas      = 3.54e-11
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 4.9e+02, 7.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.8e-11  0.0e+00  2.1e-12  0.0e+00  3.1e-09  3.0e-09
-----------------------------------------------------------------


ans =

    0.9050


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|7.8e+00|1.9e+06| 6.777627e+04  0.000000e+00| 0:0:00| chol  1↙
 1
  1|1.000|0.981|3.9e-07|1.8e-01|1.6e+05| 5.536616e+04 -5.635971e+01| 0:0:00| chol  1↙
 1
  2|1.000|1.000|3.4e-07|3.9e-02|2.1e+04| 9.928845e+03 -3.973508e+01| 0:0:00| chol  1↙
 1
  3|1.000|1.000|1.8e-07|2.0e-02|4.8e+03| 2.802146e+03 -2.670165e+01| 0:0:00| chol  1↙
 1
  4|0.979|1.000|3.7e-08|5.9e-03|7.4e+02| 5.216437e+02 -1.066782e+01| 0:0:00| chol  1↙
 1
  5|1.000|0.984|6.2e-10|1.8e-03|7.0e+01| 5.699509e+01 -1.406938e+00| 0:0:00| chol  1↙
 1
  6|0.900|0.969|2.0e-11|2.3e-04|1.2e+01| 1.111468e+01 -1.046398e+00| 0:0:00| chol  1↙
 1
  7|1.000|1.000|2.9e-10|1.8e-05|4.6e+00| 3.610411e+00 -1.023111e+00| 0:0:00| chol  1↙
 1
  8|0.861|0.881|3.4e-11|3.7e-06|7.2e-01|-2.474444e-01 -9.651211e-01| 0:0:00| chol  2↙
 2
  9|1.000|1.000|1.7e-10|1.8e-07|3.5e-01|-5.987494e-01 -9.527856e-01| 0:0:00| chol  1↙
 1
 10|0.849|1.000|2.9e-11|1.8e-08|6.0e-02|-8.855967e-01 -9.455580e-01| 0:0:00| chol  1↙
 2
 11|1.000|0.971|2.4e-12|2.2e-09|2.3e-02|-9.206243e-01 -9.439289e-01| 0:0:00| chol  1↙
 1
 12|0.869|1.000|6.7e-13|1.8e-10|3.8e-03|-9.394090e-01 -9.431934e-01| 0:0:00| chol  2↙
 2
 13|1.000|1.000|4.6e-12|1.9e-11|1.1e-03|-9.420933e-01 -9.431649e-01| 0:0:00| chol  1↙
 2
 14|0.973|0.983|2.6e-11|3.1e-12|2.9e-05|-9.430942e-01 -9.431232e-01| 0:0:00| chol  2↙
 2
 15|1.000|1.000|3.4e-11|1.5e-12|3.9e-06|-9.431186e-01 -9.431225e-01| 0:0:00| chol  2↙
 2
 16|1.000|1.000|8.2e-12|2.2e-12|1.6e-07|-9.431222e-01 -9.431224e-01| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -9.43122213e-01
 dual   objective value = -9.43122378e-01
 gap := trace(XZ)       = 1.60e-07
 relative gap           = 5.56e-08
 actual relative gap    = 5.72e-08
 rel. primal infeas     = 8.19e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
```

```
 norm(A), norm(b), norm(C) = 4.9e+02, 7.4e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-11  0.0e+00  3.1e-12  0.0e+00  5.7e-08  5.6e-08
-----------------------------------------------------------------------
```

ans =

    0.9431

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|8.0e+00|2.0e+06| 6.979681e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.982|3.8e-07|1.9e-01|1.7e+05| 5.700771e+04 -6.048312e+01| 0:0:00| chol  1✔
1
 2|1.000|1.000|3.4e-07|3.9e-02|2.1e+04| 1.006699e+04 -3.880041e+01| 0:0:00| chol  1✔
1
 3|1.000|1.000|1.6e-07|2.0e-02|4.5e+03| 2.586680e+03 -2.632224e+01| 0:0:00| chol  1✔
1
 4|0.957|1.000|4.6e-08|5.9e-03|5.9e+02| 4.039805e+02 -6.224458e+00| 0:0:00| chol  1✔
1
 5|1.000|1.000|5.9e-10|1.8e-03|9.0e+01| 7.602993e+01 -1.407173e+00| 0:0:00| chol  1✔
1
 6|0.902|0.934|1.3e-11|2.8e-04|1.1e+01| 9.250287e+00 -9.891188e-01| 0:0:00| chol  1✔
1
 7|1.000|0.958|1.2e-09|2.9e-05|4.7e+00| 3.763812e+00 -9.454889e-01| 0:0:00| chol  1✔
1
 8|0.816|1.000|2.7e-11|1.8e-06|1.6e+00| 6.740642e-01 -9.370401e-01| 0:0:00| chol  1✔
1
 9|1.000|0.961|4.9e-11|2.4e-07|5.7e-01|-3.342136e-01 -9.018624e-01| 0:0:00| chol  1✔
1
10|0.856|1.000|7.6e-12|1.8e-08|8.8e-02|-8.073705e-01 -8.956839e-01| 0:0:00| chol  1✔
1
11|1.000|0.904|1.8e-11|3.3e-09|4.1e-02|-8.506515e-01 -8.915546e-01| 0:0:00| chol  1✔
1
12|0.939|1.000|4.5e-12|1.8e-10|4.2e-03|-8.865220e-01 -8.907555e-01| 0:0:00| chol  1✔
2
13|0.952|1.000|1.1e-12|1.9e-11|7.6e-04|-8.899307e-01 -8.906916e-01| 0:0:00| chol  2✔
2
14|1.000|0.994|1.3e-10|2.9e-12|5.8e-05|-8.906069e-01 -8.906645e-01| 0:0:00| chol  2✔
2
```

```
15|0.995|1.000|3.9e-12|1.5e-12|1.1e-06|-8.906611e-01 -8.906622e-01| 0:0:00| chol  3↙
3
16|1.000|1.000|6.8e-11|1.0e-12|7.4e-08|-8.906621e-01 -8.906622e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.90662098e-01
 dual   objective value = -8.90662181e-01
 gap := trace(XZ)       = 7.39e-08
 relative gap           = 2.66e-08
 actual relative gap    = 3.00e-08
 rel. primal infeas     = 6.79e-11
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.0e+02, 7.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.0e-11  0.0e+00  1.4e-12  0.0e+00  3.0e-08  2.7e-08
-------------------------------------------------------------------


ans =

    0.8907


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|8.2e+00|2.0e+06| 7.137782e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.7e-07|1.9e-01|1.7e+05| 5.828885e+04 -6.276548e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.3e-07|3.9e-02|2.1e+04| 1.027398e+04 -3.879495e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.6e-07|2.0e-02|4.7e+03| 2.739089e+03 -2.743732e+01| 0:0:00| chol  1↙
1
 4|0.981|1.000|3.9e-08|5.9e-03|6.6e+02| 4.582588e+02 -8.416871e+00| 0:0:00| chol  1↙
1
 5|1.000|0.989|5.2e-10|1.8e-03|6.6e+01| 5.381911e+01 -1.195880e+00| 0:0:00| chol  1↙
1
 6|0.922|1.000|2.3e-11|1.8e-04|1.1e+01| 9.830277e+00 -9.662262e-01| 0:0:00| chol  1↙
1
 7|1.000|1.000|9.8e-11|1.8e-05|3.5e+00| 2.608176e+00 -9.282892e-01| 0:0:00| chol  1↙
1
```

```
  8|0.840|0.881|1.0e-11|3.7e-06|6.4e-01|-2.487991e-01 -8.871185e-01| 0:0:00| chol  1↙
2
  9|1.000|1.000|1.9e-10|1.8e-07|3.2e-01|-5.606058e-01 -8.762951e-01| 0:0:00| chol  1↙
1
 10|0.745|1.000|4.9e-11|1.8e-08|9.9e-02|-7.730987e-01 -8.717296e-01| 0:0:00| chol  1↙
2
 11|1.000|1.000|8.9e-13|1.8e-09|3.7e-02|-8.325734e-01 -8.693204e-01| 0:0:00| chol  1↙
1
 12|0.958|0.946|2.5e-12|2.6e-10|1.6e-03|-8.665896e-01 -8.682392e-01| 0:0:00| chol  1↙
1
 13|0.912|0.989|6.8e-11|2.2e-11|1.6e-04|-8.680241e-01 -8.681847e-01| 0:0:00| chol  2↙
2
 14|1.000|1.000|6.0e-11|1.5e-12|3.5e-05|-8.681488e-01 -8.681836e-01| 0:0:00| chol  2↙
2
 15|0.975|1.000|5.8e-12|2.3e-12|2.9e-06|-8.681795e-01 -8.681824e-01| 0:0:00| chol  2↙
2
 16|1.000|1.000|1.1e-10|1.2e-12|6.0e-07|-8.681817e-01 -8.681823e-01| 0:0:00| chol  2↙
3
 17|0.989|1.000|2.6e-11|1.7e-12|2.4e-08|-8.681823e-01 -8.681823e-01| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
 -------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -8.68182256e-01
 dual   objective value = -8.68182272e-01
 gap := trace(XZ)        = 2.40e-08
 relative gap            = 8.79e-09
 actual relative gap     = 5.81e-09
 rel. primal infeas      = 2.65e-11
 rel. dual   infeas      = 1.74e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.1e+02, 7.8e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 3.5e-11  0.0e+00  2.4e-12  0.0e+00  5.8e-09  8.8e-09
 -------------------------------------------------------------------


ans =

    0.8682


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|8.4e+00|2.1e+06| 7.411026e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.7e-07|2.0e-01|1.8e+05| 6.050126e+04 -6.563508e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.1e-07|3.9e-02|2.2e+04| 1.069156e+04 -3.913261e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.8e-07|2.0e-02|5.4e+03| 3.197410e+03 -2.984251e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|4.8e-08|5.9e-03|1.6e+03| 1.220668e+03 -2.334276e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|5.1e-10|1.8e-03|2.0e+02| 1.681847e+02 -2.498592e+00| 0:0:00| chol  1↙
1
 6|0.977|0.990|4.7e-11|1.9e-04|1.2e+01| 1.092465e+01 -1.027409e+00| 0:0:00| chol  1↙
1
 7|1.000|0.860|1.1e-10|4.2e-05|5.8e+00| 4.909421e+00 -8.682887e-01| 0:0:00| chol  1↙
1
 8|0.817|1.000|1.9e-11|1.8e-06|1.8e+00| 9.747643e-01 -8.475498e-01| 0:0:00| chol  1↙
1
 9|1.000|0.996|1.2e-11|1.8e-07|6.2e-01|-1.954523e-01 -8.175320e-01| 0:0:00| chol  1↙
1
10|0.834|1.000|2.4e-12|1.8e-08|1.1e-01|-6.982567e-01 -8.120458e-01| 0:0:00| chol  1↙
1
11|0.988|0.908|9.9e-11|3.2e-09|5.7e-02|-7.510460e-01 -8.076059e-01| 0:0:00| chol  1↙
1
12|1.000|1.000|5.2e-12|1.8e-10|2.4e-02|-7.835802e-01 -8.072321e-01| 0:0:00| chol  1↙
1
13|0.956|0.957|6.1e-11|2.6e-11|1.1e-03|-8.051861e-01 -8.062525e-01| 0:0:00| chol  2↙
2
14|0.982|0.985|2.2e-12|3.7e-12|2.0e-05|-8.062047e-01 -8.062243e-01| 0:0:00| chol  2↙
2
15|1.000|1.000|4.4e-12|1.0e-12|5.2e-07|-8.062234e-01 -8.062239e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|4.5e-12|1.0e-12|1.2e-08|-8.062238e-01 -8.062239e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.06223845e-01
 dual   objective value = -8.06223854e-01
 gap := trace(XZ)        = 1.19e-08
 relative gap            = 4.54e-09
 actual relative gap     = 3.16e-09
 rel. primal infeas      = 4.52e-12
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.3e+02, 8.1e+02, 5.0e+01
 Total CPU time (secs)   = 0.09
 CPU time per iteration  = 0.01
 termination code        =  0
 DIMACS errors: 6.0e-12  0.0e+00  1.4e-12  0.0e+00  3.2e-09  4.5e-09
-------------------------------------------------------------------


ans =

    0.8062
```

```
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|8.6e+00|2.2e+06| 7.567001e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.981|3.6e-07|2.0e-01|1.8e+05| 6.176949e+04 -6.847025e+01| 0:0:00| chol  1✓
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.081091e+04 -3.870246e+01| 0:0:00| chol  1✓
1
 3|1.000|1.000|1.6e-07|2.0e-02|5.2e+03| 3.025086e+03 -2.968688e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|3.2e-08|5.9e-03|1.1e+03| 7.925054e+02 -1.495616e+01| 0:0:00| chol  1✓
1
 5|0.961|0.984|1.4e-09|1.8e-03|8.4e+01| 6.808022e+01 -1.282561e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|2.4e-10|1.8e-04|2.7e+01| 2.607517e+01 -1.007545e+00| 0:0:00| chol  1✓
1
 7|0.931|0.978|2.4e-11|2.1e-05|1.9e+00| 1.086375e+00 -8.571537e-01| 0:0:00| chol  1✓
1
 8|1.000|0.671|1.0e-09|8.2e-06|1.0e+00| 1.929084e-01 -8.326282e-01| 0:0:00| chol  1✓
1
 9|0.639|1.000|6.7e-11|1.8e-07|7.2e-01|-8.734027e-02 -8.119451e-01| 0:0:00| chol  1✓
1
10|0.856|1.000|9.7e-12|1.8e-08|3.6e-01|-4.587069e-01 -8.150679e-01| 0:0:00| chol  1✓
1
11|1.000|1.000|1.7e-12|1.8e-09|6.8e-02|-7.416517e-01 -8.094241e-01| 0:0:00| chol  1✓
1
12|0.857|0.873|1.2e-11|3.8e-10|1.1e-02|-7.949254e-01 -8.057941e-01| 0:0:00| chol  2✓
2
13|1.000|1.000|2.6e-12|1.9e-11|1.4e-03|-8.042046e-01 -8.056398e-01| 0:0:00| chol  1✓
1
14|0.988|0.987|6.6e-11|3.0e-12|1.8e-05|-8.055538e-01 -8.055714e-01| 0:0:00| chol  2✓
2
15|0.996|1.000|4.0e-12|1.5e-12|3.2e-07|-8.055702e-01 -8.055705e-01| 0:0:00| chol  3✓
3
16|1.000|1.000|3.8e-11|1.0e-12|1.2e-08|-8.055705e-01 -8.055705e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
----------------------------------------------------------------------
 number of iterations  = 16
 primal objective value = -8.05570467e-01
 dual   objective value = -8.05570513e-01
 gap := trace(XZ)       = 1.17e-08
 relative gap           = 4.48e-09
```

```
 actual relative gap    = 1.75e-08
 rel. primal infeas     = 3.81e-11
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.4e+02, 8.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.0e-11  0.0e+00  1.4e-12  0.0e+00  1.8e-08  4.5e-09
-------------------------------------------------------------------
```

ans =

    0.8056

```
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|8.7e+00|2.2e+06| 7.616474e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.6e-07|2.0e-01|1.8e+05| 6.217070e+04 -6.916856e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.088318e+04 -3.873628e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.6e-07|2.0e-02|5.3e+03| 3.086675e+03 -3.010691e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|3.3e-08|5.9e-03|1.3e+03| 9.422671e+02 -1.744105e+01| 0:0:00| chol  1↙
1
 5|0.957|0.985|1.5e-09|1.8e-03|9.9e+01| 8.097082e+01 -1.385483e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|2.3e-10|1.8e-04|2.7e+01| 2.600029e+01 -1.036508e+00| 0:0:00| chol  1↙
1
 7|0.927|0.959|1.7e-11|2.4e-05|2.1e+00| 1.232147e+00 -8.603117e-01| 0:0:00| chol  1↙
1
 8|0.889|0.845|7.2e-10|5.3e-06|1.1e+00| 3.056562e-01 -8.317734e-01| 0:0:00| chol  1↙
1
 9|0.597|0.770|9.4e-11|1.3e-06|8.4e-01| 2.875667e-02 -8.156975e-01| 0:0:00| chol  1↙
1
10|0.689|1.000|2.8e-11|1.8e-08|5.1e-01|-3.135757e-01 -8.189121e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|6.4e-12|1.8e-09|1.7e-01|-6.465493e-01 -8.129516e-01| 0:0:00| chol  1↙
1
12|0.914|0.908|5.0e-12|3.3e-10|1.6e-02|-7.917769e-01 -8.073673e-01| 0:0:00| chol  2↙
2
```

```
13|1.000|1.000|3.0e-12|1.9e-11|6.2e-03|-8.006387e-01 -8.068188e-01| 0:0:00| chol  1↙
2
14|0.978|0.979|6.2e-11|3.1e-12|1.4e-04|-8.063895e-01 -8.065282e-01| 0:0:00| chol  2↙
2
15|0.978|0.986|1.2e-11|1.5e-12|3.0e-06|-8.065193e-01 -8.065223e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|3.7e-12|2.3e-12|1.7e-07|-8.065221e-01 -8.065222e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.06522057e-01
 dual   objective value = -8.06522227e-01
 gap := trace(XZ)       = 1.65e-07
 relative gap           = 6.32e-08
 actual relative gap    = 6.51e-08
 rel. primal infeas     = 3.66e-12
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.5e+02, 8.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.8e-12  0.0e+00  3.1e-12  0.0e+00  6.5e-08  6.3e-08
-------------------------------------------------------------------


ans =

    0.8065


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|8.7e+00|2.2e+06| 7.654160e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.6e-07|2.0e-01|1.9e+05| 6.247639e+04 -6.973364e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.093871e+04 -3.876325e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.7e-07|2.0e-02|5.3e+03| 3.132976e+03 -3.043663e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|3.7e-08|5.9e-03|1.4e+03| 1.081890e+03 -1.969858e+01| 0:0:00| chol  1↙
1
 5|0.956|0.986|1.7e-09|1.8e-03|1.1e+02| 9.439829e+01 -1.498162e+00| 0:0:00| chol  1↙
1
```

```
 6|1.000|1.000|2.0e-10|1.8e-04|2.8e+01| 2.693711e+01 -1.100134e+00| 0:0:00| chol  1↙
1
 7|0.923|0.935|8.6e-12|2.8e-05|2.4e+00| 1.496068e+00 -8.652595e-01| 0:0:00| chol  1↙
1
 8|0.850|1.000|2.1e-10|1.8e-06|1.2e+00| 3.783963e-01 -8.300581e-01| 0:0:00| chol  1↙
1
 9|1.000|0.991|2.2e-10|1.9e-07|5.5e-01|-2.715409e-01 -8.194780e-01| 0:0:00| chol  1↙
1
10|0.706|1.000|6.3e-11|1.8e-08|2.1e-01|-6.094722e-01 -8.158533e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|6.2e-12|1.8e-09|9.2e-02|-7.182288e-01 -8.106953e-01| 0:0:00| chol  1↙
1
12|0.834|1.000|8.7e-12|1.8e-10|2.1e-02|-7.877985e-01 -8.089660e-01| 0:0:00| chol  2↙
2
13|1.000|1.000|1.8e-12|1.9e-11|7.4e-03|-8.012970e-01 -8.086964e-01| 0:0:00| chol  1↙
1
14|0.962|0.953|7.4e-11|3.6e-12|3.3e-04|-8.080881e-01 -8.084152e-01| 0:0:00| chol  2↙
2
15|0.964|0.994|1.0e-11|1.7e-12|1.9e-05|-8.083814e-01 -8.084003e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|1.2e-11|2.0e-12|3.6e-06|-8.083964e-01 -8.084000e-01| 0:0:00| chol  2↙
2
17|1.000|1.000|5.9e-11|2.4e-12|1.9e-07|-8.083997e-01 -8.083999e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -8.08399675e-01
 dual   objective value = -8.08399862e-01
 gap := trace(XZ)        = 1.90e-07
 relative gap            = 7.25e-08
 actual relative gap     = 7.12e-08
 rel. primal infeas      = 5.92e-11
 rel. dual   infeas      = 2.42e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.5e+02, 8.4e+02, 5.0e+01
 Total CPU time (secs)   = 0.09
 CPU time per iteration  = 0.01
 termination code        =  0
 DIMACS errors: 7.8e-11  0.0e+00  3.3e-12  0.0e+00  7.1e-08  7.2e-08
-------------------------------------------------------------------


ans =

    0.8084


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|8.6e+00|2.2e+06| 7.570875e+04   0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.6e-07|2.0e-01|1.8e+05| 6.180118e+04  -6.871532e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.083804e+04  -3.875633e+01| 0:0:00| chol  1↙
1
 3|1.000|1.000|1.6e-07|2.0e-02|5.3e+03| 3.089375e+03  -3.009638e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|3.5e-08|5.9e-03|1.3e+03| 9.715735e+02  -1.794630e+01| 0:0:00| chol  1↙
1
 5|0.957|0.986|1.6e-09|1.8e-03|1.0e+02| 8.342369e+01  -1.417262e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|2.2e-10|1.8e-04|2.7e+01| 2.555543e+01  -1.047722e+00| 0:0:00| chol  1↙
1
 7|0.925|0.953|1.6e-11|2.5e-05|2.2e+00| 1.283943e+00  -8.678598e-01| 0:0:00| chol  1↙
1
 8|0.877|0.879|5.4e-10|4.6e-06|1.2e+00| 3.344547e-01  -8.365944e-01| 0:0:00| chol  1↙
1
 9|0.629|0.771|1.9e-10|1.2e-06|8.5e-01| 2.530343e-02  -8.214612e-01| 0:0:00| chol  1↙
1
10|0.655|1.000|7.0e-11|1.8e-08|5.3e-01|-2.946131e-01  -8.246530e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|1.0e-13|1.8e-09|1.8e-01|-6.374709e-01  -8.181911e-01| 0:0:00| chol  1↙
1
12|0.918|0.912|6.3e-12|3.2e-10|1.6e-02|-7.960804e-01  -8.122837e-01| 0:0:00| chol  1↙
2
13|1.000|1.000|8.8e-13|1.9e-11|6.0e-03|-8.056903e-01  -8.116957e-01| 0:0:00| chol  1↙
2
14|0.976|0.978|7.0e-11|3.2e-12|1.5e-04|-8.112638e-01  -8.114105e-01| 0:0:00| chol  2↙
2
15|0.976|0.985|1.2e-11|1.5e-12|3.4e-06|-8.114010e-01  -8.114044e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|1.0e-11|2.3e-12|3.1e-07|-8.114040e-01  -8.114043e-01| 0:0:00| chol  2↙
2
17|1.000|1.000|5.6e-11|2.0e-12|1.1e-08|-8.114043e-01  -8.114043e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -8.11404288e-01
 dual   objective value = -8.11404299e-01
 gap := trace(XZ)       = 1.06e-08
 relative gap           = 4.05e-09
 actual relative gap    = 4.18e-09
 rel. primal infeas     = 5.63e-11
 rel. dual   infeas     = 2.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.5e+02, 8.3e+02, 5.0e+01
 Total CPU time (secs) = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
```

```
  DIMACS errors: 7.4e-11  0.0e+00  2.7e-12  0.0e+00  4.2e-09  4.0e-09
  ------------------------------------------------------------------
```

ans =

    0.8114

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|8.8e+00|2.2e+06| 7.731324e+04  0.000000e+00| 0:0:00| chol  1✔
1
 1|1.000|0.981|3.5e-07|2.0e-01|1.9e+05| 6.310967e+04 -7.059435e+01| 0:0:00| chol  1✔
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.100848e+04 -3.985226e+01| 0:0:00| chol  1✔
1
 3|1.000|1.000|1.6e-07|2.0e-02|5.0e+03| 2.933913e+03 -2.988649e+01| 0:0:00| chol  1✔
1
 4|1.000|1.000|3.5e-08|5.9e-03|7.5e+02| 5.248011e+02 -9.935211e+00| 0:0:00| chol  1✔
1
 5|0.992|0.979|5.3e-10|1.9e-03|5.6e+01| 4.403172e+01 -1.149690e+00| 0:0:00| chol  1✔
1
 6|1.000|1.000|3.8e-11|1.8e-04|2.0e+01| 1.834627e+01 -1.012554e+00| 0:0:00| chol  1✔
1
 7|0.913|0.950|7.7e-12|2.6e-05|1.7e+00| 8.302741e-01 -8.658168e-01| 0:0:00| chol  1✔
1
 8|0.768|1.000|6.6e-11|1.8e-06|9.6e-01| 1.196249e-01 -8.450194e-01| 0:0:00| chol  1✔
1
 9|1.000|1.000|2.7e-12|1.8e-07|3.2e-01|-5.088532e-01 -8.260368e-01| 0:0:00| chol  1✔
1
10|0.872|0.990|5.9e-13|1.9e-08|4.2e-02|-7.768781e-01 -8.192114e-01| 0:0:00| chol  2✔
2
11|0.369|0.686|1.9e-12|7.3e-09|3.5e-02|-7.824621e-01 -8.177653e-01| 0:0:00| chol  1✔
1
12|1.000|1.000|6.7e-11|1.8e-10|1.6e-02|-8.017908e-01 -8.179339e-01| 0:0:00| chol  1✔
1
13|0.958|0.966|1.6e-11|2.5e-11|9.3e-04|-8.162342e-01 -8.171676e-01| 0:0:00| chol  2✔
2
14|0.981|0.993|1.3e-12|4.2e-12|5.0e-05|-8.170851e-01 -8.171354e-01| 0:0:00| chol  2✔
2
15|1.000|1.000|3.5e-12|1.0e-12|8.9e-06|-8.171252e-01 -8.171342e-01| 0:0:00| chol  2✔
2
16|1.000|1.000|1.7e-12|1.0e-12|2.2e-07|-8.171336e-01 -8.171338e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
```

```
 --------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.17133611e-01
 dual   objective value = -8.17133835e-01
 gap := trace(XZ)       = 2.24e-07
 relative gap           = 8.50e-08
 actual relative gap    = 8.50e-08
 rel. primal infeas     = 1.66e-12
 rel. dual   infeas     = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.6e+02, 8.5e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.2e-12  0.0e+00  1.4e-12  0.0e+00  8.5e-08  8.5e-08
 --------------------------------------------------------------------


 ans =

     0.8171


 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|8.7e+00|2.2e+06| 7.570637e+04  0.000000e+00| 0:0:00| chol  1↙
 1
 1|1.000|0.981|3.5e-07|2.0e-01|1.8e+05| 6.180050e+04 -6.950201e+01| 0:0:00| chol  1↙
 1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.082744e+04 -3.903016e+01| 0:0:00| chol  1↙
 1
 3|1.000|1.000|1.7e-07|2.0e-02|5.2e+03| 3.031494e+03 -3.006090e+01| 0:0:00| chol  1↙
 1
 4|1.000|1.000|3.2e-08|5.9e-03|1.1e+03| 8.151141e+02 -1.523475e+01| 0:0:00| chol  1↙
 1
 5|0.959|0.984|1.4e-09|1.8e-03|8.5e+01| 6.882172e+01 -1.365455e+00| 0:0:00| chol  1↙
 1
 6|1.000|1.000|2.7e-10|1.8e-04|2.9e+01| 2.738005e+01 -1.061363e+00| 0:0:00| chol  1↙
 1
 7|0.920|0.987|2.4e-11|2.0e-05|2.4e+00| 1.509973e+00 -9.040128e-01| 0:0:00| chol  1↙
 1
 8|1.000|0.635|1.9e-09|8.4e-06|1.3e+00| 4.161160e-01 -8.768037e-01| 0:0:00| chol  1↙
 1
 9|0.605|1.000|5.5e-10|1.8e-07|9.1e-01| 5.144054e-02 -8.583004e-01| 0:0:00| chol  1↙
 1
```

```
10|1.000|1.000|3.5e-13|1.8e-08|3.6e-01|-4.925531e-01 -8.545513e-01| 0:0:00| chol  1↙
1
11|0.926|0.969|4.5e-12|2.3e-09|2.8e-02|-8.186688e-01 -8.465418e-01| 0:0:00| chol  2↙
2
12|1.000|0.949|4.4e-12|2.8e-10|1.1e-02|-8.336119e-01 -8.451092e-01| 0:0:00| chol  1↙
2
13|0.966|0.970|3.0e-13|2.7e-11|4.3e-04|-8.442420e-01 -8.446693e-01| 0:0:00| chol  2↙
1
14|0.967|0.983|1.2e-11|3.2e-12|1.5e-05|-8.446408e-01 -8.446559e-01| 0:0:00| chol  1↙
2
15|1.000|1.000|3.3e-13|1.5e-12|2.6e-06|-8.446531e-01 -8.446558e-01| 0:0:00| chol  1↙
1
16|1.000|1.000|6.0e-11|1.0e-12|4.0e-08|-8.446556e-01 -8.446556e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.44655605e-01
 dual   objective value = -8.44655645e-01
 gap := trace(XZ)        = 3.97e-08
 relative gap            = 1.48e-08
 actual relative gap     = 1.48e-08
 rel. primal infeas      = 5.96e-11
 rel. dual   infeas      = 1.00e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.5e+02, 8.3e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.9e-11  0.0e+00  1.4e-12  0.0e+00  1.5e-08  1.5e-08
-------------------------------------------------------------------

ans =

    0.8447

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|8.7e+00|2.2e+06| 7.603256e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.5e-07|2.0e-01|1.8e+05| 6.206527e+04 -6.987539e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.088199e+04 -3.918133e+01| 0:0:00| chol  1↙
1
```

```
 3|1.000|1.000|1.7e-07|2.0e-02|5.3e+03| 3.081798e+03 -3.041125e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|3.4e-08|5.9e-03|1.2e+03| 9.278663e+02 -1.717910e+01| 0:0:00| chol  1↙
1
 5|0.958|0.985|1.5e-09|1.8e-03|9.5e+01| 7.791305e+01 -1.465350e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|2.6e-10|1.8e-04|2.9e+01| 2.764574e+01 -1.089268e+00| 0:0:00| chol  1↙
1
 7|0.916|0.973|1.9e-11|2.2e-05|2.6e+00| 1.683044e+00 -9.120691e-01| 0:0:00| chol  1↙
1
 8|0.969|0.739|8.9e-10|7.1e-06|1.4e+00| 4.882718e-01 -8.812265e-01| 0:0:00| chol  1↙
1
 9|0.469|0.954|2.2e-10|4.9e-07|1.1e+00| 2.416130e-01 -8.561792e-01| 0:0:00| chol  1↙
1
10|0.770|1.000|5.0e-11|1.8e-08|6.0e-01|-2.600807e-01 -8.616755e-01| 0:0:00| chol  1↙
1
11|1.000|1.000|6.0e-12|1.8e-09|1.9e-01|-6.622638e-01 -8.556676e-01| 0:0:00| chol  1↙
1
12|0.916|0.952|2.5e-12|2.5e-10|1.7e-02|-8.326543e-01 -8.496207e-01| 0:0:00| chol  1↙
1
13|1.000|1.000|4.3e-12|1.9e-11|4.2e-03|-8.448566e-01 -8.490615e-01| 0:0:00| chol  2↙
2
14|0.966|0.977|9.2e-11|3.2e-12|1.5e-04|-8.487286e-01 -8.488772e-01| 0:0:00| chol  2↙
2
15|0.969|0.984|1.4e-11|1.6e-12|4.8e-06|-8.488677e-01 -8.488726e-01| 0:0:00| chol  2↙
2
16|1.000|1.000|1.4e-11|2.3e-12|7.2e-07|-8.488718e-01 -8.488725e-01| 0:0:00| chol  2↙
2
17|1.000|1.000|6.4e-13|2.8e-12|1.3e-08|-8.488725e-01 -8.488725e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -8.48872472e-01
 dual   objective value = -8.48872484e-01
 gap := trace(XZ)        = 1.29e-08
 relative gap            = 4.77e-09
 actual relative gap     = 4.64e-09
 rel. primal infeas      = 6.36e-13
 rel. dual   infeas      = 2.78e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.5e+02, 8.4e+02, 5.0e+01
 Total CPU time (secs) = 0.10
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 8.4e-13  0.0e+00  3.8e-12  0.0e+00  4.6e-09  4.8e-09
-----------------------------------------------------------------


ans =

    0.8489


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|9.1e+00|2.3e+06| 7.914297e+04  0.000000e+00| 0:0:00| chol  1✓
1
 1|1.000|0.981|3.7e-07|2.1e-01|1.9e+05| 6.459208e+04 -7.568423e+01| 0:0:00| chol  1✓
1
 2|1.000|1.000|3.2e-07|3.9e-02|2.3e+04| 1.116711e+04 -3.862907e+01| 0:0:00| chol  1✓
1
 3|1.000|1.000|1.6e-07|2.0e-02|5.0e+03| 2.875867e+03 -3.030141e+01| 0:0:00| chol  1✓
1
 4|1.000|1.000|3.8e-08|5.9e-03|7.5e+02| 5.272915e+02 -9.321800e+00| 0:0:00| chol  1✓
1
 5|0.978|0.980|9.3e-10|1.9e-03|5.7e+01| 4.449910e+01 -1.214953e+00| 0:0:00| chol  1✓
1
 6|1.000|1.000|2.3e-10|1.8e-04|2.5e+01| 2.354893e+01 -1.128504e+00| 0:0:00| chol  1✓
1
 7|0.920|0.967|1.4e-11|2.3e-05|2.0e+00| 1.111067e+00 -9.161043e-01| 0:0:00| chol  1✓
1
 8|0.939|0.989|5.1e-10|2.0e-06|1.0e+00| 1.630896e-01 -8.731905e-01| 0:0:00| chol  1✓
1
 9|1.000|0.731|5.4e-10|6.7e-07|5.3e-01|-3.391790e-01 -8.640987e-01| 0:0:00| chol  1✓
1
10|0.807|1.000|1.4e-10|1.8e-08|2.8e-01|-5.843158e-01 -8.604603e-01| 0:0:00| chol  1✓
1
11|1.000|1.000|1.7e-11|1.8e-09|9.8e-02|-7.575867e-01 -8.553775e-01| 0:0:00| chol  1✓
1
12|0.970|0.978|5.7e-12|2.2e-10|3.1e-03|-8.490183e-01 -8.520847e-01| 0:0:00| chol  1✓
1
13|0.983|0.987|6.9e-12|2.1e-11|5.2e-05|-8.519606e-01 -8.520123e-01| 0:0:00| chol  2✓
2
14|1.000|1.000|1.4e-11|1.4e-12|3.4e-06|-8.520079e-01 -8.520113e-01| 0:0:00| chol  2✓
2
15|1.000|1.000|1.2e-11|2.1e-12|8.8e-08|-8.520110e-01 -8.520111e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.52011039e-01
 dual   objective value = -8.52011124e-01
 gap := trace(XZ)       = 8.80e-08
 relative gap           = 3.25e-08
 actual relative gap    = 3.15e-08
 rel. primal infeas     = 1.24e-11
 rel. dual   infeas     = 2.07e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.6e+02, 8.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
```

```
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.6e-11  0.0e+00  2.8e-12  0.0e+00  3.2e-08  3.3e-08
-------------------------------------------------------------------
```

ans =

    0.8520

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|9.2e+00|2.3e+06| 7.941632e+04  0.000000e+00| 0:0:00| chol  1⤦
1
 1|1.000|0.981|4.0e-07|2.1e-01|1.9e+05| 6.479999e+04 -7.624575e+01| 0:0:00| chol  1⤦
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.4e+04| 1.135439e+04 -3.796589e+01| 0:0:00| chol  1⤦
1
 3|0.819|1.000|1.2e-07|2.0e-02|8.2e+03| 5.044427e+03 -3.349879e+01| 0:0:00| chol  1⤦
1
 4|0.763|1.000|6.2e-08|5.9e-03|3.7e+03| 2.934034e+03 -3.878574e+01| 0:0:00| chol  1⤦
1
 5|1.000|1.000|4.5e-10|1.8e-03|7.4e+02| 6.565818e+02 -8.190028e+00| 0:0:00| chol  1⤦
1
 6|0.960|0.973|4.4e-11|5.7e-04|3.6e+01| 3.301992e+01 -1.460928e+00| 0:0:00| chol  1⤦
1
 7|1.000|0.810|7.7e-11|1.5e-04|1.6e+01| 1.463637e+01 -9.695812e-01| 0:0:00| chol  1⤦
1
 8|0.874|1.000|1.5e-11|5.3e-06|4.8e+00| 3.882649e+00 -9.392477e-01| 0:0:00| chol  1⤦
1
 9|1.000|1.000|6.3e-12|5.3e-07|1.4e+00| 5.595543e-01 -8.681128e-01| 0:0:00| chol  1⤦
1
10|0.875|0.983|5.9e-12|6.1e-08|2.4e-01|-6.160851e-01 -8.523986e-01| 0:0:00| chol  1⤦
1
11|1.000|1.000|2.6e-10|5.3e-09|9.7e-02|-7.495926e-01 -8.463087e-01| 0:0:00| chol  1⤦
1
12|0.945|0.962|2.4e-12|7.1e-10|5.6e-03|-8.382405e-01 -8.438069e-01| 0:0:00| chol  2⤦
2
13|1.000|0.980|1.3e-12|6.7e-11|4.5e-04|-8.432377e-01 -8.436881e-01| 0:0:00| chol  1⤦
1
14|0.985|0.988|3.5e-11|7.1e-12|6.6e-06|-8.436630e-01 -8.436696e-01| 0:0:00| chol  3⤦
2
15|1.000|1.000|1.8e-11|1.5e-12|3.5e-07|-8.436690e-01 -8.436693e-01| 0:0:00| chol  3⤦
3
```

```
16|1.000|1.000|3.5e-11|2.2e-12|1.7e-08|-8.436693e-01 -8.436693e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.43669278e-01
 dual   objective value = -8.43669316e-01
 gap := trace(XZ)       = 1.73e-08
 relative gap           = 6.42e-09
 actual relative gap    = 1.42e-08
 rel. primal infeas     = 3.52e-11
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.7e+02, 8.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.6e-11  0.0e+00  3.1e-12  0.0e+00  1.4e-08  6.4e-09
-------------------------------------------------------------------

ans =

    0.8437

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|9.3e+00|2.3e+06| 8.009844e+04  0.000000e+00| 0:0:00| chol  1↙
1
 1|1.000|0.981|3.9e-07|2.2e-01|2.0e+05| 6.535278e+04 -7.733203e+01| 0:0:00| chol  1↙
1
 2|1.000|1.000|3.0e-07|3.9e-02|2.4e+04| 1.145392e+04 -3.811364e+01| 0:0:00| chol  1↙
1
 3|0.802|1.000|1.1e-07|2.0e-02|8.5e+03| 5.232977e+03 -3.381583e+01| 0:0:00| chol  1↙
1
 4|0.734|1.000|6.1e-08|5.9e-03|3.9e+03| 3.132968e+03 -4.012263e+01| 0:0:00| chol  1↙
1
 5|1.000|1.000|4.4e-10|1.8e-03|8.2e+02| 7.261508e+02 -9.006322e+00| 0:0:00| chol  1↙
1
 6|0.961|0.972|4.4e-11|5.7e-04|3.9e+01| 3.566690e+01 -1.495831e+00| 0:0:00| chol  1↙
1
 7|1.000|0.828|6.8e-11|1.4e-04|1.7e+01| 1.545840e+01 -9.743683e-01| 0:0:00| chol  1↙
1
 8|0.883|1.000|1.8e-11|5.3e-06|4.7e+00| 3.722341e+00 -9.390331e-01| 0:0:00| chol  1↙
1
```

```
  9|1.000|1.000|8.1e-12|5.3e-07|1.4e+00| 5.108322e-01 -8.676331e-01| 0:0:00| chol  1↙
1
 10|0.871|1.000|1.3e-12|5.3e-08|2.4e-01|-6.103444e-01 -8.546796e-01| 0:0:00| chol  1↙
1
 11|1.000|1.000|4.5e-11|5.3e-09|8.7e-02|-7.604045e-01 -8.475160e-01| 0:0:00| chol  1↙
1
 12|0.929|0.962|4.0e-11|7.1e-10|6.3e-03|-8.391069e-01 -8.454190e-01| 0:0:00| chol  2↙
2
 13|1.000|0.987|5.7e-12|6.4e-11|1.1e-03|-8.441921e-01 -8.453398e-01| 0:0:00| chol  1↙
1
 14|0.966|0.986|2.8e-11|7.3e-12|3.9e-05|-8.452595e-01 -8.452984e-01| 0:0:00| chol  2↙
2
 15|1.000|1.000|6.4e-11|1.7e-12|1.0e-05|-8.452874e-01 -8.452979e-01| 0:0:00| chol  2↙
2
 16|0.995|1.000|1.9e-11|2.6e-12|2.5e-07|-8.452972e-01 -8.452975e-01| 0:0:00|
   stop: max(relative gap, infeasibilities) < 1.00e-07
 ----------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.45297229e-01
 dual   objective value = -8.45297473e-01
 gap := trace(XZ)       = 2.46e-07
 relative gap           = 9.13e-08
 actual relative gap    = 9.09e-08
 rel. primal infeas     = 1.92e-11
 rel. dual   infeas     = 2.58e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.8e+02, 8.7e+02, 5.0e+01
 Total CPU time (secs)  = 0.09
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.5e-11  0.0e+00  3.5e-12  0.0e+00  9.1e-08  9.1e-08
 ----------------------------------------------------------------


ans =

    0.8453


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|9.2e+00|2.2e+06| 7.863208e+04  0.000000e+00| 0:0:00| chol  1↙
1
  1|1.000|0.981|3.8e-07|2.1e-01|1.9e+05| 6.416748e+04 -7.729982e+01| 0:0:00| chol  1↙
1
```

```
 2|1.000|1.000|3.0e-07|3.9e-02|2.3e+04| 1.112308e+04 -3.676794e+01| 0:0:00| chol  1↙
1
 3|0.972|1.000|1.5e-07|2.0e-02|5.8e+03| 3.399272e+03 -3.198751e+01| 0:0:00| chol  1↙
1
 4|1.000|1.000|4.9e-08|5.9e-03|2.0e+03| 1.510988e+03 -2.542566e+01| 0:0:00| chol  1↙
1
 5|0.957|0.984|2.2e-09|1.8e-03|1.6e+02| 1.305064e+02 -1.928589e+00| 0:0:00| chol  1↙
1
 6|1.000|1.000|1.3e-10|1.8e-04|4.0e+01| 3.803000e+01 -1.501474e+00| 0:0:00| chol  1↙
1
 7|0.895|0.895|1.2e-11|3.5e-05|4.7e+00| 3.716103e+00 -9.674308e-01| 0:0:00| chol  1↙
1
 8|0.928|1.000|5.9e-11|1.8e-06|1.9e+00| 9.676305e-01 -9.150003e-01| 0:0:00| chol  1↙
1
 9|1.000|1.000|6.5e-12|1.8e-07|6.6e-01|-2.355129e-01 -8.948213e-01| 0:0:00| chol  1↙
1
10|0.908|0.965|3.8e-12|2.3e-08|7.3e-02|-8.125744e-01 -8.859770e-01| 0:0:00| chol  1↙
1
11|1.000|0.973|4.9e-11|2.3e-09|3.3e-02|-8.493215e-01 -8.819538e-01| 0:0:00| chol  1↙
2
12|0.916|1.000|4.6e-12|1.8e-10|3.2e-03|-8.779821e-01 -8.812285e-01| 0:0:00| chol  2↙
2
13|0.995|0.990|3.3e-12|2.0e-11|1.0e-04|-8.810773e-01 -8.811810e-01| 0:0:00| chol  1↙
1
14|0.989|0.989|3.0e-11|1.2e-12|1.2e-06|-8.811759e-01 -8.811771e-01| 0:0:00| chol  2↙
2
15|1.000|0.999|2.2e-12|1.5e-12|1.4e-08|-8.811770e-01 -8.811770e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 15
 primal objective value = -8.81177026e-01
 dual   objective value = -8.81177046e-01
 gap := trace(XZ)        = 1.40e-08
 relative gap            = 5.08e-09
 actual relative gap     = 6.93e-09
 rel. primal infeas      = 2.25e-12
 rel. dual   infeas      = 1.50e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.6e+02, 8.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code        =  0
 DIMACS errors: 2.9e-12  0.0e+00  2.1e-12  0.0e+00  6.9e-09  5.1e-09
-------------------------------------------------------------------


ans =

    0.8812


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|9.2e+00|2.3e+06| 7.897969e+04  0.000000e+00| 0:0:00| chol  1
1
 1|1.000|0.981|4.1e-07|2.1e-01|1.9e+05| 6.444331e+04 -7.648501e+01| 0:0:00| chol  1
1
 2|1.000|0.999|3.0e-07|3.9e-02|2.4e+04| 1.129323e+04 -3.703782e+01| 0:0:00| chol  1
1
 3|0.802|1.000|1.0e-07|2.0e-02|8.3e+03| 5.108315e+03 -3.315897e+01| 0:0:00| chol  1
1
 4|0.794|1.000|6.7e-08|5.9e-03|3.6e+03| 2.875811e+03 -3.770276e+01| 0:0:00| chol  1
1
 5|1.000|1.000|3.8e-10|1.8e-03|7.2e+02| 6.348341e+02 -7.877702e+00| 0:0:00| chol  1
1
 6|0.960|0.972|3.7e-11|5.7e-04|3.6e+01| 3.239056e+01 -1.449563e+00| 0:0:00| chol  1
1
 7|1.000|0.817|6.7e-11|1.5e-04|1.6e+01| 1.435240e+01 -9.726497e-01| 0:0:00| chol  1
1
 8|0.878|1.000|1.5e-11|5.3e-06|4.8e+00| 3.806302e+00 -9.472942e-01| 0:0:00| chol  1
1
 9|1.000|1.000|4.3e-12|5.3e-07|1.4e+00| 5.087045e-01 -8.794921e-01| 0:0:00| chol  1
1
10|0.882|0.956|3.7e-12|7.4e-08|2.1e-01|-6.537265e-01 -8.638623e-01| 0:0:00| chol  1
2
11|1.000|1.000|2.7e-12|5.3e-09|8.5e-02|-7.723433e-01 -8.569853e-01| 0:0:00| chol  1
1
12|0.927|0.941|6.3e-11|8.2e-10|6.7e-03|-8.481062e-01 -8.547863e-01| 0:0:00| chol  2
2
13|1.000|0.988|2.0e-12|6.4e-11|3.8e-04|-8.542920e-01 -8.546691e-01| 0:0:00| chol  2
2
14|0.985|0.988|8.9e-12|7.0e-12|5.6e-06|-8.546480e-01 -8.546536e-01| 0:0:00| chol  2
2
15|1.000|1.000|2.5e-11|1.5e-12|3.3e-07|-8.546531e-01 -8.546534e-01| 0:0:00| chol  3
3
16|1.000|1.000|5.0e-11|2.3e-12|1.7e-08|-8.546534e-01 -8.546534e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations  = 16
 primal objective value = -8.54653366e-01
 dual   objective value = -8.54653386e-01
 gap := trace(XZ)        = 1.66e-08
 relative gap            = 6.13e-09
 actual relative gap     = 7.61e-09
 rel. primal infeas      = 4.99e-11
 rel. dual   infeas      = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.7e+02, 8.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.10
```

```
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.5e-11  0.0e+00  3.1e-12  0.0e+00  7.6e-09  6.1e-09
 -------------------------------------------------------------------


ans =

    0.8547


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|9.2e+00|2.3e+06| 7.903566e+04  0.000000e+00| 0:0:00| chol  1
1
  1|1.000|0.981|4.1e-07|2.1e-01|1.9e+05| 6.448863e+04 -7.687429e+01| 0:0:00| chol  1
1
  2|1.000|0.999|3.0e-07|3.9e-02|2.4e+04| 1.129804e+04 -3.699462e+01| 0:0:00| chol  1
1
  3|0.803|1.000|1.0e-07|2.0e-02|8.3e+03| 5.085155e+03 -3.318120e+01| 0:0:00| chol  1
1
  4|0.811|1.000|6.9e-08|5.9e-03|3.5e+03| 2.812273e+03 -3.730812e+01| 0:0:00| chol  1
1
  5|1.000|1.000|3.6e-10|1.8e-03|6.9e+02| 6.127760e+02 -7.625330e+00| 0:0:00| chol  1
1
  6|0.959|0.972|3.6e-11|5.7e-04|3.5e+01| 3.192550e+01 -1.441673e+00| 0:0:00| chol  1
1
  7|1.000|0.812|6.6e-11|1.5e-04|1.5e+01| 1.424915e+01 -9.726474e-01| 0:0:00| chol  1
1
  8|0.877|1.000|1.5e-11|5.3e-06|4.8e+00| 3.803718e+00 -9.494156e-01| 0:0:00| chol  1
1
  9|1.000|1.000|3.8e-12|5.3e-07|1.4e+00| 5.006440e-01 -8.822548e-01| 0:0:00| chol  1
1
 10|0.883|0.950|1.7e-12|7.7e-08|2.0e-01|-6.617772e-01 -8.665432e-01| 0:0:00| chol  1
1
 11|1.000|1.000|8.0e-11|5.3e-09|8.2e-02|-7.770640e-01 -8.594198e-01| 0:0:00| chol  1
1
 12|0.922|0.939|5.4e-11|8.3e-10|7.1e-03|-8.502031e-01 -8.572843e-01| 0:0:00| chol  2
2
 13|1.000|0.992|2.8e-12|6.2e-11|3.8e-04|-8.567912e-01 -8.571706e-01| 0:0:00| chol  1
1
 14|0.984|0.988|4.3e-11|7.0e-12|5.9e-06|-8.571494e-01 -8.571553e-01| 0:0:00| chol  2
3
 15|1.000|1.000|1.7e-11|1.5e-12|4.1e-07|-8.571547e-01 -8.571551e-01| 0:0:00| chol  3
3
```

```
16|1.000|1.000|7.8e-11|2.3e-12|2.0e-08|-8.571551e-01 -8.571551e-01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 16
 primal objective value = -8.57155060e-01
 dual   objective value = -8.57155091e-01
 gap := trace(XZ)       = 1.96e-08
 relative gap           = 7.21e-09
 actual relative gap    = 1.15e-08
 rel. primal infeas     = 7.85e-11
 rel. dual   infeas     = 2.25e-12
 norm(X), norm(y), norm(Z) = 2.5e+01, 6.8e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.7e+02, 8.6e+02, 5.0e+01
 Total CPU time (secs)  = 0.08
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.0e-10  0.0e+00  3.1e-12  0.0e+00  1.2e-08  7.2e-09
-------------------------------------------------------------------

ans =

    0.8572

>>
```