```
>> learn_from_data
    [1x16 double]    [1x16 double]

Epoch... 1
Epoch... 2

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.6e+01|1.3e+06| 7.339537e+03  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.985|1.4e-07|2.9e-01|3.3e+04| 7.902334e+03 -1.441731e+02| 0:0:00| chol  1  1
 2|1.000|0.900|2.7e-07|4.6e-02|5.7e+03| 3.292153e+03 -1.335110e+01| 0:0:00| chol  1  1
 3|0.661|0.906|1.3e-07|9.8e-03|2.1e+03| 1.666929e+03 -2.716371e+01| 0:0:00| chol  1  1
 4|0.898|0.872|9.9e-08|2.8e-03|4.3e+02| 3.240325e+02 -1.766106e+01| 0:0:00| chol  2  1
 5|0.333|0.497|6.7e-08|1.7e-03|3.5e+02| 2.584379e+02 -1.665347e+01| 0:0:00| chol  2  2
 6|0.557|0.381|4.4e-08|1.1e-03|2.7e+02| 1.738012e+02 -1.657439e+01| 0:0:00| chol  1  2
 7|0.731|0.639|1.6e-08|4.3e-04|1.7e+02| 1.093443e+02 -2.252872e+01| 0:0:00| chol  1  2
 8|0.726|0.909|1.2e-08|5.3e-05|9.1e+01| 6.420099e+01 -2.065506e+01| 0:0:00| chol  2  2
 9|0.812|0.817|7.3e-09|1.6e-05|5.4e+01| 3.053686e+01 -2.045692e+01| 0:0:00| chol  2  2
10|0.985|0.921|1.8e-09|4.6e-06|2.0e+01| 2.712291e+00 -1.679623e+01| 0:0:00| chol  2  2
11|1.000|1.000|3.5e-10|1.8e-06|8.0e+00|-8.217007e+00 -1.607979e+01| 0:0:00| chol  2  2
12|1.000|1.000|9.4e-11|5.5e-07|1.6e+00|-1.420123e+01 -1.573697e+01| 0:0:00| chol  2  2
13|1.000|0.916|1.0e-10|2.0e-07|3.5e-01|-1.524058e+01 -1.558562e+01| 0:0:00| chol  2  2
14|0.978|0.930|6.5e-11|6.0e-08|2.9e-02|-1.552731e+01 -1.555507e+01| 0:0:00| chol  2  2
15|0.966|0.901|6.2e-10|2.0e-08|1.5e-03|-1.555097e+01 -1.555206e+01| 0:0:00| chol  3  3
16|1.000|0.834|3.1e-09|3.3e-09|5.6e-04|-1.555159e+01 -1.555209e+01| 0:0:00| chol  3  3
17|1.000|1.000|1.5e-09|2.9e-11|6.0e-05|-1.555201e+01 -1.555207e+01| 0:0:00| chol  3  3
18|0.998|0.997|6.7e-11|4.2e-12|9.0e-07|-1.555206e+01 -1.555206e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -1.55520591e+01
 dual   objective value = -1.55520599e+01
 gap := trace(XZ)       = 8.99e-07
 relative gap           = 2.80e-08
 actual relative gap    = 2.62e-08
 rel. primal infeas     = 6.75e-11
 rel. dual   infeas     = 4.17e-12
 norm(X), norm(y), norm(Z) = 2.0e+03, 4.9e+01, 2.5e+01
 norm(A), norm(b), norm(C) = 7.7e+02, 1.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.24
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.4e-10  0.0e+00  5.7e-12  0.0e+00  2.6e-08  2.8e-08
-------------------------------------------------------------------

ans =
```

```
   15.5521

Epoch... 3
Epoch... 4

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|6.9e+06| 4.254490e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.987|1.8e-07|6.9e-01|1.8e+05| 4.194711e+04 -6.391440e+02| 0:0:00| chol  1  1
 2|1.000|0.810|8.3e-08|1.6e-01|4.4e+04| 1.695529e+04 -1.243052e+02| 0:0:00| chol  1  1
 3|0.612|1.000|7.5e-08|2.8e-02|1.6e+04| 1.008776e+04 -2.448520e+02| 0:0:00| chol  1  1
 4|0.902|0.903|1.3e-08|1.0e-02|2.3e+03| 1.369842e+03 -7.693793e+01| 0:0:00| chol  1  1
 5|0.847|0.858|2.0e-09|3.6e-03|1.3e+03| 9.443812e+02 -8.236961e+01| 0:0:00| chol  2  1
 6|1.000|0.618|3.2e-09|1.9e-03|7.3e+02| 4.590398e+02 -2.500446e+01| 0:0:00| chol  1  2
 7|1.000|0.970|3.5e-10|4.2e-04|2.2e+02| 1.478678e+02 -2.687739e+01| 0:0:00| chol  2  1
 8|1.000|0.879|6.0e-10|2.2e-04|7.0e+01| 4.504921e+01 -8.888291e+00| 0:0:00| chol  2  2
 9|1.000|1.000|7.1e-11|5.7e-05|2.7e+01| 1.773422e+01 -6.014442e+00| 0:0:00| chol  2  2
10|1.000|0.801|1.5e-11|2.5e-05|6.5e+00| 6.648424e-01 -5.074126e+00| 0:0:00| chol  2  2
11|0.891|0.904|2.3e-12|7.0e-06|1.5e+00|-3.457600e+00 -4.809684e+00| 0:0:00| chol  2  2
12|0.928|0.947|4.8e-12|1.8e-06|2.1e-01|-4.579174e+00 -4.749233e+00| 0:0:00| chol  2  1
13|0.985|0.892|8.9e-10|6.1e-07|2.4e-02|-4.750777e+00 -4.761483e+00| 0:0:00| chol  2  2
14|0.968|0.931|1.0e-10|1.7e-07|1.6e-03|-4.770497e+00 -4.768243e+00| 0:0:00| chol  2  2
15|0.999|0.897|2.2e-10|5.5e-08|2.4e-04|-4.771628e+00 -4.770634e+00| 0:0:00| chol  2  2
16|0.938|1.000|9.6e-10|3.4e-12|8.4e-05|-4.771752e+00 -4.771835e+00| 0:0:00| chol  3  3
17|1.000|1.000|2.1e-11|5.1e-12|2.0e-06|-4.771827e+00 -4.771829e+00| 0:0:00| chol  8  7
18|1.000|0.993|4.8e-11|1.6e-13|3.1e-08|-4.771829e+00 -4.771829e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -4.77182867e+00
 dual   objective value = -4.77182870e+00
 gap := trace(XZ)       = 3.15e-08
 relative gap           = 2.98e-09
 actual relative gap    = 2.82e-09
 rel. primal infeas     = 4.76e-11
 rel. dual   infeas     = 1.61e-13
 norm(X), norm(y), norm(Z) = 2.2e+03, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 4.1e+03, 6.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.5e-11  0.0e+00  2.2e-13  0.0e+00  2.8e-09  3.0e-09
-------------------------------------------------------------------

ans =

    4.7718
```

```
Epoch... 5
Epoch... 6

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|7.6e+06| 4.557974e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.987|1.7e-07|7.5e-01|2.0e+05| 4.493120e+04 -6.902599e+02| 0:0:00| chol  1  1
 2|1.000|0.808|8.8e-08|1.7e-01|4.8e+04| 1.861014e+04 -1.381399e+02| 0:0:00| chol  1  1
 3|0.607|1.000|8.7e-08|2.8e-02|1.8e+04| 1.119283e+04 -2.639916e+02| 0:0:00| chol  1  1
 4|0.935|0.923|1.4e-08|1.5e-02|2.7e+03| 1.546916e+03 -7.626222e+01| 0:0:00| chol  1  1
 5|0.898|0.968|1.5e-09|4.6e-03|1.2e+03| 8.568199e+02 -6.000854e+01| 0:0:00| chol  2  2
 6|1.000|0.684|1.0e-09|2.3e-03|5.4e+02| 3.414317e+02 -2.327552e+01| 0:0:00| chol  2  2
 7|1.000|1.000|3.7e-10|3.8e-04|1.7e+02| 1.240338e+02 -1.771404e+01| 0:0:00| chol  1  2
 8|0.807|1.000|3.1e-10|1.1e-04|7.4e+01| 5.633900e+01 -8.209844e+00| 0:0:00| chol  2  2
 9|1.000|1.000|1.3e-10|3.4e-05|3.2e+01| 2.337425e+01 -5.937969e+00| 0:0:00| chol  2  2
10|0.987|0.773|3.8e-11|1.6e-05|5.9e+00| 9.994349e-01 -4.405095e+00| 0:0:00| chol  2  2
11|0.950|0.891|5.0e-12|4.5e-06|1.8e+00|-2.317794e+00 -3.961137e+00| 0:0:00| chol  2  2
12|0.979|0.910|8.5e-12|1.2e-06|1.6e-01|-3.699508e+00 -3.830772e+00| 0:0:00| chol  2  2
13|0.918|0.890|8.5e-11|3.8e-07|2.6e-02|-3.807984e+00 -3.826427e+00| 0:0:00| chol  2  2
14|0.879|0.976|2.0e-11|9.0e-08|3.2e-03|-3.827561e+00 -3.828864e+00| 0:0:00| chol  2  2
15|0.982|0.979|2.1e-10|2.6e-08|5.9e-05|-3.830509e+00 -3.830025e+00| 0:0:00| chol  3  3
16|1.000|1.000|5.5e-09|5.1e-12|1.3e-05|-3.830557e+00 -3.830566e+00| 0:0:00| chol  5  5
17|1.000|1.000|2.4e-10|1.7e-12|3.8e-07|-3.830564e+00 -3.830565e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 17
 primal objective value = -3.83056419e+00
 dual   objective value = -3.83056491e+00
 gap := trace(XZ)       = 3.77e-07
 relative gap           = 4.35e-08
 actual relative gap    = 8.32e-08
 rel. primal infeas     = 2.45e-10
 rel. dual   infeas     = 1.66e-12
 norm(X), norm(y), norm(Z) = 2.0e+03, 6.5e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 4.4e+03, 6.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.0e-10  0.0e+00  2.3e-12  0.0e+00  8.3e-08  4.4e-08
-------------------------------------------------------------------

ans =

    3.8306

Epoch... 7
```

```
Epoch... 8

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|8.4e+06| 4.925873e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.987|1.8e-07|8.2e-01|2.2e+05| 4.853366e+04 -7.151398e+02| 0:0:00| chol  1  1
 2|1.000|0.806|9.6e-08|1.8e-01|5.5e+04| 2.102492e+04 -1.622405e+02| 0:0:00| chol  1  1
 3|0.606|1.000|1.0e-07|2.8e-02|2.0e+04| 1.275939e+04 -2.879634e+02| 0:0:00| chol  1  1
 4|0.975|1.000|1.3e-08|1.4e-02|3.2e+03| 1.882602e+03 -9.248444e+01| 0:0:00| chol  1  1
 5|0.772|0.993|3.1e-09|4.3e-03|1.4e+03| 1.043492e+03 -5.763343e+01| 0:0:00| chol  1  2
 6|1.000|0.694|1.1e-09|2.2e-03|6.6e+02| 4.263612e+02 -2.527289e+01| 0:0:00| chol  2  1
 7|1.000|0.999|9.2e-10|3.8e-04|2.8e+02| 2.146380e+02 -2.378803e+01| 0:0:00| chol  2  2
 8|0.717|1.000|4.5e-10|1.1e-04|1.3e+02| 1.026900e+02 -1.341587e+01| 0:0:00| chol  2  2
 9|1.000|1.000|4.3e-10|3.4e-05|5.2e+01| 4.199159e+01 -5.675078e+00| 0:0:00| chol  2  2
10|0.843|1.000|1.6e-10|1.7e-05|1.9e+01| 1.303820e+01 -4.635022e+00| 0:0:00| chol  2  2
11|1.000|0.790|4.6e-11|7.7e-06|6.7e+00| 2.618489e+00 -3.780230e+00| 0:0:00| chol  2  2
12|0.926|0.973|6.7e-12|1.7e-06|1.4e+00|-2.056129e+00 -3.385467e+00| 0:0:00| chol  2  2
13|0.938|0.823|7.3e-12|6.8e-07|1.8e-01|-3.128612e+00 -3.297332e+00| 0:0:00| chol  2  2
14|1.000|0.989|3.7e-12|1.4e-07|2.5e-02|-3.262663e+00 -3.284531e+00| 0:0:00| chol  2  2
15|0.930|0.900|3.4e-11|5.2e-08|2.0e-03|-3.283473e+00 -3.284404e+00| 0:0:00| chol  2  2
16|0.973|0.998|2.8e-10|1.3e-08|1.6e-04|-3.285099e+00 -3.285009e+00| 0:0:00| chol  2  2
17|0.978|0.982|1.6e-09|2.3e-10|3.6e-06|-3.285247e+00 -3.285246e+00| 0:0:00| chol  6  7
18|1.000|1.000|4.1e-09|1.4e-12|3.1e-07|-3.285246e+00 -3.285250e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -3.28524636e+00
 dual   objective value = -3.28525000e+00
 gap := trace(XZ)       = 3.11e-07
 relative gap           = 4.10e-08
 actual relative gap    = 4.81e-07
 rel. primal infeas     = 4.05e-09
 rel. dual   infeas     = 1.41e-12
 norm(X), norm(y), norm(Z) = 1.9e+03, 6.6e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 4.7e+03, 6.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 8.5e-09  0.0e+00  1.9e-12  0.0e+00  4.8e-07  4.1e-08
-------------------------------------------------------------------

ans =

    3.2853

Epoch... 9
Epoch... 10
```

```
 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|9.2e+06| 5.259707e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|1.8e-07|8.8e-01|2.4e+05| 5.181369e+04 -6.985310e+02| 0:0:00| chol  1  1
 2|1.000|0.806|1.1e-07|2.0e-01|6.2e+04| 2.375821e+04 -1.863612e+02| 0:0:00| chol  1  1
 3|0.608|1.000|1.1e-07|2.8e-02|2.3e+04| 1.451851e+04 -3.117644e+02| 0:0:00| chol  1  1
 4|1.000|1.000|1.4e-08|1.4e-02|4.2e+03| 2.494254e+03 -1.265558e+02| 0:0:00| chol  1  1
 5|0.839|0.896|2.5e-09|5.3e-03|1.6e+03| 1.137096e+03 -4.251599e+01| 0:0:00| chol  1  2
 6|0.876|0.886|6.8e-10|1.7e-03|8.2e+02| 6.063508e+02 -2.857159e+01| 0:0:00| chol  2  2
 7|1.000|1.000|5.5e-10|3.8e-04|3.3e+02| 2.505209e+02 -2.970375e+01| 0:0:00| chol  1  2
 8|0.852|1.000|7.0e-10|1.9e-04|1.4e+02| 1.027006e+02 -1.171311e+01| 0:0:00| chol  2  2
 9|1.000|1.000|2.0e-10|9.5e-05|6.1e+01| 4.561959e+01 -6.259619e+00| 0:0:00| chol  2  2
10|0.978|1.000|2.7e-11|2.9e-05|1.7e+01| 1.119790e+01 -4.039716e+00| 0:0:00| chol  2  2
11|1.000|0.887|1.3e-11|1.1e-05|5.5e+00| 1.839203e+00 -3.315858e+00| 0:0:00| chol  2  2
12|0.892|0.966|5.0e-12|2.8e-06|9.3e-01|-2.158507e+00 -3.024420e+00| 0:0:00| chol  2  2
13|0.971|0.929|6.6e-12|9.2e-07|1.3e-01|-2.882124e+00 -2.994320e+00| 0:0:00| chol  2  2
14|0.991|0.914|1.0e-10|2.9e-07|1.6e-02|-2.985777e+00 -2.995942e+00| 0:0:00| chol  2  2
15|0.936|0.933|6.4e-11|8.4e-08|1.1e-03|-2.998540e+00 -2.998049e+00| 0:0:00| chol  2  2
16|1.000|1.000|1.9e-10|2.1e-08|2.7e-04|-2.999279e+00 -2.999153e+00| 0:0:00| chol  2  2
17|0.980|0.974|7.2e-10|5.4e-10|5.8e-06|-2.999522e+00 -2.999518e+00| 0:0:00| chol  4  5
18|0.991|0.996|2.9e-10|2.8e-12|1.3e-07|-2.999528e+00 -2.999528e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -2.99952787e+00
 dual   objective value = -2.99952797e+00
 gap := trace(XZ)       = 1.35e-07
 relative gap           = 1.93e-08
 actual relative gap    = 1.38e-08
 rel. primal infeas     = 2.90e-10
 rel. dual   infeas     = 2.84e-12
 norm(X), norm(y), norm(Z) = 1.9e+03, 6.6e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 4.9e+03, 6.0e+03, 4.8e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.4e-10  0.0e+00  3.9e-12  0.0e+00  1.4e-08  1.9e-08
-------------------------------------------------------------------

ans =

    2.9995

Epoch... 11
Epoch... 12
```

```
 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|9.9e+06| 5.550279e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|1.9e-07|9.4e-01|2.7e+05| 5.467236e+04 -6.318605e+02| 0:0:00| chol  1  1
 2|1.000|0.810|1.2e-07|2.0e-01|7.1e+04| 2.690488e+04 -2.127344e+02| 0:0:00| chol  1  1
 3|0.615|1.000|1.2e-07|2.8e-02|2.6e+04| 1.645996e+04 -3.349059e+02| 0:0:00| chol  1  1
 4|1.000|1.000|1.7e-08|1.4e-02|5.6e+03| 3.460687e+03 -1.595285e+02| 0:0:00| chol  1  2
 5|0.776|0.784|4.1e-09|6.4e-03|2.1e+03| 1.354096e+03 -5.164685e+01| 0:0:00| chol  1  1
 6|0.924|0.967|6.4e-10|1.4e-03|9.6e+02| 7.457016e+02 -3.455992e+01| 0:0:00| chol  2  2
 7|1.000|1.000|1.6e-09|6.3e-04|4.1e+02| 2.980726e+02 -2.786231e+01| 0:0:00| chol  2  2
 8|0.904|0.927|6.2e-10|3.4e-04|1.5e+02| 1.051024e+02 -1.113280e+01| 0:0:00| chol  1  2
 9|1.000|1.000|1.0e-10|9.5e-05|6.7e+01| 5.051007e+01 -7.312299e+00| 0:0:00| chol  2  2
10|1.000|1.000|5.5e-11|2.9e-05|2.0e+01| 1.415600e+01 -3.677761e+00| 0:0:00| chol  2  2
11|1.000|0.837|3.0e-11|1.2e-05|5.5e+00| 2.121939e+00 -2.987641e+00| 0:0:00| chol  2  2
12|0.957|0.985|4.0e-12|2.7e-06|1.1e+00|-1.660122e+00 -2.739704e+00| 0:0:00| chol  2  2
13|0.923|0.830|8.3e-12|1.1e-06|1.5e-01|-2.523292e+00 -2.659640e+00| 0:0:00| chol  2  2
14|1.000|0.949|7.6e-11|2.8e-07|2.6e-02|-2.632186e+00 -2.653988e+00| 0:0:00| chol  2  2
15|0.983|0.982|8.3e-12|7.3e-08|4.6e-04|-2.654953e+00 -2.654234e+00| 0:0:00| chol  2  2
16|0.969|0.916|1.7e-10|6.1e-09|2.9e-05|-2.655333e+00 -2.655264e+00| 0:0:00| chol  2  2
17|1.000|1.000|1.2e-09|2.5e-12|3.2e-06|-2.655353e+00 -2.655357e+00| 0:0:00| chol  5  5
18|1.000|1.000|1.0e-10|4.5e-13|7.9e-08|-2.655357e+00 -2.655357e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -2.65535674e+00
 dual   objective value = -2.65535668e+00
 gap := trace(XZ)       = 7.93e-08
 relative gap           = 1.26e-08
 actual relative gap    = -9.54e-09
 rel. primal infeas     = 1.02e-10
 rel. dual   infeas     = 4.48e-13
 norm(X), norm(y), norm(Z) = 1.6e+03, 6.6e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 4.9e+03, 5.8e+03, 4.8e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.4e-10  0.0e+00  6.2e-13  0.0e+00  -9.5e-09  1.3e-08
-------------------------------------------------------------------

ans =

    2.6554

Epoch... 13
Epoch... 14

 num. of constraints = 33
```

```
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|1.1e+07| 5.887115e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.985|1.9e-07|9.9e-01|3.0e+05| 5.797850e+04 -5.757534e+02| 0:0:00| chol  1  1
 2|1.000|0.817|1.4e-07|2.0e-01|8.0e+04| 3.028759e+04 -2.390434e+02| 0:0:00| chol  1  1
 3|0.629|1.000|1.1e-07|2.8e-02|2.8e+04| 1.832260e+04 -3.579863e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.2e-08|1.4e-02|6.9e+03| 4.318170e+03 -1.862674e+02| 0:0:00| chol  1  2
 5|0.802|0.809|5.1e-09|8.4e-03|2.3e+03| 1.475117e+03 -5.433305e+01| 0:0:00| chol  1  1
 6|1.000|0.959|1.1e-10|2.4e-03|1.0e+03| 7.333161e+02 -3.229244e+01| 0:0:00| chol  2  2
 7|1.000|0.939|8.4e-10|7.4e-04|3.9e+02| 2.771234e+02 -2.664430e+01| 0:0:00| chol  2  2
 8|0.768|1.000|3.8e-10|1.9e-04|1.7e+02| 1.380577e+02 -1.531299e+01| 0:0:00| chol  2  2
 9|1.000|0.977|4.0e-10|6.0e-05|7.7e+01| 6.216343e+01 -6.109020e+00| 0:0:00| chol  2  2
10|0.779|1.000|9.7e-11|2.9e-05|3.4e+01| 2.608504e+01 -5.078809e+00| 0:0:00| chol  2  2
11|1.000|0.856|2.8e-10|1.1e-05|1.3e+01| 8.659103e+00 -3.166866e+00| 0:0:00| chol  2  2
12|0.800|1.000|6.0e-11|2.6e-06|3.6e+00| 6.046843e-01 -2.884638e+00| 0:0:00| chol  2  2
13|0.836|1.000|3.5e-11|7.7e-07|9.9e-01|-1.658231e+00 -2.633370e+00| 0:0:00| chol  2  2
14|0.937|0.908|1.6e-11|2.8e-07|1.1e-01|-2.479868e+00 -2.589030e+00| 0:0:00| chol  2  2
15|0.897|0.963|1.3e-10|7.7e-08|2.6e-02|-2.562258e+00 -2.586661e+00| 0:0:00| chol  2  2
16|0.969|0.983|1.3e-11|2.2e-08|8.1e-04|-2.585728e+00 -2.586082e+00| 0:0:00| chol  2  2
17|0.927|1.000|2.1e-09|6.2e-09|9.4e-05|-2.586413e+00 -2.586377e+00| 0:0:00| chol  3  3
18|1.000|1.000|1.6e-08|4.0e-12|1.7e-05|-2.586496e+00 -2.586504e+00| 0:0:00| chol  5  4
19|0.993|1.000|7.9e-10|2.5e-12|5.8e-07|-2.586504e+00 -2.586503e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -2.58650364e+00
 dual   objective value = -2.58650281e+00
 gap := trace(XZ)       = 5.80e-07
 relative gap           = 9.40e-08
 actual relative gap    = -1.34e-07
 rel. primal infeas     = 7.89e-10
 rel. dual   infeas     = 2.54e-12
 norm(X), norm(y), norm(Z) = 2.1e+03, 6.7e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 5.0e+03, 5.9e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.9e-09  0.0e+00  3.5e-12  0.0e+00  -1.3e-07  9.4e-08
-------------------------------------------------------------------

ans =

    2.5865

Epoch... 15
Epoch... 16

 num. of constraints = 33
```

```
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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|6.5e+01|1.2e+07| 6.134643e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.984|2.0e-07|1.1e+00|3.2e+05| 6.042202e+04 -5.758621e+02| 0:0:00| chol  1  1
 2|1.000|0.823|1.5e-07|2.1e-01|8.5e+04| 3.245806e+04 -2.548835e+02| 0:0:00| chol  1  1
 3|0.643|1.000|1.2e-07|2.8e-02|3.0e+04| 1.938697e+04 -3.699956e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.6e-08|1.4e-02|7.9e+03| 4.973605e+03 -2.043651e+02| 0:0:00| chol  1  1
 5|0.790|0.796|6.4e-09|8.5e-03|2.5e+03| 1.603825e+03 -5.988037e+01| 0:0:00| chol  2  2
 6|1.000|0.978|3.8e-10|2.3e-03|1.1e+03| 8.118901e+02 -3.330923e+01| 0:0:00| chol  1  1
 7|1.000|1.000|1.1e-09|6.3e-04|4.4e+02| 3.315890e+02 -2.990844e+01| 0:0:00| chol  2  2
 8|0.813|1.000|3.8e-10|3.2e-04|2.1e+02| 1.543645e+02 -1.659449e+01| 0:0:00| chol  2  2
 9|1.000|1.000|3.0e-10|9.5e-05|8.9e+01| 7.019501e+01 -6.896634e+00| 0:0:00| chol  2  2
10|0.850|1.000|8.1e-11|4.8e-05|3.6e+01| 2.650078e+01 -5.277769e+00| 0:0:00| chol  2  2
11|1.000|1.000|1.1e-10|1.4e-05|1.3e+01| 9.395220e+00 -2.758383e+00| 0:0:00| chol  2  2
12|0.973|1.000|5.2e-12|4.3e-06|2.2e+00|-4.821683e-01 -2.583092e+00| 0:0:00| chol  2  2
13|0.955|0.963|8.5e-12|1.4e-06|4.4e-01|-1.953560e+00 -2.371048e+00| 0:0:00| chol  2  2
14|0.905|0.892|1.6e-12|4.9e-07|6.4e-02|-2.296874e+00 -2.353827e+00| 0:0:00| chol  2  2
15|0.974|0.970|8.1e-11|1.3e-07|6.2e-03|-2.350197e+00 -2.354582e+00| 0:0:00| chol  2  2
16|0.974|0.973|2.8e-11|3.7e-08|1.7e-04|-2.355697e+00 -2.355336e+00| 0:0:00| chol  2  2
17|0.995|1.000|5.0e-10|2.3e-12|1.3e-05|-2.355839e+00 -2.355851e+00| 0:0:00| chol  3  4
18|0.996|0.997|1.5e-11|1.1e-12|1.6e-07|-2.355850e+00 -2.355850e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -2.35584988e+00
 dual   objective value = -2.35585003e+00
 gap := trace(XZ)       = 1.64e-07
 relative gap           = 2.87e-08
 actual relative gap    = 2.59e-08
 rel. primal infeas     = 1.49e-11
 rel. dual   infeas     = 1.05e-12
 norm(X), norm(y), norm(Z) = 1.4e+03, 6.6e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 5.2e+03, 5.9e+03, 4.8e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.8e-11  0.0e+00  1.4e-12  0.0e+00  2.6e-08  2.9e-08
-------------------------------------------------------------------

ans =

    2.3559

Epoch... 17
Epoch... 18

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
```

```
 dim. of linear var  = 116
*******************************************************************
   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+01|1.2e+07| 6.316412e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.984|2.2e-07|1.1e+00|3.3e+05| 6.223412e+04 -6.009500e+02| 0:0:00| chol  1  1
 2|1.000|0.826|1.6e-07|2.2e-01|8.9e+04| 3.376168e+04 -2.612918e+02| 0:0:00| chol  1  1
 3|0.649|1.000|1.2e-07|2.8e-02|3.1e+04| 2.008348e+04 -3.785475e+02| 0:0:00| chol  1  1
 4|1.000|1.000|3.1e-08|1.4e-02|8.5e+03| 5.412624e+03 -2.150309e+02| 0:0:00| chol  1  2
 5|0.785|0.793|7.5e-09|8.5e-03|2.6e+03| 1.680241e+03 -6.280588e+01| 0:0:00| chol  2  1
 6|0.980|0.976|2.3e-10|2.3e-03|1.2e+03| 8.769393e+02 -3.350513e+01| 0:0:00| chol  2  2
 7|1.000|1.000|7.2e-10|6.3e-04|5.0e+02| 3.788129e+02 -3.424721e+01| 0:0:00| chol  1  2
 8|1.000|0.982|6.0e-10|3.2e-04|2.1e+02| 1.506714e+02 -1.497196e+01| 0:0:00| chol  2  2
 9|0.639|1.000|3.1e-10|1.6e-04|1.3e+02| 9.686663e+01 -1.076015e+01| 0:0:00| chol  2  2
10|1.000|1.000|4.0e-11|4.8e-05|5.5e+01| 4.293229e+01 -5.804792e+00| 0:0:00| chol  2  2
11|0.956|0.998|1.3e-10|2.4e-05|1.4e+01| 9.229670e+00 -3.029463e+00| 0:0:00| chol  2  2
12|0.835|0.846|2.5e-11|9.7e-06|4.4e+00| 9.873235e-01 -3.065406e+00| 0:0:00| chol  2  2
13|1.000|0.979|2.0e-11|2.3e-06|6.7e-01|-2.182852e+00 -2.792280e+00| 0:0:00| chol  2  2
14|0.985|0.881|1.2e-10|8.4e-07|5.7e-02|-2.738432e+00 -2.775791e+00| 0:0:00| chol  2  2
15|1.000|0.933|9.3e-11|2.4e-07|1.1e-02|-2.776519e+00 -2.781760e+00| 0:0:00| chol  2  2
16|0.953|0.892|6.8e-11|7.7e-08|9.2e-04|-2.785266e+00 -2.784393e+00| 0:0:00| chol  2  2
17|1.000|1.000|4.0e-10|1.7e-08|2.6e-04|-2.785791e+00 -2.785642e+00| 0:0:00| chol  2  2
18|0.984|0.982|2.5e-09|3.3e-10|4.7e-06|-2.786021e+00 -2.786018e+00| 0:0:00| chol  4  4
19|1.000|0.992|5.6e-10|3.0e-12|1.1e-07|-2.786025e+00 -2.786025e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -2.78602459e+00
 dual   objective value = -2.78602479e+00
 gap := trace(XZ)       = 1.13e-07
 relative gap           = 1.73e-08
 actual relative gap    = 2.93e-08
 rel. primal infeas     = 5.62e-10
 rel. dual   infeas     = 3.03e-12
 norm(X), norm(y), norm(Z) = 2.4e+03, 6.8e+01, 5.1e+01
 norm(A), norm(b), norm(C) = 5.4e+03, 5.9e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.5e-09  0.0e+00  4.2e-12  0.0e+00  2.9e-08  1.7e-08
-------------------------------------------------------------------

ans =

    2.7860

Epoch... 19
Epoch... 20

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
```

```
 dim. of linear var  = 116
*****************************************************************
   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|7.1e+01|1.2e+07| 6.245076e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.984|2.4e-07|1.2e+00|3.3e+05| 6.158164e+04 -6.366603e+02| 0:0:00| chol  1  1
 2|1.000|0.827|1.7e-07|2.2e-01|8.8e+04| 3.328590e+04 -2.557233e+02| 0:0:00| chol  1  1
 3|0.650|1.000|1.2e-07|2.8e-02|3.1e+04| 1.980528e+04 -3.703319e+02| 0:0:00| chol  1  1
 4|1.000|1.000|3.3e-08|1.4e-02|8.5e+03| 5.419945e+03 -2.128568e+02| 0:0:00| chol  1  1
 5|0.782|0.792|8.0e-09|8.5e-03|2.6e+03| 1.652220e+03 -6.222672e+01| 0:0:00| chol  2  1
 6|0.961|0.945|2.9e-10|2.5e-03|1.2e+03| 8.860478e+02 -3.258328e+01| 0:0:00| chol  2  1
 7|1.000|1.000|1.4e-09|6.3e-04|5.2e+02| 3.941285e+02 -3.453869e+01| 0:0:00| chol  1  2
 8|1.000|1.000|5.9e-10|3.2e-04|2.1e+02| 1.484538e+02 -1.576055e+01| 0:0:00| chol  2  2
 9|0.739|1.000|2.8e-10|1.6e-04|1.2e+02| 8.860811e+01 -1.002026e+01| 0:0:00| chol  2  2
10|1.000|1.000|3.2e-11|4.8e-05|4.9e+01| 3.806148e+01 -5.746308e+00| 0:0:00| chol  2  2
11|0.982|0.992|1.7e-10|2.4e-05|1.2e+01| 7.832014e+00 -3.195142e+00| 0:0:00| chol  1  2
12|1.000|1.000|4.0e-12|7.1e-06|4.0e+00| 6.851649e-01 -3.058210e+00| 0:0:00| chol  2  2
13|0.853|0.963|1.3e-11|2.3e-06|6.1e-01|-2.253161e+00 -2.814598e+00| 0:0:00| chol  1  2
14|0.935|1.000|7.4e-12|6.4e-07|1.4e-01|-2.694700e+00 -2.825566e+00| 0:0:00| chol  2  2
15|0.944|0.959|4.2e-11|2.1e-07|8.6e-03|-2.820549e+00 -2.824781e+00| 0:0:00| chol  2  2
16|1.000|0.918|1.7e-10|7.0e-08|3.1e-03|-2.825748e+00 -2.827417e+00| 0:0:00| chol  2  2
17|1.000|1.000|1.6e-10|1.7e-08|8.6e-04|-2.827809e+00 -2.828308e+00| 0:0:00| chol  2  2
18|0.984|0.970|5.2e-10|5.6e-09|8.3e-05|-2.828524e+00 -2.828492e+00| 0:0:00| chol  3  3
19|1.000|1.000|5.3e-10|7.5e-12|2.0e-05|-2.828582e+00 -2.828601e+00| 0:0:00| chol  5  5
20|1.000|1.000|2.8e-10|2.7e-12|6.2e-07|-2.828599e+00 -2.828600e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -2.82859902e+00
 dual   objective value = -2.82859996e+00
 gap := trace(XZ)       = 6.23e-07
 relative gap           = 9.36e-08
 actual relative gap    = 1.41e-07
 rel. primal infeas     = 2.78e-10
 rel. dual   infeas     = 2.74e-12
 norm(X), norm(y), norm(Z) = 2.0e+03, 6.6e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 5.6e+03, 5.9e+03, 4.8e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.5e-10  0.0e+00  3.8e-12  0.0e+00  1.4e-07  9.4e-08
-----------------------------------------------------------------

ans =

    2.8286

Epoch... 21
Epoch... 22

 num. of constraints = 33
```

```
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|7.0e+01|1.2e+07| 5.830711e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.985|2.2e-07|1.1e+00|3.1e+05| 5.758721e+04 -6.950290e+02| 0:0:00| chol  1  1
 2|1.000|0.827|1.7e-07|2.1e-01|7.9e+04| 3.002982e+04 -2.203783e+02| 0:0:00| chol  1  1
 3|0.623|1.000|1.2e-07|2.8e-02|2.8e+04| 1.834199e+04 -3.367013e+02| 0:0:00| chol  1  1
 4|1.000|1.000|3.0e-08|1.4e-02|6.9e+03| 4.303557e+03 -1.831173e+02| 0:0:00| chol  2  1
 5|0.789|0.799|6.8e-09|8.5e-03|2.3e+03| 1.464682e+03 -5.524596e+01| 0:0:00| chol  1  1
 6|1.000|1.000|4.5e-10|2.1e-03|9.8e+02| 7.385539e+02 -3.127369e+01| 0:0:00| chol  2  1
 7|1.000|1.000|6.3e-10|6.3e-04|4.0e+02| 2.998518e+02 -2.913171e+01| 0:0:00| chol  2  2
 8|0.911|0.943|5.0e-10|3.4e-04|1.6e+02| 1.163504e+02 -1.222594e+01| 0:0:00| chol  2  2
 9|1.000|1.000|1.6e-10|9.5e-05|7.4e+01| 5.649156e+01 -8.240530e+00| 0:0:00| chol  2  2
10|0.990|1.000|8.7e-11|2.9e-05|3.0e+01| 2.266852e+01 -4.827607e+00| 0:0:00| chol  2  2
11|1.000|0.766|7.1e-11|1.8e-05|1.1e+01| 6.044685e+00 -4.084697e+00| 0:0:00| chol  2  2
12|0.948|0.963|1.3e-11|4.8e-06|1.8e+00|-2.207338e+00 -3.806557e+00| 0:0:00| chol  2  2
13|0.908|0.848|1.1e-11|1.8e-06|2.6e-01|-3.542104e+00 -3.745231e+00| 0:0:00| chol  1  2
14|0.984|0.855|8.3e-11|5.9e-07|4.9e-02|-3.723739e+00 -3.753268e+00| 0:0:00| chol  2  2
15|0.716|0.591|4.1e-10|3.1e-07|2.9e-02|-3.741925e+00 -3.759623e+00| 0:0:00| chol  2  2
16|0.725|0.745|8.6e-10|1.0e-07|1.9e-02|-3.750888e+00 -3.765507e+00| 0:0:00| chol  2  2
17|1.000|1.000|3.8e-10|1.0e-08|7.1e-03|-3.761313e+00 -3.768016e+00| 0:0:00| chol  3  3
18|0.924|0.931|7.3e-10|3.6e-09|5.6e-04|-3.767323e+00 -3.767728e+00| 0:0:00| chol  3  3
19|1.000|1.000|3.6e-09|1.6e-11|2.0e-04|-3.767664e+00 -3.767858e+00| 0:0:00| chol  5  5
20|0.965|0.965|5.1e-09|1.7e-11|7.8e-06|-3.767834e+00 -3.767843e+00| 0:0:00| chol 11 20
21|1.000|0.995|2.6e-09|8.9e-13|3.8e-07|-3.767843e+00 -3.767842e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 21
 primal objective value = -3.76784324e+00
 dual   objective value = -3.76784226e+00
 gap := trace(XZ)       = 3.82e-07
 relative gap           = 4.47e-08
 actual relative gap    = -1.15e-07
 rel. primal infeas     = 2.56e-09
 rel. dual   infeas     = 8.86e-13
 norm(X), norm(y), norm(Z) = 4.2e+03, 6.7e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 5.5e+03, 5.6e+03, 4.8e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 6.8e-09  0.0e+00  1.2e-12  0.0e+00  -1.2e-07  4.5e-08
-------------------------------------------------------------------

ans =

    3.7678

Epoch... 23
Epoch... 24
```

```
 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|1.1e+07| 5.198381e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|2.7e-07|1.1e+00|2.7e+05| 5.149870e+04 -9.887428e+02| 0:0:00| chol  1  1
 2|1.000|0.824|1.6e-07|2.2e-01|6.4e+04| 2.426259e+04 -1.840309e+02| 0:0:00| chol  1  1
 3|0.633|1.000|1.3e-07|2.8e-02|2.3e+04| 1.452294e+04 -3.013624e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.6e-08|1.4e-02|4.8e+03| 2.970430e+03 -1.392021e+02| 0:0:00| chol  1  1
 5|0.765|0.787|6.4e-09|6.3e-03|1.9e+03| 1.272116e+03 -4.738429e+01| 0:0:00| chol  1  2
 6|0.901|0.941|7.8e-10|1.6e-03|9.3e+02| 7.131810e+02 -3.407612e+01| 0:0:00| chol  1  1
 7|1.000|1.000|6.1e-10|3.8e-04|3.8e+02| 2.911497e+02 -2.962765e+01| 0:0:00| chol  2  2
 8|0.841|0.820|8.7e-10|2.2e-04|1.5e+02| 1.080087e+02 -1.229458e+01| 0:0:00| chol  2  2
 9|1.000|0.918|1.6e-10|7.1e-05|6.9e+01| 5.151173e+01 -7.821567e+00| 0:0:00| chol  2  2
10|1.000|1.000|3.4e-10|2.9e-05|2.2e+01| 1.558153e+01 -4.299566e+00| 0:0:00| chol  2  2
11|0.873|0.835|4.6e-11|1.2e-05|6.2e+00| 1.152306e+00 -4.318296e+00| 0:0:00| chol  2  2
12|0.879|0.958|6.9e-11|3.0e-06|9.2e-01|-3.260818e+00 -4.041414e+00| 0:0:00| chol  2  2
13|0.315|0.439|6.1e-10|2.0e-06|7.4e-01|-3.470923e+00 -4.072683e+00| 0:0:00| chol  2  2
14|1.000|0.667|2.1e-09|9.2e-07|3.7e-01|-3.822509e+00 -4.126109e+00| 0:0:00| chol  2  2
15|0.732|0.938|6.8e-10|2.4e-07|1.1e-01|-4.049048e+00 -4.134954e+00| 0:0:00| chol  2  2
16|1.000|1.000|3.0e-09|9.6e-08|4.3e-02|-4.110864e+00 -4.146149e+00| 0:0:00| chol  2  2
17|0.927|0.962|2.3e-10|5.0e-08|3.4e-03|-4.146780e+00 -4.146192e+00| 0:0:00| chol  3  3
18|0.630|0.989|5.7e-09|2.4e-08|2.0e-03|-4.148108e+00 -4.148121e+00| 0:0:00| chol  3  3
19|0.994|1.000|5.5e-09|1.2e-08|5.9e-05|-4.149909e+00 -4.149001e+00| 0:0:00| chol  6  7
20|1.000|0.857|1.1e-07|1.8e-09|3.0e-05|-4.150113e+00 -4.149824e+00| 0:0:00| chol  5  4
21|0.971|1.000|1.2e-08|7.8e-12|6.3e-06|-4.149955e+00 -4.149959e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^14
22|1.000|0.971|1.8e-08|8.9e-13|5.9e-07|-4.149991e+00 -4.149958e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 22
 primal objective value = -4.14999129e+00
 dual   objective value = -4.14995833e+00
 gap := trace(XZ)       = 5.86e-07
 relative gap           = 6.30e-08
 actual relative gap    = -3.54e-06
 rel. primal infeas     = 1.82e-08
 rel. dual   infeas     = 8.93e-13
 norm(X), norm(y), norm(Z) = 8.3e+03, 6.8e+01, 5.2e+01
 norm(A), norm(b), norm(C) = 6.2e+03, 5.4e+03, 4.8e+01
 Total CPU time (secs)  = 0.16
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.3e-08  0.0e+00  1.2e-12  0.0e+00  -3.5e-06  6.3e-08
-------------------------------------------------------------------

ans =
```

```
    4.1500

Epoch... 25
Epoch... 26

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|8.3e+01|1.0e+07| 4.632218e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.987|2.2e-07|1.1e+00|2.4e+05| 4.599495e+04 -1.160511e+03| 0:0:00| chol  1  1
 2|1.000|0.840|1.5e-07|2.0e-01|5.2e+04| 2.044769e+04 -1.343907e+02| 0:0:00| chol  1  1
 3|0.640|0.991|1.3e-07|2.9e-02|1.9e+04| 1.192396e+04 -2.481257e+02| 0:0:00| chol  1  1
 4|0.986|1.000|2.8e-08|1.4e-02|2.9e+03| 1.666821e+03 -9.620578e+01| 0:0:00| chol  1  1
 5|0.704|1.000|8.2e-09|4.2e-03|1.4e+03| 1.024086e+03 -4.359605e+01| 0:0:00| chol  2  2
 6|0.847|0.697|1.6e-09|2.2e-03|7.4e+02| 5.212462e+02 -2.519954e+01| 0:0:00| chol  1  1
 7|1.000|0.802|1.3e-09|7.3e-04|3.5e+02| 2.450968e+02 -2.681170e+01| 0:0:00| chol  2  2
 8|1.000|0.936|5.7e-10|1.5e-04|1.1e+02| 8.135326e+01 -1.305444e+01| 0:0:00| chol  2  2
 9|1.000|0.843|3.0e-10|5.3e-05|4.6e+01| 3.381587e+01 -5.434814e+00| 0:0:00| chol  2  2
10|0.866|1.000|1.2e-10|1.7e-05|2.3e+01| 1.682580e+01 -4.394384e+00| 0:0:00| chol  2  2
11|1.000|1.000|1.6e-11|8.6e-06|8.4e+00| 4.010497e+00 -3.844588e+00| 0:0:00| chol  2  2
12|0.835|0.953|1.4e-11|2.9e-06|1.5e+00|-2.230188e+00 -3.619732e+00| 0:0:00| chol  2  2
13|0.880|0.845|1.0e-11|1.1e-06|2.7e-01|-3.322041e+00 -3.573297e+00| 0:0:00| chol  2  2
14|0.994|1.000|9.0e-12|2.3e-07|3.8e-02|-3.538868e+00 -3.572309e+00| 0:0:00| chol  2  2
15|0.958|0.970|2.9e-11|7.4e-08|2.2e-03|-3.572072e+00 -3.572656e+00| 0:0:00| chol  2  2
16|0.984|0.960|1.7e-10|2.3e-08|7.6e-05|-3.574025e+00 -3.573613e+00| 0:0:00| chol  2  2
17|0.939|1.000|5.4e-09|4.1e-12|2.0e-05|-3.574074e+00 -3.574094e+00| 0:0:00| chol  3  4
18|1.000|1.000|4.8e-11|6.1e-12|1.7e-06|-3.574091e+00 -3.574093e+00| 0:0:00| chol  8  8
19|1.000|0.993|2.0e-11|1.8e-13|3.2e-08|-3.574093e+00 -3.574093e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -3.57409256e+00
 dual   objective value = -3.57409258e+00
 gap := trace(XZ)       = 3.21e-08
 relative gap           = 3.93e-09
 actual relative gap    = 1.33e-09
 rel. primal infeas     = 2.02e-11
 rel. dual   infeas     = 1.78e-13
 norm(X), norm(y), norm(Z) = 2.1e+03, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 6.3e+03, 5.0e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.6e-11  0.0e+00  2.5e-13  0.0e+00  1.3e-09  3.9e-09
-------------------------------------------------------------------

ans =
```

```
    3.5741

Epoch... 27
Epoch... 28

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|7.0e+01|1.0e+07| 4.511119e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|3.2e-07|1.0e+00|2.4e+05| 4.492790e+04 -8.371854e+02| 0:0:00| chol  1  1
 2|1.000|0.827|1.6e-07|2.0e-01|5.9e+04| 2.204966e+04 -1.466738e+02| 0:0:00| chol  1  1
 3|0.618|1.000|1.2e-07|2.8e-02|2.1e+04| 1.355623e+04 -2.800177e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.3e-08|1.4e-02|3.1e+03| 1.794700e+03 -9.594627e+01| 0:0:00| chol  1  1
 5|0.722|1.000|6.4e-09|4.2e-03|1.4e+03| 1.063403e+03 -4.035398e+01| 0:0:00| chol  2  1
 6|0.688|0.792|2.7e-09|1.9e-03|8.5e+02| 6.511665e+02 -2.537584e+01| 0:0:00| chol  1  1
 7|1.000|0.739|5.7e-09|7.7e-04|4.1e+02| 2.833667e+02 -3.227099e+01| 0:0:00| chol  2  2
 8|1.000|0.884|1.0e-09|1.9e-04|1.3e+02| 9.391817e+01 -1.601377e+01| 0:0:00| chol  2  2
 9|1.000|0.812|5.9e-10|8.2e-05|5.2e+01| 3.695639e+01 -5.446612e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.3e-10|2.9e-05|2.0e+01| 1.458864e+01 -3.657560e+00| 0:0:00| chol  2  2
11|1.000|1.000|6.7e-11|8.6e-06|5.2e+00| 2.088000e+00 -2.824914e+00| 0:0:00| chol  2  2
12|0.969|0.819|6.7e-12|3.7e-06|9.7e-01|-1.724578e+00 -2.653579e+00| 0:0:00| chol  2  2
13|1.000|0.906|2.1e-12|1.0e-06|2.5e-01|-2.336011e+00 -2.572105e+00| 0:0:00| chol  2  2
14|0.987|0.922|1.9e-12|2.9e-07|2.7e-02|-2.533645e+00 -2.558235e+00| 0:0:00| chol  1  2
15|0.968|0.906|2.3e-11|9.1e-08|1.3e-03|-2.556384e+00 -2.556894e+00| 0:0:00| chol  2  2
16|0.886|0.965|4.6e-11|2.3e-08|2.3e-04|-2.557199e+00 -2.557217e+00| 0:0:00| chol  2  2
17|0.981|0.985|1.3e-10|3.5e-10|4.4e-06|-2.557402e+00 -2.557403e+00| 0:0:00| chol  3  5
18|1.000|1.000|4.8e-10|2.5e-12|2.6e-07|-2.557406e+00 -2.557406e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -2.55740590e+00
 dual   objective value = -2.55740589e+00
 gap := trace(XZ)       = 2.56e-07
 relative gap           = 4.18e-08
 actual relative gap    = -1.70e-09
 rel. primal infeas     = 4.79e-10
 rel. dual   infeas     = 2.54e-12
 norm(X), norm(y), norm(Z) = 9.6e+02, 6.4e+01, 4.6e+01
 norm(A), norm(b), norm(C) = 5.2e+03, 4.5e+03, 4.8e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-09  0.0e+00  3.5e-12  0.0e+00  -1.7e-09  4.2e-08
-------------------------------------------------------------------

ans =
```

```
    2.5574

Epoch... 29
Epoch... 30

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|8.9e+01|1.1e+07| 4.637397e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.987|3.3e-07|1.2e+00|2.5e+05| 4.622358e+04 -1.232639e+03| 0:0:00| chol  1  1
 2|1.000|0.839|1.5e-07|2.2e-01|5.6e+04| 2.163119e+04 -1.352095e+02| 0:0:00| chol  1  1
 3|0.644|0.997|1.2e-07|2.8e-02|2.0e+04| 1.272401e+04 -2.819557e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.6e-08|1.4e-02|3.5e+03| 2.103777e+03 -1.112185e+02| 0:0:00| chol  1  1
 5|0.742|0.916|6.7e-09|5.1e-03|1.6e+03| 1.142093e+03 -4.269287e+01| 0:0:00| chol  1  1
 6|0.714|0.963|2.3e-09|1.4e-03|8.6e+02| 6.961356e+02 -3.192951e+01| 0:0:00| chol  1  1
 7|1.000|0.998|3.6e-09|3.8e-04|3.3e+02| 2.590355e+02 -2.743012e+01| 0:0:00| chol  2  2
 8|0.853|0.858|9.4e-10|2.2e-04|1.2e+02| 9.283888e+01 -1.024001e+01| 0:0:00| chol  2  2
 9|1.000|0.949|1.6e-10|6.5e-05|5.8e+01| 4.459299e+01 -5.539341e+00| 0:0:00| chol  2  2
10|0.955|1.000|2.6e-10|2.9e-05|1.8e+01| 1.256117e+01 -3.177343e+00| 0:0:00| chol  2  2
11|1.000|0.840|5.6e-11|1.2e-05|6.4e+00| 3.289614e+00 -2.660978e+00| 0:0:00| chol  2  2
12|0.898|0.976|8.3e-12|2.8e-06|1.1e+00|-1.401303e+00 -2.499150e+00| 0:0:00| chol  2  2
13|0.983|0.938|6.6e-12|9.0e-07|2.6e-01|-2.173374e+00 -2.422858e+00| 0:0:00| chol  2  2
14|0.966|0.971|1.8e-11|2.5e-07|4.3e-02|-2.376708e+00 -2.415983e+00| 0:0:00| chol  2  2
15|0.975|0.977|8.2e-12|7.3e-08|1.2e-03|-2.415128e+00 -2.415155e+00| 0:0:00| chol  2  2
16|0.954|0.966|2.3e-10|2.3e-08|6.9e-05|-2.416133e+00 -2.415854e+00| 0:0:00| chol  3  2
17|0.936|1.000|1.5e-09|2.5e-12|2.0e-05|-2.416180e+00 -2.416200e+00| 0:0:00| chol  3  4
18|1.000|1.000|8.2e-11|3.7e-12|1.8e-06|-2.416196e+00 -2.416198e+00| 0:0:00| chol  6  8
19|1.000|0.996|8.4e-11|2.0e-13|3.1e-08|-2.416198e+00 -2.416198e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -2.41619810e+00
 dual   objective value = -2.41619816e+00
 gap := trace(XZ)       = 3.08e-08
 relative gap           = 5.28e-09
 actual relative gap    = 9.63e-09
 rel. primal infeas     = 8.43e-11
 rel. dual   infeas     = 1.96e-13
 norm(X), norm(y), norm(Z) = 1.5e+03, 6.6e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 6.7e+03, 4.8e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.9e-10  0.0e+00  2.7e-13  0.0e+00  9.6e-09  5.3e-09
-------------------------------------------------------------------

ans =
```

```
    2.4162

Epoch... 31
Epoch... 32

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+01|1.2e+07| 4.735628e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|3.7e-07|1.2e+00|2.7e+05| 4.726164e+04 -1.088882e+03| 0:0:00| chol  1  1
 2|1.000|0.834|1.5e-07|2.2e-01|6.3e+04| 2.358471e+04 -1.491128e+02| 0:0:00| chol  1  1
 3|0.630|1.000|1.1e-07|2.8e-02|2.2e+04| 1.436700e+04 -3.067937e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.3e-08|1.4e-02|3.9e+03| 2.309624e+03 -1.137450e+02| 0:0:00| chol  1  1
 5|0.742|0.868|6.2e-09|5.5e-03|1.8e+03| 1.239902e+03 -4.466089e+01| 0:0:00| chol  1  2
 6|0.806|1.000|1.5e-09|1.3e-03|8.8e+02| 7.192843e+02 -3.171204e+01| 0:0:00| chol  1  1
 7|1.000|0.999|5.6e-10|3.8e-04|3.5e+02| 2.633029e+02 -3.067874e+01| 0:0:00| chol  2  2
 8|0.898|0.877|1.4e-09|2.1e-04|1.3e+02| 9.468152e+01 -1.021878e+01| 0:0:00| chol  2  2
 9|1.000|0.962|2.3e-10|6.3e-05|5.7e+01| 4.459940e+01 -4.739083e+00| 0:0:00| chol  2  2
10|0.864|1.000|1.4e-10|2.9e-05|2.2e+01| 1.636619e+01 -3.185735e+00| 0:0:00| chol  2  2
11|1.000|1.000|7.0e-11|8.6e-06|7.6e+00| 4.949008e+00 -2.291120e+00| 0:0:00| chol  2  2
12|0.921|0.793|1.2e-11|3.8e-06|1.2e+00|-9.743243e-01 -2.132250e+00| 0:0:00| chol  2  2
13|1.000|0.957|2.6e-12|9.0e-07|3.6e-01|-1.674666e+00 -2.029270e+00| 0:0:00| chol  2  2
14|0.935|0.993|4.4e-12|2.4e-07|5.0e-02|-1.966409e+00 -2.014064e+00| 0:0:00| chol  2  2
15|0.958|0.993|1.3e-11|7.0e-08|5.6e-03|-2.007934e+00 -2.012995e+00| 0:0:00| chol  2  2
16|0.988|0.987|2.5e-12|2.1e-08|7.0e-05|-2.013144e+00 -2.013041e+00| 0:0:00| chol  2  2
17|1.000|1.000|1.1e-10|1.0e-12|4.2e-06|-2.013205e+00 -2.013209e+00| 0:0:00| chol  6  6
18|1.000|1.000|2.2e-10|9.7e-13|8.6e-08|-2.013209e+00 -2.013209e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 18
 primal objective value = -2.01320896e+00
 dual   objective value = -2.01320898e+00
 gap := trace(XZ)       = 8.57e-08
 relative gap           = 1.71e-08
 actual relative gap    = 3.89e-09
 rel. primal infeas     = 2.20e-10
 rel. dual   infeas     = 9.69e-13
 norm(X), norm(y), norm(Z) = 8.1e+02, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 6.3e+03, 4.9e+03, 4.8e+01
 Total CPU time (secs)  = 0.11
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.9e-10  0.0e+00  1.3e-12  0.0e+00  3.9e-09  1.7e-08
-------------------------------------------------------------------

ans =

    2.0132
```

```
Epoch... 33
Epoch... 34

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|9.4e+01|1.3e+07| 4.858764e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|4.0e-07|1.3e+00|2.9e+05| 4.852976e+04 -1.207733e+03| 0:0:00| chol  1  1
 2|1.000|0.838|1.5e-07|2.4e-01|6.6e+04| 2.461152e+04 -1.502061e+02| 0:0:00| chol  1  1
 3|0.630|1.000|1.1e-07|2.8e-02|2.3e+04| 1.503084e+04 -3.203166e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.7e-08|1.4e-02|4.6e+03| 2.824350e+03 -1.353126e+02| 0:0:00| chol  1  1
 5|0.758|0.812|6.8e-09|6.1e-03|2.0e+03| 1.361867e+03 -5.288237e+01| 0:0:00| chol  1  2
 6|0.947|1.000|7.9e-10|1.3e-03|9.1e+02| 7.181671e+02 -3.997413e+01| 0:0:00| chol  1  1
 7|1.000|1.000|9.8e-10|3.8e-04|3.4e+02| 2.645924e+02 -2.733187e+01| 0:0:00| chol  2  2
 8|0.829|0.842|1.1e-09|2.2e-04|1.3e+02| 9.878086e+01 -1.039497e+01| 0:0:00| chol  2  2
 9|1.000|0.921|2.0e-10|7.0e-05|6.2e+01| 4.782362e+01 -5.850042e+00| 0:0:00| chol  2  2
10|1.000|0.998|2.3e-10|2.9e-05|1.9e+01| 1.379879e+01 -2.692877e+00| 0:0:00| chol  2  2
11|1.000|1.000|3.5e-11|8.6e-06|6.6e+00| 3.910214e+00 -2.294499e+00| 0:0:00| chol  2  2
12|0.982|1.000|1.1e-11|2.6e-06|1.2e+00|-1.009959e+00 -2.129626e+00| 0:0:00| chol  2  1
13|1.000|0.996|5.5e-11|7.8e-07|2.8e-01|-1.747436e+00 -2.017052e+00| 0:0:00| chol  2  2
14|0.936|0.933|7.0e-12|2.7e-07|3.8e-02|-1.971624e+00 -2.006122e+00| 0:0:00| chol  2  2
15|0.970|0.963|7.6e-11|7.7e-08|3.0e-03|-2.003225e+00 -2.005423e+00| 0:0:00| chol  2  2
16|0.905|0.894|7.5e-11|2.7e-08|3.4e-04|-2.005579e+00 -2.005649e+00| 0:0:00| chol  2  2
17|1.000|1.000|9.2e-10|3.2e-12|1.4e-04|-2.005745e+00 -2.005885e+00| 0:0:00| chol  3  3
18|1.000|1.000|1.2e-10|4.7e-12|6.1e-06|-2.005867e+00 -2.005873e+00| 0:0:00| chol  5  5
19|1.000|1.000|4.1e-10|1.4e-12|1.5e-07|-2.005872e+00 -2.005873e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -2.00587229e+00
 dual   objective value = -2.00587287e+00
 gap := trace(XZ)       = 1.51e-07
 relative gap           = 3.01e-08
 actual relative gap    = 1.15e-07
 rel. primal infeas     = 4.12e-10
 rel. dual   infeas     = 1.36e-12
 norm(X), norm(y), norm(Z) = 9.8e+02, 6.6e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 6.9e+03, 4.8e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.3e-10  0.0e+00  1.9e-12  0.0e+00  1.2e-07  3.0e-08
-------------------------------------------------------------------

ans =

    2.0059
```

```
Epoch... 35
Epoch... 36

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.0e+02|1.4e+07| 4.971264e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|4.2e-07|1.4e+00|3.1e+05| 4.969775e+04 -1.317466e+03| 0:0:00| chol  1  1
 2|1.000|0.841|1.4e-07|2.5e-01|6.9e+04| 2.576558e+04 -1.561706e+02| 0:0:00| chol  2  2
 3|0.637|0.999|1.0e-07|2.8e-02|2.4e+04| 1.571643e+04 -3.351842e+02| 0:0:00| chol  1  1
 4|1.000|1.000|2.8e-08|1.4e-02|5.1e+03| 3.160766e+03 -1.428778e+02| 0:0:00| chol  2  1
 5|0.747|0.789|7.3e-09|6.3e-03|2.2e+03| 1.455224e+03 -5.481600e+01| 0:0:00| chol  1  1
 6|1.000|1.000|1.3e-09|1.3e-03|9.5e+02| 7.460764e+02 -4.239544e+01| 0:0:00| chol  2  1
 7|1.000|1.000|1.4e-09|6.3e-04|3.8e+02| 2.778976e+02 -2.521063e+01| 0:0:00| chol  2  2
 8|0.850|0.903|6.5e-10|3.5e-04|1.3e+02| 9.480904e+01 -1.016521e+01| 0:0:00| chol  2  2
 9|1.000|0.938|8.8e-11|1.1e-04|6.2e+01| 4.708415e+01 -6.126142e+00| 0:0:00| chol  2  2
10|1.000|1.000|2.0e-10|2.9e-05|1.9e+01| 1.440369e+01 -2.630819e+00| 0:0:00| chol  2  2
11|1.000|1.000|2.3e-11|8.6e-06|7.1e+00| 4.683198e+00 -2.087547e+00| 0:0:00| chol  2  2
12|0.977|0.811|6.6e-12|3.7e-06|9.8e-01|-9.976237e-01 -1.932231e+00| 0:0:00| chol  2  2
13|1.000|0.946|1.8e-12|9.3e-07|3.2e-01|-1.526998e+00 -1.840119e+00| 0:0:00| chol  1  1
14|0.913|0.939|8.4e-11|2.7e-07|4.5e-02|-1.785376e+00 -1.827800e+00| 0:0:00| chol  2  2
15|0.979|0.972|5.1e-11|7.5e-08|3.4e-03|-1.823968e+00 -1.826789e+00| 0:0:00| chol  2  2
16|0.867|0.856|7.1e-11|2.9e-08|5.6e-04|-1.826533e+00 -1.826881e+00| 0:0:00| chol  2  2
17|1.000|1.000|3.0e-10|6.2e-09|2.2e-04|-1.826839e+00 -1.827009e+00| 0:0:00| chol  3  3
18|0.891|0.892|1.8e-10|6.8e-10|2.9e-05|-1.827009e+00 -1.827033e+00| 0:0:00| chol  4  4
19|1.000|1.000|7.7e-10|7.6e-12|1.2e-05|-1.827025e+00 -1.827037e+00| 0:0:00| chol  5  5
20|1.000|1.000|4.1e-10|1.1e-11|1.9e-06|-1.827035e+00 -1.827036e+00| 0:0:00| chol  6  7
21|1.000|1.000|6.4e-10|3.1e-12|2.5e-07|-1.827036e+00 -1.827036e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 21
 primal objective value = -1.82703629e+00
 dual   objective value = -1.82703586e+00
 gap := trace(XZ)       = 2.47e-07
 relative gap           = 5.30e-08
 actual relative gap    = -9.28e-08
 rel. primal infeas     = 6.37e-10
 rel. dual   infeas     = 3.12e-12
 norm(X), norm(y), norm(Z) = 7.2e+02, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 7.4e+03, 5.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.4e-09  0.0e+00  4.3e-12  0.0e+00  -9.3e-08  5.3e-08
-------------------------------------------------------------------

ans =
```

```
    1.8270

Epoch... 37
Epoch... 38

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.1e+02|1.5e+07| 5.057365e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|4.5e-07|1.5e+00|3.3e+05| 5.059857e+04 -1.352283e+03| 0:0:00| chol  1  1
 2|1.000|0.843|1.4e-07|2.6e-01|7.3e+04| 2.706476e+04 -1.615476e+02| 0:0:00| chol  1  1
 3|0.633|0.996|1.0e-07|2.9e-02|2.6e+04| 1.673246e+04 -3.461327e+02| 0:0:00| chol  1  1
 4|1.000|1.000|3.0e-08|1.4e-02|5.1e+03| 3.146484e+03 -1.473223e+02| 0:0:00| chol  2  2
 5|0.748|0.789|7.9e-09|6.3e-03|2.3e+03| 1.512927e+03 -5.813904e+01| 0:0:00| chol  2  2
 6|1.000|1.000|7.1e-10|1.3e-03|9.8e+02| 7.750466e+02 -4.399425e+01| 0:0:00| chol  2  2
 7|1.000|1.000|1.3e-09|6.3e-04|3.8e+02| 2.711213e+02 -2.624421e+01| 0:0:00| chol  2  2
 8|0.843|0.879|6.9e-10|2.4e-04|1.3e+02| 9.881797e+01 -1.046141e+01| 0:0:00| chol  2  2
 9|1.000|0.901|1.7e-10|7.6e-05|6.4e+01| 4.917959e+01 -5.816448e+00| 0:0:00| chol  2  2
10|1.000|0.989|3.3e-10|2.9e-05|2.0e+01| 1.547911e+01 -2.512751e+00| 0:0:00| chol  2  2
11|1.000|1.000|4.5e-11|8.6e-06|7.2e+00| 4.652153e+00 -2.099518e+00| 0:0:00| chol  2  2
12|1.000|1.000|1.6e-11|2.6e-06|1.5e+00|-5.060847e-01 -1.915935e+00| 0:0:00| chol  2  2
13|0.885|0.982|5.6e-12|8.0e-07|3.5e-01|-1.488466e+00 -1.825221e+00| 0:0:00| chol  2  2
14|0.984|0.957|6.1e-12|2.6e-07|6.3e-02|-1.745917e+00 -1.805613e+00| 0:0:00| chol  2  2
15|0.972|0.950|1.3e-11|7.9e-08|6.1e-03|-1.797635e+00 -1.802798e+00| 0:0:00| chol  2  2
16|1.000|0.930|1.4e-10|2.5e-08|1.3e-03|-1.802120e+00 -1.803120e+00| 0:0:00| chol  2  2
17|0.979|1.000|8.7e-11|6.2e-09|9.7e-05|-1.803220e+00 -1.803233e+00| 0:0:00| chol  3  3
18|1.000|1.000|3.8e-10|4.1e-12|9.6e-06|-1.803302e+00 -1.803311e+00| 0:0:00| chol  4  3
19|0.997|0.997|9.9e-11|8.9e-13|1.3e-07|-1.803310e+00 -1.803310e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.80331031e+00
 dual   objective value = -1.80331037e+00
 gap := trace(XZ)       = 1.29e-07
 relative gap           = 2.81e-08
 actual relative gap    = 1.10e-08
 rel. primal infeas     = 9.87e-11
 rel. dual   infeas     = 8.90e-13
 norm(X), norm(y), norm(Z) = 1.3e+03, 6.6e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 7.7e+03, 5.0e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.2e-10  0.0e+00  1.2e-12  0.0e+00  1.1e-08  2.8e-08
-------------------------------------------------------------------

ans =
```

```
    1.8033

Epoch... 39
Epoch... 40

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.2e+02|1.6e+07| 5.096553e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|5.0e-07|1.7e+00|3.4e+05| 5.105470e+04 -1.499637e+03| 0:0:00| chol  1  1
 2|1.000|0.847|1.4e-07|2.7e-01|7.6e+04| 2.792062e+04 -1.659752e+02| 0:0:00| chol  1  1
 3|0.641|0.988|1.0e-07|3.0e-02|2.7e+04| 1.722732e+04 -3.573062e+02| 0:0:00| chol  1  1
 4|1.000|1.000|3.3e-08|1.4e-02|4.6e+03| 2.723529e+03 -1.378343e+02| 0:0:00| chol  2  2
 5|0.728|0.825|9.1e-09|5.9e-03|2.2e+03| 1.517541e+03 -5.944594e+01| 0:0:00| chol  2  1
 6|0.909|1.000|1.2e-09|1.3e-03|1.0e+03| 8.266620e+02 -3.849599e+01| 0:0:00| chol  1  1
 7|1.000|1.000|8.7e-10|6.3e-04|4.4e+02| 3.152245e+02 -3.660667e+01| 0:0:00| chol  2  2
 8|0.919|0.982|8.6e-10|3.2e-04|1.5e+02| 1.123569e+02 -1.174603e+01| 0:0:00| chol  2  2
 9|1.000|0.986|1.9e-10|9.8e-05|6.4e+01| 4.969075e+01 -5.355959e+00| 0:0:00| chol  2  2
10|0.855|1.000|1.1e-10|2.9e-05|2.6e+01| 2.028126e+01 -2.995427e+00| 0:0:00| chol  2  2
11|1.000|1.000|1.4e-10|8.6e-06|8.6e+00| 6.172940e+00 -1.946895e+00| 0:0:00| chol  2  2
12|0.952|0.818|1.9e-09|3.7e-06|1.0e+00|-8.388908e-01 -1.811767e+00| 0:0:00| chol  2  2
13|1.000|0.959|1.7e-12|8.9e-07|3.3e-01|-1.408938e+00 -1.730304e+00| 0:0:00| chol  2  2
14|0.920|0.833|1.2e-12|3.4e-07|4.8e-02|-1.671920e+00 -1.717416e+00| 0:0:00| chol  2  2
15|0.989|0.948|7.7e-11|8.4e-08|5.1e-03|-1.710825e+00 -1.715182e+00| 0:0:00| chol  2  2
16|0.972|1.000|6.0e-11|2.1e-08|1.1e-03|-1.714429e+00 -1.715321e+00| 0:0:00| chol  2  2
17|0.982|0.986|4.3e-11|6.4e-09|2.0e-05|-1.715410e+00 -1.715370e+00| 0:0:00| chol  3  3
18|1.000|1.000|1.2e-09|3.4e-12|1.1e-06|-1.715427e+00 -1.715428e+00| 0:0:00| chol 18 14
19|1.000|1.000|3.2e-09|7.9e-13|8.0e-08|-1.715427e+00 -1.715428e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.71542677e+00
 dual   objective value = -1.71542838e+00
 gap := trace(XZ)       = 7.96e-08
 relative gap           = 1.80e-08
 actual relative gap    = 3.64e-07
 rel. primal infeas     = 3.25e-09
 rel. dual   infeas     = 7.88e-13
 norm(X), norm(y), norm(Z) = 9.5e+02, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 8.4e+03, 5.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.2e-09  0.0e+00  1.1e-12  0.0e+00  3.6e-07  1.8e-08
-------------------------------------------------------------------

ans =
```

```
    1.7154

Epoch... 41
Epoch... 42

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.2e+02|1.8e+07| 5.180973e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|5.4e-07|1.8e+00|3.7e+05| 5.194912e+04 -1.564500e+03| 0:0:00| chol  1  1
 2|1.000|0.850|1.4e-07|2.9e-01|8.1e+04| 2.928836e+04 -1.696242e+02| 0:0:00| chol  2  1
 3|0.640|0.986|1.0e-07|3.0e-02|2.8e+04| 1.827292e+04 -3.699084e+02| 0:0:00| chol  1  1
 4|1.000|1.000|3.7e-08|1.4e-02|4.6e+03| 2.713727e+03 -1.388699e+02| 0:0:00| chol  2  2
 5|0.721|0.823|1.0e-08|6.0e-03|2.3e+03| 1.560419e+03 -6.121786e+01| 0:0:00| chol  2  2
 6|0.914|0.989|1.5e-09|1.3e-03|1.1e+03| 8.515315e+02 -3.688554e+01| 0:0:00| chol  1  2
 7|1.000|1.000|8.0e-10|6.3e-04|4.8e+02| 3.454034e+02 -4.127479e+01| 0:0:00| chol  2  2
 8|0.902|1.000|1.1e-09|3.2e-04|2.1e+02| 1.563250e+02 -1.655214e+01| 0:0:00| chol  2  2
 9|1.000|1.000|3.7e-10|1.6e-04|7.3e+01| 5.304882e+01 -5.764789e+00| 0:0:00| chol  2  2
10|0.825|1.000|9.1e-11|4.8e-05|3.2e+01| 2.412486e+01 -3.797316e+00| 0:0:00| chol  2  2
11|1.000|0.971|2.3e-10|1.5e-05|1.1e+01| 8.210727e+00 -1.967770e+00| 0:0:00| chol  2  2
12|1.000|0.963|1.3e-11|4.7e-06|2.0e+00| 2.748498e-02 -1.840847e+00| 0:0:00| chol  2  2
13|0.797|0.965|9.5e-12|1.4e-06|4.4e-01|-1.326937e+00 -1.752321e+00| 0:0:00| chol  2  2
14|1.000|0.903|4.3e-12|4.8e-07|1.4e-01|-1.596373e+00 -1.730595e+00| 0:0:00| chol  2  2
15|0.944|0.981|6.3e-12|1.2e-07|1.7e-02|-1.710213e+00 -1.725645e+00| 0:0:00| chol  2  2
16|0.982|0.978|2.9e-11|3.7e-08|4.5e-04|-1.725670e+00 -1.725674e+00| 0:0:00| chol  2  2
17|0.979|0.975|1.2e-10|1.1e-08|9.8e-06|-1.726075e+00 -1.725951e+00| 0:0:00| chol  3  3
18|1.000|1.000|4.1e-09|2.8e-12|1.9e-06|-1.726083e+00 -1.726084e+00| 0:0:00| chol  7  7
19|1.000|0.996|2.4e-10|2.0e-13|2.5e-08|-1.726084e+00 -1.726084e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.72608405e+00
 dual   objective value = -1.72608390e+00
 gap := trace(XZ)       = 2.49e-08
 relative gap           = 5.59e-09
 actual relative gap    = -3.29e-08
 rel. primal infeas     = 2.42e-10
 rel. dual   infeas     = 1.98e-13
 norm(X), norm(y), norm(Z) = 1.2e+03, 6.6e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 8.8e+03, 5.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 5.4e-10  0.0e+00  2.7e-13  0.0e+00  -3.3e-08  5.6e-09
-------------------------------------------------------------------

ans =
```

```
    1.7261

Epoch... 43
Epoch... 44

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.4e+02|1.9e+07| 5.199027e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|5.9e-07|1.9e+00|3.9e+05| 5.218942e+04 -1.766036e+03| 0:0:00| chol  1  1
 2|1.000|0.855|1.4e-07|3.0e-01|8.3e+04| 2.997430e+04 -1.706675e+02| 0:0:00| chol  1  1
 3|0.649|0.975|1.0e-07|3.2e-02|2.9e+04| 1.862043e+04 -3.791327e+02| 0:0:00| chol  1  1
 4|1.000|0.963|4.1e-08|1.5e-02|3.6e+03| 1.914782e+03 -1.352420e+02| 0:0:00| chol  1  2
 5|0.776|0.733|9.3e-09|7.0e-03|2.0e+03| 1.286628e+03 -7.497948e+01| 0:0:00| chol  1  1
 6|0.491|0.576|4.8e-09|3.7e-03|1.4e+03| 9.797793e+02 -3.768185e+01| 0:0:00| chol  1  1
 7|0.497|0.859|2.5e-09|8.5e-04|8.7e+02| 7.242214e+02 -4.642247e+01| 0:0:00| chol  1  2
 8|0.936|0.734|5.6e-10|3.1e-04|3.7e+02| 2.830126e+02 -2.792365e+01| 0:0:00| chol  2  2
 9|1.000|0.681|1.1e-09|1.4e-04|1.4e+02| 9.270847e+01 -1.210634e+01| 0:0:00| chol  2  2
10|1.000|0.876|8.3e-10|4.2e-05|5.4e+01| 4.221018e+01 -3.458418e+00| 0:0:00| chol  2  2
11|0.992|1.000|6.5e-09|1.4e-05|1.7e+01| 1.300829e+01 -2.354870e+00| 0:0:00| chol  2  2
12|1.000|1.000|4.5e-11|7.1e-06|6.1e+00| 3.926335e+00 -1.864316e+00| 0:0:00| chol  2  2
13|0.879|0.879|1.7e-09|2.7e-06|8.4e-01|-8.961285e-01 -1.708379e+00| 0:0:00| chol  2  2
14|0.991|0.946|1.4e-11|7.6e-07|3.2e-01|-1.335405e+00 -1.648389e+00| 0:0:00| chol  2  2
15|0.918|0.921|2.1e-12|2.4e-07|4.2e-02|-1.598588e+00 -1.638510e+00| 0:0:00| chol  2  2
16|0.997|0.975|3.3e-11|6.2e-08|4.5e-03|-1.633767e+00 -1.637761e+00| 0:0:00| chol  2  2
17|0.986|0.988|1.9e-12|1.8e-08|6.1e-05|-1.637795e+00 -1.637713e+00| 0:0:00| chol  2  2
18|1.000|1.000|1.2e-10|1.0e-12|2.8e-06|-1.637848e+00 -1.637851e+00| 0:0:00| chol  6  7
19|1.000|1.000|4.4e-10|5.6e-13|4.9e-08|-1.637851e+00 -1.637850e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.63785066e+00
 dual   objective value = -1.63785049e+00
 gap := trace(XZ)       = 4.90e-08
 relative gap           = 1.15e-08
 actual relative gap    = -4.11e-08
 rel. primal infeas     = 4.38e-10
 rel. dual   infeas     = 5.58e-13
 norm(X), norm(y), norm(Z) = 8.3e+02, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 9.6e+03, 5.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 9.5e-10  0.0e+00  7.7e-13  0.0e+00  -4.1e-08  1.1e-08
-------------------------------------------------------------------

ans =
```

```
    1.6379

Epoch... 45
Epoch... 46

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.4e+02|2.1e+07| 5.222332e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|6.2e-07|2.0e+00|4.1e+05| 5.248162e+04 -1.826681e+03| 0:0:00| chol  1  1
 2|1.000|0.858|1.5e-07|3.1e-01|8.7e+04| 3.105168e+04 -1.704587e+02| 0:0:00| chol  1  1
 3|0.646|0.973|1.0e-07|3.2e-02|3.1e+04| 1.956845e+04 -3.881586e+02| 0:0:00| chol  1  1
 4|1.000|0.963|4.3e-08|1.5e-02|3.6e+03| 1.873739e+03 -1.411055e+02| 0:0:00| chol  1  1
 5|0.801|0.699|8.7e-09|7.4e-03|2.1e+03| 1.271653e+03 -7.932373e+01| 0:0:00| chol  1  1
 6|0.432|0.632|5.1e-09|3.5e-03|1.4e+03| 9.956355e+02 -4.046969e+01| 0:0:00| chol  2  2
 7|0.565|0.871|2.2e-09|7.9e-04|8.3e+02| 6.863283e+02 -4.670507e+01| 0:0:00| chol  2  2
 8|0.933|0.748|7.0e-10|2.8e-04|3.5e+02| 2.685341e+02 -2.681298e+01| 0:0:00| chol  2  2
 9|1.000|0.700|1.1e-09|1.2e-04|1.3e+02| 9.085998e+01 -1.058078e+01| 0:0:00| chol  2  2
10|1.000|0.901|2.2e-09|3.8e-05|5.4e+01| 4.319979e+01 -3.323469e+00| 0:0:00| chol  1  2
11|0.888|1.000|5.1e-09|1.4e-05|1.9e+01| 1.519052e+01 -2.418425e+00| 0:0:00| chol  2  2
12|1.000|1.000|1.3e-10|7.1e-06|7.3e+00| 5.042922e+00 -1.852453e+00| 0:0:00| chol  2  2
13|0.968|0.983|1.9e-09|2.2e-06|5.6e-01|-1.149984e+00 -1.687581e+00| 0:0:00| chol  2  2
14|0.911|0.867|1.7e-10|8.5e-07|2.4e-01|-1.401077e+00 -1.633684e+00| 0:0:00| chol  2  2
15|0.922|0.962|1.3e-11|2.2e-07|3.1e-02|-1.597468e+00 -1.626448e+00| 0:0:00| chol  2  2
16|0.996|0.981|4.0e-11|6.1e-08|2.7e-03|-1.624644e+00 -1.626692e+00| 0:0:00| chol  2  2
17|0.987|0.986|8.4e-12|1.8e-08|3.5e-05|-1.627056e+00 -1.626904e+00| 0:0:00| chol  2  2
18|1.000|1.000|5.8e-09|1.7e-12|3.2e-06|-1.627085e+00 -1.627088e+00| 0:0:00| chol  4  5
19|0.999|0.997|1.0e-10|3.6e-13|4.1e-08|-1.627087e+00 -1.627088e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.62708742e+00
 dual   objective value = -1.62708751e+00
 gap := trace(XZ)       = 4.07e-08
 relative gap           = 9.56e-09
 actual relative gap    = 2.21e-08
 rel. primal infeas     = 1.02e-10
 rel. dual   infeas     = 3.60e-13
 norm(X), norm(y), norm(Z) = 1.0e+03, 6.5e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.0e+04, 5.2e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.2e-10  0.0e+00  5.0e-13  0.0e+00  2.2e-08  9.6e-09
-------------------------------------------------------------------

ans =
```

```
    1.6271

Epoch... 47
Epoch... 48

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.6e+02|2.2e+07| 5.231143e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|6.7e-07|2.3e+00|4.4e+05| 5.263691e+04 -2.125576e+03| 0:0:00| chol  1  1
 2|1.000|0.865|1.3e-07|3.3e-01|9.0e+04| 3.179523e+04 -1.714701e+02| 0:0:00| chol  2  2
 3|0.661|0.958|9.4e-08|3.6e-02|3.2e+04| 1.982241e+04 -3.950564e+02| 0:0:00| chol  1  1
 4|0.978|0.913|4.7e-08|1.6e-02|3.2e+03| 1.556347e+03 -1.472042e+02| 0:0:00| chol  2  2
 5|0.898|0.486|5.4e-09|1.0e-02|2.2e+03| 1.199407e+03 -9.543494e+01| 0:0:00| chol  1  2
 6|0.294|0.733|3.7e-09|3.6e-03|1.4e+03| 1.018896e+03 -7.475321e+01| 0:0:00| chol  2  2
 7|0.995|0.841|5.7e-10|9.0e-04|5.7e+02| 4.232185e+02 -4.116641e+01| 0:0:00| chol  2  2
 8|0.817|0.885|6.6e-10|2.7e-04|2.4e+02| 1.867621e+02 -1.674758e+01| 0:0:00| chol  2  2
 9|0.828|0.917|5.9e-10|1.1e-04|1.2e+02| 9.772943e+01 -7.233339e+00| 0:0:00| chol  2  2
10|1.000|1.000|3.7e-10|4.8e-05|5.6e+01| 4.365066e+01 -3.929850e+00| 0:0:00| chol  2  2
11|1.000|1.000|5.2e-09|2.4e-05|1.9e+01| 1.468458e+01 -2.264654e+00| 0:0:00| chol  2  2
12|1.000|1.000|3.9e-09|1.2e-05|4.9e+00| 2.753060e+00 -1.731799e+00| 0:0:00| chol  2  2
13|0.948|0.870|2.0e-10|4.6e-06|5.7e-01|-1.089948e+00 -1.620378e+00| 0:0:00| chol  2  2
14|1.000|0.886|1.7e-12|1.5e-06|2.0e-01|-1.388613e+00 -1.573132e+00| 0:0:00| chol  2  2
15|0.930|0.987|8.6e-13|3.4e-07|3.1e-02|-1.541357e+00 -1.569461e+00| 0:0:00| chol  2  2
16|0.991|0.973|2.4e-11|1.0e-07|1.7e-03|-1.568461e+00 -1.569369e+00| 0:0:00| chol  2  2
17|0.897|0.877|2.4e-11|3.8e-08|2.2e-04|-1.569761e+00 -1.569702e+00| 0:0:00| chol  2  2
18|1.000|1.000|3.3e-10|2.3e-12|6.2e-05|-1.569899e+00 -1.569960e+00| 0:0:00| chol  4  3
19|1.000|1.000|2.0e-10|3.4e-12|4.8e-06|-1.569951e+00 -1.569956e+00| 0:0:00| chol  4  4
20|0.999|0.997|8.4e-11|7.8e-13|6.2e-08|-1.569955e+00 -1.569955e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -1.56995513e+00
 dual   objective value = -1.56995522e+00
 gap := trace(XZ)       = 6.16e-08
 relative gap           = 1.49e-08
 actual relative gap    = 2.23e-08
 rel. primal infeas     = 8.40e-11
 rel. dual   infeas     = 7.81e-13
 norm(X), norm(y), norm(Z) = 7.5e+02, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 1.1e+04, 5.5e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.7e-10  0.0e+00  1.1e-12  0.0e+00  2.2e-08  1.5e-08
-------------------------------------------------------------------
```

```
ans =

    1.5700

Epoch... 49
Epoch... 50

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.7e+02|2.5e+07| 5.211761e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|7.0e-07|2.4e+00|4.7e+05| 5.251187e+04 -2.219686e+03| 0:0:00| chol  1  1
 2|1.000|0.869|1.3e-07|3.4e-01|9.4e+04| 3.280524e+04 -1.665242e+02| 0:0:00| chol  2  2
 3|0.659|0.956|9.2e-08|3.7e-02|3.3e+04| 2.075848e+04 -4.027052e+02| 0:0:00| chol  1  1
 4|0.975|0.920|4.8e-08|1.6e-02|3.3e+03| 1.619541e+03 -1.550663e+02| 0:0:00| chol  2  2
 5|0.837|0.496|8.3e-09|1.0e-02|2.3e+03| 1.251106e+03 -9.877687e+01| 0:0:00| chol  1  2
 6|0.302|0.726|5.7e-09|3.7e-03|1.5e+03| 1.053550e+03 -8.207569e+01| 0:0:00| chol  2  1
 7|0.950|0.837|8.3e-10|9.1e-04|6.2e+02| 4.673901e+02 -4.234364e+01| 0:0:00| chol  2  2
 8|0.836|0.929|7.5e-10|2.4e-04|2.4e+02| 1.890875e+02 -1.780354e+01| 0:0:00| chol  2  2
 9|0.831|0.774|8.1e-10|1.3e-04|1.3e+02| 9.713913e+01 -7.138171e+00| 0:0:00| chol  2  2
10|0.802|0.992|3.8e-10|4.8e-05|7.3e+01| 5.896285e+01 -4.856186e+00| 0:0:00| chol  2  2
11|1.000|1.000|5.3e-09|2.4e-05|3.3e+01| 2.663268e+01 -2.726080e+00| 0:0:00| chol  2  2
12|1.000|1.000|5.9e-09|1.2e-05|5.8e+00| 3.580038e+00 -1.729728e+00| 0:0:00| chol  2  2
13|1.000|0.935|1.5e-09|4.1e-06|5.7e-01|-1.082846e+00 -1.607391e+00| 0:0:00| chol  2  2
14|0.898|0.960|1.6e-10|1.2e-06|1.6e-01|-1.419994e+00 -1.568933e+00| 0:0:00| chol  2  2
15|0.931|0.935|1.1e-11|3.8e-07|3.0e-02|-1.540332e+00 -1.566955e+00| 0:0:00| chol  2  2
16|0.996|0.982|7.7e-12|1.0e-07|1.2e-03|-1.566819e+00 -1.567044e+00| 0:0:00| chol  2  2
17|0.986|0.986|1.9e-11|3.0e-08|1.6e-05|-1.567852e+00 -1.567588e+00| 0:0:00| chol  3  3
18|1.000|0.997|7.5e-10|9.4e-11|3.4e-06|-1.567863e+00 -1.567866e+00| 0:0:00| chol  3  3
19|0.999|1.000|1.3e-10|5.6e-13|5.4e-08|-1.567866e+00 -1.567866e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.56786630e+00
 dual   objective value = -1.56786637e+00
 gap := trace(XZ)       = 5.36e-08
 relative gap           = 1.30e-08
 actual relative gap    = 1.61e-08
 rel. primal infeas     = 1.32e-10
 rel. dual   infeas     = 5.65e-13
 norm(X), norm(y), norm(Z) = 9.1e+02, 6.5e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.2e+04, 5.5e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.7e-10  0.0e+00  7.8e-13  0.0e+00  1.6e-08  1.3e-08
-------------------------------------------------------------------
```

```
ans =

    1.5679

Epoch... 51
Epoch... 52

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.8e+02|2.7e+07| 5.169379e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.986|7.7e-07|2.7e+00|5.1e+05| 5.215979e+04 -2.446663e+03| 0:0:00| chol  1  1
 2|1.000|0.874|1.2e-07|3.6e-01|9.8e+04| 3.373138e+04 -1.668357e+02| 0:0:00| chol  2  2
 3|0.671|0.950|8.6e-08|3.8e-02|3.4e+04| 2.141054e+04 -4.115960e+02| 0:0:00| chol  1  1
 4|0.967|0.917|4.6e-08|1.6e-02|3.4e+03| 1.685334e+03 -1.606226e+02| 0:0:00| chol  2  2
 5|0.798|0.491|9.7e-09|1.0e-02|2.4e+03| 1.310853e+03 -1.017691e+02| 0:0:00| chol  1  2
 6|0.302|0.710|6.7e-09|3.8e-03|1.6e+03| 1.101342e+03 -8.896151e+01| 0:0:00| chol  2  1
 7|0.949|0.832|9.2e-10|9.6e-04|6.6e+02| 4.973616e+02 -4.262252e+01| 0:0:00| chol  2  2
 8|0.847|0.863|7.6e-10|3.0e-04|2.4e+02| 1.826634e+02 -2.055285e+01| 0:0:00| chol  2  2
 9|0.995|0.716|7.8e-10|1.5e-04|1.1e+02| 7.717378e+01 -7.332603e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.8e-10|4.8e-05|5.4e+01| 4.351573e+01 -2.959546e+00| 0:0:00| chol  2  2
11|0.889|1.000|1.0e-10|2.4e-05|1.8e+01| 1.385596e+01 -2.442908e+00| 0:0:00| chol  2  2
12|1.000|1.000|6.0e-11|7.1e-06|6.2e+00| 4.202733e+00 -1.640501e+00| 0:0:00| chol  2  2
13|0.945|0.933|2.0e-11|2.5e-06|5.1e-01|-1.066298e+00 -1.546342e+00| 0:0:00| chol  2  2
14|1.000|0.939|2.6e-12|7.5e-07|1.8e-01|-1.340402e+00 -1.513475e+00| 0:0:00| chol  1  1
15|0.905|0.974|1.9e-12|2.1e-07|2.3e-02|-1.484746e+00 -1.506627e+00| 0:0:00| chol  2  2
16|0.940|0.992|4.4e-11|5.9e-08|3.5e-03|-1.503892e+00 -1.506895e+00| 0:0:00| chol  2  2
17|0.973|0.986|1.1e-11|1.8e-08|9.0e-05|-1.507068e+00 -1.507018e+00| 0:0:00| chol  2  2
18|1.000|1.000|4.4e-09|2.2e-12|1.1e-05|-1.507144e+00 -1.507155e+00| 0:0:00| chol  3  3
19|0.996|0.997|5.1e-11|1.7e-12|1.5e-07|-1.507154e+00 -1.507155e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 19
 primal objective value = -1.50715443e+00
 dual   objective value = -1.50715458e+00
 gap := trace(XZ)       = 1.47e-07
 relative gap           = 3.65e-08
 actual relative gap    = 3.80e-08
 rel. primal infeas     = 5.07e-11
 rel. dual   infeas     = 1.71e-12
 norm(X), norm(y), norm(Z) = 7.7e+02, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 1.3e+04, 5.7e+03, 4.8e+01
 Total CPU time (secs)  = 0.12
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.0e-10  0.0e+00  2.4e-12  0.0e+00  3.8e-08  3.7e-08
-------------------------------------------------------------------
```

```
ans =

    1.5072

Epoch... 53
Epoch... 54

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.9e+02|3.0e+07| 5.110114e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.985|7.8e-07|2.8e+00|5.6e+05| 5.163671e+04 -2.433874e+03| 0:0:00| chol  1  1
 2|1.000|0.878|1.1e-07|3.6e-01|1.0e+05| 3.485260e+04 -1.593865e+02| 0:0:00| chol  2  2
 3|0.664|0.957|7.4e-08|3.7e-02|3.6e+04| 2.279933e+04 -4.209371e+02| 0:0:00| chol  1  1
 4|0.979|0.943|4.6e-08|1.5e-02|3.5e+03| 1.761183e+03 -1.655195e+02| 0:0:00| chol  1  1
 5|0.811|0.564|9.5e-09|9.0e-03|2.3e+03| 1.316140e+03 -9.811568e+01| 0:0:00| chol  1  1
 6|0.321|0.775|6.3e-09|3.0e-03|1.5e+03| 1.091944e+03 -8.140015e+01| 0:0:00| chol  1  2
 7|0.768|0.837|1.8e-09|8.1e-04|7.1e+02| 5.708892e+02 -4.350427e+01| 0:0:00| chol  2  2
 8|0.896|0.729|9.0e-10|3.0e-04|2.7e+02| 1.905489e+02 -2.435167e+01| 0:0:00| chol  2  2
 9|0.969|0.694|1.3e-09|1.3e-04|1.2e+02| 8.602610e+01 -7.528080e+00| 0:0:00| chol  2  2
10|1.000|0.965|5.6e-10|3.2e-05|5.7e+01| 4.754420e+01 -2.855599e+00| 0:0:00| chol  2  2
11|0.806|1.000|1.3e-10|1.4e-05|2.2e+01| 1.793560e+01 -2.500377e+00| 0:0:00| chol  2  2
12|1.000|1.000|3.8e-10|7.1e-06|9.1e+00| 6.881625e+00 -1.682224e+00| 0:0:00| chol  2  2
13|0.949|1.000|1.5e-09|2.1e-06|1.3e+00|-3.025702e-01 -1.558118e+00| 0:0:00| chol  2  2
14|0.861|0.952|2.1e-10|7.1e-07|2.9e-01|-1.241354e+00 -1.524770e+00| 0:0:00| chol  2  2
15|1.000|0.886|2.2e-11|2.5e-07|1.1e-01|-1.403168e+00 -1.511399e+00| 0:0:00| chol  2  2
16|0.896|0.986|6.8e-11|6.0e-08|1.4e-02|-1.494049e+00 -1.507157e+00| 0:0:00| chol  2  2
17|0.981|0.979|6.0e-12|1.8e-08|4.5e-04|-1.506700e+00 -1.507004e+00| 0:0:00| chol  2  2
18|0.965|0.985|1.8e-10|5.4e-09|1.6e-05|-1.507112e+00 -1.507083e+00| 0:0:00| chol  4  4
19|1.000|1.000|1.5e-09|1.8e-12|2.3e-06|-1.507125e+00 -1.507127e+00| 0:0:00| chol  5  5
20|0.998|0.996|6.3e-11|3.1e-13|2.8e-08|-1.507127e+00 -1.507127e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -1.50712683e+00
 dual   objective value = -1.50712689e+00
 gap := trace(XZ)       = 2.76e-08
 relative gap           = 6.87e-09
 actual relative gap    = 1.52e-08
 rel. primal infeas     = 6.35e-11
 rel. dual   infeas     = 3.14e-13
 norm(X), norm(y), norm(Z) = 8.0e+02, 6.5e+01, 4.8e+01
 norm(A), norm(b), norm(C) = 1.3e+04, 5.7e+03, 4.8e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.2e-10  0.0e+00  4.3e-13  0.0e+00  1.5e-08  6.9e-09
-------------------------------------------------------------------
```

```
ans =

    1.5071

Epoch... 55
Epoch... 56

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.9e+02|3.4e+07| 5.055111e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.985|8.6e-07|2.9e+00|6.3e+05| 5.114163e+04 -2.163684e+03| 0:0:00| chol  1  1
 2|1.000|0.878|1.1e-07|3.8e-01|1.2e+05| 3.648210e+04 -1.566246e+02| 0:0:00| chol  2  2
 3|0.643|0.980|7.0e-08|3.2e-02|3.9e+04| 2.533330e+04 -4.441162e+02| 0:0:00| chol  1  1
 4|1.000|1.000|4.4e-08|1.4e-02|5.1e+03| 2.964190e+03 -1.689322e+02| 0:0:00| chol  2  1
 5|0.800|0.791|1.0e-08|6.3e-03|2.5e+03| 1.656858e+03 -7.498568e+01| 0:0:00| chol  2  2
 6|1.000|0.915|2.8e-09|1.7e-03|1.1e+03| 8.524512e+02 -4.232991e+01| 0:0:00| chol  1  2
 7|0.746|1.000|2.7e-09|6.3e-04|6.1e+02| 4.788526e+02 -4.002218e+01| 0:0:00| chol  2  2
 8|0.885|1.000|1.7e-09|3.2e-04|2.8e+02| 2.163698e+02 -1.607320e+01| 0:0:00| chol  2  2
 9|1.000|0.965|9.7e-10|1.6e-04|1.0e+02| 7.508022e+01 -6.913001e+00| 0:0:00| chol  2  2
10|0.922|1.000|5.0e-10|7.9e-05|4.0e+01| 2.890499e+01 -3.424950e+00| 0:0:00| chol  2  2
11|1.000|1.000|2.2e-10|2.4e-05|1.5e+01| 1.131811e+01 -1.897483e+00| 0:0:00| chol  2  2
12|0.909|1.000|3.8e-11|7.1e-06|3.2e+00| 1.370005e+00 -1.587627e+00| 0:0:00| chol  2  2
13|1.000|1.000|3.6e-11|2.1e-06|5.3e-01|-1.033496e+00 -1.530006e+00| 0:0:00| chol  2  2
14|0.782|0.989|1.2e-11|6.6e-07|1.4e-01|-1.384951e+00 -1.517888e+00| 0:0:00| chol  2  2
15|0.752|0.859|7.4e-11|2.6e-07|5.5e-02|-1.464519e+00 -1.515919e+00| 0:0:00| chol  2  2
16|1.000|1.000|2.0e-10|5.8e-08|1.6e-02|-1.502598e+00 -1.517413e+00| 0:0:00| chol  2  2
17|0.978|0.979|4.1e-11|1.8e-08|3.6e-04|-1.516406e+00 -1.516528e+00| 0:0:00| chol  3  3
18|1.000|1.000|6.2e-10|8.2e-12|4.6e-05|-1.516698e+00 -1.516744e+00| 0:0:00| chol  3  3
19|1.000|0.997|6.8e-11|5.1e-12|7.5e-07|-1.516739e+00 -1.516740e+00| 0:0:00| chol 20 16
20|1.000|0.992|1.8e-10|2.1e-13|2.6e-08|-1.516740e+00 -1.516740e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 20
 primal objective value = -1.51673996e+00
 dual   objective value = -1.51674005e+00
 gap := trace(XZ)       = 2.58e-08
 relative gap           = 6.41e-09
 actual relative gap    = 2.35e-08
 rel. primal infeas     = 1.75e-10
 rel. dual   infeas     = 2.14e-13
 norm(X), norm(y), norm(Z) = 1.4e+03, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 1.3e+04, 5.6e+03, 4.8e+01
 Total CPU time (secs)  = 0.13
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 3.4e-10  0.0e+00  2.9e-13  0.0e+00  2.3e-08  6.4e-09
```

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

ans =

    1.5167

Epoch... 57
Epoch... 58

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|1.8e+02|3.9e+07| 5.005954e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.984|8.8e-07|2.9e+00|7.4e+05| 5.069963e+04 -1.758688e+03| 0:0:00| chol  2  2
 2|1.000|0.878|1.1e-07|3.8e-01|1.3e+05| 3.824689e+04 -1.443206e+02| 0:0:00| chol  1  2
 3|0.606|0.986|7.0e-08|3.1e-02|4.3e+04| 2.853312e+04 -4.598239e+02| 0:0:00| chol  1  2
 4|1.000|1.000|3.9e-08|1.4e-02|7.4e+03| 4.597589e+03 -1.959419e+02| 0:0:00| chol  1  1
 5|0.833|0.825|1.1e-08|8.3e-03|2.6e+03| 1.634431e+03 -6.688267e+01| 0:0:00| chol  2  1
 6|1.000|1.000|1.8e-09|2.1e-03|1.1e+03| 8.490434e+02 -4.563109e+01| 0:0:00| chol  2  2
 7|1.000|1.000|1.9e-09|6.3e-04|3.4e+02| 2.505674e+02 -2.848919e+01| 0:0:00| chol  2  2
 8|0.845|0.812|2.4e-09|2.7e-04|1.4e+02| 1.063095e+02 -1.041626e+01| 0:0:00| chol  2  2
 9|1.000|0.919|9.3e-10|7.5e-05|6.6e+01| 5.121647e+01 -4.612568e+00| 0:0:00| chol  2  2
10|1.000|0.961|6.3e-10|3.0e-05|2.5e+01| 1.969625e+01 -2.175030e+00| 0:0:00| chol  2  2
11|0.943|1.000|2.4e-09|1.4e-05|8.8e+00| 5.899527e+00 -1.935358e+00| 0:0:00| chol  2  2
12|1.000|1.000|7.0e-11|4.3e-06|3.1e+00| 1.112372e+00 -1.743336e+00| 0:0:00| chol  2  2
13|0.941|0.878|4.7e-11|1.6e-06|2.8e-01|-1.481246e+00 -1.683986e+00| 0:0:00| chol  2  2
14|0.706|0.658|1.3e-09|8.2e-07|1.2e-01|-1.634961e+00 -1.703997e+00| 0:0:00| chol  2  3
15|0.514|0.520|1.4e-09|4.9e-07|8.8e-02|-1.667051e+00 -1.719853e+00| 0:0:00| chol  3  2
16|0.488|0.765|1.8e-09|1.9e-07|6.8e-02|-1.685159e+00 -1.738126e+00| 0:0:00| chol  3  3
17|0.772|0.865|1.4e-09|6.7e-08|3.1e-02|-1.718916e+00 -1.744355e+00| 0:0:00| chol  3  3
18|1.000|1.000|8.1e-10|2.4e-08|4.1e-03|-1.743903e+00 -1.745961e+00| 0:0:00| chol  3  3
19|0.984|0.980|2.5e-09|1.2e-08|9.4e-05|-1.747499e+00 -1.746555e+00| 0:0:00| chol  7  7
20|1.000|0.803|7.2e-08|2.5e-09|5.4e-05|-1.747610e+00 -1.747380e+00| 0:0:00| chol  5  5
21|1.000|1.000|1.8e-08|1.7e-11|1.6e-05|-1.747571e+00 -1.747580e+00| 0:0:00| chol 28 28
  stop: primal infeas has deteriorated too much, 9.2e-06
22|0.547|0.532|1.8e-08|1.7e-11|1.6e-05|-1.747571e+00 -1.747580e+00| 0:0:00|
-------------------------------------------------------------------
 number of iterations   = 22
 primal objective value = -1.74757090e+00
 dual   objective value = -1.74758036e+00
 gap := trace(XZ)       = 1.56e-05
 relative gap           = 3.47e-06
 actual relative gap    = 2.10e-06
 rel. primal infeas     = 1.76e-08
 rel. dual   infeas     = 1.68e-11
 norm(X), norm(y), norm(Z) = 7.6e+03, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 1.2e+04, 5.4e+03, 4.8e+01
 Total CPU time (secs)  = 0.14
```

```
 CPU time per iteration = 0.01
 termination code       = -7
 DIMACS errors: 3.4e-08  0.0e+00  2.3e-11  0.0e+00  2.1e-06  3.5e-06
------------------------------------------------------------------

ans =

    1.7476

Epoch... 59
Epoch... 60

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|2.2e+02|4.5e+07| 5.054382e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.984|1.0e-06|3.5e+00|8.2e+05| 5.122357e+04 -2.346171e+03| 0:0:00| chol  1  1
 2|1.000|0.887|1.0e-07|4.2e-01|1.4e+05| 3.933454e+04 -1.570911e+02| 0:0:00| chol  2  2
 3|0.651|0.984|6.7e-08|3.2e-02|4.3e+04| 2.872336e+04 -4.749847e+02| 0:0:00| chol  2  2
 4|1.000|1.000|4.7e-08|1.4e-02|7.0e+03| 4.314707e+03 -1.931244e+02| 0:0:00| chol  2  2
 5|0.887|0.865|9.1e-09|8.0e-03|2.6e+03| 1.703407e+03 -6.544008e+01| 0:0:00| chol  2  2
 6|1.000|1.000|1.1e-09|2.1e-03|1.1e+03| 8.602421e+02 -4.291513e+01| 0:0:00| chol  2  2
 7|0.990|1.000|2.6e-09|6.3e-04|3.5e+02| 2.574230e+02 -2.989883e+01| 0:0:00| chol  2  2
 8|0.819|0.813|2.0e-09|2.7e-04|1.5e+02| 1.144514e+02 -1.024254e+01| 0:0:00| chol  2  2
 9|1.000|0.783|1.4e-09|1.0e-04|7.3e+01| 5.239117e+01 -4.982103e+00| 0:0:00| chol  2  2
10|1.000|0.949|7.3e-10|3.2e-05|3.2e+01| 2.508922e+01 -2.295894e+00| 0:0:00| chol  2  2
11|0.800|1.000|2.1e-09|1.4e-05|1.1e+01| 8.171032e+00 -2.005647e+00| 0:0:00| chol  2  2
12|1.000|0.756|2.0e-10|6.7e-06|4.6e+00| 2.402948e+00 -1.732792e+00| 0:0:00| chol  2  2
13|0.909|0.790|8.8e-10|2.4e-06|9.8e-01|-8.569067e-01 -1.673768e+00| 0:0:00| chol  2  2
14|0.915|0.906|6.0e-10|8.1e-07|1.4e-01|-1.597473e+00 -1.673533e+00| 0:0:00| chol  3  3
15|0.826|0.735|2.3e-09|4.5e-07|5.6e-02|-1.674923e+00 -1.693685e+00| 0:0:00| chol  3  2
16|0.630|0.733|3.3e-09|2.4e-07|3.8e-02|-1.692766e+00 -1.709239e+00| 0:0:00| chol  3  3
17|0.646|0.943|2.0e-09|8.9e-08|2.4e-02|-1.704809e+00 -1.720967e+00| 0:0:00| chol  3  3
18|0.931|1.000|1.6e-09|4.0e-08|7.6e-03|-1.720592e+00 -1.724393e+00| 0:0:00| chol  3  3
19|0.981|0.998|3.1e-09|2.0e-08|3.7e-04|-1.727265e+00 -1.725702e+00| 0:0:00| chol  4  4
20|0.442|1.000|1.1e-08|3.0e-10|3.1e-04|-1.727337e+00 -1.727610e+00| 0:0:00| chol  5  5
21|0.974|0.980|6.3e-10|1.5e-11|1.0e-05|-1.727579e+00 -1.727587e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30  30
22|1.000|0.908|1.9e-09|2.5e-12|1.2e-06|-1.727586e+00 -1.727587e+00| 0:0:00| lu 30  30
23|0.987|0.857|2.5e-08|4.7e-13|1.1e-07|-1.727589e+00 -1.727587e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 23
 primal objective value = -1.72758938e+00
 dual   objective value = -1.72758658e+00
 gap := trace(XZ)       = 1.10e-07
 relative gap           = 2.47e-08
```

```
 actual relative gap    = -6.29e-07
 rel. primal infeas     = 2.52e-08
 rel. dual   infeas     = 4.67e-13
 norm(X), norm(y), norm(Z) = 8.6e+03, 6.4e+01, 4.6e+01
 norm(A), norm(b), norm(C) = 1.4e+04, 5.7e+03, 4.8e+01
 Total CPU time (secs)  = 0.17
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 4.7e-08  0.0e+00  6.4e-13  0.0e+00  -6.3e-07  2.5e-08
------------------------------------------------------------------

ans =

    1.7276

Epoch... 61
Epoch... 62

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|2.6e+02|5.1e+07| 5.155190e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.984|1.1e-06|4.2e+00|9.4e+05| 5.226922e+04 -2.819257e+03| 0:0:00| chol  1  1
 2|1.000|0.897|9.9e-08|4.6e-01|1.5e+05| 4.118159e+04 -1.479873e+02| 0:0:00| chol  2  2
 3|0.680|0.975|6.5e-08|3.5e-02|4.6e+04| 2.983980e+04 -4.853220e+02| 0:0:00| chol  2  2
 4|1.000|1.000|4.9e-08|1.4e-02|6.2e+03| 3.684879e+03 -1.963618e+02| 0:0:00| chol  2  1
 5|0.956|0.879|6.8e-09|7.9e-03|2.6e+03| 1.657296e+03 -6.926448e+01| 0:0:00| chol  2  2
 6|0.854|0.958|2.3e-09|2.4e-03|1.2e+03| 9.460565e+02 -4.064131e+01| 0:0:00| chol  2  2
 7|0.682|0.923|2.7e-09|7.7e-04|7.1e+02| 5.743848e+02 -4.023060e+01| 0:0:00| chol  2  2
 8|0.861|0.680|1.4e-09|3.7e-04|3.6e+02| 2.676678e+02 -2.461749e+01| 0:0:00| chol  2  2
 9|1.000|0.742|2.5e-09|1.7e-04|1.4e+02| 9.651289e+01 -8.949429e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.6e-09|4.8e-05|5.4e+01| 4.162803e+01 -3.124517e+00| 0:0:00| chol  2  2
11|1.000|1.000|5.7e-09|2.4e-05|1.7e+01| 1.252983e+01 -2.161900e+00| 0:0:00| chol  2  2
12|1.000|0.890|4.1e-09|1.3e-05|3.9e+00| 1.512038e+00 -1.693411e+00| 0:0:00| chol  2  2
13|0.896|0.687|8.5e-10|6.6e-06|7.9e-01|-1.345977e+00 -1.662643e+00| 0:0:00| chol  2  2
14|0.524|0.411|9.4e-10|4.6e-06|6.2e-01|-1.690645e+00 -1.792798e+00| 0:0:00| chol  2  2
15|0.476|0.468|3.3e-09|2.9e-06|5.2e-01|-1.893129e+00 -1.979139e+00| 0:0:00| chol  2  2
16|0.591|0.669|3.9e-09|1.2e-06|4.0e-01|-2.037256e+00 -2.207759e+00| 0:0:00| chol  2  2
17|0.707|0.782|4.3e-09|4.5e-07|2.4e-01|-2.178945e+00 -2.325718e+00| 0:0:00| chol  3  3
18|0.921|1.000|2.8e-09|1.1e-07|9.1e-02|-2.308446e+00 -2.375608e+00| 0:0:00| chol  3  3
19|0.906|0.984|1.3e-09|5.7e-08|8.4e-03|-2.384116e+00 -2.380367e+00| 0:0:00| chol  4  3
20|0.469|1.000|3.8e-08|5.8e-09|6.8e-03|-2.385877e+00 -2.391411e+00| 0:0:00| chol  4  4
21|1.000|1.000|2.1e-09|9.5e-10|1.2e-03|-2.391112e+00 -2.392121e+00| 0:0:00| chol  3  4
22|0.984|0.987|3.0e-10|7.6e-11|2.1e-05|-2.392113e+00 -2.392118e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 11 ^15
  stop: progress in duality gap has deteriorated, 3.9e-05
23|0.543|0.568|3.0e-10|7.6e-11|2.1e-05|-2.392113e+00 -2.392118e+00| 0:0:00|
```

```
-----------------------------------------------------------------
 number of iterations   = 23
 primal objective value = -2.39211309e+00
 dual   objective value = -2.39211818e+00
 gap := trace(XZ)       = 2.13e-05
 relative gap           = 3.68e-06
 actual relative gap    = 8.79e-07
 rel. primal infeas     = 3.04e-10
 rel. dual   infeas     = 7.65e-11
 norm(X), norm(y), norm(Z) = 1.9e+04, 6.7e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 1.7e+04, 6.0e+03, 4.8e+01
 Total CPU time (secs)  = 0.15
 CPU time per iteration = 0.01
 termination code       = -8
 DIMACS errors: 5.6e-10  0.0e+00  1.1e-10  0.0e+00  8.8e-07  3.7e-06
-----------------------------------------------------------------

ans =

    2.3921

Epoch... 63
Epoch... 64

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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|2.9e+02|5.5e+07| 5.106520e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.983|1.4e-06|4.9e+00|1.0e+06| 5.180337e+04 -3.272627e+03| 0:0:00| chol  2  2
 2|1.000|0.905|1.0e-07|4.9e-01|1.5e+05| 4.173057e+04 -1.490841e+02| 0:0:00| chol  2  2
 3|0.719|0.968|6.2e-08|3.7e-02|4.6e+04| 2.984156e+04 -4.825806e+02| 0:0:00| chol  1  2
 4|1.000|1.000|5.4e-08|1.4e-02|5.5e+03| 3.163229e+03 -1.873227e+02| 0:0:00| chol  1  1
 5|0.975|0.873|8.7e-09|7.9e-03|2.5e+03| 1.639539e+03 -7.148461e+01| 0:0:00| chol  2  2
 6|0.545|1.000|2.8e-09|2.1e-03|1.4e+03| 1.171815e+03 -4.982400e+01| 0:0:00| chol  2  2
 7|0.962|0.864|3.9e-09|8.4e-04|6.2e+02| 4.585813e+02 -4.133331e+01| 0:0:00| chol  2  2
 8|0.834|0.840|2.6e-09|4.0e-04|2.9e+02| 2.211018e+02 -1.491017e+01| 0:0:00| chol  2  2
 9|1.000|0.768|8.2e-10|2.1e-04|1.3e+02| 8.807116e+01 -8.972059e+00| 0:0:00| chol  2  2
10|1.000|0.934|1.8e-09|8.8e-05|5.5e+01| 4.038998e+01 -2.981863e+00| 0:0:00| chol  2  2
11|0.769|1.000|1.7e-10|4.0e-05|2.3e+01| 1.721697e+01 -2.495366e+00| 0:0:00| chol  2  2
12|1.000|1.000|1.8e-10|2.0e-05|8.5e+00| 5.552721e+00 -1.734541e+00| 0:0:00| chol  2  2
13|1.000|0.798|1.1e-09|8.7e-06|1.2e+00|-8.145192e-01 -1.640107e+00| 0:0:00| chol  2  2
14|0.524|0.514|7.0e-10|5.2e-06|8.0e-01|-1.298758e+00 -1.718905e+00| 0:0:00| chol  2  2
15|0.315|0.328|1.5e-09|3.8e-06|7.1e-01|-1.498966e+00 -1.814090e+00| 0:0:00| chol  2  2
16|0.261|0.568|2.3e-09|1.9e-06|6.4e-01|-1.615852e+00 -2.008579e+00| 0:0:00| chol  2  2
17|0.494|0.496|2.2e-09|1.1e-06|4.8e-01|-1.785701e+00 -2.097539e+00| 0:0:00| chol  2  2
18|0.554|0.993|1.9e-09|1.2e-07|3.5e-01|-1.894378e+00 -2.221559e+00| 0:0:00| chol  2  2
19|1.000|1.000|8.5e-10|5.6e-08|7.4e-02|-2.148791e+00 -2.213384e+00| 0:0:00| chol  3  3
20|0.950|0.984|7.4e-10|6.5e-09|3.6e-03|-2.213160e+00 -2.215683e+00| 0:0:00| chol  4  3
```

```
21|1.000|0.969|4.1e-09|8.9e-10|8.5e-04|-2.215864e+00 -2.216567e+00| 0:0:00| chol  4  4
22|0.985|0.987|5.5e-10|7.4e-11|1.4e-05|-2.216606e+00 -2.216607e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 13 ^ 7
23|0.976|0.822|1.5e-08|1.8e-11|1.0e-05|-2.216609e+00 -2.216622e+00| 0:0:00| lu 30   3
24|1.000|0.977|6.4e-09|1.2e-12|1.4e-06|-2.216618e+00 -2.216617e+00| 0:0:00| lu 27  30
25|0.785|0.693|6.9e-08|5.6e-13|3.9e-07|-2.216625e+00 -2.216617e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 25
 primal objective value = -2.21662542e+00
 dual   objective value = -2.21661686e+00
 gap := trace(XZ)       = 3.91e-07
 relative gap           = 7.19e-08
 actual relative gap    = -1.58e-06
 rel. primal infeas     = 6.92e-08
 rel. dual   infeas     = 5.62e-13
 norm(X), norm(y), norm(Z) = 1.5e+04, 6.5e+01, 4.7e+01
 norm(A), norm(b), norm(C) = 1.9e+04, 5.8e+03, 4.8e+01
 Total CPU time (secs)  = 0.18
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.3e-07  0.0e+00  7.7e-13  0.0e+00  -1.6e-06  7.2e-08
-----------------------------------------------------------------

ans =

    2.2166

Epoch... 65
Epoch... 66

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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+02|6.1e+07| 5.171794e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.983|1.4e-06|5.5e+00|1.2e+06| 5.247593e+04 -3.702549e+03| 0:0:00| chol  2  2
 2|1.000|0.911|9.4e-08|5.1e-01|1.6e+05| 4.306956e+04 -1.516808e+02| 0:0:00| chol  1  1
 3|0.747|0.962|5.6e-08|4.0e-02|4.8e+04| 3.062077e+04 -4.874856e+02| 0:0:00| chol  2  2
 4|1.000|0.995|5.2e-08|1.4e-02|5.7e+03| 3.249999e+03 -2.038176e+02| 0:0:00| chol  2  2
 5|0.976|0.828|7.6e-09|8.3e-03|2.8e+03| 1.757675e+03 -7.962129e+01| 0:0:00| chol  2  2
 6|0.466|1.000|2.6e-09|2.1e-03|1.6e+03| 1.332084e+03 -6.815244e+01| 0:0:00| chol  2  2
 7|1.000|0.836|4.2e-09|8.8e-04|6.2e+02| 4.486356e+02 -4.378041e+01| 0:0:00| chol  2  2
 8|0.871|0.833|3.4e-09|4.1e-04|2.6e+02| 1.913741e+02 -1.472577e+01| 0:0:00| chol  2  2
 9|1.000|0.823|8.5e-10|2.0e-04|1.2e+02| 8.339959e+01 -7.569982e+00| 0:0:00| chol  2  2
10|1.000|0.985|9.1e-10|8.1e-05|4.8e+01| 3.547935e+01 -2.695828e+00| 0:0:00| chol  2  2
11|0.774|1.000|2.7e-10|4.0e-05|2.0e+01| 1.467111e+01 -2.365343e+00| 0:0:00| chol  2  2
12|1.000|0.725|1.6e-10|2.0e-05|7.8e+00| 4.509048e+00 -1.915856e+00| 0:0:00| chol  2  2
```

```
13|0.691|0.444|2.9e-09|1.2e-05|3.3e+00| 4.272961e-02 -1.928071e+00| 0:0:00| chol  2  2
14|0.452|0.429|2.3e-09|7.9e-06|2.5e+00|-9.802960e-01 -2.244241e+00| 0:0:00| chol  2  2
15|0.415|0.361|5.0e-09|5.3e-06|2.1e+00|-1.520401e+00 -2.545535e+00| 0:0:00| chol  2  2
16|0.414|0.551|4.7e-09|2.6e-06|1.8e+00|-1.856870e+00 -2.999933e+00| 0:0:00| chol  2  2
17|0.520|0.637|3.9e-09|1.1e-06|1.3e+00|-2.272547e+00 -3.252843e+00| 0:0:00| chol  2  2
18|0.693|0.996|2.2e-09|1.2e-07|7.0e-01|-2.748644e+00 -3.415430e+00| 0:0:00| chol  3  3
19|1.000|1.000|7.6e-10|5.6e-08|8.3e-02|-3.331810e+00 -3.398909e+00| 0:0:00| chol  3  3
20|0.873|0.979|1.6e-09|6.8e-09|1.1e-02|-3.396625e+00 -3.405381e+00| 0:0:00| chol  3  4
21|1.000|0.982|6.9e-09|9.0e-10|1.2e-03|-3.405850e+00 -3.406762e+00| 0:0:00| chol  5  5
22|0.985|0.988|1.3e-09|7.2e-11|1.9e-05|-3.406829e+00 -3.406827e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^ 3
  stop: progress in duality gap has deteriorated, 3.5e-05
23|0.795|0.709|1.3e-09|7.2e-11|1.9e-05|-3.406829e+00 -3.406827e+00| 0:0:00|
-----------------------------------------------------------------
 number of iterations   = 23
 primal objective value = -3.40682893e+00
 dual   objective value = -3.40682657e+00
 gap := trace(XZ)       = 1.91e-05
 relative gap           = 2.44e-06
 actual relative gap    = -3.02e-07
 rel. primal infeas     = 1.28e-09
 rel. dual   infeas     = 7.21e-11
 norm(X), norm(y), norm(Z) = 2.5e+04, 6.9e+01, 5.3e+01
 norm(A), norm(b), norm(C) = 2.1e+04, 6.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.15
 CPU time per iteration = 0.01
 termination code       = -8
 DIMACS errors: 2.3e-09  0.0e+00  9.9e-11  0.0e+00  -3.0e-07  2.4e-06
-----------------------------------------------------------------

ans =

    3.4068

Epoch... 67
Epoch... 68

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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+02|6.5e+07| 5.178780e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.983|1.8e-06|7.2e+00|1.3e+06| 5.256456e+04 -5.202266e+03| 0:0:00| chol  2  2
 2|1.000|0.926|1.0e-07|5.5e-01|1.5e+05| 4.374788e+04 -1.501606e+02| 0:0:00| chol  2  2
 3|0.849|0.926|5.9e-08|5.7e-02|4.8e+04| 2.818393e+04 -4.497539e+02| 0:0:00| chol  2  2
 4|1.000|0.976|4.2e-08|1.5e-02|6.7e+03| 3.817420e+03 -2.455059e+02| 0:0:00| chol  2  1
 5|0.946|0.755|7.6e-09|8.9e-03|3.4e+03| 2.116149e+03 -8.760042e+01| 0:0:00| chol  2  2
 6|0.425|1.000|3.8e-09|2.1e-03|2.1e+03| 1.675739e+03 -1.068293e+02| 0:0:00| chol  2  2
```

```
 7|1.000|1.000|3.0e-09|1.1e-03|7.8e+02| 5.791313e+02 -3.735793e+01| 0:0:00| chol  2  2
 8|0.886|1.000|1.3e-09|5.3e-04|2.7e+02| 1.939299e+02 -1.660861e+01| 0:0:00| chol  2  2
 9|1.000|0.822|7.5e-10|2.2e-04|1.1e+02| 7.946543e+01 -5.955184e+00| 0:0:00| chol  2  2
10|0.617|1.000|5.1e-10|7.9e-05|6.6e+01| 5.142538e+01 -3.883079e+00| 0:0:00| chol  2  2
11|1.000|1.000|3.6e-10|4.0e-05|2.7e+01| 1.963687e+01 -2.470037e+00| 0:0:00| chol  2  2
12|0.923|0.949|5.1e-09|2.1e-05|4.3e+00| 1.708901e+00 -1.670372e+00| 0:0:00| chol  2  2
13|0.692|0.599|1.6e-09|1.2e-05|2.1e+00|-3.269685e-01 -1.704240e+00| 0:0:00| chol  2  2
14|0.259|0.179|1.4e-09|1.0e-05|2.0e+00|-7.832649e-01 -1.823341e+00| 0:0:00| chol  2  2
15|0.402|0.188|5.4e-09|8.4e-06|1.9e+00|-1.229191e+00 -2.022384e+00| 0:0:00| chol  2  2
16|0.094|0.324|5.8e-09|5.8e-06|1.9e+00|-1.290733e+00 -2.400073e+00| 0:0:00| chol  2  2
17|0.240|0.387|4.6e-09|3.6e-06|1.6e+00|-1.638046e+00 -2.485009e+00| 0:0:00| chol  3  3
18|1.000|0.952|9.0e-09|2.8e-07|8.8e-01|-2.238108e+00 -3.059991e+00| 0:0:00| chol  2  2
19|0.957|0.903|9.4e-10|7.9e-08|1.2e-01|-2.898268e+00 -3.005235e+00| 0:0:00| chol  3  3
20|0.929|0.959|8.7e-10|8.8e-09|1.2e-02|-2.997921e+00 -3.008069e+00| 0:0:00| chol  3  3
21|0.951|0.944|1.8e-09|1.2e-09|2.9e-03|-3.006515e+00 -3.009135e+00| 0:0:00| chol  4  4
22|0.947|0.999|3.4e-09|1.6e-10|2.7e-04|-3.008878e+00 -3.009115e+00| 0:0:00| chol  8  8
23|0.993|0.997|4.8e-09|1.2e-11|2.9e-05|-3.009093e+00 -3.009120e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^ 6
24|1.000|0.887|6.6e-08|3.9e-12|6.3e-06|-3.009181e+00 -3.009117e+00| 0:0:00| lu 11  30
25|0.773|0.858|8.1e-08|1.2e-12|1.7e-06|-3.009233e+00 -3.009117e+00| 0:0:00| lu 19 ^20
26|0.010|0.048|7.7e-08|1.9e-12|1.9e-06|-3.009209e+00 -3.009117e+00| 0:0:00| lu 30 ^13
27|0.004|0.004|7.3e-08|2.7e-12|2.0e-06|-3.009202e+00 -3.009117e+00| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
  stop: steps too short consecutively
-----------------------------------------------------------------
 number of iterations   = 27
 primal objective value = -3.00923335e+00
 dual   objective value = -3.00911720e+00
 gap := trace(XZ)       = 1.71e-06
 relative gap           = 2.44e-07
 actual relative gap    = -1.66e-05
 rel. primal infeas     = 8.06e-08
 rel. dual   infeas     = 1.23e-12
 norm(X), norm(y), norm(Z) = 2.0e+04, 6.6e+01, 4.9e+01
 norm(A), norm(b), norm(C) = 2.6e+04, 6.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.21
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 1.4e-07  0.0e+00  1.7e-12  0.0e+00  -1.7e-05  2.4e-07
-----------------------------------------------------------------

ans =

    3.0091

Epoch... 69
Epoch... 70

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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+02|7.1e+07| 5.262418e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|1.8e-06|7.2e+00|1.4e+06| 5.341066e+04 -4.923615e+03| 0:0:00| chol  2  2
 2|1.000|0.924|1.0e-07|5.7e-01|1.6e+05| 4.498359e+04 -1.496389e+02| 0:0:00| chol  2  2
 3|0.834|0.941|5.5e-08|5.1e-02|5.0e+04| 3.029416e+04 -4.794560e+02| 0:0:00| chol  2  2
 4|1.000|0.971|4.8e-08|1.5e-02|5.9e+03| 3.194503e+03 -2.355711e+02| 0:0:00| chol  2  1
 5|0.938|0.694|8.8e-09|9.4e-03|3.2e+03| 1.933773e+03 -8.888878e+01| 0:0:00| chol  2  2
 6|0.391|0.961|4.1e-09|2.4e-03|2.0e+03| 1.560577e+03 -9.861935e+01| 0:0:00| chol  2  2
 7|0.943|0.809|3.9e-09|9.7e-04|7.8e+02| 5.868984e+02 -4.787639e+01| 0:0:00| chol  2  2
 8|1.000|0.800|2.7e-09|4.5e-04|2.6e+02| 1.701974e+02 -1.894181e+01| 0:0:00| chol  2  2
 9|1.000|0.772|3.0e-09|2.2e-04|1.1e+02| 7.709476e+01 -5.683773e+00| 0:0:00| chol  2  2
10|1.000|1.000|4.0e-10|7.9e-05|5.0e+01| 3.761551e+01 -2.827223e+00| 0:0:00| chol  2  2
11|0.950|1.000|2.1e-10|4.0e-05|1.2e+01| 7.822582e+00 -2.084000e+00| 0:0:00| chol  2  2
12|1.000|0.663|1.8e-10|2.1e-05|4.3e+00| 1.023038e+00 -1.918299e+00| 0:0:00| chol  2  2
13|0.355|0.340|3.4e-10|1.5e-05|3.2e+00|-5.942338e-01 -2.088251e+00| 0:0:00| chol  2  2
14|0.208|0.293|2.8e-09|1.1e-05|3.0e+00|-1.364017e+00 -2.488226e+00| 0:0:00| chol  2  2
15|0.156|0.549|3.9e-09|5.6e-06|2.7e+00|-1.858458e+00 -3.336735e+00| 0:0:00| chol  2  2
16|0.223|0.561|4.8e-09|2.7e-06|2.4e+00|-2.365930e+00 -3.947422e+00| 0:0:00| chol  3  3
17|0.711|0.632|1.4e-08|1.1e-06|1.4e+00|-3.406180e+00 -4.388270e+00| 0:0:00| chol  3  3
18|0.893|0.878|8.1e-09|2.4e-07|5.7e-01|-4.140401e+00 -4.624597e+00| 0:0:00| chol  2  2
19|0.902|0.990|1.4e-09|5.8e-08|6.0e-02|-4.597159e+00 -4.637692e+00| 0:0:00| chol  3  3
20|1.000|1.000|3.2e-08|5.8e-09|2.2e-02|-4.635067e+00 -4.655272e+00| 0:0:00| chol  3  3
21|0.960|0.983|2.4e-09|9.4e-10|1.1e-03|-4.653977e+00 -4.654746e+00| 0:0:00| chol  5  5
22|1.000|0.987|2.0e-09|8.5e-11|7.0e-05|-4.654851e+00 -4.654890e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^15
23|1.000|0.952|1.8e-08|6.8e-12|1.0e-05|-4.654885e+00 -4.654907e+00| 0:0:00| lu 30 ^13
24|1.000|0.977|1.4e-08|3.7e-13|8.1e-07|-4.654882e+00 -4.654904e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 24
 primal objective value = -4.65488229e+00
 dual   objective value = -4.65490447e+00
 gap := trace(XZ)       = 8.11e-07
 relative gap           = 7.87e-08
 actual relative gap    = 2.15e-06
 rel. primal infeas     = 1.43e-08
 rel. dual   infeas     = 3.74e-13
 norm(X), norm(y), norm(Z) = 3.0e+04, 7.0e+01, 5.5e+01
 norm(A), norm(b), norm(C) = 2.6e+04, 6.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.17
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 2.6e-08  0.0e+00  5.2e-13  0.0e+00  2.2e-06  7.9e-08
-----------------------------------------------------------------

ans =

    4.6549

Epoch... 71
```

```
Epoch... 72

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   SDPT3: Infeasible path-following algorithms
*******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.5e+02|7.3e+07| 5.174110e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.2e-06|8.1e+00|1.4e+06| 5.253069e+04 -5.762497e+03| 0:0:00| chol  2  2
 2|1.000|0.931|1.1e-07|5.9e-01|1.6e+05| 4.461566e+04 -1.617833e+02| 0:0:00| chol  2  2
 3|0.894|0.926|5.3e-08|5.9e-02|4.8e+04| 2.852160e+04 -4.551530e+02| 0:0:00| chol  2  2
 4|1.000|0.969|4.8e-08|1.5e-02|7.1e+03| 4.058286e+03 -2.512576e+02| 0:0:00| chol  1  1
 5|0.968|0.752|7.6e-09|9.0e-03|3.5e+03| 2.170256e+03 -8.806860e+01| 0:0:00| chol  2  2
 6|0.451|0.980|3.6e-09|2.2e-03|2.1e+03| 1.699332e+03 -1.111917e+02| 0:0:00| chol  2  2
 7|1.000|1.000|3.1e-09|1.1e-03|8.0e+02| 5.967301e+02 -3.969401e+01| 0:0:00| chol  2  2
 8|0.890|1.000|1.6e-09|5.3e-04|2.7e+02| 1.955096e+02 -1.496216e+01| 0:0:00| chol  2  2
 9|0.998|0.820|1.3e-09|2.3e-04|1.2e+02| 7.928347e+01 -6.096851e+00| 0:0:00| chol  2  2
10|1.000|0.982|3.7e-09|8.2e-05|5.7e+01| 4.256650e+01 -3.132163e+00| 0:0:00| chol  2  2
11|0.716|1.000|1.1e-09|4.0e-05|3.1e+01| 2.347664e+01 -2.982469e+00| 0:0:00| chol  2  2
12|1.000|0.925|8.6e-10|2.1e-05|1.2e+01| 7.925460e+00 -2.235420e+00| 0:0:00| chol  2  2
13|0.755|0.570|1.7e-09|1.5e-05|4.7e+00| 7.136518e-01 -2.242051e+00| 0:0:00| chol  2  2
14|0.529|0.514|5.7e-09|9.7e-06|3.1e+00|-1.082860e+00 -2.582771e+00| 0:0:00| chol  2  2
15|0.391|0.423|6.9e-09|6.7e-06|2.6e+00|-1.721422e+00 -2.979301e+00| 0:0:00| chol  2  2
16|0.330|0.573|6.6e-09|3.6e-06|2.2e+00|-2.108763e+00 -3.496780e+00| 0:0:00| chol  2  2
17|0.362|0.654|5.3e-09|1.6e-06|1.8e+00|-2.492623e+00 -3.839189e+00| 0:0:00| chol  2  3
18|0.468|0.797|4.2e-09|5.8e-07|1.3e+00|-2.953747e+00 -4.057625e+00| 0:0:00| chol  2  2
19|1.000|1.000|1.6e-09|1.6e-07|2.5e-01|-3.910899e+00 -4.118439e+00| 0:0:00| chol  3  3
20|0.929|1.000|2.2e-09|1.6e-08|2.3e-02|-4.117429e+00 -4.135972e+00| 0:0:00| chol  3  3
21|1.000|0.978|9.3e-09|2.3e-09|4.0e-03|-4.135687e+00 -4.139029e+00| 0:0:00| chol  3  3
22|0.987|0.988|4.7e-10|2.0e-10|5.9e-05|-4.139112e+00 -4.139114e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^ 7
23|1.000|0.939|1.9e-08|1.7e-11|1.4e-05|-4.139189e+00 -4.139164e+00| 0:0:00| lu 15 ^13
24|0.603|0.599|1.1e-07|8.7e-12|6.4e-06|-4.139070e+00 -4.139160e+00| 0:0:00| lu 11 ^20
25|0.027|0.042|7.3e-08|1.1e-11|6.8e-06|-4.139046e+00 -4.139160e+00| 0:0:00| lu 30 ^19
26|0.002|0.007|6.4e-08|1.3e-11|7.4e-06|-4.139028e+00 -4.139160e+00| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
  stop: steps too short consecutively
-------------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -4.13906982e+00
 dual   objective value = -4.13915984e+00
 gap := trace(XZ)       = 6.38e-06
 relative gap           = 6.88e-07
 actual relative gap    = 9.70e-06
 rel. primal infeas     = 1.07e-07
 rel. dual   infeas     = 8.71e-12
 norm(X), norm(y), norm(Z) = 2.5e+04, 6.7e+01, 5.0e+01
 norm(A), norm(b), norm(C) = 2.9e+04, 5.9e+03, 4.8e+01
```

```
 Total CPU time (secs)  = 0.20
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 2.0e-07  0.0e+00  1.2e-11  0.0e+00  9.7e-06  6.9e-07
------------------------------------------------------------------

ans =

    4.1392

Epoch... 73
Epoch... 74

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+02|7.6e+07| 5.157734e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.1e-06|8.7e+00|1.5e+06| 5.237747e+04 -6.268994e+03| 0:0:00| chol  2  2
 2|1.000|0.935|1.0e-07|5.8e-01|1.6e+05| 4.481794e+04 -1.472639e+02| 0:0:00| chol  2  2
 3|0.924|0.911|5.5e-08|6.7e-02|4.9e+04| 2.776106e+04 -4.301235e+02| 0:0:00| chol  2  2
 4|1.000|0.978|4.8e-08|1.5e-02|9.3e+03| 5.687964e+03 -2.887901e+02| 0:0:00| chol  1  2
 5|0.990|0.833|9.2e-09|8.3e-03|4.2e+03| 2.632782e+03 -9.569172e+01| 0:0:00| chol  2  2
 6|0.556|1.000|3.0e-09|3.5e-03|2.5e+03| 1.871649e+03 -1.223784e+02| 0:0:00| chol  2  2
 7|1.000|1.000|2.8e-09|1.8e-03|9.6e+02| 6.982932e+02 -4.006596e+01| 0:0:00| chol  2  2
 8|0.890|0.979|1.0e-09|5.5e-04|2.4e+02| 1.691596e+02 -1.730441e+01| 0:0:00| chol  2  2
 9|0.687|0.673|1.4e-09|2.9e-04|1.5e+02| 1.053190e+02 -7.305331e+00| 0:0:00| chol  2  2
10|1.000|0.834|9.3e-10|1.1e-04|7.5e+01| 5.327776e+01 -4.984795e+00| 0:0:00| chol  2  2
11|1.000|1.000|8.6e-10|4.0e-05|2.5e+01| 1.765502e+01 -2.498552e+00| 0:0:00| chol  2  2
12|1.000|0.762|9.4e-11|2.5e-05|8.1e+00| 2.673573e+00 -2.480094e+00| 0:0:00| chol  2  2
13|0.391|0.402|1.0e-09|1.9e-05|6.0e+00|-4.457949e-01 -2.917877e+00| 0:0:00| chol  2  2
14|0.340|0.338|5.8e-09|1.4e-05|5.5e+00|-2.026480e+00 -3.773207e+00| 0:0:00| chol  2  2
15|0.251|0.405|9.0e-09|9.3e-06|5.1e+00|-2.856698e+00 -4.969251e+00| 0:0:00| chol  2  2
16|0.157|0.246|8.7e-09|7.4e-06|4.8e+00|-3.546405e+00 -5.386404e+00| 0:0:00| chol  2  2
17|1.000|0.710|1.7e-08|2.6e-06|2.6e+00|-5.495356e+00 -6.951677e+00| 0:0:00| chol  2  2
18|0.751|1.000|6.4e-09|3.1e-07|1.2e+00|-6.614768e+00 -7.651121e+00| 0:0:00| chol  2  2
19|0.907|0.977|7.8e-10|1.6e-07|1.1e-01|-7.594831e+00 -7.628568e+00| 0:0:00| chol  4  4
20|1.000|1.000|7.1e-08|1.6e-08|4.3e-02|-7.660716e+00 -7.696535e+00| 0:0:00| chol  3  3
21|0.951|0.976|3.9e-09|2.1e-09|2.5e-03|-7.697289e+00 -7.698786e+00| 0:0:00| chol  4  4
22|0.972|0.969|8.6e-09|2.3e-10|8.1e-05|-7.699504e+00 -7.699434e+00| 0:0:00| chol 20 30
23|0.823|1.000|1.1e-06|4.1e-12|2.2e-05|-7.699265e+00 -7.699530e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^18
24|0.347|0.673|8.1e-07|4.5e-12|1.7e-05|-7.699162e+00 -7.699530e+00| 0:0:00| lu 11 ^10
25|0.005|0.068|8.4e-07|7.6e-12|1.8e-05|-7.699426e+00 -7.699530e+00| 0:0:00|
  stop: progress is bad
-------------------------------------------------------------------
 number of iterations   = 25
 primal objective value = -7.69916191e+00
```

```
 dual   objective value = -7.69952978e+00
 gap := trace(XZ)       = 1.66e-05
 relative gap           = 1.01e-06
 actual relative gap    = 2.24e-05
 rel. primal infeas     = 8.06e-07
 rel. dual   infeas     = 4.45e-12
 norm(X), norm(y), norm(Z) = 4.3e+04, 7.4e+01, 6.0e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 6.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.17
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 1.4e-06  0.0e+00  6.1e-12  0.0e+00  2.2e-05  1.0e-06
------------------------------------------------------------------

ans =

    7.6995

Epoch... 75
Epoch... 76

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+02|7.5e+07| 4.945281e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.5e-06|8.6e+00|1.5e+06| 5.025415e+04 -6.086887e+03| 0:0:00| chol  2  2
 2|1.000|0.935|1.2e-07|5.8e-01|1.5e+05| 4.316952e+04 -1.549015e+02| 0:0:00| chol  2  2
 3|0.935|0.922|6.3e-08|6.1e-02|4.6e+04| 2.687693e+04 -4.281667e+02| 0:0:00| chol  2  2
 4|1.000|0.974|5.4e-08|1.5e-02|7.3e+03| 4.273602e+03 -2.496334e+02| 0:0:00| chol  1  2
 5|0.967|0.772|7.9e-09|8.8e-03|3.6e+03| 2.223312e+03 -8.644127e+01| 0:0:00| chol  2  2
 6|0.462|0.989|4.0e-09|2.2e-03|2.2e+03| 1.730351e+03 -1.111055e+02| 0:0:00| chol  2  2
 7|1.000|1.000|3.1e-09|1.1e-03|8.1e+02| 6.047614e+02 -4.034072e+01| 0:0:00| chol  2  2
 8|0.875|0.974|2.1e-09|5.4e-04|2.5e+02| 1.798941e+02 -1.418639e+01| 0:0:00| chol  2  2
 9|0.803|0.836|1.3e-09|2.2e-04|1.3e+02| 9.658169e+01 -5.833595e+00| 0:0:00| chol  2  2
10|1.000|1.000|2.2e-09|7.9e-05|6.2e+01| 4.563673e+01 -4.201308e+00| 0:0:00| chol  2  2
11|1.000|1.000|9.8e-10|4.0e-05|2.4e+01| 1.683659e+01 -2.459657e+00| 0:0:00| chol  2  2
12|0.953|0.793|3.2e-10|2.4e-05|4.6e+00| 5.655845e-01 -2.270901e+00| 0:0:00| chol  2  2
13|0.408|0.429|6.7e-10|1.8e-05|3.4e+00|-1.012108e+00 -2.489039e+00| 0:0:00| chol  2  2
14|0.197|0.464|2.5e-09|1.2e-05|3.0e+00|-1.922197e+00 -3.030677e+00| 0:0:00| chol  2  2
15|0.108|0.354|4.5e-09|8.6e-06|2.9e+00|-2.597764e+00 -3.640972e+00| 0:0:00| chol  3  3
16|0.749|0.492|2.6e-08|5.0e-06|2.1e+00|-3.938721e+00 -4.496364e+00| 0:0:00| chol  3  3
17|1.000|0.710|2.4e-08|1.9e-06|1.0e+00|-4.998282e+00 -5.363765e+00| 0:0:00| chol  2  2
18|1.000|1.000|1.4e-08|3.1e-07|3.8e-01|-5.550516e+00 -5.815937e+00| 0:0:00| chol  2  2
19|0.897|0.978|2.2e-09|1.6e-07|4.0e-02|-5.849807e+00 -5.831790e+00| 0:0:00| chol  3  3
20|0.555|1.000|5.3e-08|1.6e-08|2.9e-02|-5.860881e+00 -5.884412e+00| 0:0:00| chol  4  4
21|1.000|0.995|5.1e-09|2.3e-09|3.0e-03|-5.885223e+00 -5.887402e+00| 0:0:00| chol  4  4
22|0.965|0.980|1.2e-09|2.4e-10|1.8e-04|-5.887553e+00 -5.887641e+00| 0:0:00| chol 15 30
23|1.000|0.983|1.0e-06|7.3e-12|1.3e-05|-5.887686e+00 -5.887696e+00| 0:0:00| chol
```

```
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30  30
24|0.894|0.801|1.1e-07|2.1e-12|2.7e-06|-5.887724e+00 -5.887696e+00| 0:0:00| lu 17 ^ 3
25|1.000|0.884|5.8e-08|4.7e-13|9.0e-07|-5.887749e+00 -5.887696e+00| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 25
 primal objective value = -5.88774891e+00
 dual   objective value = -5.88769550e+00
 gap := trace(XZ)       = 9.01e-07
 relative gap           = 7.05e-08
 actual relative gap    = -4.18e-06
 rel. primal infeas     = 5.79e-08
 rel. dual   infeas     = 4.66e-13
 norm(X), norm(y), norm(Z) = 3.3e+04, 6.9e+01, 5.2e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 5.4e+03, 4.8e+01
 Total CPU time (secs)  = 0.18
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.1e-07  0.0e+00  6.4e-13  0.0e+00  -4.2e-06  7.1e-08
-----------------------------------------------------------------

ans =

    5.8877

Epoch... 77
Epoch... 78

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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+02|7.5e+07| 4.852879e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.5e-06|8.8e+00|1.5e+06| 4.933580e+04 -6.398860e+03| 0:0:00| chol  2  2
 2|1.000|0.939|1.2e-07|5.5e-01|1.5e+05| 4.251850e+04 -1.330467e+02| 0:0:00| chol  2  2
 3|0.958|0.905|7.8e-08|6.8e-02|4.5e+04| 2.550159e+04 -3.898119e+02| 0:0:00| chol  2  2
 4|1.000|0.977|5.8e-08|1.5e-02|9.3e+03| 5.776847e+03 -2.774192e+02| 0:0:00| chol  2  2
 5|1.000|0.876|1.0e-08|8.0e-03|3.8e+03| 2.457669e+03 -8.803590e+01| 0:0:00| chol  2  2
 6|0.669|1.000|3.1e-09|3.5e-03|2.1e+03| 1.522837e+03 -9.714779e+01| 0:0:00| chol  2  2
 7|1.000|1.000|2.2e-09|1.1e-03|7.3e+02| 5.668474e+02 -3.217728e+01| 0:0:00| chol  2  2
 8|0.856|0.809|1.3e-09|4.6e-04|2.6e+02| 1.837978e+02 -1.910409e+01| 0:0:00| chol  2  2
 9|1.000|0.720|3.5e-09|2.4e-04|1.2e+02| 7.481927e+01 -6.114986e+00| 0:0:00| chol  2  2
10|1.000|1.000|2.2e-09|7.9e-05|4.8e+01| 3.457909e+01 -3.599895e+00| 0:0:00| chol  2  2
11|1.000|0.944|3.9e-10|4.2e-05|1.2e+01| 6.463549e+00 -2.383124e+00| 0:0:00| chol  2  2
12|0.539|0.367|5.4e-10|3.1e-05|6.5e+00| 4.118597e-01 -2.480487e+00| 0:0:00| chol  2  2
13|0.321|0.233|1.8e-09|2.5e-05|6.0e+00|-1.688163e+00 -3.044647e+00| 0:0:00| chol  2  2
14|0.371|0.251|1.2e-08|2.0e-05|5.9e+00|-3.581311e+00 -4.001553e+00| 0:0:00| chol  2  2
15|0.309|0.230|2.0e-08|1.5e-05|6.1e+00|-3.953587e+00 -5.425163e+00| 0:0:00| chol  2  2
```

```
16|0.153|0.329|1.8e-08|1.1e-05|5.2e+00|-5.274458e+00 -5.922331e+00| 0:0:00| chol  2  2
17|1.000|0.823|2.7e-08|2.2e-06|3.9e+00|-6.318154e+00 -9.230334e+00| 0:0:00| chol  2  2
18|0.921|0.882|2.5e-09|4.2e-07|5.3e-01|-9.016984e+00 -9.330038e+00| 0:0:00| chol  2  2
19|0.695|1.000|3.7e-09|9.3e-08|2.7e-01|-9.213203e+00 -9.432023e+00| 0:0:00| chol  3  3
20|0.941|1.000|1.1e-08|1.0e-08|6.1e-02|-9.405379e+00 -9.461148e+00| 0:0:00| chol  4  4
21|0.947|1.000|1.4e-08|2.0e-09|8.5e-03|-9.453319e+00 -9.460688e+00| 0:0:00| chol  5  6
22|0.976|0.999|2.1e-08|2.5e-10|9.4e-04|-9.459777e+00 -9.460623e+00| 0:0:00| chol 11 15
23|0.971|0.980|7.0e-08|1.5e-11|5.6e-05|-9.460637e+00 -9.460600e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^10
24|0.899|0.678|3.2e-07|8.9e-12|2.4e-05|-9.461145e+00 -9.460599e+00| 0:0:00| lu 30 ^18
25|0.138|0.115|5.2e-07|1.2e-11|2.5e-05|-9.461012e+00 -9.460599e+00| 0:0:00| lu 30 ^22
26|1.000|0.623|5.1e-07|8.1e-12|2.1e-05|-9.462003e+00 -9.460598e+00| 0:0:00|
  stop: progress is too slow
-----------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -9.46114527e+00
 dual   objective value = -9.46059882e+00
 gap := trace(XZ)       = 2.45e-05
 relative gap           = 1.23e-06
 actual relative gap    = -2.74e-05
 rel. primal infeas     = 3.22e-07
 rel. dual   infeas     = 8.91e-12
 norm(X), norm(y), norm(Z) = 4.7e+04, 7.5e+01, 6.1e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 5.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.20
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 6.2e-07  0.0e+00  1.2e-11  0.0e+00  -2.7e-05  1.2e-06
-----------------------------------------------------------------

ans =

    9.4606

Epoch... 79
Epoch... 80

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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+02|7.4e+07| 4.743276e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.7e-06|8.6e+00|1.4e+06| 4.823003e+04 -6.116620e+03| 0:0:00| chol  2  2
 2|1.000|0.937|1.2e-07|5.6e-01|1.5e+05| 4.158674e+04 -1.514267e+02| 0:0:00| chol  2  2
 3|0.955|0.920|8.4e-08|6.1e-02|4.4e+04| 2.549355e+04 -4.063721e+02| 0:0:00| chol  2  1
 4|1.000|0.971|5.8e-08|1.5e-02|7.1e+03| 4.120631e+03 -2.401925e+02| 0:0:00| chol  1  2
 5|0.989|0.788|7.7e-09|8.7e-03|3.3e+03| 2.068520e+03 -8.123433e+01| 0:0:00| chol  2  2
 6|0.507|0.992|4.0e-09|2.2e-03|2.0e+03| 1.561414e+03 -9.522269e+01| 0:0:00| chol  2  2
```

```
 7|1.000|1.000|1.9e-09|1.1e-03|7.5e+02| 5.535975e+02 -3.857789e+01| 0:0:00| chol  2  2
 8|0.890|0.985|1.7e-09|5.4e-04|2.4e+02| 1.699138e+02 -1.328100e+01| 0:0:00| chol  2  2
 9|0.795|0.831|8.2e-10|2.2e-04|1.2e+02| 8.932198e+01 -5.667961e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.0e-09|7.9e-05|5.8e+01| 4.218989e+01 -4.236433e+00| 0:0:00| chol  2  2
11|1.000|0.989|9.9e-10|4.0e-05|1.9e+01| 1.206075e+01 -2.489558e+00| 0:0:00| chol  2  2
12|0.932|0.726|4.6e-10|2.5e-05|5.7e+00| 5.749803e-01 -2.512554e+00| 0:0:00| chol  2  2
13|0.311|0.299|1.4e-09|2.1e-05|5.0e+00|-1.122546e+00 -2.943355e+00| 0:0:00| chol  2  2
14|0.282|0.337|6.3e-09|1.5e-05|4.7e+00|-2.442919e+00 -3.762594e+00| 0:0:00| chol  2  2
15|0.120|0.444|7.6e-09|9.7e-06|4.4e+00|-3.217447e+00 -4.983209e+00| 0:0:00| chol  3  3
16|0.557|0.488|1.7e-08|5.6e-06|3.5e+00|-4.720309e+00 -6.108687e+00| 0:0:00| chol  3  2
17|0.559|0.772|1.7e-08|1.7e-06|2.5e+00|-5.645062e+00 -7.386999e+00| 0:0:00| chol  2  2
18|0.828|0.863|5.9e-09|5.1e-07|9.9e-01|-6.989274e+00 -7.750068e+00| 0:0:00| chol  2  3
19|0.939|1.000|2.2e-09|1.6e-07|9.5e-02|-7.797919e+00 -7.822447e+00| 0:0:00| chol  4  4
20|1.000|1.000|3.5e-08|1.6e-08|2.3e-02|-7.865969e+00 -7.882010e+00| 0:0:00| chol  3  3
21|0.981|0.984|7.2e-09|1.9e-09|7.0e-04|-7.886107e+00 -7.885925e+00| 0:0:00| chol  9  9
22|0.987|0.987|1.8e-08|2.7e-11|9.8e-06|-7.886652e+00 -7.886656e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 14 ^30
23|0.955|0.898|1.1e-07|3.2e-12|2.4e-06|-7.886788e+00 -7.886666e+00| 0:0:00| lu 11  30
24|0.025|0.028|2.9e-07|3.7e-12|2.6e-06|-7.886822e+00 -7.886666e+00| 0:0:00| lu 30 ^10
25|0.066|0.078|3.0e-07|3.9e-12|2.8e-06|-7.886884e+00 -7.886666e+00| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
-----------------------------------------------------------------
 number of iterations   = 25
 primal objective value = -7.88678825e+00
 dual   objective value = -7.88666589e+00
 gap := trace(XZ)       = 2.44e-06
 relative gap           = 1.46e-07
 actual relative gap    = -7.29e-06
 rel. primal infeas     = 1.13e-07
 rel. dual   infeas     = 3.22e-12
 norm(X), norm(y), norm(Z) = 4.0e+04, 7.1e+01, 5.5e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 5.0e+03, 4.8e+01
 Total CPU time (secs)  = 0.18
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 2.2e-07  0.0e+00  4.4e-12  0.0e+00  -7.3e-06  1.5e-07
-----------------------------------------------------------------

ans =

    7.8867

Epoch... 81
Epoch... 82

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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|4.6e+02|7.2e+07| 4.568643e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.5e-06|8.4e+00|1.4e+06| 4.649187e+04 -6.106329e+03| 0:0:00| chol  2  2
 2|1.000|0.940|1.2e-07|5.2e-01|1.4e+05| 4.014931e+04 -1.216282e+02| 0:0:00| chol  2  2
 3|0.966|0.907|8.3e-08|6.4e-02|4.2e+04| 2.389808e+04 -3.638191e+02| 0:0:00| chol  2  2
 4|1.000|0.975|7.1e-08|1.5e-02|8.3e+03| 5.062446e+03 -2.547471e+02| 0:0:00| chol  2  1
 5|1.000|0.849|8.9e-09|8.2e-03|3.4e+03| 2.152507e+03 -8.084545e+01| 0:0:00| chol  2  2
 6|0.709|1.000|3.0e-09|3.5e-03|1.8e+03| 1.321389e+03 -7.635628e+01| 0:0:00| chol  2  2
 7|1.000|1.000|1.7e-09|1.1e-03|6.6e+02| 5.051441e+02 -3.073945e+01| 0:0:00| chol  2  2
 8|0.872|0.843|7.6e-10|4.3e-04|2.3e+02| 1.607339e+02 -1.669124e+01| 0:0:00| chol  2  2
 9|1.000|0.707|2.3e-09|2.4e-04|1.0e+02| 6.394166e+01 -5.634240e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.3e-09|7.9e-05|4.4e+01| 3.201546e+01 -3.194187e+00| 0:0:00| chol  2  2
11|0.900|0.984|2.0e-10|4.0e-05|1.1e+01| 6.042176e+00 -2.478611e+00| 0:0:00| chol  2  2
12|0.278|0.270|1.1e-09|3.3e-05|9.1e+00| 2.745573e+00 -2.698859e+00| 0:0:00| chol  2  2
13|0.161|0.296|1.2e-09|2.5e-05|8.4e+00| 6.987546e-01 -3.233626e+00| 0:0:00| chol  2  2
14|0.060|0.250|3.1e-09|1.9e-05|8.4e+00|-5.239149e-01 -4.397438e+00| 0:0:00| chol  2  2
15|0.059|0.049|4.6e-09|1.8e-05|8.7e+00|-2.062320e+00 -4.380803e+00| 0:0:00| chol  2  2
16|0.556|0.516|4.0e-08|9.3e-06|1.1e+01|-5.803091e-01 -8.771621e+00| 0:0:00| chol  2  2
17|0.532|0.483|2.0e-08|5.0e-06|7.7e+00|-4.308344e+00 -9.207594e+00| 0:0:00| chol  2  2
18|0.232|0.399|1.7e-08|3.1e-06|7.3e+00|-5.153182e+00 -1.040466e+01| 0:0:00| chol  2  2
19|0.940|1.000|7.1e-09|9.4e-08|2.5e+00|-8.828365e+00 -1.125994e+01| 0:0:00| chol  3  3
20|0.939|0.947|4.3e-09|1.5e-08|2.6e-01|-1.078963e+01 -1.104390e+01| 0:0:00| chol  3  3
21|0.946|0.985|2.1e-09|2.0e-09|3.9e-02|-1.098908e+01 -1.102658e+01| 0:0:00| chol  3  3
22|0.999|0.979|4.9e-09|5.5e-10|4.5e-03|-1.101986e+01 -1.102404e+01| 0:0:00| chol  6  6
23|0.960|0.980|1.4e-08|5.0e-11|1.9e-04|-1.102345e+01 -1.102363e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^24
24|1.000|0.988|1.7e-07|3.2e-12|1.6e-05|-1.102315e+01 -1.102363e+01| 0:0:00| lu 30 ^22
25|1.000|0.922|8.1e-07|1.2e-12|6.3e-06|-1.102349e+01 -1.102363e+01| 0:0:00| lu 30 ^10
26|0.537|1.000|1.6e-06|7.5e-13|4.7e-06|-1.102284e+01 -1.102363e+01| 0:0:00|
  stop: relative gap < infeasibility
-------------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -1.10231459e+01
 dual   objective value = -1.10236273e+01
 gap := trace(XZ)       = 1.62e-05
 relative gap           = 7.01e-07
 actual relative gap    = 2.09e-05
 rel. primal infeas     = 1.67e-07
 rel. dual   infeas     = 3.16e-12
 norm(X), norm(y), norm(Z) = 5.1e+04, 7.6e+01, 6.3e+01
 norm(A), norm(b), norm(C) = 2.9e+04, 4.7e+03, 4.8e+01
 Total CPU time (secs)  = 0.19
 CPU time per iteration = 0.01
 termination code       = -1
 DIMACS errors: 3.2e-07  0.0e+00  4.3e-12  0.0e+00  2.1e-05  7.0e-07
-------------------------------------------------------------------

ans =

   11.0236

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

```
 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   SDPT3: Infeasible path-following algorithms
*******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.4e+02|7.1e+07| 4.549176e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.6e-06|8.0e+00|1.4e+06| 4.629019e+04 -5.634971e+03| 0:0:00| chol  2  2
 2|1.000|0.936|1.2e-07|5.4e-01|1.4e+05| 3.994445e+04 -1.442112e+02| 0:0:00| chol  2  2
 3|0.942|0.931|8.6e-08|5.4e-02|4.2e+04| 2.498162e+04 -3.994563e+02| 0:0:00| chol  2  2
 4|1.000|0.966|7.3e-08|1.5e-02|5.7e+03| 3.107450e+03 -2.159345e+02| 0:0:00| chol  1  2
 5|0.953|0.727|7.9e-09|9.2e-03|2.9e+03| 1.780945e+03 -7.565585e+01| 0:0:00| chol  2  2
 6|0.492|0.964|4.3e-09|2.4e-03|1.7e+03| 1.347920e+03 -7.486385e+01| 0:0:00| chol  2  2
 7|1.000|0.803|1.7e-09|9.7e-04|6.7e+02| 4.858331e+02 -4.386223e+01| 0:0:00| chol  2  2
 8|0.911|0.805|2.2e-09|4.5e-04|2.8e+02| 1.918862e+02 -1.459834e+01| 0:0:00| chol  2  2
 9|1.000|0.820|3.6e-09|2.1e-04|1.1e+02| 7.615544e+01 -5.277239e+00| 0:0:00| chol  2  2
10|1.000|1.000|2.0e-09|7.9e-05|4.9e+01| 3.423217e+01 -3.670353e+00| 0:0:00| chol  2  2
11|1.000|1.000|8.0e-10|4.0e-05|1.6e+01| 1.000121e+01 -2.508980e+00| 0:0:00| chol  2  2
12|0.923|0.687|5.0e-10|2.6e-05|4.3e+00|-1.032442e+00 -2.513297e+00| 0:0:00| chol  2  2
13|0.390|0.317|3.3e-09|2.1e-05|3.7e+00|-2.988265e+00 -3.082753e+00| 0:0:00| chol  2  2
14|0.438|0.363|1.2e-08|1.5e-05|3.5e+00|-4.708588e+00 -4.166350e+00| 0:0:00| chol  2  2
15|0.786|0.437|2.2e-08|9.6e-06|3.3e+00|-5.970167e+00 -5.754022e+00| 0:0:00| chol  2  2
16|0.154|0.771|2.1e-08|3.2e-06|3.2e+00|-6.382112e+00 -8.232413e+00| 0:0:00| chol  2  2
17|0.889|0.947|1.1e-08|7.5e-07|9.1e-01|-7.821139e+00 -8.381955e+00| 0:0:00| chol  3  3
18|0.931|0.938|7.8e-09|3.4e-07|2.2e-01|-8.445216e+00 -8.507424e+00| 0:0:00| chol  3  3
19|0.823|1.000|1.6e-08|1.6e-07|9.8e-02|-8.558311e+00 -8.580933e+00| 0:0:00| chol  3  3
20|1.000|1.000|5.7e-08|1.7e-08|1.4e-02|-8.636366e+00 -8.641724e+00| 0:0:00| chol  3  3
21|0.981|0.978|9.9e-09|2.0e-09|3.7e-04|-8.647481e+00 -8.646915e+00| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^14
22|0.961|0.974|2.3e-07|5.4e-11|1.6e-05|-8.648120e+00 -8.647750e+00| 0:0:00| lu 30 ^20
23|0.503|0.524|8.5e-07|2.8e-11|1.4e-05|-8.648085e+00 -8.647765e+00| 0:0:00| lu 30 ^19
24|0.044|0.050|8.7e-07|3.0e-11|1.6e-05|-8.647961e+00 -8.647766e+00| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
-------------------------------------------------------------------
 number of iterations   = 24
 primal objective value = -8.64812010e+00
 dual   objective value = -8.64775018e+00
 gap := trace(XZ)       = 1.58e-05
 relative gap           = 8.63e-07
 actual relative gap    = -2.02e-05
 rel. primal infeas     = 2.34e-07
 rel. dual   infeas     = 5.38e-11
 norm(X), norm(y), norm(Z) = 4.3e+04, 7.1e+01, 5.6e+01
 norm(A), norm(b), norm(C) = 2.8e+04, 4.6e+03, 4.8e+01
 Total CPU time (secs)  = 0.18
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 4.7e-07  0.0e+00  7.4e-11  0.0e+00  -2.0e-05  8.6e-07
```

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

ans =

    8.6478

Epoch... 85
Epoch... 86

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+02|7.2e+07| 4.506424e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.4e-06|8.5e+00|1.4e+06| 4.587643e+04 -6.214519e+03| 0:0:00| chol  1  1
 2|1.000|0.942|1.1e-07|5.2e-01|1.4e+05| 3.965987e+04 -1.207191e+02| 0:0:00| chol  2  2
 3|0.976|0.903|8.2e-08|6.6e-02|4.2e+04| 2.329680e+04 -3.564681e+02| 0:0:00| chol  2  2
 4|1.000|0.973|6.9e-08|1.5e-02|8.4e+03| 5.162970e+03 -2.532554e+02| 0:0:00| chol  2  2
 5|1.000|0.860|8.3e-09|8.2e-03|3.4e+03| 2.134291e+03 -8.033287e+01| 0:0:00| chol  2  2
 6|0.718|1.000|2.9e-09|3.5e-03|1.8e+03| 1.305817e+03 -7.271493e+01| 0:0:00| chol  2  2
 7|1.000|1.000|2.3e-09|1.1e-03|6.6e+02| 5.063108e+02 -3.117341e+01| 0:0:00| chol  2  2
 8|0.871|0.855|9.4e-10|4.2e-04|2.3e+02| 1.632312e+02 -1.649560e+01| 0:0:00| chol  2  2
 9|1.000|0.697|1.9e-09|2.4e-04|1.0e+02| 6.474721e+01 -5.611921e+00| 0:0:00| chol  2  2
10|1.000|1.000|3.9e-09|7.9e-05|4.6e+01| 3.344722e+01 -3.082013e+00| 0:0:00| chol  2  2
11|0.866|0.966|7.6e-10|4.1e-05|1.3e+01| 7.389263e+00 -2.485675e+00| 0:0:00| chol  2  2
12|0.252|0.228|8.6e-10|3.4e-05|1.1e+01| 3.704071e+00 -2.760606e+00| 0:0:00| chol  2  2
13|0.202|0.225|6.4e-09|2.8e-05|1.0e+01| 1.006911e+00 -3.390934e+00| 0:0:00| chol  2  2
14|0.138|0.225|1.1e-08|2.2e-05|1.0e+01|-8.333978e-01 -4.707117e+00| 0:0:00| chol  2  2
15|0.115|0.152|1.2e-08|1.9e-05|1.0e+01|-2.430672e+00 -5.222236e+00| 0:0:00| chol  2  2
16|1.000|0.487|5.5e-08|1.0e-05|8.0e+00|-5.805452e+00 -8.605253e+00| 0:0:00| chol  2  2
17|0.300|0.955|4.4e-08|8.1e-07|6.1e+00|-7.219107e+00 -1.277350e+01| 0:0:00| chol  2  2
18|0.961|0.969|3.1e-09|2.1e-07|5.6e-01|-1.173360e+01 -1.217118e+01| 0:0:00| chol  3  2
19|0.874|0.973|2.3e-09|9.7e-08|7.4e-02|-1.216584e+01 -1.218068e+01| 0:0:00| chol  3  3
20|0.841|1.000|4.5e-08|9.7e-09|2.8e-02|-1.221022e+01 -1.223225e+01| 0:0:00| chol  4  4
21|0.959|1.000|1.3e-08|1.3e-09|2.2e-03|-1.223405e+01 -1.223547e+01| 0:0:00| chol  6  5
22|1.000|0.991|1.3e-08|3.6e-11|1.7e-04|-1.223573e+01 -1.223595e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30  30
23|0.944|0.937|5.8e-08|4.1e-12|1.3e-05|-1.223609e+01 -1.223593e+01| 0:0:00| lu 30  30
24|0.544|0.914|3.4e-07|1.5e-12|7.8e-06|-1.223491e+01 -1.223593e+01| 0:0:00| lu 11  30
25|0.216|0.323|1.1e-06|2.0e-12|6.6e-06|-1.223512e+01 -1.223593e+01| 0:0:00| lu 26 ^14
26|0.005|0.017|1.0e-06|3.0e-12|7.3e-06|-1.223496e+01 -1.223593e+01| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
-------------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -1.22349142e+01
 dual   objective value = -1.22359337e+01
 gap := trace(XZ)       = 7.83e-06
```

```
 relative gap           = 3.07e-07
 actual relative gap    = 4.00e-05
 rel. primal infeas     = 3.40e-07
 rel. dual   infeas     = 1.50e-12
 norm(X), norm(y), norm(Z) = 5.5e+04, 7.8e+01, 6.5e+01
 norm(A), norm(b), norm(C) = 2.9e+04, 4.8e+03, 4.8e+01
 Total CPU time (secs)  = 0.20
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 6.5e-07  0.0e+00  2.1e-12  0.0e+00  4.0e-05  3.1e-07
------------------------------------------------------------------

ans =

   12.2359

Epoch... 87
Epoch... 88

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   SDPT3: Infeasible path-following algorithms
*******************************************************************
 version  predcorr  gam  expon  scale_data
   HKM      1      0.000   1        0
it pstep dstep pinfeas dinfeas  gap      prim-obj      dual-obj    cputime
-------------------------------------------------------------------
 0|0.000|0.000|1.0e+00|4.4e+02|7.0e+07| 4.421075e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.7e-06|8.0e+00|1.4e+06| 4.501292e+04 -5.603676e+03| 0:0:00| chol  2  2
 2|1.000|0.937|1.2e-07|5.2e-01|1.4e+05| 3.887145e+04 -1.359247e+02| 0:0:00| chol  2  2
 3|0.949|0.928|9.1e-08|5.5e-02|4.1e+04| 2.404887e+04 -3.841088e+02| 0:0:00| chol  2  2
 4|1.000|0.967|7.5e-08|1.5e-02|5.7e+03| 3.123039e+03 -2.137683e+02| 0:0:00| chol  2  1
 5|0.919|0.720|9.5e-09|7.3e-03|2.9e+03| 1.788413e+03 -7.997900e+01| 0:0:00| chol  2  2
 6|0.572|0.896|4.6e-09|1.9e-03|1.6e+03| 1.283788e+03 -7.211125e+01| 0:0:00| chol  2  2
 7|0.931|0.874|3.8e-09|7.9e-04|7.2e+02| 5.377275e+02 -4.176621e+01| 0:0:00| chol  2  2
 8|0.883|0.800|2.8e-09|4.1e-04|3.0e+02| 2.115758e+02 -1.519788e+01| 0:0:00| chol  2  2
 9|1.000|0.843|5.2e-09|2.0e-04|1.2e+02| 8.382332e+01 -5.274450e+00| 0:0:00| chol  2  2
10|0.954|1.000|3.3e-09|7.9e-05|5.3e+01| 3.698670e+01 -3.825233e+00| 0:0:00| chol  2  2
11|1.000|1.000|1.1e-09|4.0e-05|2.1e+01| 1.387670e+01 -2.668042e+00| 0:0:00| chol  2  2
12|1.000|0.594|2.3e-09|2.8e-05|4.3e+00|-2.212331e+00 -2.645266e+00| 0:0:00| chol  2  2
13|0.479|0.402|3.3e-09|2.1e-05|3.4e+00|-4.382847e+00 -3.439972e+00| 0:0:00| chol  2  2
14|0.441|0.388|1.3e-08|1.5e-05|3.2e+00|-5.983172e+00 -4.697222e+00| 0:0:00| chol  2  2
15|0.764|0.532|2.7e-08|8.1e-06|2.9e+00|-7.242445e+00 -6.706688e+00| 0:0:00| chol  2  2
16|0.384|0.970|2.2e-08|1.4e-06|2.4e+00|-7.525129e+00 -9.322254e+00| 0:0:00| chol  2  2
17|0.938|0.736|2.1e-09|8.4e-07|1.2e+00|-8.506395e+00 -9.254131e+00| 0:0:00| chol  3  3
18|0.932|0.982|5.1e-09|3.2e-07|1.1e-01|-9.395096e+00 -9.337352e+00| 0:0:00| chol  4  4
19|0.990|1.000|8.2e-08|1.6e-07|2.0e-02|-9.474087e+00 -9.414475e+00| 0:0:00| chol  4  4
20|1.000|0.982|1.8e-07|1.9e-08|9.0e-03|-9.484349e+00 -9.483770e+00| 0:0:00| chol  3  3
21|0.968|0.983|2.4e-08|1.9e-09|4.9e-04|-9.491745e+00 -9.491259e+00| 0:0:00| chol
  warning: symqmr failed: 0.3
  switch to LU factor. lu 30   2
22|0.877|0.909|2.6e-07|1.9e-10|7.0e-05|-9.492081e+00 -9.492085e+00| 0:0:00| lu 30  30
  stop: progress in duality gap has deteriorated, 1.0e-04
```

```
23|1.000|1.000|2.6e-07|1.9e-10|7.0e-05|-9.492081e+00 -9.492085e+00| 0:0:00|
-----------------------------------------------------------------
 number of iterations   = 23
 primal objective value = -9.49208127e+00
 dual   objective value = -9.49208527e+00
 gap := trace(XZ)       = 7.03e-05
 relative gap           = 3.52e-06
 actual relative gap    = 2.00e-07
 rel. primal infeas     = 2.55e-07
 rel. dual   infeas     = 1.89e-10
 norm(X), norm(y), norm(Z) = 4.6e+04, 7.2e+01, 5.8e+01
 norm(A), norm(b), norm(C) = 2.7e+04, 4.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.17
 CPU time per iteration = 0.01
 termination code       = -8
 DIMACS errors: 5.2e-07  0.0e+00  2.6e-10  0.0e+00  2.0e-07  3.5e-06
-----------------------------------------------------------------

ans =

    9.4921

Epoch... 89
Epoch... 90

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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+02|7.1e+07| 4.476880e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.3e-06|8.6e+00|1.4e+06| 4.558525e+04 -6.352959e+03| 0:0:00| chol  2  2
 2|1.000|0.942|1.1e-07|5.2e-01|1.4e+05| 3.942346e+04 -1.193476e+02| 0:0:00| chol  2  2
 3|0.986|0.899|7.7e-08|6.8e-02|4.1e+04| 2.284160e+04 -3.518638e+02| 0:0:00| chol  2  1
 4|1.000|0.972|6.6e-08|1.5e-02|8.6e+03| 5.296473e+03 -2.520351e+02| 0:0:00| chol  2  1
 5|1.000|0.871|7.5e-09|8.1e-03|3.4e+03| 2.125291e+03 -7.915548e+01| 0:0:00| chol  2  2
 6|0.736|1.000|2.6e-09|3.5e-03|1.8e+03| 1.279125e+03 -6.957436e+01| 0:0:00| chol  2  2
 7|1.000|1.000|1.8e-09|1.1e-03|6.5e+02| 5.012342e+02 -3.063645e+01| 0:0:00| chol  2  2
 8|0.865|0.864|1.3e-09|4.2e-04|2.3e+02| 1.640906e+02 -1.631162e+01| 0:0:00| chol  2  2
 9|1.000|0.692|5.4e-09|2.4e-04|1.0e+02| 6.500849e+01 -5.496455e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.0e-09|7.9e-05|4.6e+01| 3.355290e+01 -3.037237e+00| 0:0:00| chol  2  2
11|0.859|0.944|3.5e-10|4.2e-05|1.3e+01| 7.587197e+00 -2.340755e+00| 0:0:00| chol  2  2
12|0.304|0.238|1.2e-09|3.5e-05|1.1e+01| 3.575572e+00 -2.594859e+00| 0:0:00| chol  2  2
13|0.250|0.208|9.4e-09|2.9e-05|1.0e+01| 8.279477e-01 -3.242183e+00| 0:0:00| chol  2  2
14|0.210|0.276|1.5e-08|2.2e-05|9.7e+00|-1.312410e+00 -4.588384e+00| 0:0:00| chol  2  2
15|0.156|0.434|1.6e-08|1.3e-05|8.9e+00|-2.829588e+00 -6.840830e+00| 0:0:00| chol  2  2
16|0.206|0.495|1.5e-08|6.9e-06|7.6e+00|-4.387387e+00 -8.601321e+00| 0:0:00| chol  2  2
17|0.811|0.656|2.7e-08|2.6e-06|4.3e+00|-7.817214e+00 -1.065433e+01| 0:0:00| chol  3  3
18|0.918|0.824|1.2e-08|6.1e-07|1.8e+00|-1.016831e+01 -1.156919e+01| 0:0:00| chol  2  3
19|0.931|0.986|4.0e-09|1.0e-07|1.4e-01|-1.161499e+01 -1.169094e+01| 0:0:00| chol  3  3
```

```
20|1.000|0.990|4.5e-08|1.1e-08|3.1e-02|-1.171670e+01 -1.174091e+01| 0:0:00| chol  3  3
21|0.987|0.986|5.4e-09|1.3e-09|1.3e-03|-1.174289e+01 -1.174343e+01| 0:0:00| chol  9  8
22|0.964|0.982|1.2e-08|3.1e-11|5.0e-05|-1.174389e+01 -1.174393e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^17
23|1.000|0.929|6.6e-08|3.9e-12|1.2e-05|-1.174405e+01 -1.174395e+01| 0:0:00| lu 27 ^ 6
24|0.953|0.963|4.2e-08|4.9e-13|2.3e-06|-1.174398e+01 -1.174394e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-----------------------------------------------------------------
 number of iterations   = 24
 primal objective value = -1.17439794e+01
 dual   objective value = -1.17439422e+01
 gap := trace(XZ)       = 2.28e-06
 relative gap           = 9.31e-08
 actual relative gap    = -1.52e-06
 rel. primal infeas     = 4.16e-08
 rel. dual   infeas     = 4.89e-13
 norm(X), norm(y), norm(Z) = 5.4e+04, 7.7e+01, 6.4e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 5.1e+03, 4.8e+01
 Total CPU time (secs)  = 0.17
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 7.6e-08  0.0e+00  6.7e-13  0.0e+00  -1.5e-06  9.3e-08
-----------------------------------------------------------------

ans =

   11.7439

Epoch... 91
Epoch... 92

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*****************************************************************
   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|4.6e+02|7.0e+07| 4.448663e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.6e-06|8.5e+00|1.4e+06| 4.529526e+04 -6.116604e+03| 0:0:00| chol  1  2
 2|1.000|0.940|1.2e-07|5.3e-01|1.4e+05| 3.913871e+04 -1.323626e+02| 0:0:00| chol  1  1
 3|0.975|0.911|8.4e-08|6.3e-02|4.1e+04| 2.322840e+04 -3.688037e+02| 0:0:00| chol  2  2
 4|1.000|0.971|7.2e-08|1.5e-02|7.3e+03| 4.309480e+03 -2.356018e+02| 0:0:00| chol  2  1
 5|1.000|0.819|8.2e-09|8.5e-03|3.2e+03| 1.974843e+03 -7.631878e+01| 0:0:00| chol  2  2
 6|0.599|1.000|3.5e-09|2.1e-03|1.7e+03| 1.375079e+03 -7.079454e+01| 0:0:00| chol  2  2
 7|1.000|0.841|2.5e-09|8.7e-04|6.9e+02| 5.059955e+02 -4.219574e+01| 0:0:00| chol  2  2
 8|0.879|0.813|2.8e-09|4.2e-04|2.9e+02| 2.036328e+02 -1.540915e+01| 0:0:00| chol  2  2
 9|1.000|0.820|2.6e-09|2.1e-04|1.2e+02| 8.005552e+01 -5.414521e+00| 0:0:00| chol  2  2
10|1.000|1.000|1.1e-09|7.9e-05|5.0e+01| 3.547815e+01 -3.644132e+00| 0:0:00| chol  2  2
11|1.000|1.000|9.8e-10|4.0e-05|1.8e+01| 1.154234e+01 -2.507741e+00| 0:0:00| chol  2  2
12|0.773|0.455|1.2e-09|3.1e-05|6.7e+00|-3.615698e-01 -2.564872e+00| 0:0:00| chol  2  2
```

```
13|0.436|0.362|2.1e-09|2.3e-05|5.5e+00|-3.091076e+00 -3.417953e+00| 0:0:00| chol  2  2
14|0.464|0.328|1.5e-08|1.7e-05|5.1e+00|-5.072545e+00 -4.664667e+00| 0:0:00| chol  2  2
15|0.372|0.372|2.1e-08|1.2e-05|5.3e+00|-5.408825e+00 -6.643874e+00| 0:0:00| chol  2  2
16|0.176|0.392|1.8e-08|7.6e-06|4.3e+00|-6.631908e+00 -7.170553e+00| 0:0:00| chol  2  2
17|1.000|0.998|3.3e-08|6.3e-07|2.4e+00|-8.021660e+00 -1.014235e+01| 0:0:00| chol  2  2
18|0.940|0.947|1.7e-09|3.3e-07|1.6e-01|-9.993217e+00 -9.981028e+00| 0:0:00| chol  3  3
19|0.938|0.886|3.8e-08|1.7e-07|3.5e-02|-1.010900e+01 -1.005049e+01| 0:0:00| chol  4  3
20|0.644|1.000|9.6e-08|1.6e-08|1.8e-02|-1.012466e+01 -1.013387e+01| 0:0:00| chol  3  3
21|0.964|0.987|3.1e-08|1.9e-09|8.1e-04|-1.014065e+01 -1.014042e+01| 0:0:00| chol 12 13
22|0.949|0.981|5.4e-08|4.5e-11|5.9e-05|-1.014132e+01 -1.014131e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^25
23|1.000|0.877|3.5e-07|9.8e-12|2.5e-05|-1.014147e+01 -1.014134e+01| 0:0:00| lu 30 ^30
24|0.561|0.811|4.3e-07|3.4e-12|9.0e-06|-1.014125e+01 -1.014133e+01| 0:0:00| lu 11 ^29
25|0.013|0.017|6.4e-07|4.9e-12|9.8e-06|-1.014146e+01 -1.014133e+01| 0:0:00| lu 30 ^11
26|0.005|0.013|6.8e-07|6.7e-12|1.1e-05|-1.014164e+01 -1.014133e+01| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
  stop: steps too short consecutively
-------------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -1.01412513e+01
 dual   objective value = -1.01413256e+01
 gap := trace(XZ)       = 8.98e-06
 relative gap           = 4.22e-07
 actual relative gap    = 3.49e-06
 rel. primal infeas     = 4.25e-07
 rel. dual   infeas     = 3.35e-12
 norm(X), norm(y), norm(Z) = 4.8e+04, 7.4e+01, 5.9e+01
 norm(A), norm(b), norm(C) = 2.9e+04, 4.7e+03, 4.8e+01
 Total CPU time (secs)  = 0.21
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 8.2e-07  0.0e+00  4.6e-12  0.0e+00  3.5e-06  4.2e-07
-------------------------------------------------------------------

ans =

   10.1413

Epoch... 93
Epoch... 94

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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|4.6e+02|7.1e+07| 4.449557e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.3e-06|8.4e+00|1.4e+06| 4.531118e+04 -6.110254e+03| 0:0:00| chol  2  1
```

```
 2|1.000|0.941|1.1e-07|5.2e-01|1.4e+05| 3.917979e+04 -1.218498e+02| 0:0:00| chol  2  2
 3|0.975|0.908|7.5e-08|6.4e-02|4.1e+04| 2.313358e+04 -3.604878e+02| 0:0:00| chol  2  2
 4|1.000|0.973|6.4e-08|1.5e-02|7.7e+03| 4.639583e+03 -2.417444e+02| 0:0:00| chol  2  2
 5|1.000|0.833|6.4e-09|8.4e-03|3.2e+03| 2.025454e+03 -7.732692e+01| 0:0:00| chol  2  2
 6|0.649|1.000|3.0e-09|2.1e-03|1.7e+03| 1.345837e+03 -7.039299e+01| 0:0:00| chol  2  2
 7|1.000|0.866|5.2e-09|8.3e-04|6.8e+02| 5.037957e+02 -4.013078e+01| 0:0:00| chol  2  2
 8|0.871|0.819|2.3e-09|4.1e-04|2.8e+02| 1.984092e+02 -1.532616e+01| 0:0:00| chol  2  2
 9|1.000|0.817|1.9e-09|2.0e-04|1.2e+02| 7.894048e+01 -5.292401e+00| 0:0:00| chol  2  2
10|0.979|1.000|1.1e-09|7.9e-05|5.0e+01| 3.515214e+01 -3.586724e+00| 0:0:00| chol  2  2
11|1.000|0.917|1.2e-09|4.3e-05|2.0e+01| 1.263529e+01 -2.643802e+00| 0:0:00| chol  2  2
12|0.750|0.422|4.5e-09|3.3e-05|7.7e+00|-2.928235e-01 -2.684456e+00| 0:0:00| chol  2  2
13|0.430|0.366|4.6e-09|2.5e-05|6.3e+00|-3.543614e+00 -3.711208e+00| 0:0:00| chol  2  2
14|0.381|0.342|1.3e-08|1.8e-05|5.8e+00|-5.703083e+00 -5.238031e+00| 0:0:00| chol  2  2
15|0.553|0.459|2.1e-08|1.1e-05|5.4e+00|-7.407869e+00 -7.697084e+00| 0:0:00| chol  2  2
16|0.348|0.827|1.8e-08|2.9e-06|4.3e+00|-8.024150e+00 -1.082635e+01| 0:0:00| chol  2  2
17|0.721|0.755|8.1e-09|1.2e-06|2.4e+00|-9.604584e+00 -1.132039e+01| 0:0:00| chol  2  2
18|0.410|1.000|6.0e-09|3.1e-07|1.9e+00|-1.002279e+01 -1.169601e+01| 0:0:00| chol  2  1
19|0.991|1.000|2.4e-09|1.6e-07|3.1e-01|-1.145595e+01 -1.167453e+01| 0:0:00| chol  3  3
20|0.931|1.000|1.1e-08|1.6e-08|3.5e-02|-1.170650e+01 -1.173169e+01| 0:0:00| chol  3  4
21|1.000|0.965|1.3e-08|2.8e-09|5.4e-03|-1.173426e+01 -1.173800e+01| 0:0:00| chol  4  4
22|0.985|0.987|2.7e-09|2.0e-10|8.6e-05|-1.173864e+01 -1.173858e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 17 ^10
  stop: progress in duality gap has deteriorated, 2.4e-04
23|0.594|0.555|2.7e-09|2.0e-10|8.6e-05|-1.173864e+01 -1.173858e+01| 0:0:00|
------------------------------------------------------------------
 number of iterations   = 23
 primal objective value = -1.17386404e+01
 dual   objective value = -1.17385840e+01
 gap := trace(XZ)       = 8.64e-05
 relative gap           = 3.53e-06
 actual relative gap    = -2.30e-06
 rel. primal infeas     = 2.73e-09
 rel. dual   infeas     = 2.00e-10
 norm(X), norm(y), norm(Z) = 5.4e+04, 7.7e+01, 6.3e+01
 norm(A), norm(b), norm(C) = 2.9e+04, 5.2e+03, 4.8e+01
 Total CPU time (secs)  = 0.15
 CPU time per iteration = 0.01
 termination code       = -8
 DIMACS errors: 4.9e-09  0.0e+00  2.8e-10  0.0e+00  -2.3e-06  3.5e-06
------------------------------------------------------------------

ans =

   11.7386

Epoch... 95
Epoch... 96

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+02|7.0e+07| 4.446445e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.4e-06|8.8e+00|1.4e+06| 4.527692e+04 -6.464691e+03| 0:0:00| chol  2  2
 2|1.000|0.942|1.1e-07|5.3e-01|1.3e+05| 3.911778e+04 -1.267554e+02| 0:0:00| chol  2  2
 3|0.993|0.898|7.2e-08|6.9e-02|4.0e+04| 2.242885e+04 -3.518375e+02| 0:0:00| chol  2  2
 4|1.000|0.973|5.8e-08|1.5e-02|8.5e+03| 5.188913e+03 -2.461960e+02| 0:0:00| chol  2  1
 5|1.000|0.878|6.1e-09|8.0e-03|3.3e+03| 2.114896e+03 -7.771400e+01| 0:0:00| chol  2  2
 6|0.706|1.000|2.5e-09|3.5e-03|1.8e+03| 1.302261e+03 -6.920068e+01| 0:0:00| chol  2  2
 7|1.000|1.000|1.6e-09|1.1e-03|6.6e+02| 5.039865e+02 -3.146944e+01| 0:0:00| chol  2  2
 8|0.867|0.880|6.3e-10|4.1e-04|2.3e+02| 1.663812e+02 -1.602697e+01| 0:0:00| chol  2  2
 9|1.000|0.678|4.7e-09|2.4e-04|1.0e+02| 6.694679e+01 -5.718119e+00| 0:0:00| chol  2  2
10|1.000|1.000|7.7e-10|7.9e-05|4.9e+01| 3.669591e+01 -2.868735e+00| 0:0:00| chol  2  2
11|0.750|0.825|2.1e-10|4.7e-05|2.1e+01| 1.322106e+01 -2.719055e+00| 0:0:00| chol  2  2
12|0.966|0.423|1.5e-09|3.5e-05|1.1e+01| 3.690325e+00 -2.638991e+00| 0:0:00| chol  2  2
13|0.276|0.379|7.2e-09|2.6e-05|9.6e+00| 1.027736e+00 -3.387608e+00| 0:0:00| chol  2  2
14|0.203|0.350|1.0e-08|1.8e-05|8.8e+00|-1.176991e+00 -4.599278e+00| 0:0:00| chol  2  2
15|0.214|0.432|1.3e-08|1.2e-05|8.2e+00|-2.851609e+00 -6.696531e+00| 0:0:00| chol  2  2
16|0.223|0.563|1.3e-08|5.7e-06|7.1e+00|-4.209135e+00 -8.501125e+00| 0:0:00| chol  2  2
17|0.823|0.687|2.5e-08|2.2e-06|3.7e+00|-7.589870e+00 -1.006679e+01| 0:0:00| chol  2  2
18|0.914|0.826|1.2e-08|6.4e-07|1.4e+00|-9.644779e+00 -1.072238e+01| 0:0:00| chol  2  2
19|0.954|1.000|3.8e-09|1.6e-07|1.3e-01|-1.080741e+01 -1.085195e+01| 0:0:00| chol  3  3
20|1.000|0.991|2.8e-08|1.8e-08|2.5e-02|-1.090975e+01 -1.092457e+01| 0:0:00| chol  4  2
21|0.999|0.975|8.4e-09|2.2e-09|1.5e-03|-1.093049e+01 -1.093071e+01| 0:0:00| chol  7  6
22|0.987|0.988|1.5e-08|2.9e-11|2.1e-05|-1.093164e+01 -1.093161e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30 ^26
23|1.000|0.813|4.7e-08|8.2e-12|1.7e-05|-1.093157e+01 -1.093164e+01| 0:0:00| lu 30 ^15
24|1.000|0.894|6.5e-08|1.2e-12|2.0e-06|-1.093158e+01 -1.093162e+01| 0:0:00|
  stop: max(relative gap, infeasibilities) < 1.00e-07
-------------------------------------------------------------------
 number of iterations   = 24
 primal objective value = -1.09315804e+01
 dual   objective value = -1.09316249e+01
 gap := trace(XZ)       = 1.98e-06
 relative gap           = 8.64e-08
 actual relative gap    = 1.95e-06
 rel. primal infeas     = 6.53e-08
 rel. dual   infeas     = 1.18e-12
 norm(X), norm(y), norm(Z) = 5.1e+04, 7.5e+01, 6.1e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 5.3e+03, 4.8e+01
 Total CPU time (secs)  = 0.17
 CPU time per iteration = 0.01
 termination code       =  0
 DIMACS errors: 1.2e-07  0.0e+00  1.6e-12  0.0e+00  1.9e-06  8.6e-08
-------------------------------------------------------------------

ans =

   10.9316

Epoch... 97
Epoch... 98
```

```
 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+02|7.0e+07| 4.444229e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.2e-06|8.6e+00|1.4e+06| 4.525533e+04 -6.240136e+03| 0:0:00| chol  2  2
 2|1.000|0.942|1.0e-07|5.2e-01|1.3e+05| 3.910636e+04 -1.195074e+02| 0:0:00| chol  2  2
 3|0.983|0.903|7.3e-08|6.6e-02|4.1e+04| 2.275259e+04 -3.546753e+02| 0:0:00| chol  2  2
 4|1.000|0.974|6.2e-08|1.5e-02|8.1e+03| 4.918934e+03 -2.438669e+02| 0:0:00| chol  2  2
 5|1.000|0.852|5.7e-09|8.2e-03|3.3e+03| 2.059836e+03 -7.694471e+01| 0:0:00| chol  2  2
 6|0.674|1.000|2.7e-09|2.1e-03|1.7e+03| 1.329537e+03 -6.967335e+01| 0:0:00| chol  2  2
 7|1.000|0.876|4.5e-09|8.2e-04|6.8e+02| 5.046522e+02 -3.835222e+01| 0:0:00| chol  2  2
 8|0.871|0.817|2.0e-09|4.1e-04|2.8e+02| 1.932769e+02 -1.561149e+01| 0:0:00| chol  2  2
 9|1.000|0.808|1.8e-09|2.1e-04|1.2e+02| 7.786298e+01 -5.249155e+00| 0:0:00| chol  2  2
10|0.922|1.000|1.1e-09|7.9e-05|5.1e+01| 3.652538e+01 -3.586243e+00| 0:0:00| chol  2  2
11|1.000|0.902|1.3e-09|4.4e-05|2.1e+01| 1.301901e+01 -2.674080e+00| 0:0:00| chol  2  2
12|0.756|0.409|4.4e-09|3.4e-05|8.1e+00|-4.921997e-01 -2.741138e+00| 0:0:00| chol  2  2
13|0.447|0.364|3.5e-09|2.5e-05|6.6e+00|-3.797437e+00 -3.851213e+00| 0:0:00| chol  2  2
14|0.413|0.341|1.3e-08|1.8e-05|6.1e+00|-6.093236e+00 -5.486917e+00| 0:0:00| chol  2  2
15|0.590|0.439|2.1e-08|1.1e-05|5.8e+00|-7.555174e+00 -8.100898e+00| 0:0:00| chol  2  2
16|0.200|0.560|1.9e-08|5.7e-06|5.0e+00|-8.313074e+00 -1.014975e+01| 0:0:00| chol  2  2
17|0.912|0.890|1.0e-08|1.2e-06|1.9e+00|-1.060517e+01 -1.182399e+01| 0:0:00| chol  3  2
18|0.922|0.963|4.6e-09|3.4e-07|1.5e-01|-1.213023e+01 -1.206958e+01| 0:0:00| chol  3  3
19|0.849|1.000|3.3e-08|1.6e-07|5.5e-02|-1.221742e+01 -1.217579e+01| 0:0:00| chol  4  4
20|1.000|1.000|1.6e-07|1.7e-08|9.5e-03|-1.225950e+01 -1.225890e+01| 0:0:00| chol  3  4
21|0.976|0.980|2.4e-08|1.9e-09|2.6e-04|-1.226744e+01 -1.226650e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 30   6
22|0.954|0.984|1.0e-07|3.2e-11|1.1e-05|-1.226780e+01 -1.226760e+01| 0:0:00| lu 30  30
23|0.822|0.794|5.1e-07|8.1e-12|1.1e-05|-1.226854e+01 -1.226762e+01| 0:0:00| lu 12 ^24
24|0.148|0.305|4.4e-07|7.0e-12|9.4e-06|-1.226826e+01 -1.226762e+01| 0:0:00|
  stop: progress is too slow
-------------------------------------------------------------------
 number of iterations   = 24
 primal objective value = -1.22677969e+01
 dual   objective value = -1.22676019e+01
 gap := trace(XZ)       = 1.13e-05
 relative gap           = 4.42e-07
 actual relative gap    = -7.64e-06
 rel. primal infeas     = 1.02e-07
 rel. dual   infeas     = 3.15e-11
 norm(X), norm(y), norm(Z) = 5.5e+04, 7.7e+01, 6.4e+01
 norm(A), norm(b), norm(C) = 2.9e+04, 5.4e+03, 4.8e+01
 Total CPU time (secs)  = 0.18
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 1.8e-07  0.0e+00  4.3e-11  0.0e+00  -7.6e-06  4.4e-07
-------------------------------------------------------------------
```

```
ans =

   12.2676

Epoch... 99
Epoch... 100

 num. of constraints = 33
 dim. of socp   var  = 34,   num. of socp blk  =  1
 dim. of linear var  = 116
*******************************************************************
   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+02|6.8e+07| 4.421968e+04  0.000000e+00| 0:0:00| chol  1  1
 1|1.000|0.982|2.5e-06|8.6e+00|1.3e+06| 4.502473e+04 -6.387441e+03| 0:0:00| chol  1  2
 2|1.000|0.942|1.1e-07|5.2e-01|1.3e+05| 3.880602e+04 -1.283455e+02| 0:0:00| chol  2  2
 3|0.991|0.900|8.1e-08|6.8e-02|4.0e+04| 2.221401e+04 -3.521406e+02| 0:0:00| chol  2  2
 4|1.000|0.973|5.9e-08|1.5e-02|8.0e+03| 4.878094e+03 -2.382124e+02| 0:0:00| chol  2  1
 5|1.000|0.865|7.4e-09|8.1e-03|3.2e+03| 2.026037e+03 -7.400997e+01| 0:0:00| chol  2  2
 6|0.684|1.000|2.8e-09|2.1e-03|1.6e+03| 1.298669e+03 -6.739731e+01| 0:0:00| chol  2  2
 7|1.000|0.869|2.9e-09|8.3e-04|6.6e+02| 4.943573e+02 -3.685125e+01| 0:0:00| chol  2  2
 8|0.883|0.805|3.0e-09|4.2e-04|2.7e+02| 1.819308e+02 -1.563510e+01| 0:0:00| chol  2  2
 9|1.000|0.808|2.1e-09|2.1e-04|1.1e+02| 7.252505e+01 -4.939850e+00| 0:0:00| chol  2  2
10|0.971|1.000|4.1e-10|7.9e-05|4.5e+01| 3.132804e+01 -3.296188e+00| 0:0:00| chol  2  2
11|1.000|0.917|8.8e-10|4.3e-05|1.8e+01| 1.091595e+01 -2.510999e+00| 0:0:00| chol  2  2
12|0.729|0.397|9.4e-10|3.4e-05|7.5e+00|-5.955361e-01 -2.604464e+00| 0:0:00| chol  2  2
13|0.440|0.341|2.8e-09|2.6e-05|6.3e+00|-3.702937e+00 -3.627602e+00| 0:0:00| chol  2  2
14|0.448|0.319|1.5e-08|1.9e-05|6.0e+00|-6.084847e+00 -5.185530e+00| 0:0:00| chol  2  2
15|0.325|0.373|2.2e-08|1.3e-05|6.3e+00|-6.469717e+00 -7.760477e+00| 0:0:00| chol  2  2
16|0.191|0.359|1.9e-08|8.7e-06|5.3e+00|-7.995460e+00 -8.367454e+00| 0:0:00| chol  2  2
17|1.000|1.000|2.9e-08|6.2e-07|3.0e+00|-9.486586e+00 -1.218021e+01| 0:0:00| chol  2  2
18|0.945|0.937|2.4e-09|3.3e-07|2.2e-01|-1.189356e+01 -1.192262e+01| 0:0:00| chol  3  3
19|0.925|0.903|2.7e-08|1.7e-07|4.5e-02|-1.205560e+01 -1.199608e+01| 0:0:00| chol  3  3
20|0.823|0.782|1.1e-07|5.0e-08|1.7e-02|-1.208311e+01 -1.206843e+01| 0:0:00| chol  4  4
21|1.000|1.000|6.1e-08|2.5e-09|6.3e-03|-1.209241e+01 -1.209704e+01| 0:0:00| chol  5  5
22|0.953|0.980|1.1e-08|2.5e-10|3.2e-04|-1.209710e+01 -1.209724e+01| 0:0:00| chol 19 27
23|0.952|0.982|5.6e-08|9.2e-12|3.3e-05|-1.209745e+01 -1.209734e+01| 0:0:00| chol
  linsysolve: Schur complement matrix not positive definite
  switch to LU factor. lu 18  30
24|0.914|0.890|7.3e-08|2.1e-12|7.2e-06|-1.209749e+01 -1.209734e+01| 0:0:00| lu 30 ^16
25|0.147|0.538|1.6e-07|1.9e-12|6.4e-06|-1.209760e+01 -1.209734e+01| 0:0:00| lu 30 ^19
26|0.010|0.047|2.0e-07|2.8e-12|7.0e-06|-1.209742e+01 -1.209734e+01| 0:0:00|
  stop: progress is too slow
  stop: progress is bad
-------------------------------------------------------------------
 number of iterations   = 26
 primal objective value = -1.20974936e+01
 dual   objective value = -1.20973410e+01
 gap := trace(XZ)       = 7.22e-06
 relative gap           = 2.87e-07
```

```
 actual relative gap    = -6.06e-06
 rel. primal infeas     = 7.28e-08
 rel. dual   infeas     = 2.07e-12
 norm(X), norm(y), norm(Z) = 5.5e+04, 7.6e+01, 6.3e+01
 norm(A), norm(b), norm(C) = 3.0e+04, 5.0e+03, 4.8e+01
 Total CPU time (secs)  = 0.20
 CPU time per iteration = 0.01
 termination code       = -5
 DIMACS errors: 1.3e-07  0.0e+00  2.9e-12  0.0e+00  -6.1e-06  2.9e-07
------------------------------------------------------------------

ans =

   12.0973

The total representation error of the testing signals is: 0.09931
>>
```