% Problem 3.10(b)

A = [1 0;-1 1;1 1];

b = [3; -2; 2];

H = [4 1;1 1];

p = [2; 3];

cvx\_begin

variable X(2,1);

minimize(X'\*H\*X+X'\*p)

subject to

A\*X <= b;

cvx\_end

>> a6\_3\_10\_b

警告: A non-empty cvx problem already exists in this scope.

It is being overwritten.

> In cvxprob (line 28)

In cvx\_begin (line 41)

In a6\_3\_10\_b (line 6)

Calling SDPT3 4.0: 7 variables, 3 equality constraints

For improved efficiency, SDPT3 is solving the dual problem.

------------------------------------------------------------

num. of constraints = 3

dim. of socp var = 4, num. of socp blk = 1

dim. of linear var = 3

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

SDPT3: Infeasible path-following algorithms

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

version predcorr gam expon scale\_data

NT 1 0.000 1 0

it pstep dstep pinfeas dinfeas gap prim-obj dual-obj cputime

-------------------------------------------------------------------

0|0.000|0.000|5.0e+00|3.5e+00|3.4e+02|-2.078461e+01 0.000000e+00| 0:0:01| chol 1 1

1|0.629|0.669|1.8e+00|1.2e+00|1.5e+02| 1.101727e+01 7.161411e+00| 0:0:02| chol 1 1

2|1.000|1.000|2.4e-07|3.5e-03|3.9e+01| 3.729805e+01 -1.455003e+00| 0:0:02| chol 1 1

3|0.683|1.000|2.0e-07|3.5e-04|1.9e+01| 2.026292e+01 1.434593e+00| 0:0:02| chol 1 1

4|0.956|0.916|2.4e-08|6.2e-05|1.5e+00| 9.911163e+00 8.432932e+00| 0:0:02| chol 1 1

5|0.947|0.920|2.4e-09|8.1e-06|2.1e-01| 8.961856e+00 8.754128e+00| 0:0:03| chol 1 1

6|0.956|1.000|2.0e-09|3.5e-07|4.5e-02| 8.847902e+00 8.803164e+00| 0:0:03| chol 1 1

7|1.000|0.939|7.3e-10|5.5e-08|5.0e-03| 8.824244e+00 8.819281e+00| 0:0:03| chol 1 1

8|0.932|1.000|6.9e-10|3.6e-09|4.8e-04| 8.821735e+00 8.821255e+00| 0:0:03| chol 1 1

9|0.988|0.984|4.7e-11|2.0e-10|6.5e-06| 8.821433e+00 8.821426e+00| 0:0:03| chol 1 1

10|1.000|0.965|7.7e-14|1.6e-11|2.4e-07| 8.821429e+00 8.821428e+00| 0:0:03|

stop: max(relative gap, infeasibilities) < 1.49e-08

-------------------------------------------------------------------

number of iterations = 10

primal objective value = 8.82142870e+00

dual objective value = 8.82142847e+00

gap := trace(XZ) = 2.36e-07

relative gap = 1.27e-08

actual relative gap = 1.26e-08

rel. primal infeas (scaled problem) = 7.75e-14

rel. dual " " " = 1.63e-11

rel. primal infeas (unscaled problem) = 0.00e+00

rel. dual " " " = 0.00e+00

norm(X), norm(y), norm(Z) = 7.2e+00, 3.0e+00, 4.8e+00

norm(A), norm(b), norm(C) = 4.5e+00, 8.7e+00, 5.7e+00

Total CPU time (secs) = 2.54

CPU time per iteration = 0.25

termination code = 0

DIMACS: 1.1e-13 0.0e+00 1.8e-11 0.0e+00 1.3e-08 1.3e-08

-------------------------------------------------------------------

------------------------------------------------------------

Status: Solved

Optimal value (cvx\_optval): -2.32143