

```
>> PD_AffineScalingAlgorithm
```

```
A =
```

1	2	1	1	0
3	1	-1	0	1
0	1	1	1	0

```
b =
```

5
8
3

```
c =
```

4
2
1
1
-3

```
x =
```

1
1
1
1
5

```
y =
```

5
1
0

```
s =
```

4
9
3
4
4

```
The current duality gap is: 20
```

```
The search direction for x and the new x are:
```

0.4231	1.2116
-0.4231	0.7884
-0.0808	0.9596
0.5040	1.2520
-0.9271	4.5365

```
The search direction for y and the new y are:
```

4.0824	7.0412
-3.2583	-0.6292
-10.0983	-5.0491

```
The search direction for s and the new s are:
```

-5.6926	1.1537
-5.1918	6.4041
-2.7575	1.6212
-6.0158	0.9921
-3.2583	2.3708

```
The current duality gap is: 15
```

```
The search direction for x and the new x are:
```

0.6614	1.3769
-0.6614	0.6231

-0.5940	0.8111
1.2553	1.5658
-1.9167	4.0573

The search direction for y and the new y are:

2.3239	7.6222
-1.3691	-0.9714
-4.3107	-6.1268

The search direction for s and the new s are:

-1.7835	0.7078
-1.0321	6.1461
-0.6177	1.4668
-1.9868	0.4954
-1.3691	2.0286

The current duality gap is: 7.5

The search direction for x and the new x are:

0.6229	1.6883
-0.6229	0.3117
-0.8306	0.3958
1.4534	2.2925
-2.0763	3.0191

The search direction for y and the new y are:

1.9433	8.5938
-0.9905	-1.4667
-2.8985	-7.5760

The search direction for s and the new s are:

-1.0280	0.1938
-0.0023	6.1449
0.0353	1.4844
-0.9552	0.0178
-0.9905	1.5333

The current duality gap is: 3.75

The search direction for x and the new x are:

0.3829	1.8798
-0.3829	0.1202
-0.6113	0.0901
0.9942	2.7897
-1.3772	2.3305

The search direction for y and the new y are:

2.2640	9.7258
-0.8339	-1.8836
-2.2894	-8.7208

The search direction for s and the new s are:

-0.2378	0.0749
1.4046	6.8472
0.8084	1.8887
-0.0255	0.0050
-0.8339	1.1164

The current duality gap is: 1.875

The search direction for x and the new x are:

0.1506	1.9551
-0.1506	0.0449
-0.1332	0.0235
0.2838	2.9316
-0.4344	2.1134

The search direction for y and the new y are:

2.6440	11.0478
-0.9083	-2.3378
-2.6495	-10.0455

The search direction for s and the new s are:

-0.0809	0.0345
1.7301	7.7123
0.9028	2.3400

-0.0055	0.0023
-0.9083	0.6622

The current duality gap is: 0.9375

The search direction for x and the new x are:

0.0519	1.9810
-0.0519	0.0190
-0.0297	0.0087
0.0817	2.9724
-0.1336	2.0466

The search direction for y and the new y are:

1.8257	11.9606
-0.6204	-2.6480
-1.8280	-10.9595

The search direction for s and the new s are:

-0.0354	0.0168
1.2030	8.3138
0.6180	2.6491
-0.0023	0.0011
-0.6204	0.3520

The current duality gap is: 0.46875

The search direction for x and the new x are:

0.0205	1.9913
-0.0205	0.0087
-0.0098	0.0038
0.0303	2.9875
-0.0507	2.0212

The search direction for y and the new y are:

1.0130	12.4671
-0.3433	-2.8196
-1.0141	-11.4666

The search direction for s and the new s are:

-0.0169	0.0083
0.6686	8.6481
0.3422	2.8202
-0.0011	0.0005
-0.3433	0.1804

The current duality gap is: 0.23437

The search direction for x and the new x are:

0.0091	1.9958
-0.0091	0.0042
-0.0040	0.0018
0.0131	2.9941
-0.0221	2.0101

The search direction for y and the new y are:

0.5269	12.7306
-0.1784	-2.9088
-0.5274	-11.7303

The search direction for s and the new s are:

-0.0083	0.0041
0.3479	8.8220
0.1779	2.9091
-0.0005	0.0003
-0.1784	0.0912

The current duality gap is: 0.11719

The search direction for x and the new x are:

0.0043	1.9980
-0.0043	0.0020
-0.0018	0.0009
0.0061	2.9971
-0.0104	2.0050

The search direction for y and the new y are:

0.2680	12.8646
--------	---------

-0.0907 -2.9542
-0.2683 -11.8645

The search direction for s and the new s are:

-0.0041 0.0021
0.1770 8.9105
0.0904 2.9543
-0.0003 0.0001
-0.0907 0.0458

The current duality gap is: 0.058594

The search direction for x and the new x are:

0.0021 1.9990
-0.0021 0.0010
-0.0009 0.0004
0.0029 2.9986
-0.0050 2.0024

The search direction for y and the new y are:

0.1351 12.9321
-0.0457 -2.9770
-0.1352 -11.9321

The search direction for s and the new s are:

-0.0021 0.0010
0.0892 8.9552
0.0456 2.9771
-0.0001 0.0001
-0.0457 0.0230

The current duality gap is: 0.029297

The search direction for x and the new x are:

0.0010 1.9995
-0.0010 0.0005
-0.0004 0.0002
0.0014 2.9993
-0.0025 2.0012

The search direction for y and the new y are:

0.0678 12.9660
-0.0229 -2.9885
-0.0679 -11.9660

The search direction for s and the new s are:

-0.0010 0.0005
0.0448 8.9776
0.0229 2.9885
-0.0001 0.0000
-0.0229 0.0115

The current duality gap is: 0.014648

The search direction for x and the new x are:

0.0005 1.9997
-0.0005 0.0003
-0.0002 0.0001
0.0007 2.9996
-0.0012 2.0006

The search direction for y and the new y are:

0.0340 12.9830
-0.0115 -2.9942
-0.0340 -11.9830

The search direction for s and the new s are:

-0.0005 0.0003
0.0224 8.9888
0.0115 2.9943
-0.0000 0.0000
-0.0115 0.0058

The current duality gap is: 0.0073242

The search direction for x and the new x are:

0.0003 1.9999

-0.0003	0.0001
-0.0001	0.0001
0.0004	2.9998
-0.0006	2.0003

The search direction for y and the new y are:

0.0170	12.9915
-0.0058	-2.9971
-0.0170	-11.9915

The search direction for s and the new s are:

-0.0003	0.0001
0.0112	8.9944
0.0057	2.9971
-0.0000	0.0000
-0.0058	0.0029

The current duality gap is: 0.0036621

The search direction for x and the new x are:

0.0001	1.9999
-0.0001	0.0001
-0.0001	0.0000
0.0002	2.9999
-0.0003	2.0002

The search direction for y and the new y are:

0.0085	12.9957
-0.0029	-2.9986
-0.0085	-11.9957

The search direction for s and the new s are:

-0.0001	0.0001
0.0056	8.9972
0.0029	2.9986
-0.0000	0.0000
-0.0029	0.0014

The current duality gap is: 0.0018311

The search direction for x and the new x are:

0.0001	2.0000
-0.0001	0.0000
-0.0000	0.0000
0.0001	3.0000
-0.0002	2.0001

The search direction for y and the new y are:

0.0043	12.9979
-0.0014	-2.9993
-0.0043	-11.9979

The search direction for s and the new s are:

-0.0001	0.0000
0.0028	8.9986
0.0014	2.9993
-0.0000	0.0000
-0.0014	0.0007

The current duality gap is: 0.00091553

The search direction for x and the new x are:

0.0000	2.0000
-0.0000	0.0000
-0.0000	0.0000
0.0000	3.0000
-0.0001	2.0000

The search direction for y and the new y are:

0.0021	12.9989
-0.0007	-2.9996
-0.0021	-11.9989

The search direction for s and the new s are:

-0.0000	0.0000
0.0014	8.9993

0.0007	2.9996
-0.0000	0.0000
-0.0007	0.0004

The current duality gap is: 0.00045776

The search direction for x and the new x are:

0.0000	2.0000
-0.0000	0.0000
-0.0000	0.0000
0.0000	3.0000
-0.0000	2.0000

The search direction for y and the new y are:

0.0011	12.9995
-0.0004	-2.9998
-0.0011	-11.9995

The search direction for s and the new s are:

-0.0000	0.0000
0.0007	8.9996
0.0004	2.9998
-0.0000	0.0000
-0.0004	0.0002

The current duality gap is: 0.00022888

The search direction for x and the new x are:

0.0000	2.0000
-0.0000	0.0000
-0.0000	0.0000
0.0000	3.0000
-0.0000	2.0000

The search direction for y and the new y are:

0.0005	12.9997
-0.0002	-2.9999
-0.0005	-11.9997

The search direction for s and the new s are:

-0.0000	0.0000
0.0004	8.9998
0.0002	2.9999
-0.0000	0.0000
-0.0002	0.0001

The current duality gap is: 0.00011444

The search direction for x and the new x are:

0.0000	2.0000
-0.0000	0.0000
-0.0000	0.0000
0.0000	3.0000
-0.0000	2.0000

The search direction for y and the new y are:

0.0003	12.9999
-0.0001	-3.0000
-0.0003	-11.9999

The search direction for s and the new s are:

-0.0000	0.0000
0.0002	8.9999
0.0001	3.0000
-0.0000	0.0000
-0.0001	0.0000

The current duality gap is: 5.722e-05

The search direction for x and the new x are:

0.0000	2.0000
-0.0000	0.0000
-0.0000	0.0000
0.0000	3.0000
-0.0000	2.0000

The search direction for y and the new y are:

0.0001	12.9999
-0.0000	-3.0000
-0.0001	-11.9999

The search direction for s and the new s are:

-0.0000	0.0000
0.0001	9.0000
0.0000	3.0000
-0.0000	0.0000
-0.0000	0.0000

The optimal x and s are:

2.0000	0.0000
0.0000	9.0000
0.0000	3.0000
3.0000	0.0000
2.0000	0.0000

>>