线性规划求解

```
c = zeros(9, 1);
c(1) = 1.25 - 0.25 - 300/6000*5;
c(2) = 1.25 -0.25 -321/10000*7;
c(3) = -250 / 4000 * 6;
c(4) = -783/7000*4;
c(5) = -200/4000* 7;
c(6) = -300/6000*10;
c(7) = -321 / 10000 * 9
```

c = 9×1
```
                  0.75
                0.7753
                -0.375
    -0.447428571428571
                 -0.35
                  -0.5
               -0.2889
                     0
                     0
```

```
c(8) = 2-0.35-250/4000*8;
c(9) = 2.8-0.5-321/10000*12-783/7000*11;
```

Matlab 默认求最小值，转换为求最大值

```
c = -c
```

c = 9×1
```
                 -0.75
                -0.7753
                 0.375
     0.447428571428571
                  0.35
                   0.5
                0.2889
                 -1.15
     -0.684371428571428
```

```
A = zeros(5, 9);
A(1, [1, 6]) = [5, 10];
A(2, [2,7,9]) = [7, 9, 12];
A(3, [3,8]) = [6, 8];
A(4, [4, 9]) = [4, 11];
A(5, 5) = 7
```

A = 5×9
```
    5     0     0     0     0    10     0     0     0
    0     7     0     0     0     0     9     0    12
    0     0     6     0     0     0     0     8     0
    0     0     0     4     0     0     0     0    11
    0     0     0     0     7     0     0     0     0
```

```
b = [6000, 10000, 4000, 7000, 4000]
```

```
b = 1×5
        6000        10000        4000        7000        4000
```

```
Aeq = zeros(2, 9);
Aeq(1, [1, 2, 3, 4, 5]) = [1, 1, -1, -1, -1];
Aeq(2, [6, 7, 8]) = [1, 1, -1];
beq = [0, 0];
```

```
lb = zeros(9, 1)
```

```
lb = 9×1
     0
     0
     0
     0
     0
     0
     0
     0
     0
```

```
ub = zeros(9, 1);
ub(:, 1) = inf;
```

```
%%设置格式化输出长数字，而不使用科学计数法
format long g;
```

```
rng(100); %设置随机数种子
x_0 = randn(9, 1); %通过正太分布随机化迭代初值
[x_min, f_min] = linprog(c, A, b, Aeq, beq, lb, ub, x_0);
```

```
The dual-simplex algorithm uses a built-in starting point;
ignoring supplied X0.

Optimal solution found.
```

```
x_min, f_min
```

```
x_min = 9×1
                    1200
          230.049261083744
                       0
          858.620689655173
          571.428571428571
                       0
                     500
                     500
          324.137931034483
f_min =
          -1146.56650246305
```