**记** 

再记 

**显然基变量对应的检验数σj=0 (j=1,…,m)**

如j=1时



记 





对所有的计算比值，然后取其中最小者为，并假定比值的最小者在某个基中的指标中达到。我们称它为规则，或最小比值规则。

在单纯形表中，对于求的线性规划，可以使用下列三种方法之一进行处理：

（1）把求问题转化为求问题

（2）把最优解判别准则改为所有非基变量的检验数。入基变量是检验数小于零中最小的那个变量，确定出基变量与求问题相同。

（3）单纯形表中的检验数不是，二是。最优解的检验及确定入基变量与出基变量的方法和求问题所述相同。

**例1**



化成标准型



|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | 2 | 3 | 0 | 0 | 0 |  |  |
|  |  |  |  |  |  |  |
| 0 |  | 1 | 2 | 1 | 0 | 0 | 8 | 4 |
| 0 |  | 4 | 0 | 0 | 1 | 0 | 16 | - |
| 0 |  | 0 | [4] | 0 | 0 | 1 | 12 | 3 |
|  | | 2 | 3 | 0 | 0 | 0 | 0 |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | 2 | 3 | 0 | 0 | 0 |  |  |
|  |  |  |  |  |  |  |
| 0 |  | [1] | 0 | 1 | 0 | -1/2 | 2 | 2 |
| 0 |  | 4 | 0 | 0 | 1 | 0 | 16 | 4 |
| 3 |  | 0 | 1 | 0 | 0 | 1/4 | 3 | - |
|  | | 2 | 0 | 0 | 0 | 0 | 9 |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | 2 | 3 | 0 | 0 | 0 |  |  |
|  |  |  |  |  |  |  |
| 2 |  | 1 | 0 | 1 | 0 | -1/2 | 2 | - |
| 0 |  | 0 | 0 | -4 | 1 | [2] | 8 | 4 |
| 3 |  | 0 | 1 | 0 | 0 | 1/4 | 3 | 12 |
|  | | 0 | 0 | -2 | 0 | 1/4 | 13 |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | 2 | 3 | 0 | 0 | 0 |  |  |
|  |  |  |  |  |  |  |
| 2 |  | 1 | 0 | 0 | 1/4 | 0 | 4 |  |
| 0 |  | 0 | 0 | -2 | 1/2 | 1 | 4 |  |
| 3 |  | 0 | 1 | 1/2 | -1/8 | 0 | 2 |  |
|  | | 0 | 0 | -1.5 | -1/8 | 0 | 14 |  |

对偶问题为



对偶问题的最优解为

，

试分析目标系数的可变范围。

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  | 3 | 0 | 0 | 0 |  |  |
|  |  |  |  |  |  |  |
|  |  | 1 | 0 | 0 | 1/4 | 0 | 4 |  |
| 0 |  | 0 | 0 | -2 | 1/2 | 1 | 4 |  |
| 3 |  | 0 | 1 | 1/2 | -1/8 | 0 | 2 |  |
|  | | 0 | 0 | -1.5 |  | 0 |  |  |





|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | 2 |  | 0 | 0 | 0 |  |  |
|  |  |  |  |  |  |  |
| 2 |  | 1 | 0 | 0 | 1/4 | 0 | 4 |  |
| 0 |  | 0 | 0 | -2 | 1/2 | 1 | 4 |  |
|  |  | 0 | 1 | 1/2 | -1/8 | 0 | 2 |  |
|  | | 0 | 0 |  |  | 0 |  |  |







例2

已知线性规划问题



已知对偶问题的最优解为。试用对偶理论找出原问题的最优解。

解：先写出原问题的对偶问题



将的值代入约束条件，得（2），（3），（4）为严格不等式，即松的，由互补松弛性得，。又因，原问题的两个约束条件应取等式，即有



求解后得；故得原问题的最优解为

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