

The algorithm is also illustrated in the form of a flow chart shown in Figure 2.

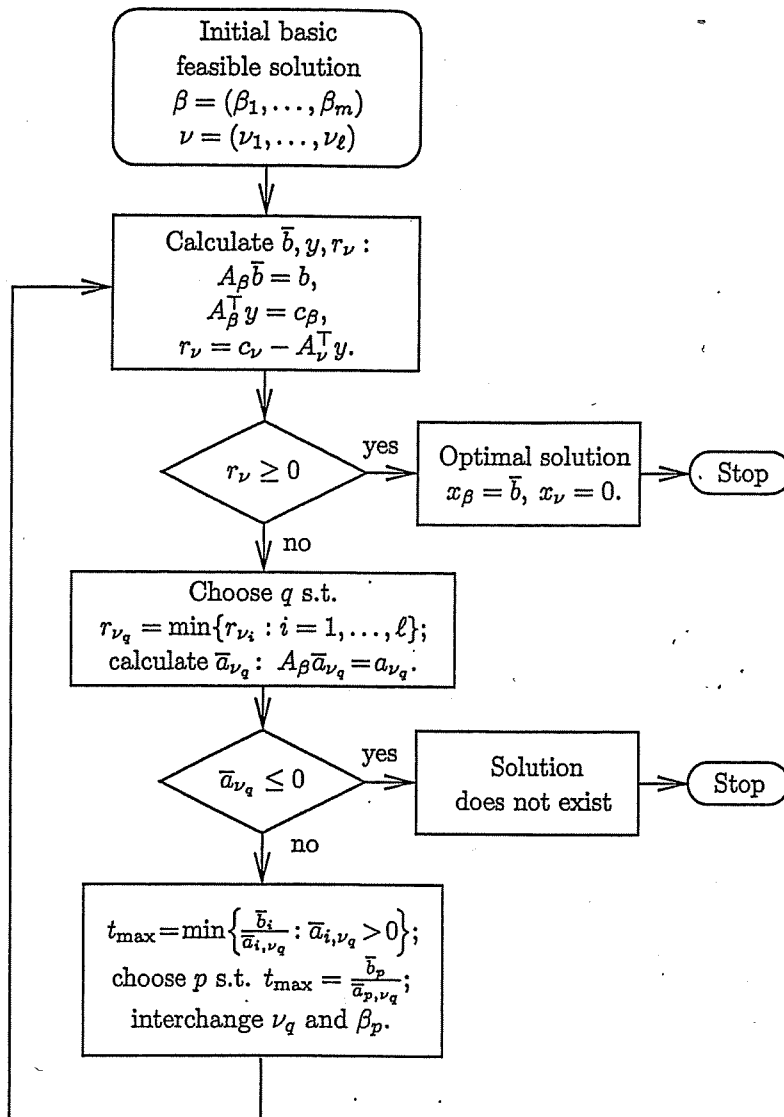


Figure 2. The simplex method.

FORMULA SHEET FOR SF1811/1831/1841

Simplex method for linear programming problems in standard form:

$$\begin{aligned}
 A_{\beta} \bar{b} &= b, \\
 A_{\beta}^T y &= c_{\beta}, \\
 r_{\nu} &= c_{\nu} - A_{\nu}^T y.
 \end{aligned}$$

Stop if $r_{\nu} \geq 0$. Otherwise take q such that r_{ν_q} is the most negative component of r_{ν} .

$$A_{\beta} \bar{a}_{\nu_q} = a_{\nu_q}.$$

Stop if $\bar{a}_{\nu_q} \leq 0$. Otherwise find p so that $t_{\max} = \min \left\{ \frac{\bar{b}_k}{\bar{a}_{\nu_q, k}} : \bar{a}_{\nu_q, k} > 0 \right\} = \frac{\bar{b}_p}{\bar{a}_{\nu_q, p}}$.

New basic tuple is taken as $\beta = (\beta_1, \dots, \beta_{p-1}, \nu_q, \beta_{p+1}, \dots, \beta_m)$.