INFEASIBLE PROBLEM EXAMPLE

Infeasible Problem Example

Initial Primal Dictionary

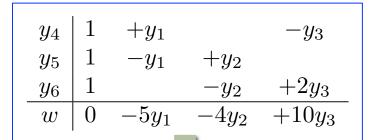


Dualize

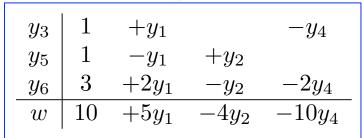
Infeasible

Feasible!

Dual Simplex Method



y3 enters y4 leaves



y1 enters y5 leaves



DUAL UNBOUNDED = PRIMAL INFEASIBLE

y_3	2	$-y_{5}$	$+y_2$	$-y_4$
y_1	1	$-y_5$	$+y_2$	
y_6	5	$-2y_5$	$+y_2$	$-2y_4$
\overline{w}	15	$-5y_5$	$+y_2$	$-10y_{4}$

Initialization Using Dual (Summary)

- 1 Change problem objective to $\sum_{j=1}^{n} -x_j$
- Construct initial primal dictionary D₀
- 3 Convert to dual dictionary.
- 4 Perform optimization phase simplex on dual.
- (5) If UNBOUNDED, original primal is INFEASIBLE.
- 6 If Optimal Solution found,
 - a) Convert back to primal
 - b) Restore original objective function.